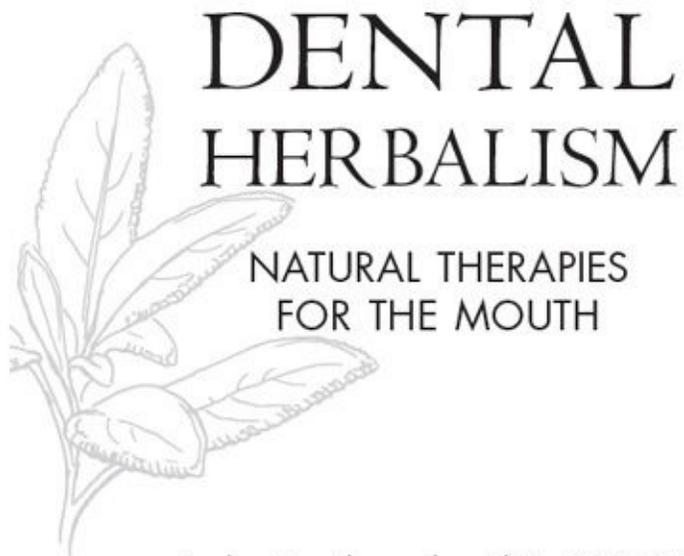


DENTAL HERBALISM

NATURAL THERAPIES
FOR THE MOUTH



Leslie M. Alexander, PhD, RH(AHG),
and Linda A. Straub-Bruce, BS Ed, RDH



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Healing Arts Press

Rochester, Vermont • Toronto, Canada

DENTAL HERBALISM

“The authors have provided an excellent overview of oral conditions and relevant discussion of anatomy through this well-thought-out text. They also further provide non-pharmaceutical methods to prevent oral disease that complement traditional, well-accepted approaches for maintaining oral health. I commend both authors and would encourage the layperson and clinicians alike to read this text.”

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LISA E. STILLMAN, RDH, BS, FOUNDER OF DENTAL VOICE FOR MENTAL HEALTH

“Written in a comprehensive style that allows for effortless integration into
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herbalism. It is thorough, drawing upon the expertise of senior practitioners
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“*Dental Herbalism* presents us with valuable insight into a topic that has
previously been allotted only a page or two in most herbals. It offers a truly
holistic perspective of dental wellness that’s sure to enrich both herbalists
and dental professionals alike.”

JIM MCDONALD, HERBALIST AND TEACHER

“The in-depth knowledge and the practical approach to herbal oral care
contained between the covers of this book will change the way you look at
and deal with your mouth and teeth.”

VATSALA SPERLING, PHD, PDHOM, RSHOM(NA), CCH

“A rich and dynamic handbook to support everyday dental care for the
layperson, it also offers intricate answers to complex questions for
practitioners.”

EMILY RUFF, HERBALIST AND DIRECTOR OF FLORIDA SCHOOL OF HOLISTIC
LIVING

*In honor of my mum, Carol Alexander, who continues to teach me about
nourishing traditions . . . and in memory of my father, Jay Alexander, with whom
I shared my first walk in a wood.*

LESLIE

*To Mason, the ray of sunshine that warms my heart. Thank you for being my
infinite light.*

LINDA (MOM)

As the authors of *Dental Herbalism: Natural Therapies for the Mouth*, we take full responsibility for the educational information we provide our readers. We are not physicians. None of the information presented here is intended to replace professional medical care or provide diagnoses. We implore our readers to utilize, integrate, and assimilate the information provided herein in ways that support their own health and well-being.

If you read no further than this claim and take away nothing else from our work, then let it be this: it is indeed time to reclaim the health of our mouths. How this is accomplished is up to each one of us; here we offer but a few suggestions.

ACKNOWLEDGMENTS

Many a person, knowingly or otherwise, has helped to shape this, our first book, and to each of you we extend our heartfelt thanks.

There have been questions, answers, discussions, rants, laughter, and help at each and every turn along the way. We have talked about extractions and distractions, food and drink, thoughts and feelings, and practical herbal choices. In particular, for their many and varied contributions to our work, we would like to thank Kim Alexander, Claudia Anders, Lois Barber, Hilary Benjamin, Mason Paul Bruce, Debb Burtnett, Michael Connett, Renee D'Amico, Tereasa Dickson, Annette Eccles, Memory Elvin-Lewis, Fatemeh Ezoddini-Ardakani, Jo Feterle, Robert Glasgow, Adam Hammerlee, Sarah Hurt, Bashka Jacobs, Julie James, Katrinka Morgan, Will Morris, Valerie Nemenz, Lori Perry, Ethan Russo, Karen Spuck, Ariana Staruck, Bill Straub, Alan Tillitson, Randall Valentine, Michelle Vitali, and David Winston.

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We thank Leslie, Bill, KP, and Richard for their time, attention, and eagerness to write forewords to *Dental Herbalism*, helping us forge more links between our respective professions.

Our efforts were emboldened by the contributions of Ashley Laufer, our illustrator, who hopes to focus her work on medical/scientific illustration (ash.illustration@hotmail.com). We are grateful for her images that help to embellish and shape our work. Of course, thanks to everyone at Inner Traditions/Healing Arts Press, most especially Laura Schlivek, Margaret Jones, Janet Jesso, Jon Graham, Kelly Bowen, and Jeanie Levitan, without whose

interest and help this work would never have reached your hands.

As we discovered the enormity of our project we were buoyed by teachers, friends, family, colleagues, and strangers who responded to our queries with a joyful willingness to share information and ideas, to celebrate our successes, and to laugh (with us) at our mistakes. Each of you enhanced our journey, and we are in your debt.

Last and certainly not least, without the plants themselves there would be no *Dental Herbalism*. We honor these allies and our teachers, past and present.

As with any work such as this one there will be errors. These are ours and no one else's. We trust that we will be able to rectify these in future endeavors; do let us know.

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FOREWORD

By M. Leslie Williams, RH(AHG), M Ed

Clinical Herbalist and Educator

This is a powerful and empowering book. It is also a practical guide. *Practical* means “real,” “grounded,” “likely to be of use and apt to work in action and in real life.” *Real* and *grounded* are key descriptors of this work, which offers clear information that any of us can put into action daily to better our health and our lives. That leads to a better quality of life, and that is a gift of power.

To guide is to show the way. This book, *Dental Herbalism: Natural Therapies for the Mouth*, with its direct tone and its variety of presentation forms, including charts and definitions and neatly organized explanations, leads the way to a newer and more comprehensive practice of herbal and integrative medicine. There is focus on health with a tone of respect for the professional clinical herbalist, the mainstream dental professional, as well as the ordinary person who earnestly wants to learn natural methods by which to care for one’s teeth every day, and who wants to understand those methods and why they work. There is no condescension here, just a simple approach that guides the reader toward useful skills and an understanding of the confluence of dentistry, oral health, and medicinal herbs. This book moves beyond the realm of using clove oil for a toothache until you can get to the dentist; it explains what you might do every day to avoid getting the toothache in the first place. Food, water, cleaning, care, repair, fears, whole-body connections—the hard science and the mind-body links are all a part of the scope of *Dental Herbalism*. This is a complex realm, and this is an excellent guide.

This book is long overdue because of its scope and depth and usefulness. Among the many old and new herbal reference books there is only occasionally a mention of an herbal first-aid remedy for a toothache; there are sometimes formulas for a tooth powder or recipes for a mouth rinse; but there is not often an explanation of the practical skills needed for taking care of yourself and your teeth and mouth. There is little information out there on foods, natural procedures, and the many commonplace herbal solutions to the multitude of

dental concerns. In short, there has been no authoritative and comprehensive herbal reference book focusing on herbs for the mouth. Now there is.

Leslie Alexander has done a monumental job of balancing her own wisdom, gained from her ongoing clinical herbal practice, as well as her training as a scientist and her collaboration with mainstream dental practitioners. With the able assistance of mainstream dental professional Linda Straub-Bruce, she has created a foundational book that is much more than the sum of its parts. It will become essential reading for herbalists beginning and advanced, for dental professionals, and for everyday folks who want to take responsibility for their own oral health.

FOREWORD

By William D. Hammerlee, DMD, FAGD

Practicing General Dentist

I first met Linda Straub-Bruce in 1989, when she was a recent graduate of the University of Pittsburgh School of Dental Medicine's Dental Hygiene Program. At the time I was a relatively new dentist with two operatories and was excited about hiring my first hygienist. I had no interviewing skills, but Linda impressed me at the time with her enthusiasm and her ability to communicate. Twenty-five years later, I am convinced that hiring Linda was the best decision I've ever made in my dental career.

Linda has done a superb job of developing the hygiene program in our office while continuing her education and staying on the cutting edge of the dental hygiene profession. She participates in many professional organizations and study groups, both locally and nationwide, and on the Internet. Over the years she has been asked by various corporations to provide her professional opinion on new oral care products, patient education materials, and new dental instrumentation design.

Linda is not only the hygienist in our office, she is also our IT person and assists in all facets of running the office. With over two decades of helping our patients achieve and maintain oral health, as well as in treating oral disease and recognizing conditions that manifest in the mouth, Linda has the practical experience needed to provide beneficial information to her readers. As part of our team, Linda has been involved in taking thorough medical histories of all of our patients and observing firsthand the oral-systemic connection and how it varies from person to person. Linda continues to amaze me with her enthusiasm for the complete well-being of our patients.

Being a fellow in the Academy of General Dentistry and working toward my master's in the academy, I have attended a significant number of continuing education courses over my thirty-year dental career. Remarkably, I have only attended one course on dentistry and plant medicine, which was interesting, but at the time I did not see the value from a practical perspective. I certainly

respected patients who came in asking for natural alternatives to the pharmaceuticals and synthetics we routinely use and recommend in dentistry, but I had too limited a knowledge base on the subject to take any steps toward implementation. It seemed like herbal interventions and holistic medicine pertaining to dentistry were limited to a small number of extremists practicing on the fringe of the profession. A couple of events changed my perspective on plant medicine.

First, in 2004, at the age of thirty-five, Linda became pregnant. Although her pregnancy was smooth at first, she began struggling with significant blood-pressure issues. She was given a recommendation to start a prescription medication but was nervous about the potential side effects on her unborn son. Linda was fortunate to have been treated by a midwife with a strong foundation in and understanding of the benefits of herbal interventions. The midwife consulted with an herbalist about Linda's situation and offered her a personalized, natural regimen of four different herbs that would help her manage her condition. This option was more attractive to Linda than taking prescription medicine. This herbal intervention kept Linda's blood pressure at an acceptable level until she developed preeclampsia (a medical condition characterized by high blood pressure and significant amounts of protein in the urine of a pregnant woman) at the end of her pregnancy. Through life's experiences, Linda had gained a new appreciation for the benefits of herbs.

Second, in 2008 an adult member of my family developed a fairly severe case of psoriasis. He read books, searched the Internet, changed his diet, used different skin-care products, saw a couple of dermatologists, and tried various medications. Nothing seemed to help. His condition worsened to the point that his last resort was to take an extremely powerful pharmaceutical with severe side effects, which only provided a temporary fix. We were all very concerned. Linda approached me and asked if we would consider trying an herbal intervention, recalling how successful her own experience during her pregnancy had been. We were ready to try anything at that point and hoped a consultation with an herbalist would give some direction. Linda found the American Herbalists Guild website, and amazingly, there was a professional member of the AHG only an hour away. Her name was Leslie Alexander.

In 2010 we called Leslie and made an appointment with her. Leslie had experience helping people with psoriasis and gave us hope that together we could improve my family member's condition without resorting to the pharmaceutical he wanted to avoid. Her approach was unique. She worked with

him for several hours over the course of a few appointments. Leslie looked at him as a whole person—mind, body, and spirit. He made a food journal upon her recommendation, and they talked in great detail about how his stress was manifesting in his skin. She gave suggestions specific to him, including vitamins, minerals, and herbs. Leslie didn't just give him a pill. Incredibly, over the course of several months, his psoriasis improved greatly. The skin disease that was so difficult to live with was under control. He knows that he will have to deal with psoriasis for the rest of his life, but now he has the tools to manage any future flare-ups.

Having gained the utmost respect for Leslie and her approach to health issues, I too have consulted with her about my stresses and my desire to maintain my health and well-being. Needless to say, I have the greatest regard and gratitude for her after witnessing her genuine concern and expertise in helping a family member of mine. I spent time at her office and saw the various herbs there. I walked the gardens where she grows her own herbs, and her extensive knowledge of plant medicine amazed me. Knowing that the mouth is the entrance to the body, she also spoke about her desire to assist her clients with oral disease and discomfort as well as to help them achieve well-being. She has an obvious desire to learn more about the complexities of the mouth and oral disease in order to understand its role in caring for her clients.

Leslie has a remarkable interest in dentistry and asked me if I was interested in creating a resource for herbs for the mouth. I told her I was not able to at the time, but that I knew someone who *would* be interested in doing so. I then asked Linda if it was something she would like to do, and she was excited at the opportunity. Linda had experienced the benefits of herbal intervention for herself and her son during her pregnancy, saw the benefits with my family member, and recognized the potential benefits of providing integrated care incorporating herbs with modern dental science. She realized that there was not a lot of in-depth information available on the subject and was excited to work with Leslie on this project. This is the genesis of *Dental Herbalism: Natural Therapies for the Mouth*.

I am so proud of Leslie and Linda for writing a much-needed book, bringing together two respected disciplines. Indeed, herbal medicine has been around as long as humans have. On the one hand, I believe that the dental profession can benefit greatly by understanding how herbs can be integrated practically into prevention and intervention therapies for the mouth; for those patients who desire a natural alternative, this practical guide will be a phenomenal help. On

the other hand, I believe that this book will greatly assist herbalists in understanding the mouth, oral conditions, and their effects on the person as a whole. Readers will learn which herbs will help which condition and how to prepare those herbs. In short, it is a wonderfully practical addition to our body of knowledge.

FOREWORD

By K. P. Singh Khalsa, RH(AHG), DN-C

President of the American Herbalists Guild and author of *The Way of Ayurvedic Herbs*

I have been a practicing natural-healing specialist, with a specialty in herbal medicine, for forty years. Over those four decades I have seen, up close and personal, the connection between dental health and overall health. Healthy people have a healthy mouth, and clearing up chronic dental problems contributes to the healing processes in the whole body. I've been fortunate enough to see numerous cases that were declared "untreatable" by dentists that resolved very nicely when handled with natural treatments, the likes of which are in this excellent book on oral health.

As I see it, your mouth is a pretty special place. It talks. It kisses. It eats pizza. Maybe most important, though, it is home to your teeth, tongue, and gums.

We spend some serious money and we devote some quality time to attending to our mouth and its inhabitants. According to dentists, gum disease, a chronic low-grade bacterial infection of the gums, bone, and ligaments, is America's number-one oral-health issue, yet most patients probably don't think about it unless they're diagnosed with it, as it's possible to have serious gum disease and not even know it.

Wouldn't it be great to have a healthy mouth and a full, strong set of teeth for a lifetime? It turns out you can. What if we had a toolbox full of effective tools to prevent tooth decay, gum disease, and assorted mouth problems? That's where natural medicine comes in. For example, herbal treatments for gum disease involve irrigating or rinsing the gums with antibacterial liquids such as diluted goldenseal or myrrh tincture. The gums are connective tissue, so herbs that support the healing and development of connective tissue will always benefit the gums.

Your teeth are designed to last a lifetime, but you'll have to take care of them if you want to die with them. Unfortunately, an increasing number of Americans

are wearing dentures. The way to make sure you buck that trend and keep your teeth for the long haul is to use herbs, and use them in a consistent, serious, informed way, like people the world over do and have done for thousands of years.

Your dental health has a deep relationship with your overall health. If you're generally overstressed and unhealthy, your immune system will be compromised, and oral bacterial damage will intensify. If your mouth is unwholesome, your oral disease will lower your overall disease resistance. Although this way of thinking is nothing new to holistic health aficionados, recent scientific research confirms that gum disease contributes to a number of conditions, including heart disease, stroke, diabetes, premature birth, and pneumonia.

That brings us to brushing and flossing. Probably we should all be doing it much more often than we are, but what could be more boring or inconvenient? Let's face it—we don't all care for this important area of our health as well as we could. The disturbing duo of dental caries and periodontal disease creates a chronic oral disorder that's expensive and painful, and eventually leads to tooth loss. According to current statistics, more than half of our population has observable gum disease.

Mainstream dentistry has evolved dramatically over the last few years and is now more likely to emphasize the biochemical over the mechanical. The old construction paradigm—building bridges and crowns, filling holes—is giving way to the realm of biology. Often eschewing “drill and fill,” a modern dentist might help a patient avoid losing teeth in the first place. Oral health care experts know a lot more about the bacteria that live in the mouth than we did even a few years ago, and it seems likely that natural remedies, including herbs known to kill bacteria and heal tissue, should be helpful in preventing oral disease.

On the heels of this new orientation to oral health comes the modern renaissance of herbal medicine. While herbal medicine is certainly not new, the phenomenon of Americans taking herbs is. While the rest of the world has been protecting their teeth with daily doses of anti-inflammatory, tissue-healing, and immune-strengthening herbs for countless generations, we have been investing in the “find a bug, choose a drug” method of health care. Now that herbalism has permeated our society in recent years, we are ready to use nature's herbal gifts to create a strong, healthy mouth and a resilient set of teeth.

We just needed a road map. And now we have it.

Leslie M. Alexander and Linda A. Straub-Bruce have created a veritable owner's manual for your mouth. Hate going to the dentist every year for that dismal report and more drill and fill? The authors give you a step-by-step guide to a glowing dental exam. Expecting to end up with dentures like your parents? Not so fast—take a stroll through this book and realize your dream of keeping your choppers for a lifetime. I know this book will have a permanent place in my herbal library.

I have known Leslie Alexander as a colleague for several years. She is a registered herbalist (RH) with the American Herbalists Guild, of which I am president. That credential is impressive enough, but I also know Dr. Alexander to be a passionate advocate of herbalism and a champion of natural oral care.

You will start your natural oral care education with an overview of what your mouth does and doesn't do, including the basics of mouth anatomy that you might have forgotten from that high school physiology course. Moving on, the authors guide you through a valuable treatise on dealing with your dentist and maintaining oral health at any age. As you journey through this book, you will find techniques you can use to improve your dental health immediately.

One of the most valuable sections of this book is a set of detailed descriptions of conditions that affect the mouth, from canker sores to tooth grinding, including practical advice for each one. You can use this section for yourself and your family for many years, and I think you will be very happy with the results.

As an herbalist, I especially appreciate the section that describes forty-one herbs, each in detail, and gives you practical information on using these herbs effectively. In truth, this section is an herbal mini-encyclopedia, with details that will help you treat far more than just mouth ailments in yourself and in family members. For example, turmeric is my favorite herb. For forty years I have used it as a centerpiece of my programs to heal teeth and gums with herbs, so I was gratified to see it included in this section. Plus, it's easy to find—and cheap. The authors recommend it in a gum poultice, a regimen with which I heartily agree.

In a later section, the authors present some very necessary instructions on dose and preparations, for which I commend them, as this is the least understood area of herbalism for the general public. So much misinformation is floating around inferring that the chance of getting great results with herbs is a real long shot for the average family, even though using herbs should be simple and straightforward. After all, people all over Planet Earth have been using them for millennia and have worked out getting herbs into themselves in ways that can

produce remarkable results. Here, the authors tell you the real story. If you use the doses and methods they suggest, you will almost certainly receive benefits far beyond your expectations.

In the closing chapters you get even more pithy information you can use for a healthy life. The final sections tie together the role of oral health in various disorders and serve up a catalog of valuable and convenient resources so you can start on your oral-health journey the day you begin to read your copy of *Dental Herbalism*.

This is an important book. In America we lag far behind many parts of the world in dental health, especially in the area of how to create and keep healthy teeth naturally. I'd like you to read this book right away, begin applying what you read, and discuss your progress with your dentist. Then I'd like you to keep this book on your shelf and refer to it often. I know that's where my copy will be.

FOREWORD

By Richard Mandelbaum, RH(AHG)

Clinical Herbalist

Fourteen years into the twenty-first century, herbal medicine in the United States is in a position of increasing strength. More scientific research is being published that validates the therapeutic value of herbs, both in the United States and even more so elsewhere. Increasingly, qualified herbalists who collaborate with conventional physicians and other practitioners are becoming available to the general public. And most importantly, this revival of herbal medicine has grown thus far without losing the recognition of the importance and validity of tradition as our foundation in the modern use of herbal remedies. The dormant seed has germinated, and the seedling is now in the process of maturing so that it can fully flower and bear fruit. As part of this flourishing we are beginning to identify and fill in the gaps in our knowledge base. With the publication of *Dental Herbalism: Natural Therapies for the Mouth*, Leslie Alexander and Linda Straub-Bruce have made a much-needed contribution to the field of natural healing.

According to the Kaiser Commission on Medicaid and the Uninsured (June 2012), about one in four children in the United States has untreated tooth decay, with the rate even higher for those who are from low-income families or who are people of color. And for every adult lacking health insurance, approximately three lack dental coverage, again the most affected being minorities and those from low-income families. This is first and foremost an injustice, which the authors rightly point out. But as they also point out, this is a reflection of not only the deprioritization of oral health, but the senseless decoupling of oral health from health in general.

At the risk of belaboring the analogy made earlier, this maturing “seedling” of herbal medicine is still vulnerable; herbal medicine faces many of the same risks as other emerging paradigms that challenge the status quo. Those include external risks such as potential regulatory and legal affronts to our freedom to choose. But the most troubling may be the internal risks; i.e., what we bring on

ourselves, intentionally or not, in the quest to be more readily accepted by the mainstream. As Leslie pointed out to me more than once, she has found that herbalists, by and large, ignore the mouth.

As we interact more regularly with conventional medical practice, herbalists and the herbal community must take care not to mindlessly mimic the reductionism found in mainstream approaches to health. By prodding us to pay more attention to oral health and to place it firmly within the context of health in general, making explicit the well-established linkages to other health concerns, the authors do us a great service. As a result, I have already begun to pay more attention to oral health in the work I do, and this will be further strengthened by having *Dental Herbalism* as a resource I can turn to.

INTRODUCTION

Welcome to *Dental Herbalism: Natural Therapies for the Mouth*.

Although we have walked the earth for 200,000 years, herbs for the mouth were here before our even taking a first step. We have lived among them, eaten some, and relied on many as medicine.

Our use of plant medicine spans thousands of years. Compared with our time on the earth and our reliance on herbs throughout millennia, modern dentistry and the modern pharmaceutical industry are in their infancy. Yet since the birth of these contemporary practices, a chasm has been developing, and many have turned away from natural therapies in favor of synthetic medicines. However, the tide is now turning. More and more of us want to seek pure, natural alternatives. Some of us are ready to wholeheartedly embrace a more holistic way of living; others want to move surely toward incorporating herbs and other natural approaches into disease prevention and well-being.

Where do we start? What do we do? How do we do it? These are questions we all ask when we explore anything new. *Dental Herbalism* has been written with these questions in mind. We present tried-and-true herbal interventions alongside educational information to shed light on the care of the mouth. Our emphasis throughout is safety, practical relief, prevention, and intervention. We marry decades of herbal experience with decades of dental practice to present a book like no other. *Dental Herbalism: Natural Therapies for the Mouth* provides the foundation necessary to understanding the oral environment, what constitutes a healthy mouth—and what doesn't. With this clearer understanding, it is more likely that we can choose effective interventions for our families, friends, clients, and ourselves. We discuss herbs, food, and tools to obtain and maintain oral health and general well-being in a practical, natural fashion.

Our hope is that our audience will include people ready to consider adopting a more natural approach to the care of their mouths and those who wish to claim or reclaim their oral health. We are also writing for dental practitioners and dental students hoping to help them expand their understanding of the use of medicinal herbs. Finally, we hope that herbalists and herb students who are likely to have a sound understanding of herbs but a weaker grasp of the mouth, its conditions, and possible interventions, will find merit in our text.

If you are a dental professional, you will get to know the benefits of herbs and how they can be practically applied within a practice to help patients. In this way you may be on the cutting edge as you encourage others in your profession to consider the value of becoming familiar with the age-old practice of herbalism. Additionally, as natural interventions are gaining in popularity, it is important not only to understand what patients report but to be cognizant of which questions to ask prior to embarking on a particular treatment regimen.

You're an herbalist? We offer a clear, sturdy introduction to the mouth and a foundational suite of medical materials dedicated to the use of herbs for the mouth. These can be used to enhance interventions, provide practical relief, and inform protocols designed to address whole-body wellness. While a holistic approach to wellness will not be new to many herbalists, our focus on the oral-systemic connection will likely inform one's practice.

We would like each of our readers to find a plethora of techniques, recipes, and tips just waiting to be discovered. Our practical approach to herbal interventions is suitable for both the clinic and the home. We would like our readers to use this guide as a springboard to further explore and understand issues as they relate to the mouth in order to begin working with natural herbal interventions, and to come to their own conclusions.

In writing for multiple audiences, we ask your indulgence, as we want each of our readers to feel comfortable with the text. Although we have attempted to introduce concepts and terminology in bite-sized morsels, be they dental or herbal, an expanded glossary is included, which we trust will meet the needs of our varied readership.

A NOTE ON REFERENCES AND SOURCES

Our book is intended for a general audience, and while this is not an academic text, information presented has been obtained from multiple sources, including academic papers and presentations, popular media, scientists, authors, and health care practitioners. It has been our goal to synthesize all of this information and present it in a digestible format. In most cases direct references to sources are not provided within the text. However, a list of the references we consulted is provided at the end of each chapter for those who wish to read further. In some places throughout our book—where we quote directly from a source or present very specific research findings—we cite the specific source with the author's name and the date of publication in parentheses. Full bibliographic information for these in-text parenthetical references can be found in the reference list at the end of each chapter.

Dental Herbalism: Natural Therapies for the Mouth represents a very exciting

venture for us. We have combined, in a practical way, two distinct disciplines, dentistry and herbalism. This is our attempt to underline the importance of truly integrated care that addresses multiple audiences. In the United States alone, roughly one in every four persons over the age of sixty-five has no teeth. We want to help change this statistic. We would like to grow old *with* our teeth, and we trust you would, too.

Our focus is on natural remedies, all-natural herbs and spices, gathered and prepared both fresh and dry. We call these natural resources *medicinal herbs* because they promote health and well-being.

For century upon century we have relied on botanicals such as peppermint, thyme, propolis, cinnamon, and myrrh when it comes to freshening the breath and moderating inflammation in the mouth. Indeed, these herbs continue to stand the test of time, and are still used in commercial oral care products. We hope to provide insights, tips, and curiosities, such as the tooth illustrated by [plate 1](#) in the color insert. According to Federico Bernardini, with the Abdus Salam International Centre for Theoretical Physics in Trieste, Italy, the decay, or cavity, in this tooth was filled with beeswax some 6,500 years ago. This beeswax filling appears to provide the “earliest known direct evidence of therapeutic-palliative dental filling” (Bernardini *et al.* 2012).

We recognize that over the centuries we have become increasingly removed from our plant allies, so much so that news of their efficacy to support and maintain our health, including our mouths, comes as a surprise to some. *Dental Herbalism: Natural Therapies for the Mouth* brings us back to these roots.

Restoring and maintaining the health of the mouth is critical to our overall quest for well-being. Oral health rests on more than just knowing which remedy to pick off the shelf, whether it’s herbal, homeopathic, or otherwise. We must understand enough about the mouth to initiate an intervention. This is where we begin.

Part 1 of this book introduces us to the mouth and its care, focusing on *who*, *what*, *when*, *where*, and *why*. Here we lay a foundation.

In chapter 1 we establish the mouth in the context of our whole selves as we outline how inflammation, including inflammation in the mouth, might affect our overall health. We introduce the idea that chronic inflammation is no friend to the mouth and certainly should not be overlooked. We introduce the idea that the health of the mouth and the health of the whole person are not separate. According to Weston Price (1870–1948), a pioneering American dentist who

advanced theories on the relationship between nutrition, dental health, and physical health:

It is very important that in the consideration of the dental caries problem it shall be kept in mind continually that it is only one of a large group of symptoms of modern physical degeneration, and Introduction when teeth are decaying other things are going wrong in the body. (Price 2011)

In chapter 2 we take a tour of the mouth, from incisor to uvula, from front to back. We blend anatomy with a few functional tidbits. We conclude our discussion outside the mouth, addressing maxillary sinuses as they are sometimes associated with, or mistaken for, discomfort within the oral cavity.

Chapter 3 focuses on the care of the mouth. Here we lay the groundwork for sound natural care, giving due attention to topics such as how to brush, how to floss, and how to clean the tongue. We also include suggestions for herbal mouthwashes, rinses, and powders for daily care.

Chapter 4 contains a discussion of some of the important tools we need to monitor oral health. Keen to not abdicate the care of our mouths, we suggest ways to initiate and maintain record keeping for oneself and family members. Ever wonder how many teeth we should have as children? As adults? How many are missing or filled? Which ones, and why? We also provide a symptom checklist to help monitor changes periodically.

Chapter 5 is all about working with health care professionals, in particular our herbalist and those who make up our dental team. Who is our hygienist, and what is his or her role in the care of our mouth? For those of us who are unsettled or frightened about arranging a consultation with a dental or herbal professional, chapter 5 walks us through everything from the difference between a DDS, an RDH, and an RH(AHG), and prepares us for those we might encounter along the way, including office support staff.

Part 2 of this book addresses the most common everyday issues for the young and the old, interspersing herbal interventions to provide relief, along with a growing understanding of the mouth.

Beginning with chapter 6, we take the reader from tooth development during pregnancy to teething and toddlers. Ever wonder how children's dentition differs from that of adults? What herbs might help with teething and the associated physical and emotional discomfort? How to care for the gums, or why some

teeth might be discolored at an early age? We discuss a not uncommon condition called “baby-bottle decay”—its prevention, and how to lay a foundation for a healthy mouth in years to come.

Chapter 7 is all about tooth decay: why and how it happens, and what can be done to prevent it. We look at the critical roles played by saliva and pH. Finally, we discuss the practical use of herbs to provide relief from discomfort.

We take a long look at gum disease in chapter 8. We explore how to recognize this inflammatory condition and which herbs can be most helpful in addressing it. Why a long look? Because gum disease is reaching epidemic proportions in the United States. Recent estimates suggest that 64.7 million U.S. adults 30 years of age and older have this type of chronic inflammation. We believe gum disease is avoidable by adopting a healthy daily-care regimen, including nourishing food choices, moderate activity, rest, and hydration. To gain an appreciation of the magnitude of this issue we compared numbers to population statistics: 64.7 million people represent more than the entire populations of the states of New York and California combined. Or to put it another way: 47 percent of the *entire* adult U.S. population has been diagnosed with some form of gum disease.

What to do when teeth are loose or missing is the subject of chapter 9. Maybe a single tooth needs to be extracted, or we’ve been offered an implant (what’s that?); perhaps it’s time for a partial, a denture, or indeed a set of uppers or lowers, or both. We take a closer look at the changes that come with orthodontia. From traditional braces to moving teeth with clear aligners, it’s all here, from care of prostheses (dentures, partials, and orthodontic appliances), to the care of their neighbors, the gums, and how to avoid inflammation.

Chapter 10 is all about the most common conditions, diagnoses, and miscellany that present in the mouth. We cover forty-nine different conditions and about thirty symptoms that commonly affect the mouth, and we present information in both table form and text. The tables help with the identification of symptoms and conditions. These can then be compared with more detailed profiles presented for each of the conditions listed. Our attention to detail and the user-friendly tables are intended to provide practical pathways leading to relief. In conjunction with chapters 11 and 12 in the next part of the book, the information presented here will help in choosing suitable interventions, herbal and otherwise. We provide a list of the most commonly reported symptoms and a measure of their duration; identify systemic and localized conditions and the possible presence of a microbial component (in the mouth); and a range of

interventions, such as the most commonly used pharmaceuticals as well as practical dental strategies. Refocusing on symptoms of the mouth, we begin here by establishing the basics for choosing the practical herbal strategies discussed in chapters 11 and 12.

Part 3 is all about herbs.

Beginning with chapter 11, we describe herbs, their sources, and many of their properties. Traditionally, herbalists call these entries our *materia medica*—our medical materials. In addition to the parameters we have come to expect as part of each *materia medica* entry, we include descriptions of antimicrobial activity, culinary use, and suggested herbal pairings for each entry.

We profile each of the forty-one herbs included in this compendium, beginning with its common name(s) and its Latin, or botanical, name, underscoring the importance of ensuring a positive identification. We place each herb in its family and look at which parts are used medicinally (actions); indications of use; contraindications, cautions, and concerns; and lastly, preparation. In addition, the resource guide in appendix 2, which lists herbal suppliers, the information in appendix 3 on growing herbs at home, and the glossary will be of use to many. Our intent in restricting the number of medicinals presented is to encourage safety as well as familiarity with a manageable array of plant allies. In this way the reader can proceed from a sound foundation and continue to explore herbs.

In chapter 12 we detail the “hows”: how to make teas, oils, tinctures, and poultices. We provide recipes and cover the preparation of simples (i.e., individual herbs) and blends, presenting information in an easily searchable format, by symptom and condition. Appendix 4 will be of help when converting weights and measures, as throughout our text we use both metric and customary units. Why metric measurements as well as customary measures? Check out appendix 4 and discover just how much commonly used kitchen measures vary between the United States and other countries.

Part 4 of *Dental Herbalism* is devoted to more general issues.

Food and drink are covered in chapter 13. Each is of great importance, as each affects the health of our mouths and our health in general. We talk about healthy choices, natural ways to brighten the teeth, and, of course, sugar—how it can be hidden in our food, what to look for, where to find it, and why it matters.

Given the links between oral health and a host of systemic conditions, we

believe that it is important to consider the health of the mouth when working with clients, ourselves, family members, and friends. Chapter 14 gives us practical tools to do just that. We explore how a practitioner's client intake can be expanded to include the mouth, which observations to note, and useful questions to pose to clients.

Many contemporary issues can give rise to emotive discussions about health. In chapter 15 we give our personal opinions on eighteen different issues that affect health in general and oral health in particular. From fluoride and amalgam, to real food and pesticide use, we present an often unified voice. In our writing this chapter we met with some disagreement and worked hard to find mutually acceptable points of view. Here we offer our sometimes divergent opinions and resources for our reader to explore each issue further. Most importantly, perhaps, this chapter takes its place among others and underscores our commitment to the reader that each health-related herbal and nonherbal decision is a personal choice.

Our concluding remarks are just that: an attempt to bring our work to a close. Like any endeavor, ours has its strengths and its weaknesses. We hope our readers will come away with an appreciation of the former and help us, with comments, to correct the latter.

Cultivating wellness is an ongoing activity that incorporates the idea of wholeness. If we harm a part, we do damage to the whole. While few, if any, of us are intent on doing harm to our mouths, our reluctance to care for the mouth affects the entire body.

It is important that we no longer surrender the health of our mouths to others. We hope our work will help demystify the mouth and support each of us on the path of safe, effective oral care that incorporates the use of medicinal herbs. Here we offer a natural approach as we bridge a gap between the field of dentistry and herbalism. We encourage every one of our readers to do the same.

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PART I

The Lay of the Land *Though I do not believe that a plant will spring up where no seed has been, I have great faith in a seed. Convince me that you have a seed there, and I am prepared to expect wonders.*

HENRY DAVID THOREAU

Here we start with the basics. We answer such questions as “Why is the mouth important?” “How do I find my way around the oral cavity?” “How can I care for my mouth or even recognize changes?” and “Who can help me, dental professionals or herbalists?” We believe that understanding “the lay of the land” in this way will support the choice of timely interventions, help to allay any fears, and, practically speaking, take us closer to getting to know the mouth.

1

IT ALL BEGINS IN THE MOUTH

As health care interventions multiply, there remain certain unchanging fundamentals: eating food (naturally), drinking water (often), moving our bodies (freely), and breathing clean air (easily). Good oral hygiene is seen as a pillar of overall health and wellbeing.

- ✦ Too much *fast food* and not enough *real food* leads to fatigue and deficits—physical, mental, emotional, and spiritual. The repercussions may begin in the mouth with signs of decay, but it would be shortsighted to think that they end in the mouth.
- ✦ Imbibing a rainbow of sugary beverages is likely to dehydrate rather than hydrate the body's tissues. We need pure, natural water to support digestion and elimination and to support wellbeing.
- ✦ Rest is imperative, but stasis cannot endure. For centuries we have been urged to move, to dance, to walk, and to run. Activity enhances circulation and benefits the tissues; yes, even in the mouth.
- ✦ Oxygen is a vital element. Its absence causes oxygen starvation. A healthy mouth needs oxygen.

These age-old pillars hold our teeth firmly in place. When our teeth decay, loosen in the gums, or simply rot and fall out, we are seeing signs of disease and inflammation. When our gums are sensitive, are swollen, or bleed, they are showing signs of inflammation. Often inflammation in the mouth is indicative of inflammation elsewhere in the body.

INFLAMMATION

Acute, circumscribed inflammation can be a normal biological response to potentially harmful stimuli. It can help to safeguard vulnerability, just as, for example, swelling (inflammation) can meaningfully protect an injured site anywhere in the body to promote its healing. Under most circumstances an intact

systemic inflammatory response increases the likelihood of a successful outcome following acute injury or infection. The key is to determine the cause of inflammation and eliminate, or at the very least alleviate, the source.

Often we are able to identify acute inflammation by any of its classic symptoms: pain, heat, redness, swelling, and/or loss of function. It's easy to imagine any one or all of these characteristics occurring in the body. In the mouth, inflammation can manifest in one or more of these observable symptoms, but it can also be asymptomatic, symptomless. Furthermore, not all inflammation is localized, acute, and short-lived; it can extend over time, for days, months, or even years, and become chronic and systemic. And so the mouth can indeed be a source of chronic, systemic inflammation, with far-reaching consequences for one's overall health.

We are learning with each new shred of evidence that when inflammation presents in the mouth—which we refer to by names such as cavities, decay, gum disease, periodontal disease or periodontitis, or other diagnoses—there may be inflammation elsewhere. Or if there isn't already, there will be if we do not attend to the health of the mouth.

As noted by Bruce Bistrian, chief of clinical nutrition at Beth Israel Deaconess Medical Center and professor of medicine at Harvard Medical School,

Therapies to down-regulate the systemic inflammatory response by targeting the source of inflammation may dramatically improve patient outcome in chronic inflammatory states and some acute inflammatory conditions. (Bistrian 2007)

MEASURES OF INFLAMMATION

Let's look at two of the most common. First, many recognize the presence of a protein in the blood called *C-reactive protein*, or CRP, as a measure of inflammation. While CRP levels can be affected by genetic differences, inflammation in the mouth is known to give rise to elevated CRP levels in the blood. As blood circulates throughout the body, the sources of oral inflammation are carried throughout.

It is accepted that there is a flow of fluid within each tooth that nourishes dentin and enamel (see a detailed discussion in chapter 2). Blood, mixed with the oxygen it carries, nourishes the teeth, entering each tooth through its root, then dispersing outward through tiny tubules to feed each tooth. This provides a

continuous exchange of nutrients between each tooth and the rest of the body. We might even say that in the broadest sense our whole being is connected to every single tooth.

Monitoring CRP levels has limited practical appeal. We cannot go home, sit down at the kitchen table and do it, or open the medicine cabinet and whip out a CRP barometer. We can, however, learn to measure stress.

Stress *is* inflammation. The body does not differentiate between inflammation of an emotional or spiritual kind and a physical cause. Our body responds to stress, whether it's from poor oral health, an infected tooth, or an infected attitude. Stress can take many forms. For example, fatigue and exhaustion are forms of stress; trauma, accident, or injury are stressors; so too are fear, depression, anxiety, and extremes of elation, grief, and mourning. So stress itself inflames. Knowing this is useful. While it is difficult to directly monitor CRP levels, we can begin to understand and moderate stress; this *is* something we can do while sitting at the kitchen table.

So, no CRP barometer at home? Ask yourself, *What can I do to reduce my stress level?*

Identifying stressors and slowly working to eliminate them when we are able to helps us support general health and the health of our immune systems. It often seems that over the short term stress is manageable, tolerable. But stress can be cumulative. A twinge from food stuck in the mouth is a passing discomfort, but a stressor nonetheless; a sustained tenderness or sensitivity in the mouth draws our attention again and again. Chronic stress, be it physical, mental, emotional, or spiritual, takes its toll, as the body is not designed to parry chronic inflammation.

We cannot separate the mind and the body. When we are happy, we can measure the bodily changes that result. Too, our reactions extend to the mouth. Stress measured in the mouth can interrupt function.

DIGESTIVE HEALTH

Just as too many weeds will choke many a plant and too much rust will impede the smooth movement of a bicycle chain, similarly inflammation can disrupt digestion. We have been taught that the digestive system plays an important role in our ability to utilize the nutrients in our food. But let's stop and consider: everything we eat and drink contains microorganisms—bacteria, viruses, even fungi. Our exposure to these organisms helps each of us build a robust immune

system. Yet as food and drink enter the digestive system, microorganisms challenge our immune system too. We now recognize that a healthy digestive system enhances immune function, and much of the immune system resides in the digestive tract, between the mouth and the rectum. Yes, it all begins in the mouth.

“Chew your drink and drink your food,” suggested Mahatma Gandhi. Chewing food thoroughly allows saliva to coat each morsel. This initiates the digestive process and begins the extraction of nutrients. Straightforwardly, the more we chew, the more efficient the digestive process. When we chew insufficiently we limit the body’s ability to extract nutrients. We also provide a breeding ground for inflammation, as bulk accumulating in the colon limits contact with digestive enzymes and can promote colonization by microorganisms. As well, chewing thoroughly can help ease symptoms of flatulence (gas), bloating, constipation, stomachache, cramps, and even diarrhea.

As soon as food and drink enter the mouth, the action of saliva can be detected. So begins the digestion of carbohydrates (starches) and fats, with enzymes contained in saliva—namely, amylase (also called *ptyalin*) and lipase (also called *lingual lipase*)—excreted by the salivary glands (see chapter 2). Herbs, foods, drink, pharmaceuticals, emotions, illness, disease, and stress all mediate one’s saliva levels. Sometimes even fear can leave us with a dry mouth.

Sufficient saliva production helps sustain the internal environment of the mouth in many ways, not the least of which is moderating a balanced microbial population. Saliva also helps moderate inflammation and infection. Indeed, chronic inflammation of the mouth can drain immune reserves and may set up a chain of responses whose roots are in the mouth.

THE MOUTH, DISEASE, AND ILLNESS

These are not simple, straightforward relationships. While rates of decay are now considered to have reached epidemic proportions among young people in the United States, it is possible, with attention and care, to avoid teeth becoming decayed, filled, or even pulled. In fact, some of us are prone, through birthright, accident, or fate, to have healthier mouths than others.

Even more alarming is the growing epidemic of gum disease among American adults. Chronically poor oral health and periodontitis, gum disease, has been linked with numerous systemic inflammatory diseases (see chapter 14). We

needn't think that the link between oral health and a range of systemic inflammatory conditions is new. Historically, perhaps the most famous is scurvy. But it was more than 100 years after Scottish physician James Lind (1716–1794) published *A Treatise of the Scurvy*, detailing the beneficial effects of vitamin C in avoiding the disease, when Willoughby D. Miller (1853–1907), an American dentist, published his seminal work “The Mouth as a Focus of Infection.” Yet between the end of the nineteenth century and today, notions surrounding oral health have shifted; only relatively recently have we begun to reconsider systemic associations.

A growing body of information links the health of the mouth with conditions such as types 1 and 2 diabetes, cardiovascular disease, bacterial endocarditis, stroke, metabolic syndrome, osteoporosis, kidney disease, respiratory disease, rheumatoid arthritis, pancreatic cancer, and neurodegenerative disease (e.g., Alzheimer's). Fundamentally, these diagnoses share a common thread; namely, each is a measure of inflammation in one part of the body or another. As noted by periodontist Joseph E. Phillips,

There is no question that periodontal disease can have a bearing on your general health. For example, if you have gum problems, you will produce a bacteremia (bacteria in the blood stream) every time you chew. This can increase the chances for heart disease, focal infections, arthritis and many other diseases. Your chewing ability or disability can cause many intestinal problems. In fact, there is good reason to believe that if your mouth is healthy and functions well, your complete immune system is strengthened. I've had many people tell me that once they learned proper mouth care, many of these so-called problems decreased or were eliminated. (Phillips 2013)

Today we continue to debate causative vs. associative relationships of oral inflammation. Although mechanisms are not yet fully understood, we know that chronic inflammation in the mouth weakens the immune system. This can and does have systemic implications. Undoubtedly, it is possible to inhale into our lungs debris and microorganisms that reside in the mouth. Known as *pulmonary aspiration*, this is one mechanism we understand as being a means of dispersing inflammation in the body. Additionally, bacteria can make their way into the bloodstream and travel to all parts of the body each time we bleed in the mouth. Known as *bacteremia*, this action provides yet another dispensing mechanism.

AN HERBAL NICHE

Plant medicine, or *botanical medicine* as it is sometimes called, is the oldest form of medicine on our planet. At a 2012 World Health Organization meeting it was suggested that approximately one-fifth of the world's population relies on traditional medicines. It has been further suggested that about 80 percent of people around the globe incorporate herbal medicines as part of their primary health care.

Herbs find their way into this mix of health and wellness through centuries of tradition. As Barbara Griggs, journalist and researcher in the field of herbalism and the author of *Green Pharmacy* and *The Green Witch Herbal*, says, “Herbal medicine is as old and as universal as man himself” (Griggs 1997). Herbal interventions have survived the test of time because they have been found to be effective—systemically, topically, and of course, in the mouth.

This is not to say that pharmaceuticals have no place in our lives. Indeed, they do. Yet it is reasonable to investigate the healing effects of changing one's lifestyle; eating healthy, nutritious food; and using medicinal herbs before resorting to pharmaceuticals. Limiting the use of pharmaceuticals could have far-reaching benefits, as overuse has been associated with countless complications, the overuse of antibiotics perhaps the most notable. Increasingly it is being recognized that the casual and frequent use of synthetic antibiotics leaves us open to infection. James A. Duke, former chief of the Medicinal Plant Resources Laboratory with the U.S. Department of Agriculture and the author of many books, including the best-selling *The Green Pharmacy Herbal Handbook*, says,

We lose the synergy when we take out the solitary compound. We facilitate the enemy, the germ, in its ability to outwit the mono-chemical medicine . . . The polychemical synergistic mix, concentrating the powers already evolved in medicinal plants, may be our best hope for confronting drug-resistant bacteria. (Duke 2012)

Once we believed that the mouth was a discrete entity with teeth and tongue, and that its care was the province of professionals. Now we know that cultivating wellness is an ongoing process, one that incorporates the idea of wholeness: if we harm a part, we damage the whole. Oral health is an integral part of our total health. While few if any of us intend on doing harm to our mouths, our reluctance to take personal responsibility for our oral health can lead

to systemic repercussions.

Good oral hygiene not only helps us maintain a healthy appearance, it more importantly enables us to work toward our overall wellbeing. Oral health can be achieved and sustained by adopting a safe, effective herbal protocol, in which herbs are used daily, both topically and internally, to affect systemic health. Indeed, if we are to embrace the notion of integrated care, this is a fine place to start.

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2

THE MOUTH AND WHAT'S INSIDE IT

Taking time to become acquainted with the mouth and the language used to describe it helps demystify this part of our body. Familiarity with the mouth also helps us better understand professionals who sometimes rely heavily on technical jargon. But perhaps of greatest importance, our having a clearer understanding of the mouth can help us choose appropriate interventions, herbal and otherwise.

Some of us can be a little unnerved, even frightened, of conditions of the mouth, of dentists and dental procedures. Simply having more knowledge can help to keep anxiety and fear in perspective. Okay, maybe *sometimes* . . . but then, as discussed in chapter 12, herbs can help us in many ways, including reducing discomfort and allaying anxiety. The mouth is the entrance to the body. It broadcasts our feelings without saying a word, with a smile, a smirk, or a frown. With our mouths we communicate through speech and song and exclaim in delight or dismay. Our mouths are workhorses, too, as this is where digestion and assimilation of food and fluids begins. As well, the mouth serves as a contingency for air intake and, in its crudest sense, it shelters the important “tools” for eating and communicating, such as the tongue and teeth.

A look into the mouth can be aided by a handheld dental mirror and a flashlight while looking into a well-lit external mirror. Before exploring, it might also be a good idea to rinse the mouth with water.

Peppermint, rosemary, fennel, and anise are four herbs that, when steeped to make a cup of herbal tea, are excellent breath fresheners. They can be infused separately or blended together. If planning to explore the inside of the mouth, why not begin by enjoying a cup of breath-freshening tea. Directions on how to make an herbal tea, or indeed anything herbal, can be found in chapter 12.

LET'S START WITH OUR TEETH

We get two sets during our lifetime. The first is made up of twenty teeth. These,

our deciduous or primary teeth, are also sometimes referred to as “baby,” “milk,” or “first” teeth. We take a closer look at this first set in chapter 6.

Our second set of teeth begin to emerge when we’re about six years old. These permanent teeth, thirty-two in all, are comprised of incisors, canines, premolars, and molars (see figure 2.1, showing the mouth, including permanent tooth positions in the upper and lower jaws). The main function of these pearly white calcified structures embedded in our jawbones is to break apart and chew food. Each type of tooth serves a specific function.

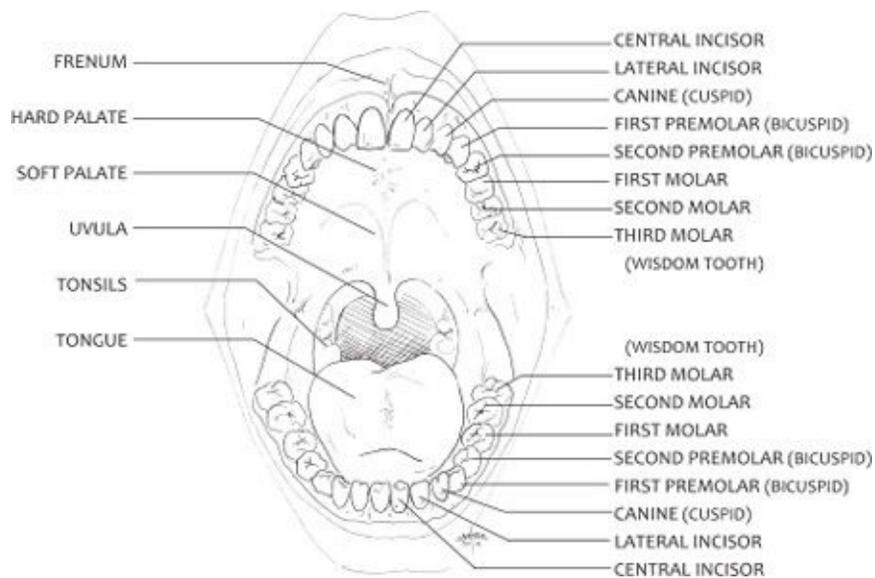


Fig. 2.1. The mouth, including permanent tooth positions in the upper and lower jaws

For the vast majority of us, our mouths display a beautiful kind of symmetry. This is reflected in our teeth. Often we talk about “pairs” or “sets” of teeth; children generally have ten pairs of teeth while adults often have sixteen.

Incisors

We have eight incisors, four in the upper jaw and four in the lower jaw. The two front teeth are called *central incisors*; we have two pairs, one in the upper jaw, one in the lower jaw. On either side of these front teeth is a lateral incisor bracketing the central incisors. Each of these eight teeth has a thin biting edge, and each serves to shear and tear food.

Canines

Sometimes referred to as *cuspid*s, these strong, fanglike teeth are the longest in our mouths. Upper canines are sometimes referred to as *eyeteeth*, while their

lower counterparts are called *stomach teeth*. We have four canines: one in each upper and lower front corner of the mouth, adjacent to each lateral incisor. Their positions make the transition from the front to the back teeth, and their pointy edge, called a *cusp*, serves to tear food.

Premolars

These are also known as *bicuspid*s. Next to the upper and lower canines we have two premolars, making four sets in all, or a total of eight bicuspid>s. They are not deciduous (baby teeth) and are only part of our permanent set of teeth. They provide a transition from the canines to the back molars. Premolars do not shear food but are used to both tear and crush. On the biting surface, premolars have two or three cusps. These mountain-like peaks and corresponding grooves or valleys help us gnash food effectively.

Molars

Permanent teeth typically include three sets of molars in each quadrant of the jaw, so we have twelve in all. Our first and front most set of molars erupt just behind the baby teeth at around age six, hence their nickname *six-year molars*. The second set, the *twelve-year molars*, as they are called, lie between these and our final set of molars known as the *third molars*, which are often referred to as *wisdom teeth*. These are our backmost teeth. They have four or five cusps that provide a broader chewing surface to mash food. Once the front teeth have food broken down into bite-sized pieces, the molars take over to crush and grind food into tiny bits, aiding digestion.

Chewing food well enables us to savor its texture, flavor, and aroma. It also reduces the likelihood of choking or having food feel as if it's caught in the throat. Additionally, shearing, tearing, grinding, and crushing well enables the saliva to come in contact with a greater number of food particles; saliva kick-starts the digestion process.

From these descriptions, we can see how food is processed, from the front to the back of the mouth—from the front, where our lips help contain food and drink, to the back, where our premolars and molars finish grinding prior to swallowing.

Regardless of its age or position in the mouth, each tooth can be described as having a root, a neck, and a crown, as shown in figure 2.2. The neck is the point where the top meets the bottom, or to put it another way, the crown meets the root at the gum line. What is generally called the crown is the visible part of the

tooth. The root of each healthy tooth sits under the gingiva, or gums. Incisors, canines, and premolars generally have single roots; molars often have two or three roots but can have four or even more.

PARTS OF A TOOTH

Each tooth is made up of four different internal parts—enamel, dentin, cementum, and pulp—as shown in figure 2.2. This is the same for all teeth, front or back, top or bottom, deciduous or permanent.

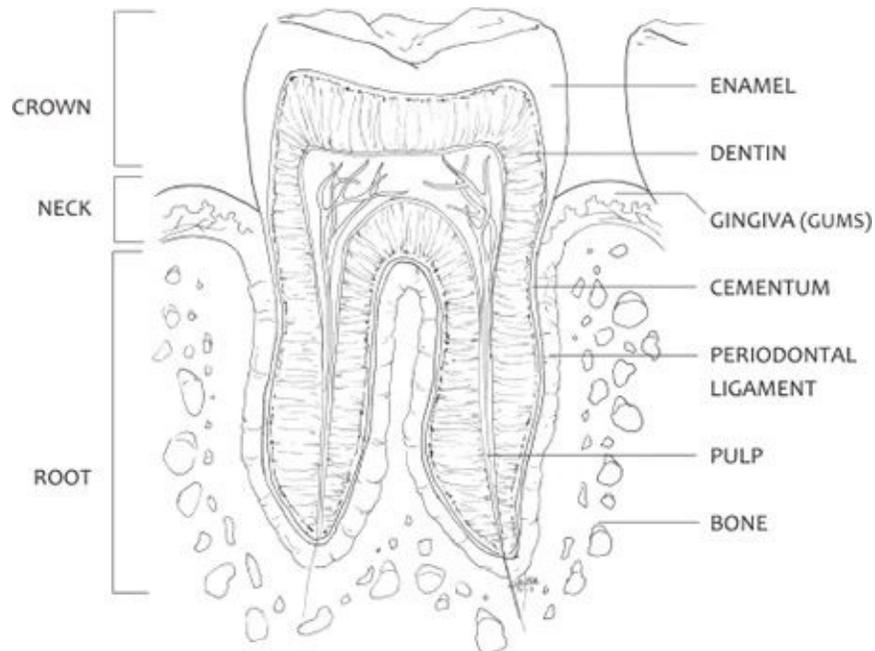


Fig. 2.2. The parts of a tooth

Enamel

This is the visible part of the tooth, what many call the *crown*, and it's the hardest substance the body produces. It can be both opaque white and translucent, meaning that some light can pass through. It varies in thickness on the different parts of the tooth, reaching a maximum of 2.5 millimeters (0.1 inches) at its thickest point.

Dentin

The bulk of the tooth is made up of dentin, which serves as the foundation for enamel and gives the tooth its color. Dentin can have a yellow or gray hue as a result of genetic predisposition, hormonal fluxes, or medications taken during

tooth development. Those with more translucent enamel or enamel that has become thin due to demineralization or erosion may have darker teeth because the dentin is showing through the enamel and affecting the appearance of the tooth. Dentin is manufactured throughout the life of a tooth and grows thicker with aging.

Cementum

Cementum covers the root of the tooth and begins where the enamel ends, at the tooth's neckline. It helps attach the tooth to the bone by connecting to the periodontal ligament. Cementum contains special cells that allow it to repair any minor damage incurred from accident or infection.

Pulp

This soft tissue is made of blood vessels and nerve fibers and is located in the center of each tooth. Pulp gives the tooth vitality as well as sensation and contains the nerves that give rise to perceptions of discomfort and pain. It is the lifeblood of the tooth, providing the nutrients that keep it healthy.

We talk about various herbal interventions for tooth pain and discomfort throughout *Dental Herbalism*. Herbs can also be both applied topically and taken internally to relieve tooth pain and discomfort.

SUPPORTING STRUCTURES OF THE MOUTH

Surrounding our teeth is an array of supporting structures called the *periodontium*, which encompass the periodontal ligament, alveolar bone, and the gingiva. More simply, the periodontal ligament, or PDL, is a type of connective tissue that connects the tooth to the alveolar bone, the part of a jawbone that supports the roots of our teeth. Yes, we have two jawbones: the mandible, or lower jawbone, and the maxilla, or upper jawbone. *Gingiva* is the term that describes all the types of gum tissues that lay over the bone; we refer to these simply as *gums*. Not only are our gums functional, they also provide aesthetic appeal.

Most of us are familiar with the body's exterior protective layer, the skin. Our skin is made up of thousands upon thousands of tiny cells. *Tissue* is the term often used to describe cells of similar structures and functions, such as the skin. *Connective tissue* refers to a type of cellular "glue" that connects one part with another; it is different from muscle tissue, which is different still from the gums

and gum tissues, the gingiva.

Additionally, the mouth includes the lips, tongue, taste buds, hard and soft palates, uvula, salivary glands, muscles of mastication, as well as special muscular attachments called *frenula*, all working together. We rarely even notice this uninterrupted harmony going on in our mouths. The mouth ends at the back of the oral cavity at the pharynx, which is curiously part of both the digestive and the respiratory systems, making the transition beyond the mouth and into the throat.

Lips

Lips are front and center. They help us express emotion, speak, sing, whistle, eat, drink, and kiss. Closed, they help prevent solids and liquids from escaping; they also help to keep our mouths from getting dried out.

Breathing through the mouth promotes dryness in the mouth. Avoiding a dry mouth promotes better oral health (see chapter 10). If you're a mouth breather, it's worth practicing inhaling and exhaling through the nose. Another tip to reduce dryness is to place the tip of the tongue gently on the roof of the mouth when not speaking, eating, or drinking. This connects two very important lines of energy in the body, as identified in traditional Chinese medicine: the Conception Vessel and the Governing Vessel, together considered the main rivers of the body's complementary yin and yang energy. Both begin at the base of the torso and travel upward, with the Conception Vessel traveling up the front of the body and the Governing Vessel traveling up the back (see glossary). These channels form a circle when the tip of the tongue touches the upper palate in the mouth and the anal sphincter is squeezed. Keeping the tip of the tongue at the roof of the mouth completes the microcosmic circuit and promotes the flow of energy, or *qi*.

Tongue

The tongue is a curious piece of the puzzle that serves many functions. It is unique because it's the only group of muscles in the human body that's attached at just one end. For this reason we are able to move it unlike any other muscle group. It helps us in so many ways, including sensing taste and temperature. We may not put too much thought into what this muscular multitasker is up to throughout the day, but try to imagine life without it!

The tongue begins to form at just four weeks after conception. The top surface is covered in lumps and bumps called *papillae*. The papillae give the tongue traction and help to move food around and through the mouth. Tens of thousands of taste buds are located on the surface of the tongue, the majority sitting on papillae. Although taste buds regenerate throughout our lives, they do so less

frequently as we age. This helps to explain why children can be particularly sensitive to different tastes and seasonings. For example, many children find mint toothpastes or chewing gums to be too “hot”; hence the popularity of bubblegum-and fruit-flavored toothpastes and oral pharmaceuticals geared toward children.

Taste is closely linked with our ability to smell. Currently, there is no consensus regarding the number of tastes we can recognize. While many agree on at least four primary taste sensations (sweet, sour, bitter, and salty), other tastes are also recognized, including pungent, spicy, acrid, bland, slippery, and *umami* (Japanese for “savory”). We discuss these further in chapter 11.

Looking at the underside of the tongue, we see veins through thin, delicate tissue. It is this high level of vascularity that makes this area ideal for fast and efficient uptake of herbs, minerals, and vitamins directly into the bloodstream, thus bypassing the digestive tract.

“Vascularity” is one way to describe blood flow. Some parts of the body contain lots of blood vessels, such as the mouth and the head in general. That helps to explain, in part, why a cut or a wound to the mouth or head may bleed so heavily—because both are highly vascular.

Decades ago a physician would routinely ask to see a patient’s tongue because its appearance helped to inform a diagnosis. Although this practice is less widespread today, it continues to be relatively commonplace when consulting an herbalist, especially one trained in traditional Chinese medicine (TCM), ayurvedic medicine, naturopathy, or acupuncture.

TONGUE DIAGNOSIS

Practiced continuously for over 5,000 years, ayurvedic medicine is an ancient art of healing, a science of life native to the Indian subcontinent. The roots of traditional Chinese medicine (TCM) can be traced back through archaeological excavations even further, millions of years. In both TCM and ayurveda, tongue diagnosis is the closest that one can get to looking inside the body. The condition of the tongue shows how well the digestive and circulatory systems are working, how moist or dehydrated the body is, and the state of the body’s energy system, or *qi*. Additionally, it gives us information about the health of the organ systems.

Practitioners look at the color, shape, and size of the tongue body; its color and thickness; and the quality of the coating or “fur” that sits on the tongue. Just as there are different schools of thought when it comes to interpreting the body, the qualities of moisture, color, texture, size, and coating of the tongue also lend themselves to various means of interpretation and diagnosis.

Running down the center of the underside of the tongue is the lingual frenulum, which attaches the tongue to the floor of the mouth and prevents it from dangling out of the mouth. If someone is tongue-tied—commonly meaning “unable or disinclined to speak freely”—perhaps they are shy, but it can also literally mean that this attachment is excessively restrictive. This condition is called *ankyloglossia*, and it can be easily corrected by a dental or medical professional with a simple surgical procedure.

Above the tongue is the roof of the mouth, the palate, which separates the mouth from the nasal cavity. Follow along the roof of the mouth, from the front to the back, where the hard bony palate transitions to the moveable soft palate. The soft palate is the gatekeeper that sends all that we swallow down the throat instead of up the nasal passages. Dangling at the far end of the soft palate is the uvula, a fleshy tissue that is useful in the making of guttural sounds. The palate forms by two shelves fusing together when we are still in the womb. If this fusion is incomplete, it is called a *cleft palate*.

As we move beyond the uvula we find the pharynx, commonly referred to as the throat. Here air, liquids, and food continue on their journey through the digestive system.

Salivary Glands

While the tongue, teeth, and gums are easily recognized in the mouth, the salivary glands may be overlooked even though they are at work all day, every day, making that amazing serum called *saliva*. There are three major sets of salivary glands: the parotid, the submandibular, and the sublingual.

Pull either cheek outward and take a look. Adjacent to the upper molars, nearest the cheek, it may be possible to see the opening of the duct that delivers saliva from one of the parotid salivary glands. Although these are the biggest salivary glands, the submandibular glands (located under the mandible) are the real workhorses, producing approximately 70 percent of the 1 to 1.5 liters (34 to 51 fluid ounces) of saliva we generate each day.

Coming up a distant third is the lesser-producing sublingual gland, located as we might expect just under the tongue. Much less productive than its counterparts, it supplies approximately 5 percent of the salivary flow through multiple smaller ducts. Additionally, there are estimated to be between 600 and 1,000 small glands located throughout the oral cavity, all working to keep the mouth moist.

Are you a gleaker? Some people can propel saliva from the submandibular gland on command. This is called “gleaking.”

Food, emotion, chemicals, and liquids all affect saliva production, as do various herbs (for details see the materia medica in chapter 11). Saliva is but one of many keys to a healthy mouth. In addition to its being crucial to initiating digestion, saliva helps moderate the pH of the mouth and the remineralization of the teeth. It is useful in the maintenance of a healthy biofilm, and without a doubt the healthy production of saliva helps us avoid problems associated with dry mouth, or xerostomia, as discussed in chapter 10.

Biofilms are colonies of very small organisms, including microorganisms such as bacteria, viruses, and fungi. Together, each of these living colonies grows and changes in response to its environment while attached to a surface (which is why it’s called a *film*). Biofilms found in the mouth adhere to surfaces such as the cheeks, teeth, and gums. Eliminating biofilms is supercritical to the health of the mouth and the body as a whole and are discussed further in chapters 3 and 8.

Temporomandibular Joint

The upper and lower jaws connect at a unique ball-and-socket joint called the *temporomandibular joint*, or TMJ. Each TMJ, on either side of the jaw, does its job through a complicated system of bones, ligaments, tendons, and muscle attachments. Try pressing a finger in front of your ear and opening your mouth, and you will feel this hinge joint moving. Ideally, this joint moves without any clicking, popping, or stops and starts.

SINUSES

Although the sinuses are not exactly part of the oral cavity, they merit our consideration here because of their close proximity to the teeth and gums. We have several sinus cavities. Those reported most often as being closely associated with tooth pain and discomfort are called the *maxillary sinuses*. They are located next to the nose, one on each side, between the eye sockets and the teeth. When X-rayed, it is common to see the sinus floor sitting along the roots of some of the upper back teeth, while some root tips actually appear to terminate in these maxillary sinuses, as can be seen in figure 2.3.

Figure 2.3 shows vertical arrows that identify the floor, or edge, of the maxillary sinus cavity. The leftmost arrow points to the terminal end of a root

canal that abuts the sinus floor. Compare the apex, or tip, of the root of this premolar to the root of the adjacent tooth on the right that seemingly protrudes into the sinus. It's easy to imagine that the effects of inflammation might well be felt in two directions.

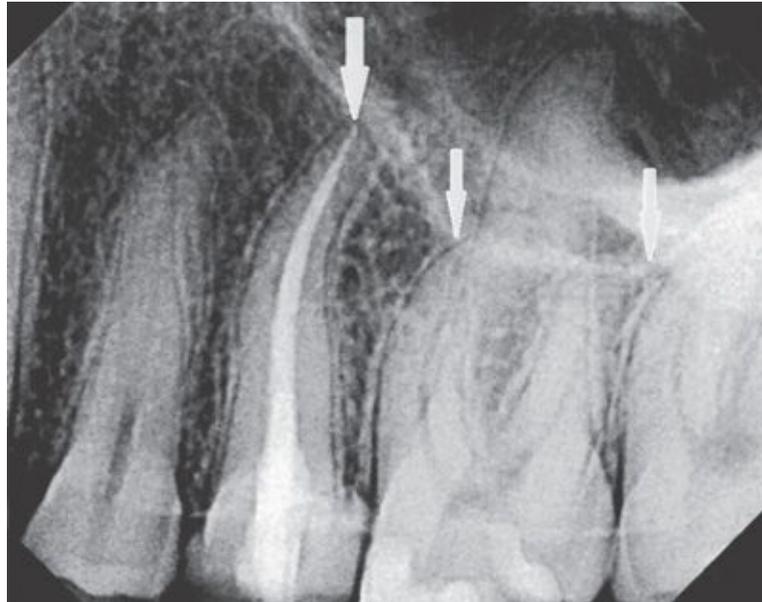


Fig. 2.3. The proximity of the sinus floor in relation to adjacent roots. The arrows delineate the sinus floor (white line), highlighting a premolar with a root canal terminating at the sinus floor (left arrow) and a molar's root seemingly extending into the sinus itself (between the middle and right arrows).

Discomfort from sinus inflammation or infection can feel very similar to dental pain, as the pressure from the sinuses pushes on the roots of the teeth, aggravating them. Conversely, inflammation of either of these teeth could well be interpreted as a sinus problem.

Our mouths are complex indeed, with a number of components working together to perform many vital functions. In the mouth, digestion begins and immune health is sustained. Muscles tighten and relax; teeth tear, mash, and grind; glands excrete; tissues protect and support; the tongue and lips move food and enable us to express ourselves through speaking, singing, whistling, and kissing. Getting familiar with the mouth stands us in good stead to next explore its daily care.

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3

EVERYDAY CARE FOR A HEALTHY MOUTH

Let's start here: we'd all like to grow old with our own teeth.

That said, it's never too early, or too late, for us to adopt good oral care routines. Thankfully, current opportunities extend far beyond the traditional maxim of "brush, floss, and visit your dentist once a year" of years past. We have choices, alternatives, and it's important for us to find what works best for our individual needs and preferences. One size does not fit all, and household members could, perhaps should, each care for their mouths differently.

It's easy to become a tooth saver! When young people watch older people taking care of their mouths, there's a lot more going on than just friendly bathroom banter; we could be teaching good habits that will last a lifetime.

HEALTH AND HYGIENE BASICS

When should we care for our mouths? Every single day. How? In a focused, attentive manner. But for many of us, oral health has not been at the top of the priority list. Theoretically, we're in favor of having healthy mouths, but in practice? The reality is that gum disease is rampant among adults in the United States. At least 10 percent, or one in ten, of the people we meet each day who are in their mid-forties or older are toothless.

We can begin with giving ourselves a pat on the back, knowing that indeed we do make time to care for our mouths, or we can consider making a change for the better and throwing away our membership in the "Rush-'n'-Brush Club." We may choose to read labels more closely, rejecting a commercial oral health care product because of its dubious ingredients, or we may choose to make our own products with herbs. If opting to use homemade preparations (see chapter 12), let's remember that it may take a few weeks or even months to get into the smooth flow of things, but with practice, all will become seamless.

In the West our primary oral-health technique is brushing our teeth. While some cultures rely on other practices, we focus on cleaning three out of five dental surfaces: each outer wall, the inner walls, and the biting surface of the teeth. The most common tool for doing this is the standard manual toothbrush. The size of the brush head should be proportionate to the size of the mouth to allow access to all areas without feeling uncomfortable.

If making a brush from roots or twigs (see chapter 12 for instructions), then brush size can be adjusted easily. If buying a toothbrush, time spent checking out different manufacturers' designs, head sizes, and shapes is a worthwhile investment. We suggest trying to be lured less by color and pattern and be more curious about what something new might *feel* like.

The length of a toothbrush handle is also important. Someone with a full complement of all thirty-two adult teeth may need a longer handle to maneuver around the back teeth compared to someone who has only front teeth or indeed no teeth at all. Children and those with dexterity issues often find a large-handled toothbrush easier to use than a thin-handled brush.

Bristles should be soft or extra-soft, never medium or hard. Stiffer bristles have the potential to cause damage to the gums, enamel, and root surfaces, especially for the aggressive brusher. There are a plethora of bristle patterns and designs available. Truly, the best choice is a combination of what appeals the most and what can be used effectively. Why not talk with a dental professional and talk through the options? An added advantage of working with a dental professional is that signs of toothbrush abrasion on both teeth and gums can be identified early on, and recommendations regarding changes in bristles and head sizes implemented smoothly. Additionally, if plaque is building up because we're missing some teeth, a professional can spot this easily.

Power toothbrushes are increasingly popular. Options abound here, too. Some electric brushes spin, others rotate; there are oscillating ones, and let's not forget the use of sonic sound-wave technology. Many have timers, and some have a feature to let us know that we're applying too much pressure and brushing too hard. Power toothbrushes are more expensive than manual toothbrushes but can be very useful for those with physical limitations, such as arthritis, or those with braces. They can even be skirmish-preventers for parents or guardians of youngsters who are utterly uninspired by manual toothbrushing. If using a power brush it is important to remember to let it glide along the teeth and not to add unnecessary pressure, thus avoiding abrasion. One important note:

A power toothbrush does not necessarily translate into a superior cleaning tool. If we are

missing areas of our mouths with a manual toothbrush, we will miss them with a power toothbrush, too. Practice technique.

Our Western culture may rely heavily on these commercial products for brushing, but ancient tools continue to be used just as effectively in cultures throughout the world. Roots, sticks or twigs, bones, feathers, fur, and even porcupine quills have been and continue to be used as effective teeth-cleaning tools. One advantage of natural alternatives is that they are far less costly. Not only can their use result in significant financial savings, they have a smaller environmental impact than the ubiquitous plastic brush. If using a natural toothbrush, the primary objective remains the same as with a commercial brush: namely, to remove the plaque or biofilm. We can do this most effectively using roots, barks, or twigs.

Roots, Barks, and Twigs

For thousands of years our ancestors relied on roots, barks, and twigs from scores of different plants to mechanically clean, abrade, and freshen the mouth, teeth, and gums. Choice depends on geography, availability, seasonality, and personal as well as cultural preferences.

Around the world, both fresh and dried chew sticks remain the tool of choice for maintaining and sustaining oral health. Sticks range in appearance, as shown in color [plate 2](#). Their use was recorded by the Babylonians some 5,000 years ago, and their continued use today is a testament to their efficacy, as supported by the World Health Organization.

A chew stick, also known as *arak*, *koyoji*, *meswak*, *misswak*, *miswaak*, *miswak*, *miswaki*, *mswaki*, *natural toothbrush*, *sewak*, *siwak*, *siwakai*, and *tooth stick*, is recognized as an effective means of mechanically cleaning the mouth. Chew sticks have been known to limit caries (decay) and promote healthy oral flora (hence gum health), while also displaying astringent, antiseptic, antimicrobial properties that affect enzymes, saliva production, and mineralization of the teeth. Depending on the herbs from which they are made, chew sticks can also be natural sources of fluoride and tooth whiteners. Additionally, they help to mediate the pH of the mouth and can be high in vitamin C, further supporting gum health, while their sulfur compounds as well as sodium and potassium salts enhance antimicrobial activity.

Akin to the present-day toothbrush, chew sticks are generally about 5 inches (13 cm) long and 0.25 to 0.5 inches (0.6 to 1.3 cm) in diameter. With a choice root or twig, bark removed, the end of the stick is either splayed by hand or

chewed to affect a brushlike end. These splayed fibers, moistened by saliva or water, are then used to debride the teeth and tongue, slowly and carefully working the softened end around the mouth. Depending on custom, sticks are replaced after single or multiples uses. Some people continue to leave the stick in the mouth, sucking on its end for longer periods, beyond the five to ten minutes of use during brushing, thereby extending the medicinal actions of the herb that the stick is made from. Note that children may need additional supervision as they learn the chew stick technique.

Chew sticks can be purchased through a variety of commercial outlets (see appendix 2 for resources) or can be harvested locally. Some of the more commonly used herbs include neem, alfalfa, arak, garcinia, sumac, birch, dogwood, marshmallow, horseradish, licorice, and cottonwood. More detailed information about specific herbs and how to make chew sticks and various herbal preparations can be found in chapter 12.

MAKING A HEALING CHEW STICK

While marshmallow, often used for chew sticks, is generally used without any added flavoring, medical herbalist David Hoffman reports that the wound-healing properties of marshmallow can be augmented with the aromatic, anti-inflammatory, antimicrobial, antiseptic, and stimulating circulatory properties of cinnamon and cloves, when used as follows: Boil 5-inch (cleaned) pieces of marshmallow root (ends peeled) in water with a cinnamon stick and cloves until tender. Remove gently, and carefully place in brandy; soak for twenty-four hours. Remove, dry, and use as described previously. (Hoffman 1990)

Another cleansing technique involves chewing a wad of plant material such as a betel quid. This is sometimes referred to as “chewing a quid” (from the Middle English *quide*, from Old English *cwidu*, *cwudu*), from which the modern English word *cud* is derived.

Brushing Technique

Regardless of what we use, brushing technique is of the utmost importance. To begin, a brush of one type or another is placed on the outer side walls of the teeth at a forty-five-degree angle to the gums, where the teeth and gums meet, as seen in color [plate 3](#). The forty-five-degree angle enables the bristles to go under the gums. Using gentle, small, circular motions, aim to flare the bristles along the gum line. Some people prefer to brush in an up-and-down motion. We should avoid brushing back and forth, as this can cause gum recession, especially if we tend to be heavy-handed.

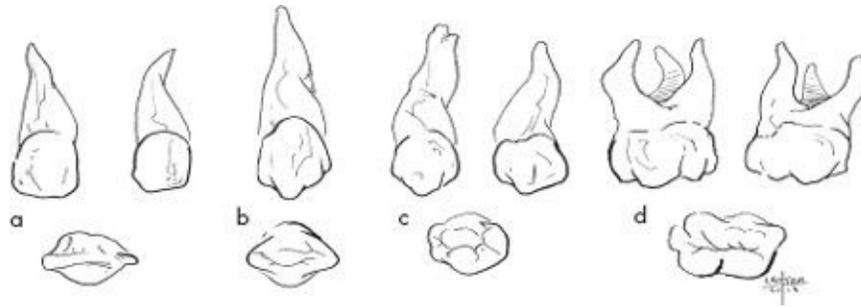


Fig. 3.2. A comparison of maxillary jaw tooth types: note differences in 7 sample root structures and 4 surfaces for chewing, sheering, and tearing (a) and (b), crushing (c) and grinding foods (d).

Once all of the outside walls of the upper and lower teeth have been cleaned, next clean the inside surfaces that face the tongue with the same motion. Anatomy prohibits us from doing this on the inside of the front teeth, so instead position the brush perpendicularly and repeat a small circular pattern. Finally, take the brush across the chewing surfaces of the teeth. Remember, the back teeth present us with both valleys and peaks, as seen in figure 3.2, and these chewing surfaces may require slightly more attention compared to incisors or canines.

It is important to make sure that we brush the three surfaces of each tooth. Following toothbrushing, brush the tongue or use a tongue scraper.

Brushing twice a day is the standard; however, three times, or every eight hours, is ideal for consistent plaque removal. An easy way to remember is to brush two to three times a day for two to three minutes.

Brushes should be rinsed thoroughly after each use and left to air dry. Brushes and chew sticks are best kept in a cup or holder, brush side up, so that the bristles aren't in contact with anything, especially someone else's toothbrush. Brushes should be changed when they shows signs of wear, if we've been sick, or, at the outside, every three months.

TONGUE SCRAPING

Some people were never taught to brush their tongues, while others do so routinely. Some of us are comfortable using our toothbrushes or chew sticks for this purpose, while others may prefer a tool designed specifically for this purpose, typically called a *tongue scraper*, as seen in color [plate 4](#).

Commercial tongue scrapers are often made out of plastic or metal. A metal scraper can be a friend for life, while disposable scrapers are likely to end up in a

landfill, or worse. In lieu of a manufactured scraper, the splayed ends of chew sticks can be used successfully, while others may wish to use quids, resins, pitches, and gums to achieve a similar result. If using a tongue scraper, rinse prior to storing upright to dry.

Tongue scraping helps remove food, bacteria, and dead cells lodged on the tongue, which can often be sources of bad breath. Simply place the tongue scraper at the rearmost point on the tongue (see [plate 4](#)), and rake it forward in a firm yet painless continuous stroke. This is repeated after each brushing until the film seems to be removed. Rinsing then follows scraping to remove any loose debris. Rinsing with water is fine; however, recipes for herbal mouth rinses can be found in chapter 12. These herbal rinses can provide additional therapeutic benefits that plain water cannot.

Tongue scraping may seem awkward at first. It might even cause us to gag, which is a natural defense when the body senses something unnatural approaching the back of the oral cavity. Relax—it takes time to cultivate the technique. If tongue-scraping promotes a gag reflex, we can develop the habit by starting at the middle of the tongue and working forward. Over days or weeks we can slowly adjust our starting position to include more of the tongue’s surface.

FLOSSING

Okay, you’re really not flossing. You still have that sample of floss you received at your dentist’s office two years ago. You say you floss regularly, and by that you mean you go to have your teeth professionally cleaned. Your dental hygienist asks you if you’ve been flossing regularly, and your reply is, “Yep.” But the reality is that you floss every six months with him or her like clockwork.

Let’s be honest. Flossing is not necessarily for everyone. Most dental professionals will tell you that the majority of people do not floss daily. That said, there is no reason for us to neglect cleaning two of the five tooth surfaces that our toothbrushes cannot reach. We have options.

Toothpicks have been used for millennia to remove food and debris from between the teeth. Plain or flavored, infused with neem, peppermint, or cinnamon oils, many of the toothpicks made today come from willow, birch, or cottonwood trees. Technique varies. Often toothpicks are held between the fingers and used as probes. Their use often accompanies other oral hygiene

techniques, and caution should be taken not to irritate the gums with excessive or aggressive use. Commercial toothpicks called Stim-U-Dents are readily available in almost any supermarket or drugstore. They are made of basswood, which is firm enough for effective cleaning but soft enough so as not to abrade tooth structure over prolonged use. One advantage of toothpicks: they are biodegradable.

However, flossing, as shown in color [plate 5](#), is the most common method for cleaning between the teeth. A strand of floss 18 to 20 inches long (46 to 51 cm) is used. The ends are wrapped around the middle fingers so that the center traverses the thumbs for the upper teeth and the index fingers for the lower teeth. The floss is then gently worked back and forth between the teeth as it is moved up against the edge of the tooth and under the gum line until meeting slight resistance. Still hugging the edge of the tooth, we move the floss back down, repeating the process for each adjoining tooth until all teeth have been flossed.

Floss types vary almost as widely as toothpastes, and one's choice depends on preference: waxed, unwaxed, nylon, Teflon, thin or thick, tape or string, flavored, unflavored . . . each of us will choose the material we find most workable and effective (see appendix 2 for resources). A good flossing technique will remove bacteria no matter which type we use. That said, it's worth reading labels, as it's important to ensure that our floss is not impregnated with artificial chemicals that in the long run do more harm than good.

Some people do not have the dexterity or the inclination to clean between their teeth with traditional floss, in which case there are some fantastic alternatives: what are known as *interdental cleaners* (see color [plate 6](#)). Preloaded flossers intended for one-time use and interdental cleaning tools have become very popular of late. An interdental brush known as a *proxy brush*, a tiny cylindrical or cone-shaped brush that comes in various sizes (see [plate 6b](#)) can be particularly effective for cleaning between the teeth. Battery-operated water flossers that use pressurized water to flush between the teeth can also be highly effective. But regardless which tool we choose, remember, our goal is to remove unwanted bacteria from the mouth by cleaning between the teeth. Flossing should always be followed by rinsing the mouth with water to remove any loosened particles.

RINSING

Some people distinguish between the actions of gargling and rinsing. Throughout this book we refer to rinsing as encompassing both a throat action (effectively exhaling through a liquid, thus causing it to move; i.e., gargling) *and* the swirling of liquid around in the mouth. Rinsing concludes with spitting the solution out of the mouth. Undertaken after brushing or flossing, or indeed after ingesting any foods or beverages other than water, rinsing in this way can be an effective way to sweeten the breath, reduce staining of the teeth, and debride the mouth of loose bacteria and food.

Oral irrigators such as a Waterpik are “power rinsers.” By providing a jet stream, they can be especially beneficial for those wearing orthodontics or those who may have difficulty with the act of rinsing due to stroke, Bell’s palsy, or other physical restrictions.

Commercial mouth-rinse options abound. However, we need to be mindful of our choice with respect to alcohol content and ingredients such as sugars, aspartame, and other artificial sweeteners. Natural rinses can be used effectively and safely.

In writing this book we heard many anecdotal accounts of the use of peroxide and baking soda as rinses. We suggest limiting peroxide use to the short term—weeks rather than months or years, diluted in a ratio of 1 part peroxide to 2 parts water, as sustained use of hydrogen peroxide, unlike herbal rinses, can damage tissues. Baking soda is a natural acid reducer and antiseptic, making it a valuable asset to a rinse.

Herbal Mouth Rinses

Herbal rinses are especially helpful when it comes to invigorating the mouth. In addition to the antimicrobial actions of many commonly used herbs, herbal mouth rinses also serve to stimulate our gingival tissues by enhancing blood flow. They also astringe, or tighten, the tissues and can provide immune support combined with antimicrobial action. Herbal mouth rinses are advantageous in that they are free from sugars and unnatural colorants and often less expensive when made at home. They can contain no alcohol; however, when preparing large batches to last months, very small volumes of alcohol may be added as a preservative.

Hundreds upon hundreds of effective herbal mouth-rinse recipes have been published over the centuries, made from teas, decoctions, and tinctures, singly or blended. When making a tea, allow it to come to room temperature before using it as a mouth rinse; therefore, it is helpful to think ahead, and even to refrigerate

a larger batch of tea that can span a few days' use. Teas can be made as simples, using single herbs, or with multiple herbs, and are alcohol-free. Detailed information about individual herbs that can be used in mouth rinses is found in chapter 11; recipes, by topic, including those for particular conditions of the mouth, are found in chapter 12.

Plants from the mint family are favorites for mouth rinses (see box below). Other rinsing favorites include rose hips, the leaves of raspberries and blackberries, and hibiscus flowers, which are more astringent than mint family members and can be brewed separately or combined to add bioflavonoids and vitamin C, thus supporting vascular health, including that of the gums. We also like the magenta color that hibiscus imparts.

SQUARE RINSES

Square herbs are perennial favorites for use in rinsing. Square herbs belong to the mint family, or Lamiaceae. These herbs are easily identified by their leaves, which are opposite each other on a stem, and, yes, by the stems themselves, as many members of the Lamiaceae family have square stems. Working with these herbs is simple, solid, and uncomplicated, as are the herbs (and spices) often found in the kitchen, or in a kitchen garden—and we like the idea of “three squares a day.” Square-stemmed herbs are abundant, easily purchased, often easy to cultivate, and have few contraindications. They include spearmint, peppermint, bergamot, rosemary, sage, thyme, self-heal, lavender, and catnip. These have distinctive flavors and are easily brewed as teas, either singly or in blends.

Astringent describes the binding action of herbs to mucous membranes. As our gums are mucous membranes, the use of astringents in the mouth helps to focus the actions of herbs. Astringents are used to keep inflammation and irritation in check while providing a barrier to many infectious organisms.

A cardamom, cumin, fennel, and orange peel rinse does wonders to sweeten the breath (again, see chapter 12 for how to prepare recipes). When a full cup of this tea is brewed, half or more can be drunk while warm, the other half set aside to cool to be used as a rinse. When ingested, this blend supports digestion and reduces abdominal bloating and flatulence (gas).

Occasionally it is beneficial to introduce more antimicrobial action into a mouth rinse to address acute, short-term change in one's overall health or in the health of the mouth. We might do this, for example, in the presence of acute inflammation or following a dental cleaning, filling, or extraction or when addressing cold or flu symptoms. The tastiest place to start is by decocting an

aromatic antimicrobial rinse of cinnamon and cloves. Cayenne, calendula, and myrrh can be added for broader antimicrobial action. The addition of stevia not only adds sweetness, its use has been shown to reduce plaque formation (certainly when compared to sucrose). For a more detailed discussion of the antimicrobial activities of individual herbs, see the herbal materia medica found in chapter 11.

Besides herbs, many people rinse the mouth with oils, such as sesame, which can have many benefits when done as part of a daily routine, according to Vasant Lad, ayurvedic physician and prolific author. He recommends the following procedure.

To strengthen teeth, gums, and jaw, improve the voice and remove wrinkles from cheeks, gargle twice a day with warm sesame oil. Hold the oil in your mouth, swish it around vigorously, then spit it out and gently massage the gums with a finger. (Lad 2002)

K. P. Khalsa, another ayurvedic herbalist, successfully uses oil to help address inflammation of the gums. He suggests twenty minutes per application. From an ayurvedic perspective, the mouth is the site of potential increased *vata*, one of three *doshas*, or energies, commonly used to describe physiological activity within the system of ayurvedic medicine. In the mouth we might recognize excess *vata* as pain, scratchiness, or even dryness, which might well extend into the digestive system as a whole. Oil is the main treatment for *vata* in general. Khalsa explains: “Sesame is the most general oil for these types of treatments in Ayurveda generally. Daily if high *vata* in mouth. Otherwise, as necessary to control *vata*” (Khalsa 2012).

Functionally, we can appreciate that moving oil might be soothing. Also, “pulling oil,” as ayurvedic practitioners refer to the practice, adsorbs microbes, food, and so on in the mouth and has been suggested by many as a general approach to supporting a healthy mouth. In addition to sesame oil, extra-virgin cold-pressed coconut oil is an effective, tasty, anti-inflammatory oil that can be used orally and supports the immune system.

It is fitting to conclude this introduction to oral rinses with the most enduring rinse of all: plain, pure water. Believe it or not, water makes an excellent rinse. Ideally, as warm as is tolerable without burning the mouth, water will certainly aid in the removal of debris and in doing so is likely to improve the breath. Salt can also be added (see the monograph on salt in chapter 11), as its antiseptic

properties have long been appreciated.

TOOTHPASTE AND TOOTH POWDER

Technically referred to as a *dentifrice*, toothpaste alone is not what removes plaque or biofilm from the mouth. The mechanical scraping done by a toothbrush, floss, or other aids is what removes most of the plaque. However, toothpaste can enhance the benefits of one's oral care routine by providing grainy particles that assist the brush in plaque removal and make the mouth feel fresh. To this end, historically, many toothpastes have incorporated extracts from medicinal herbs such as anise, cinnamon, clove, eucalyptus, lemon, neem, orange, peppermint, sage, saffras, spearmint, thyme, and wintergreen.

In typical commercial toothpastes there are mild abrasives that assist in removing bacteria and stain; fluoride, dyes, and antiseptics are also often included, as are synthetic flavoring agents. Moreover, many commercial toothpastes contain the synthetic surfactant sodium lauryl sulfate (SLS), sometimes referred to as *sodium laurilsulfate* or *sodium dodecyl sulfate*. Some people can be very sensitive to SLS, and studies are being done to define a link between SLS and canker sores, as well as tooth sensitivity. Additionally, we have seen SLS sensitivity present as a swollen lower lip after brushing twice daily with a toothpaste containing SLS; symptoms cleared soon after switching to an SLS-free commercial preparation (see appendix 2 for resources).

A product-by-product review of commercial herbal toothpastes is beyond the scope of this book. Generally, with few exceptions, results from numerous studies support the efficacy of using herbs as the basis for toothpaste, particularly when addressing gingival health to affect a shift in the microbial balance of the mouth. If embarking on a personal blend, the antimicrobial actions of herbs listed in table 12.1 in chapter 12 will inform herbal choices when making herbal toothpastes.

An alternative to pastes is tooth powders. For those unfamiliar with tooth powders, they have a few practical advantages. First, there's no tube to squeeze. As is the case with rinses and pastes, there are many commercial tooth powders on the market. They are often sold in small round containers with easily managed screw-top lids. The other advantage to using a tooth powder is that application is easy. Powders are applied by wetting a toothbrush, chew stick, or finger and dipping it into the widemouthed container. Also, tooth powders last

quite some time. They are economical, easily transportable, and can have an attractive taste (okay, maybe for some people not as attractive as a sweet, multicolored striped gel in a tube . . .).

Note that tooth powders don't foam and fizz like the commercial pastes we are accustomed to, and they may even stain our toothbrushes. Yes, it's true—more often than not, an herbal tooth powder will turn a toothbrush either a dark green or a pale brown color, depending on the herbal blend. However, these are natural stains and a welcome indicator of regular brushing, and they will not harm the toothbrush.

Blending a tasty tooth powder is an art. Generally, a powder contains a base into which herbs are mixed in varying proportions. Orrisroot, often found in cooler growing zones, and arrowroot, which grows in warmer zones, are commonly used bases. Both are gluten-free. As can be seen from master herbalist Michael Moore's tooth powder recipe found in chapter 12, the base is a blend of orrisroot and arrowroot, as well as baking soda, the latter being somewhat bactericidal. Baking soda is usually used in moderation, as it has a distinctive, sometimes unwelcome, flavor.

The individual antimicrobial properties of herbs vary widely (for specifics, see chapter 11) and are very important when considering the preparation of any tooth powder. Generally, there is a broad spectrum of herbal actions that are considered useful for a healthy mouth. Ratios, or proportions, of herbs are to be varied depending upon desired actions and the presence of inflammation both in the mouth and elsewhere throughout the body. For example, we might well include:

- ✦ Astringent herbs, to shrink or tighten the gingiva
- ✦ Anti-inflammatory herbs, to address inflammation
- ✦ Antimicrobial herbs, to help balance microbial populations
- ✦ Herbs to aide wound healing (vulnerary herbs)
- ✦ Mucilaginous herbs (demulcents) that provide soothing action
- ✦ Herbs that stimulate circulation, thus enhancing oxygenation and blood flow, not to just the gums but also more systemically
- ✦ Herbs that enhance flavor

A closer examination of the herbs used in Michael Moore's tooth powder recipe, listed in the table that follows, provides insight into how a blend might

well incorporate multiple herbs with similar properties, thereby creating a lattice, or web, of herbal actions (recipe found in chapter 12).

Using certain herbs singly can be highly efficacious. Sage, for example, is a well-documented contemporary and historical choice. Common garden sage is antibacterial, antifungal, and antiviral, making it a highly effective broad-spectrum antimicrobial. It is a refreshing debrider and breath freshener all in one. Fresh leaves can be used singly, rubbing the flat surface of the leaf against the teeth and gums, or leaves can be bulked and rolled together, providing more of a cushion. Additionally, finely powdered sage can be combined with charcoal to further enhance plaque removal. Charcoal is the carbon by-product of excessive heat and can be purchased commercially in powder form or made at home from anything from toast to herbs. For example, three or four dried sage leaves can be toasted carefully until crisp and just blackened to yield sufficient charcoal for two or three brushings. With the addition of sea salt, we have an excellent antimicrobial scrub that can be used, like all powders and pastes, with or without a toothbrush or chew stick.

TABLE 3.1. ACTIONS ASSOCIATED WITH THE MEDICINAL HERBS IN MICHAEL MOORE'S TOOTH POWDER RECIPE

Action	Herbs									
	Arrowroot	Orrisroot	Baking powder	Licorice root	Myrrh gum	Fresh cloves	Cinnamon	Yerba mansa	Peppermint essential oil	Wintergreen essential oil
Base	✓	✓	✓	✓						
Analgesic					✓	✓			✓	✓
Anti-inflammatory				✓	✓	✓	✓	✓	✓	✓
Antimicrobial				✓	✓	✓	✓	✓	✓	✓
Antioxidant				✓	✓		✓			
Aromatic							✓		✓	✓
Astringent					✓	✓		✓		
Circulatory stimulants					✓		✓			
Demulcent	✓	✓		✓			✓			
Flavorants				✓	✓	✓	✓		✓	✓
Vulnerary				✓	✓	✓				

Indeed, salt alone can be used to debride the mouth, although the addition of too much water or saliva can produce a saline solution rather than a mildly abrasive salt scrub. The mineral content and color of sea salt can vary greatly.

Most are sold in bulk. For example, aside from differences in taste, Himalayan sea salt is pink, compared to certain Hawaiian sea salts, some of which are black; the former has a stainless-steel Play-Doh flavor, the latter an earthy, clean, oceanic flavor. Other sea salts, including Celtic sea salt, for example, are also efficacious.

When making tooth powders following the recipes found in chapter 12, we can purchase herbs that have already been powdered or powder herbs carefully by hand. Powders need only be mildly abrasive; roots or twigs that have not been powdered sufficiently can inflame the gums.

Away from home, without toothpaste, powder, or a chew stick? At times like these we can use a warm water rinse and rub the pad of a finger over the teeth and gums using a circular motion to remove debris and loosen plaque. Better to remove what plaque we can than to avoid brushing altogether.

Regardless of which tools we choose, giving our mouths the everyday care they deserve can result in mouths that look, smell, and feel healthy.

One last caution, regarding the breath: while it's commonplace for certain culinary aromas to linger in the mouth, sustained bad breath can point to an imbalance in the digestive system. The cause of such an imbalance can be varied, so addressing this complex issue is largely beyond the scope of this book. However, in general, the herbs that can positively affect digestion—and therefore the breath—include anise, thyme, peppermint, fennel, and clove, to name but a few. In addition, herbal bitters (see appendix 2 for resources), taken regularly twenty minutes before a meal, will help to regulate digestion and improve the breath; so too will a more focused attention on food and drink.

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5

GETTING TO KNOW YOUR DENTAL AND HERBAL TEAM

Taking responsibility for the health of our mouths is vitally important. That said, it doesn't mean that we have to do it alone.

When we speak of oral health, many people immediately think of dentists. Although usually a focus, they are not the only members of the dental team that can help keep our mouths happy and healthy. Dental hygienists, herbalists, dental health care workers, and others can all work in harmony to create a circle of interdisciplinary support, and each has a vital role to play.

A TRIP TO THE DENTIST

While a trip to the dentist can conjure up a variety of emotional responses, not all dentists are alike; there are different types of practices and facilities that cater to different needs. In the United States, the private practice is most common. These practices can be solo operations, meaning one dentist owns the practice, or group or partnership practices. A small percentage of dentists work in clinics, dental schools, hospitals, public health offices, and other settings. A few work for the federal government at settings such as the Department of Veterans Affairs, the U.S. Public Health Service, and various branches of the military.

A phone call to a dental practice is likely to be answered by a member of the office staff. These women and men are often responsible for many of the day-to-day operations, including scheduling appointments, making referrals, processing payment options and insurance claims, and answering the phone. Office staff can include the business manager, scheduling coordinator, office manager, insurance processor, receptionist, and/or care navigator. Most likely the wide-ranging duties of any member of the dental office staff can be as individual as the workplace. A telephone call to a practice will result in an appointment with a dentist or a dental hygienist.

Let's take a look at who does what.

THE DENTIST

Simply put, dentists are doctors who specialize in oral health. They are trained to diagnose various dental diseases and conditions and to treat them accordingly, within their given scope of practice. They promote oral health and disease prevention. Some work to correct developmental malformations. They can alter our appearance with aesthetic and cosmetic interventions, administer local anesthesia, and write prescriptions for dental pharmaceuticals.

A dentist is most likely the leader of the oral health care team. You may have noticed that some dentists have the initials DMD after their names, while others carry DDS. These are equivalent titles and both require the same amount of postgraduate training. The difference? Curiously, it's all a matter of which degree an institution has chosen to confer. DDS stands for Doctor of Dental Surgery. DMD stands for Doctor of Dental Medicine. So why isn't it DDM, you ask? Because it is based on the original Latin for Dentariae Medicinae Doctorae—DMD; less commonly it is referred to as the Doctor of Medical Dentistry. Whatever letters the dentist carries, she or he graduates from dental school as a full-fledged dentist or general dentist.

As of 2010, about 79 percent of the 155,000 dentists employed in the United States were working in solo or group private practices. While historically men have dominated this profession, increasingly more women are practicing dentistry. Dentists must be licensed by the state in which they practice. Although they take a national board examination, the “national” part ends here, as each state in the United States has its own set of rules, regulations, and requirements for licensed dental professionals. Dentists have the freedom to choose procedures and additional training. Some dentists may choose not to do any oral surgery, while others may decide to treat only children. Some may undertake additional training in particular techniques such as advanced sedation or cosmetic dentistry, surgery, or any specialized area. Others may study and work to receive certification in a specialty, although most of the time we don't just walk in off the street to a specialist's office. More often than not, a general dentist refers us to a specialist, if necessary.

Specialists

Some specialists might carry an MDS (Master of Dental Surgery), an MS or

MSc (Master of Science), or an MSD (Master of Science in Dentistry) after acquiring their general dentistry DMD or DDS degrees. Such a practitioner undertakes anywhere from two to six years of additional postgraduate training and must pass a competency exam before any specialist title is conferred.

A general dentist may limit his or her practice to a particular aspect of dentistry, but that does not mean she or he qualifies as a specialist. Take, for example, one aspect of endodontics—root canals. Dr. Ginseng may be a general dentist who prefers to do only root canals. However, Dr. Mullen may be an endodontist—someone who became a dentist, then trained for an additional two or three years in the specialty of endodontics and successfully completed the American Board of Endodontology certification. It's important to remember that Dr. Ginseng may well do the most amazing root canal anyone could ask for, although not a specialist per se. Both are held to the same standards of quality care.

The American Dental Association (ADA) recognizes nine dental specialties:

Pediatric dentistry: This age-defined specialty provides both primary and comprehensive preventive and therapeutic oral health care for infants and children through adolescence, including those with special health care needs. This specialist is typically called a *pedodontist*.

Orthodontics and dentofacial orthopedics: This specialist is typically called an *orthodontist*. Problems such as crooked or crowded teeth and irregular bites can be addressed with orthodontics. Oftentimes orthodontic interventions are seen as cosmetic.

“BRACES”: THEY'RE NOT JUST FOR KIDS ANYMORE

It's important to remember that if our teeth are misaligned, we will chew food less effectively. This can interfere with digestion as well as absorption and elimination. Historically, braces were not seen on as many adults as they are today. This shift is due in part to the emergence of aesthetically more desirable, often more discreet options such as ceramic or non-metal braces, “invisible” aligners that can move teeth, as well as appealing financial options such as adult orthodontic insurance coverage, flexible spending accounts, and financing for orthodontic treatment. The stigma that one is “too old” for braces is gone, and focus has shifted to keeping our teeth for a lifetime as well as aiming for optimal dental health and aesthetic appeal. It's been estimated that over one million adults in the United States wear some form of orthodontic device.

Oral and maxillofacial surgery: These specialists are typically called *oral surgeons*, and they specialize in the diagnosis and surgical and related treatment of diseases, injuries, and defects of the oral maxillofacial region.

Endodontics: This specialist is typically called an *endodontist*. Endodontists do root canals *and* other surgical interventions that deal with the pulp or nerve of a tooth.

Periodontics: This specialist, known as a *periodontist*, works with the prevention, diagnosis, and treatment of diseases of the supporting and surrounding tissues of the teeth or their substitutes to maintain health, function, and aesthetic appeal.

Prosthodontics: Prosthodontists specialize in the diagnosis, treatment planning, rehabilitation, and maintenance of oral function, comfort, appearance, and health of patients through prosthetics (artificial substitutes) such as dentures (“false teeth”) and other permanent and removable replacements.

Public health dentistry: A public health dentist works at preventing and controlling dental diseases while promoting the dental health of the public through organized community efforts. It is a form of dental practice that serves the community as a whole, rather than individuals.

Oral and maxillofacial pathology: Oral pathologists focus on diagnosing diseases affecting the oral and maxillofacial regions, investigating causes and effects as well as how these diseases develop. They may interpret biopsies or investigate oral manifestations of drug reactions; most work in laboratory, research, or educational settings.

Oral and maxillofacial radiology: An oral radiologist is concerned with the production and interpretation of dental images used in the diagnosis and management of diseases, disorders, and conditions of and relating to the mouth.

To find out more about professional dental or herbal qualifications, continuing educational training, and specializations, ask your health care professionals. They may welcome an opportunity to talk more about their areas of interest, education, and expertise. Some specialists display evidence of their credentials and advanced training in their offices and on publicity materials.

There is another spoonful of letters that may follow a dentist’s name. These may include FAGD (Fellow of the Academy of General Dentistry) and MAGD (Master in the Academy of General Dentistry). The Academy of General Dentistry, or AGD, is a professional organization for general dentists. Members can distinguish themselves in earning these titles by meeting rigorous continuing

education requirements. Although these do not indicate a certification or additional educational degree, they represent a tangible demonstration of a dentist's commitment to continuing education and a desire to provide the most up-to-date, quality care.

While some dentists pursue educational objectives with an eye toward specialization, some general dentists undertake advanced general training. This takes their dental education to the next level to address situations such as the requirements of special-needs patients, care provided in hospital settings, exceptionally complex care, and medically compromised patients.

Additionally, a dentist may choose to seek training on a particular topic, as distinct from a specialist's training. Dentists sometimes complete optional continuing education courses and receive a certificate of completion for attendance on topics such as dental hypnosis, forensic dentistry, implants, cosmetic dentistry, sleep apnea, snoring, sports dentistry, and temporomandibular joint disorders (TMD/TMJ).

OTHER DENTAL PROFESSIONALS

While dentists lead the clinical practice in a traditional setting, other clinical staff may include one or more registered dental hygienists and dental assistants. Let's be clear about who does what.

Registered Dental Hygienist

In the United States, a registered dental hygienist more commonly carries the professional designation RDH; LDH (licensed dental hygienist) is used also. Dental hygienists are licensed oral-health professionals who focus on education, prevention, and treatment of oral diseases to protect teeth and gums and to promote overall health. They are graduates of accredited dental hygiene education programs, and in addition to working with patients directly, they may also work as educators, researchers, and administrators. Clinical dental hygienists may work in a variety of health care settings, including private dental practices, schools, public health clinics, and managed-care organizations.

In 2010 it was estimated that there were about 181,000 registered dental hygienists in the United States, with over 90 percent reportedly working in private practice. Women dominate this profession, and about half hold additional certification.

Like dentists, hygienists must take a written national board examination and a series of regional and state board examinations.

Licensing for both dentists and dental hygienists includes clinical assessments of their work on live human subjects. Amazingly, they are the only health care professionals required to do so for a licensure exam.

Like dentists, hygienists cannot cross state lines and practice without obtaining and maintaining a license specific to that state. Regardless of the range of state discrepancies regarding scope of practice, hygienists provide basic, foundational dental hygiene services that may include:

- ✦ Oral health care assessments, including the review of a patient's health history, dental charting, oral cancer screening, and evaluation of gum disease/health
- ✦ Exposing, processing, and interpreting dental radiographs (X-rays)
- ✦ Removing plaque and calculus (tartar) from above and below the gum line using dental instruments
- ✦ Applying cavity-preventive agents such as fluorides and sealants to the teeth
- ✦ Administering local anesthetic and/or nitrous oxide analgesia
- ✦ Educating patients on proper oral hygiene and counseling patients about plaque control while developing individualized at-home oral hygiene programs
- ✦ Administering smoking cessation programs
- ✦ Counseling patients on the importance of good nutrition for maintaining optimal oral health

While most hygienists carry the RDH or LDH credential, the winds of change are blowing, and there can be differences from state to state. Most states allow for direct access to a dental hygienist's services outside of a private dentist's office; some do not.

Dental Assistant

Typically, the dental assistant, as it obviously sounds, assists the dentist or dental professional. The dental assistant is a valuable member of any dental team, working with the dentist or hygienist to enhance efficiency and comfort during care. A dental assistant can also carry out certain secondary treatments directly with a patient.

Although women dominate the profession, more and more men are choosing this career path. While primarily working in private practices, they also work in

public health clinics, schools, hospital clinics, school clinics, and sometimes even dental insurance companies.

Dental assistants are subject to the rules and regulations of their individual states. However, like everything else in the world of dental regulations in the United States, this is widely inconsistent. In most states there are no educational requirements, and assistants are trained on the job.

As patients, it's likely that we may see a dental assistant carrying out an array of tasks. This is a profession that, as in other realms of oral health care, training and certification programs are continually expanding.

Dental Lab Technician

Thus far we've focused on office-based professionals. Occasionally (although infrequently) one might also encounter a dental lab technician off-site. Artists of their trade, these specialists work under the direction of a dentist via a prescription, fabricating custom dental prosthetics that either will become permanently affixed, such as bridges or crowns, or can be removed, such as dentures. These valuable members of the patient-care team construct creations that can make dental care exceptionally successful through excellent fit, form, and function.

VENUES

While the private practice is the most common and traditional model for dental treatment, more and more dental clinics emerge each year. Now there are two types of dental clinics. Those for people with low incomes typically offer less expensive care and may be owned by for-profit or nonprofit organizations. Some are funded in part or completely by federal, state, or charitable funds. Structure and funding vary widely. These clinics may be freestanding, part of a community center, or located within an educational facility. We may see, for example, a religious organization fund a free clinic for a few hours each month, operating by means of charitable funding and supported by professionals volunteering their time. At the other end of the spectrum we can find big-business dental clinics with snappy names, which are run like corporations, often with many locations.

Dental clinics are likely to have many employees, which enables extended hours and the ability to readily handle dental emergencies. In these settings staff members are typically under contract, and as with many contract jobs this can

lead to a higher employee turnover. Unfortunately, this can limit the possibility of our developing a long-term relationship with a dental care team.

Dental schools provide another venue for treatment, often at a considerably reduced cost. Dental students provide dental care as part of their training and are closely supervised by experienced licensed dentists. Dental schools have the advantage of being able to provide dental treatment in nearly every aspect of dentistry, from the most basic to the most complex of conditions, and often have state-of-the-art techniques and equipment available. On the downside, dental treatment in a dental school takes a significantly longer amount of time to complete and may entail multiple appointments to complete many procedures.

Certain hospitals host dental-care facilities. These are equipped to handle trauma, exceptionally medically compromised patients, and care for those involved in a long-term hospital stay.

Public health offices sometimes run dental facilities also. They may focus on children's care or carry out certain procedures but not others. Typically they are tied to government funding, and what they can or cannot do changes depending on funding.

Governmental facilities include clinics on military bases, the U.S. Department of Veterans Affairs health care facilities, prisons, and federal public health clinics, each serving a particular community.

FINANCING

For many of us, just the thought of the cost of dental work is worrying. While some health insurance packages cover aspects of dental care, many people living in the United States and elsewhere do not have dental insurance coverage. This means that care is often avoided or delayed due to finances.

Typically, a dental clinic will participate in a wide array of insurance plans, as do many private practices. Also, government assistance programs such as Medicaid will contribute to the cost of care for eligible persons. A number of possibilities are available, and links to state-by-state associations are listed in appendix 1, which details professional organizations that can point us in the right direction.

While sharing personal financial details with any health care professional can be an uncomfortable conversation, it is certainly worth discussing financing options so that necessary interventions can be undertaken in a timely manner.

Some practices, be they public or private, offer in-house financing. It may be the case that office personnel know how to navigate financing options, and it may help to ask for help.

HERBALISTS

It is likely that if you are reading this book you have an interest in, or perhaps a budding curiosity about, herbs for the mouth. Indeed, you may be an herbalist who has yet to become acquainted with common conditions affecting the mouth and helpful herbal interventions. Probably many general readers have not yet worked with an herbalist and may not even know where to find one. Perhaps your dental team works with a professional herbalist; perhaps your herbalist can make a dental referral (appendix 1 will help you in finding both herbal and dental professionals). Often we don't think of an herbalist as an integral part of an oral health care team, and yet as holistic practitioners, herbalists work with the *entire* person, including the mouth and the digestive tract.

Various philosophical approaches to herbalism are practiced throughout the world. Each has its own focus. Many rely on the use of herbs as well as food to restore balance, optimize function, and promote well-being. Modes of practice vary widely. Throughout the United States and abroad, herbalists may be known by a variety of names, including *herbal practitioner*, *registered herbalist*, *medical herbalist*, *phytomedical practitioner*, and *phytomedicalist*.

Although there is no national herbal certification or exam in the United States, some herbalists carry the professional title Registered Herbalist, abbreviated RH or RH(AHG), as peer-reviewed professional members of the American Herbalists Guild. These professionals have undertaken hundreds of hours of clinical training and many have completed internships alongside other professional herbalists prior to receiving an invitation to join the American Herbalists Guild in a professional capacity. In addition to welcoming professional herbalists, the American Herbalists Guild also welcomes students and members of the public.

Elsewhere, in the United Kingdom or Australia, for example, herbalists may be affiliated and registered with the National Institute of Medical Herbalists (NIMH) or the National Herbalists Association of Australia (NHAA), while in Canada some herbalists use the designation Registered Herbal Therapist (RHT). Regardless of their geographic location, many herbalists have undertaken years

of rigorous training and strive to promote strong links with other health care providers. Additionally, they can and do refer clients to other health care professionals, including dental professionals. Compared to dental health insurance coverage, working with an herbalist is perhaps even less likely to be covered by health insurance in the United States and financing options will vary widely. Many herbalists will discuss payment plans; some might also offer the possibility to barter or trade services.

As we all know, while working with a professional can help to support and sustain our health and well-being, it is not the once or twice, or even three-times-a-year visit to the dentist or the herbalist that promotes oral health; oral health arises from day-to-day care, is sustained by day-to-day care, and can be recovered by a commitment to caring for one's mouth on a consistent, daily basis.

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PART II

**From Infancy to Old Age The Mouth
through a Lifetime *Wrinkles should
merely indicate where the smiles
have been.***

MARK TWAIN

The mouth is not static. It changes not only from second to second and minute to minute, but throughout one's lifetime. Our teeth erupt and continue to do so until, for most of us, our primary teeth have been replaced by a full set of permanent teeth. The majority of us accept decay as a natural sequence of events. As we'll see, this need not be the case. Neither caries (cavities) nor gum disease are inevitable. Indeed, with due attention and some understanding of the changes that occur in the mouth, it is likely that we may well keep our teeth for a lifetime.

6

PREGNANCY, INFANTS, AND TODDLERS

Guiding each infant and toddler on a path that will sustain a lifetime of oral health is an important goal for any parent or guardian. When does this begin? At birth? At the eruption of the first tooth? After all the teeth have erupted? Actually, building a foundation for lifelong well-being begins before birth, with prenatal nutrition, the key to early development, including the formation of healthy teeth and their supporting structures.

Pregnancy can be a very exciting time full of great anticipation as each woman walks her own path. Consuming a variety of natural, nourishing foods has the potential to provide both mother and unborn child with plentiful amounts of nutrients. Here we remind readers that calcium, phosphorus, iron, and iodine, in addition to vitamins A, C, and D, are all crucial building blocks for developing healthy dentition. When we look to natural foods before relying on manufactured supplements, we offer the body a more natural approach to meeting its nutritional needs. But it's not just about food. Aviva Romm, Yale-trained physician, midwife, and award-winning herbalist and author reminds us, "Nourishment is a holistic experience that goes far beyond simple eating" (Romm 2003).

Tooth development begins in the womb at about six weeks after conception, when baby teeth begin to form. The development of permanent teeth begins around the twentieth week of pregnancy, about the same time that the unborn child can hear and recognize the mother's voice.

DURING PREGNANCY

Oral care throughout pregnancy is important for both mother and baby. Mothers are susceptible to pregnancy gingivitis due to an influx of hormones. In response to these fluxes, the gums have an exaggerated reaction to plaque and tartar buildup. Redness, swelling, and bleeding are common symptoms of pregnancy gingivitis and can develop separately or together. Thorough plaque removal can

reduce and help eliminate the triggers of pregnancy gingivitis. Interventions are akin to those for common gingivitis and are discussed in chapters 8, 11, and 12.

When we have bleeding gums, bacteria in the mouth can enter the bloodstream. It is especially important to avoid this complication during pregnancy. Although studies have shown a link between moderate to severe periodontal disease and adverse pregnancy outcomes, we don't yet understand the precise mechanisms at work or the specific effects on the unborn child. We do know that some studies have shown a relationship between advanced gum disease and pre-term, low birth-weight babies. When a woman has healthy gums and a healthy mouth, she is lowering the risks for her pregnancy and for her unborn child. Therefore it is important to continue regular dental visits during pregnancy to maintain and monitor a mother's well-being.

It is widely accepted that the second trimester is the ideal time for dental appointments. Why? The first trimester encompasses rapid fetal development, and for some women morning sickness can inhibit a successful appointment, whereas the last trimester can bring discomfort from the typical positioning of a dental chair during an examination. We realize that an uncomfortable appointment for a mom can also be a stressful experience for the unborn child. Of course, it's important to remember that we're speaking in generalities here, as it is certainly perfectly possible to have a successful dental visit anytime during pregnancy.

It's a good idea to notify each of our health care professionals as to changes in our current health status, including pregnancy, herbs, pharmaceuticals, and so on, so that interventions can be tailored accordingly.

Anesthesia and radiographs (X-rays) ideally should be avoided during pregnancy unless absolutely necessary. However, crucial dental work should not be delayed. If necessary, the dental team can coordinate with the obstetrician to formulate a healthy suite of interventions for both the expectant mom and the unborn child. To safeguard the health of both the mother and the unborn child, herbs, medications, and supplements should be reviewed during pregnancy.

NEWBORN

Whether a new life comes to us through adoption, foster parenting, or pregnancy and childbirth, the newborn's gummy smile can bring with it a host of surprises.

Some infants are born with a tooth or maybe even more than one. We call these teeth that arrive at birth *natal teeth*, in contrast with what are known as *neonatal teeth*; i.e., those that erupt within the first thirty days of a child's life. Natal teeth and neonatal teeth may be removed if they are loose or interfere with nursing or bottle feeding, or if they cause any issue for the baby.

Occasionally we find lumps and bumps on an infant's gums. Usually these are either Epstein's pearls or Bohn's nodules, which are small, harmless white cysts that can occur in various parts of a newborn's mouth. The baby's neonatologist or pediatrician can identify them definitively. Epstein's pearls disappear naturally after a week or two.

While a baby may not have any teeth, cleaning his or her gums *is* important. Begin gum care soon after birth, and do it twice a day. Beginning an oral regime soon after birth establishes an excellent foundation for a lifetime of care and helps the baby adjust to the activity. Additionally, this helps to remove any residue of breast milk or formula remaining on the tissues. Simply lay the baby down as if for a diaper change. Using a clean damp washcloth wrapped over an index finger, gently wipe the inside and outside of both the top and bottom ridges of the gums. Commercial infant finger toothbrushes are also available, but a washcloth works just as well, and twice a day is ideal.

If signs of teething are present, use a washcloth saturated in an herbal tea. Chamomile or fennel are ideal choices, as each helps soothe the tissues as well as the temperament. The choice may vary, depending on the baby's individual reaction. Take care to use a warm, not hot, cloth.

TEETHING

A monumental milestone for any parent is baby's first tooth. Almost always, a bottom incisor is the first tooth to appear. The arrival time of this first pearly gem varies widely from child to child. Some get their first tooth by three months, while others may not have a tooth until they are closer to a year old. Figure 6.1 shows the typical arrival schedule for each of the deciduous tooth types.

Between the ages of two and three, the child's full set of twenty baby teeth is likely to have erupted. A child-sized toothbrush can be used for cleaning each visible surface. Monitoring brushing until about age seven or eight will reinforce the development of sound oral-health techniques (see chapter 3 for daily care tips).

Teething is sometimes referred to as “cutting teeth.” The teeth really don’t “cut” through the gums, they more or less just push their way through gradually, but that doesn’t mean that it doesn’t cause some infants discomfort. Many times teeth will erupt without the infant seeming to even be bothered, while a different tooth coming in may cause a variety of symptoms, including clinginess, chewing, crying, discomfort during eating, fussiness, irritability, sleeplessness, changes in appetite, low-grade fever, and increased saliva production (drooling). Each child is different. Each tooth is different, and the situations surrounding the emergence of each tooth are also different.

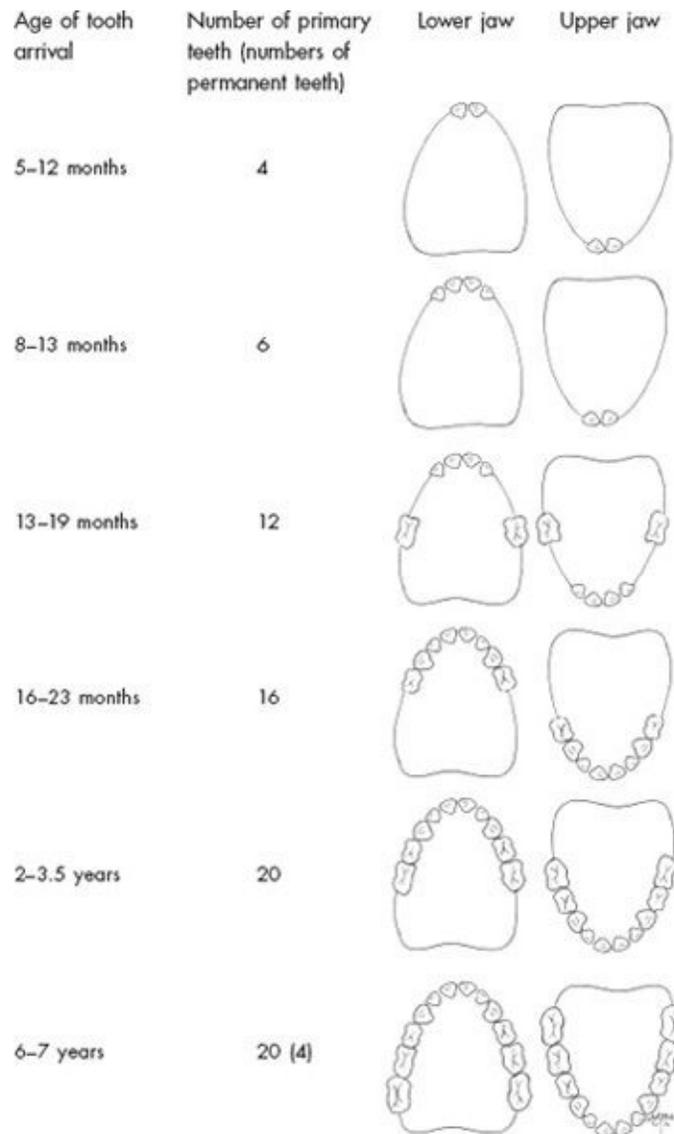


Figure 6.1. *Dental Herbalism's* Deciduous tooth arrival chart

Saliva production during teething ramps up not in response to teething itself, but rather in

anticipation of aiding digestion during an infant's transition to solid foods. Some babies focus so intently on the instinct to chew, which aids tooth eruption, that they forget to swallow!

A trip to any baby specialty store will yield an overwhelming selection of commercial teething aids, but more often than not an herbal approach to the symptoms associated with teething will benefit both the family and the child.

For the majority of teething babies, cold helps to relieve discomfort. We may look to frozen teething rings or foods that can easily be frozen, such as strawberries or other brightly colored fruits high in vitamin C. As cold anesthetizes the gums, short, frequent applications can provide the most relief. For some babies, and adults too, heat seems to help ease discomfort more than cold does. Warm topical herbal compresses of hops or a blend of hops and dried milky oat tops can be very soothing indeed (for mother too). The choice of herb is important and can vary from child to child, or indeed from day to evening. Some herbs such as lemon balm and chamomile soothe nerves and reduce discomfort; tonic herbs such as milky oats feed the nervous system indirectly, and these can be combined with herbs that promote sleep, such as hops. Chapter 12 details information for making teas, compresses, oils, and herbal formulas that are mentioned throughout the text. Chapter 11 discusses specific herbs, applications, and cautions.

Gum massage, discussed previously, also helps relieve discomfort and can be done at any time, with a washcloth saturated in an herbal tea or with just a fingertip. Even more effective to ease the discomfort of teething is the application of a raw honey-based paste to the gums. Honey is a natural antimicrobial that also neutralizes toxins and promotes healing. Just because we think of honey as “sweet” doesn't mean that it should be avoided. Indeed, it has a host of healing properties that protect and promote health and well-being. Mary Bove, a world-renowned herbalist and educator specializing in family medicine and natural childbirth, suggests the addition of the essential oils of either clove or wintergreen (Bove 2001). In our experience, wintergreen is more palatable for young mouths.

CAUTION

The Centers for Disease Control and Prevention (CDC), the American Academy of Pediatrics (AAP), and the National Honey Board (NHB) recommend reserving the use of raw honey for children over twelve months old, as wild varieties may result in exposure to a bacterium called *Clostridium botulinum* (*C. botulinum*). While every exposure may not result

in gastrointestinal complications, this bacterium can grow and multiply in an infant's intestines and produce a dangerous toxin.

Sometimes simple pressure is soothing, which is why many teething infants enjoy chewing. To be sure, as teething can occur throughout childhood and even longer as our wisdom teeth appear, interventions that are thought to be infant specific are likely to also reduce the pain and discomfort associated with an emerging tooth later in life.

Baby teething chews can consist simply of a frozen washcloth saturated in an herbal tea such as chamomile or catnip. They can be made from a root such as marshmallow, or we can use frozen fruits such as dates. In a pinch, anyone's finger will do just fine, thank you very much. Some infants enjoy the taste of rusk or arrowroot biscuits. These, too, help exercise the baby's jaws, and chewing eases discomfort. In all cases it's important to avoid the possibility of choking and to avoid bathing the mouth in sugar. We must ensure that nothing we use is so small it can be swallowed. Sugar (see chapter 13) can be completely avoided by reading labels and making healthy choices.

One of the great benefits of getting to know herbs and their applications is an appreciation of their versatility. Medicinal herbs can be enjoyed as hot or cold teas by a breast-feeding mother, thus truly "nursing" an infant via breast milk. Additional ways to use the same tea include adding it to a tepid bath for the body, feet, or hands; freezing it into popsicles; or using it to make a paste or poultice. A paste or a poultice can be made, for example, by adding chamomile tea to powdered slippery elm bark to form a paste; raw honey can be added prior to gently rubbing the paste on the gums. One drop of essential oil of clove, wintergreen, or peppermint can be added to help relieve discomfort. Pastes can be applied two or three times a day.

Many herbalists suggest the use of syrups. While these certainly have a place in an herbal medicine chest, our position is that while teething they are to be avoided if sugar-based. Sugar promotes decay and is a source of growth for many nonbeneficial microorganisms (see chapter 13).

MICROBIAL TRANSMISSION FROM CAREGIVER TO INFANT

Our exposure to various microorganisms such as viruses, bacteria, and fungi helps to build our immune systems. We know that exposure doesn't always

result in sickness or ill health, but like some forms of physical activity, exposure can present a challenge. These challenges contribute to sustaining and enhancing healthy immune systems.

For healthy (wanted) and unhealthy (unwanted) microorganisms to thrive, host conditions must be ripe to support survival. We are each potential hosts. Our individual internal terrains, be they physical, mental, emotional, or spiritual, contribute to our foundations for health and well-being.

An infant's immunological development and its exposure to microbes begins before birth and changes during birthing as she or he moves along the birthing canal. On a day-to-day basis, our exposure to microbes varies. An infant's exposure is mediated by eating; kissing; sharing utensils, cups, or straws; testing the temperature of foods on a spoon, then sharing the food with the baby; cleaning pacifiers in our own mouths; using our saliva to wipe off a baby or a pacifier; and the infant's kissing of pets and mouth contact with other elements in the environment. These exposures are generally healthy challenges and can actually enhance the immune system. Nonetheless, it's important that parents and guardians understand some of the ideas surrounding transmission, as each kiss contains bacteria.

Bacterial presence is an essential part of tooth decay (see chapter 7). The bacterium most commonly associated with decay is *Streptococcus mutans*, sometimes abbreviated *S. mutans*. One of the ways we transmit these bacteria is through saliva. Ken Krauter, a professor of microbiology at the University of Colorado, says, "The most abundant bugs that are living in your mouth are dependent on what you eat, who you kiss, how often you brush your teeth" (Schultz 2012). That's not to say that children will get tooth decay if our saliva comes in contact with their mouths, but it's certainly an incentive to look after our own oral health.

THRUSH

Billions of microorganisms are usually found in a healthy mouth. *Candida albicans*, sometimes simply called *Candida*, is a type of fungus often present. When its growth is unchecked and it begins to dominate, the microbial population of the mouth gets out of balance. This imbalance is what we call *thrush* or *candidiasis* or *candidosis*. For most people, thrush is not harmful or dangerous, but it can be painful and affect feeding and immune health.

Most commonly acquired by babies under six months old, thrush often presents after a short illness or a course of antibiotics. Even a maternal course of antibiotic treatment can result in an infant developing thrush. These pharmaceuticals can pass to the baby through breast milk and disturb the flora routinely associated with the digestive system. As *Candida* can be found in a healthy mouth, an outbreak of thrush may develop as a result of an underdeveloped immune system, imbalances in immune activity, or a significant exposure to the fungus; for example, through breast milk.

White patches inside the mouth characterize thrush. Appearing on the tongue or inner cheeks, gums, or lips, these patches don't usually wipe away and resemble cottage cheese curds. If they can be wiped off, the underlying tissue is often red. Thrush can also present in the vagina, on the nipples of a nursing mother, or on a child's bottom. Breast pain, itching, or even a weepy nipple can accompany a thrush infection. Regardless of its origin, the infection can be passed easily between breast-feeding mother and child, and this is to be avoided. It is important to practice sound hygiene. Care needs to be taken to ensure that the breast (and nipple), pacifier, and teething utensils are kept clean during this time to reduce the chance of reinfection. Also, wiping a baby's hands after feeding and contact with the breast can help to limit transmission. Herbal washes to address this condition are listed in chapter 12.

Men can get thrush also. While not considered a sexually transmitted disease, it can be passed during vaginal, anal, and oral sex, or by the fingers during foreplay.

Overcoming a thrush infection can initially be approached with healthy food choices, as well as by incorporating culinary herbs such as cardamom, garlic, thyme, oregano, and sage to help support both digestion and the immune system. An infusion for use as a wash to swab the mouth and nipples is described in chapter 12.

With any thrush infection, barley water can be used to moderate the pH of the mouth and support the digestive system as a whole. Further support can be added by making dietary changes, such as reducing or eliminating sugars and carbohydrates and by following the swabbing of the mouth with a lactobacillus rinse. Additional preventive and restorative measures include reintroducing healthy live flora by consuming about half a cup of live-culture yogurt daily and drinking a tablespoon of apple cider vinegar in a glass of water once or twice a day.

Natural interventions can work as effectively as pharmaceuticals such as nystatin and fluconazole (Diflucan) in addressing fungal infections.

SUCKING THUMBS, FINGERS, AND PACIFIERS

We are born with a sucking reflex necessary for feeding and survival. Nonnutritive thumb, finger, or pacifier sucking is normal for babies and small children. Although this reflex disappears at about four months of age, many believe that it lays the foundation for thumb sucking in some older children.

Humans aren't the only primates that exhibit thumb sucking. Chimpanzees do it, and some lemurs do it as well.

Most children stop thumb sucking on their own between the ages of two and four. If it continues past this age, the action may alter or distort the shape of the oral cavity and cause more serious problems that range beyond the obvious “buck” teeth, such as a dysfunctional or traumatic bite. It's worth mentioning that thumb sucking is not solely an instinctive behavior; it can bring comfort or relieve boredom.

If a child sucks his or her thumb, we can look toward various interventions, from positive reinforcement to wearing a mitten or bandage on the thumb or finger in question. Perhaps most important is to begin to understand *why* a child continues to suck the thumb or finger, as this will help in targeting one or more interventions.

Compared to fingers and thumbs, the habitual use of pacifiers is often an easier habit to break, as these are not attached to the child. However, long-term use is best avoided because as with finger or thumb sucking, it can cause a similar distortion to the mouth. Pacifiers should be checked for rips and cracks to avoid injuring the oral tissue, and they should never (ever) be dipped in something sweet.

BABY BOTTLE DECAY

Water is always the best choice for a bedtime bottle. When a child goes to bed with a bottle of milk, formula, juice, or, heaven forbid, a sugary carbonated beverage (soda or pop, for example), baby bottle decay can result from prolonged sugar exposure. Sugars are known by a multitude of names (see

chapter 13). It's never a good idea to allow sugars—any sugars—to linger in the mouth. Typically, this type of early childhood tooth decay appears on the upper front teeth, although other areas can be affected as well.

The snacking habits of toddlers can also contribute to tooth decay. We discuss the correlation between sugars, carbohydrates, and tooth decay further in chapter 13.

TOOTH DISCOLORATION

A variety of factors affect tooth color. Although coloration is largely determined by dentin (see chapter 2 for a description), antibiotics such as tetracycline and excessive fluoride consumption (discussed in detail in chapter 10) can also affect coloration. If a pregnant woman or a child under the age of eight takes tetracycline, the developing teeth are affected and can become permanently discolored. Tetracycline should be avoided and other antibiotics used in its place.

GROWING UP WITH HEALTHY TEETH

As teeth emerge and cleaning routines (see chapter 3) are established, children begin to grasp the importance of regular brushing and rinsing. They may even be curious about flossing, watching other family members do the same. Flossing can be introduced around age two or sooner if teeth abut each other and are so closely spaced that a toothbrush cannot be used to adequately clean all sides of each tooth. Some children's mouths are very small, their teeth do touch, and flossing in these instances is appropriate. For other children who have considerable space between their teeth, thorough cleaning with a toothbrush is a real possibility, and flossing can be introduced later. It's worth remembering however, that children refine their fine motor skills at their own pace. It is ideal for parents or guardians to floss their children's teeth until the child exhibits the dexterity to floss effectively on his or her own. Incorporating flossing at a very young age helps to integrate this valuable tool into a lifetime of oral care, as opposed to attempting to add one more thing at a later age.

Once a child is familiar with brushing his or her own teeth, usually at around age three, a power toothbrush can be introduced. Most children find these to be fun toys. Perhaps more importantly, children often do a more thorough job with

these cool spinning brushes, brushing longer and better. Power toothbrushes come in many child-friendly themes.

TODDLER SNACKING

Toddlers have little stomachs and usually snack often to get themselves from one meal to the next. While these snacks can provide necessary energy, we also know that the frequency and duration of sugar exposure is a key factor in tooth decay. Smart snacking is a sure, safe, and effective way to support and sustain oral health (chapter 13 discusses food and drink in greater detail, including healthy snacking alternatives). Fresh vegetables, cheese, plain yogurt, and fresh fruits are excellent choices to present to children, and all help to scour the teeth and gums and help prevent a buildup of plaque. Sugary snacks should be avoided as much as possible, and if they are eaten they should be eaten at one sitting. It's healthier for the mouth to eat an entire sugary treat all in one sitting than to make it last, eating a little now and a little later, which prolongs the exposure to sugar. Rinsing, and if possible brushing, following mealtimes and snacks are sure interventions for helping to sustain and promote oral health.

THE FIRST DENTAL VISIT

The American Academy of Pediatric Dentistry (AAPD) recommends that a child have his or her first dental visit before the first birthday. The dental team can examine the child, check for any concerns, and evaluate the development of dentition. Questions can be answered, and oral habits can be addressed.

There is a great deal that a parent or caregiver can do to make the first dental visit a success. Enthusiasm surrounding this first exam is important at this early stage and can be sustained as a child grows older. Appointments, even those for ourselves, should be scheduled at the best time of day for each person involved. After all, some of us are morning people, some prefer afternoons. For certain we can all benefit from being well rested and relaxed at any appointment.

Taking responsibility for a lifetime of oral health begins as we get to know our mouths. It can begin before we even know there is a lesson to be learned.

As a child matures it can be helpful to role play at home and have parents, guardians, and siblings count a child's teeth, imitating dental professionals

during an examination. We suggest using a bit of psychology; scary words should be avoided. Well-intentioned adults often unintentionally cast things in a negative light, saying things like, “It won’t hurt a bit” to a child, not realizing that the child zeroes in on the word *hurt*. They then begin to consider the possibility that it could or will hurt. It is always best to start out with a smooth, positive experience. Most first dental appointments for small children entail a simple examination and will help get the child accustomed to and familiar with the dental team and the examination process.

Your dental team will begin to forge a long-term relationship with each person in the family as they help to guide and support oral care.

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9

TOOTH LOSS, REPLACEMENT, AND ORTHODONTICS

In an ideal world, each of us would keep our teeth for a lifetime. We intentionally use the word *keep*. We don't say they *will* last a lifetime; however, in the absence of poor hygiene, eating habits, and other factors that affect the health of our mouths, teeth would last a lifetime. Ideally, our teeth would fit together perfectly; they would be healthy, fully functional, and look great until we no longer walk the earth.

But things happen. There's fate, physiology, and anatomy; accidents and injuries can affect tooth loss, as do our individual behaviors and oral habits. Some of us just lose teeth because perhaps we never realized and fully understood the fact that we only get one shot here, one chance to grab the brass ring as we go around on that old merry-go-round of life. And if we lose our teeth, we lose them, for good. In adulthood they never grow back. Fortunately, there are solutions for dental problems such as lost or misaligned teeth, and here we explore these options.

Edentulism describes the condition of having no natural teeth. When someone is toothless, he or she is edentate. Of course, some of us are partially edentate, meaning we have some missing teeth. Is this common? Yes.

Nationally, it's a steady decline: about 65 percent of eighteen-to twenty-four-year-olds have a full set of teeth; 30 percent of persons thirty-five to forty-four; and those sixty-five and older? About 6 percent of those folks have a full set of teeth. (NIDCR/CDC Dental, Oral and Craniofacial Data Resource Center, 2002)

Tooth loss is not inevitable. Perhaps it's because we see so many people without a full complement of teeth that we have come to think of tooth loss as a natural part of aging. But while wear and tear *is* a natural part of aging, tooth loss is not.

Tooth loss doesn't affect everyone equally. Those of us who choose not to care

for our teeth are more likely to lose our teeth. However, many other factors affect statistics. Access to care is very important, as is ethnicity. As can be seen in figure 9.1, edentulism, including partial edentulism, varies also by educational achievement, which, truthfully, is another way of measuring economic status. People with more money often have easier access to care.

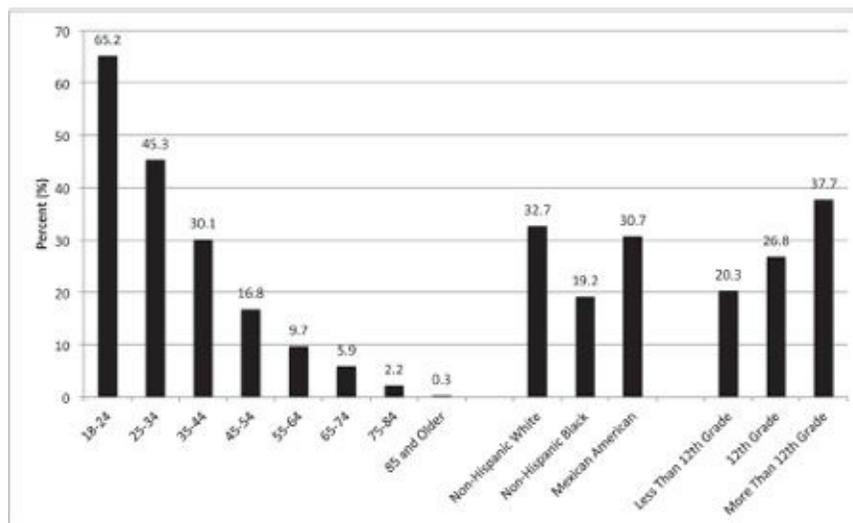


Fig. 9.1. The percentage of adults aged eighteen and older with full dentition by demographic variables (from *Oral Health, U.S. Annual Report, 2002*)

WHEN ONE TOOTH GOES MISSING

Many people don't find losing a single tooth to be a big deal, especially if the lost tooth is not visible. The truth of the matter is that the consequences can be huge. A single lost tooth initiates a domino effect; the impact can be measured throughout the mouth, progressively jeopardizing one tooth after another. Imagine pulling a block out of the foundation of a building. Sooner or later, that loss of support will begin to have identifiable effects. Teeth were meant to work as a team, supporting one another, working together, distributing the workload across each chewing surface.

When a tooth is extracted, a blood clot sits in the bone, marking the site of the extracted root. The clot contains cells that will aid in healing. If the clot is dislodged before healing is complete, the jawbone is exposed to food debris and bacteria. This can be the beginning of a painful infection, commonly called *dry socket*.

Rinsing with saltwater or an everyday herbal mouth rinse (see chapter 12) is an

excellent way to keep the socket clean. If bleeding begins, the tannins found in an ordinary black tea bag can help control bleeding; so too can a small poultice of yarrow, and a drop of clove oil applied topically will help with pain if dry socket develops. Clove is also an excellent antimicrobial herb.

So what should we know about tooth loss? To begin with, many people would like to avoid the inevitable cosmetic concerns when a tooth is lost. Teeth support our cheeks and lips and are the underlying support that gives our faces a certain roundness or fullness. Losing teeth therefore affects how we look. The more teeth we lose, the bigger the effect. The cheeks may become sunken, giving the appearance of being gaunt, or the lips may become indented if the loss is in the front of the mouth. One's vanity, self-esteem, and confidence may suffer as a result.

Although cosmetic side effects are a concern, structural side effects are more numerous and potentially even more damaging to our health and our esteem. The most common effect from the loss of a single tooth is a phenomenon called *supraeruption*, in which each tooth erupts into its place in our mouth until something stops it. This can be the availability of space, as most teeth erupt into empty spaces.

When we look at supraeruption in relation to tooth loss, the problem is usually more significant in the molar areas. There is a tendency, especially in the case of molars, for our teeth to continue to erupt over our lifetimes if the adjacent teeth do not restrict them. For example, if we lose a lower first molar, the opposing upper first molar loses its “antagonist,” or opposite tooth. This results in the upper first molar having no tooth to hit against. Without an antagonist, it then begins to drift vertically out of the gum to expose the root and sit farther out of the jawbone than its neighboring teeth (see color [plate 10](#)).

Usually while this is happening the teeth next to the missing tooth start tipping toward this new space. Slowly, one tooth shifts as a result of an extraction; then another, and another, until misalignment becomes the new norm. As can be imagined, one's bite changes—and not for the better. This is called *malocclusion*. Malocclusion can lead to a lot of stress on the jaw, especially the temporomandibular joint itself, as well as on the remaining teeth. (We can use herbs to mediate the discomfort; see chapter 12.)

Additionally, a missing tooth causes us to masticate, or chew, less efficiently, and the gum tissue in the empty socket can become sore from abrasion and the pressure of food being crushed against it. We may decide to avoid certain foods

or chew exclusively on one side, putting undue burden on those teeth.

Periodontal problems can arise in the teeth that supraerupt or those that tilt into the newly opened space. When tilting occurs, bone is resorbed to allow tooth movement. This predisposes the area to increased periodontal pocketing that can be difficult to clean and can lead to gum disease and further bone loss.

Speech can alter. Our lips, cheeks, and tongue all work in unison to create a complex pattern of speech. When we modify the whole, by taking away just a single tooth, a cascade of events may occur that can ultimately affect speech. The more teeth we lose, the more speech is affected.

The difficulties that can arise when a tooth is lost can have a significant impact on the quality of our lives. For this reason the best option is to replace the single tooth when it's lost and return to a full complement of teeth. It's generally easier and less expensive to replace one tooth than many teeth. Single tooth replacement options are an implant or a bridge. Let's investigate the pros and cons of each.

IMPLANTS

A dental implant is best thought of as a replacement root for a tooth, as seen in color [plate 11](#). Usually made of titanium, it is surgically placed into the bone to act as an anchor, just as the root of the tooth once did. Once the implant has been integrated into the bone, an abutment that connects the implant to its crown is put in place; and then lastly, a crown is fitted.

One of the advantages of a dental implant is that it usefully replaces a single tooth, and its placement doesn't affect any other teeth. Additionally, an implant functions in a similar manner to a natural tooth. For example, it has the closest chewing efficiency compared to any other replacement option. It does not decay, has no nerve, and is just as easy to maintain and clean as a regular tooth (cleaning and daily care are discussed in chapter 3).

There are, however, a few drawbacks to dental implants. Any of us addicted to instant gratification may have some reservations about this option. Although each of us is different, it typically takes many months to complete an implant tooth replacement. Some implants can be placed at the time that the tooth is extracted, but more commonly there's a lag time as the bone fills in the space vacated by the excised root. If bone grafting is necessary to provide adequate bone support for the implant, time for healing must be given after grafting before

placing an implant. Then once the implant has been placed, time is again needed for the implant to integrate with the bone, perhaps anywhere from four to six months.

After the jawbone fuses securely around the implant, the dentist takes the necessary impressions for the abutment that will screw into the implant. The crown is then fitted on top of the abutment and cemented or screwed into place. A dental laboratory will usually take three to four weeks to fabricate those final restorations. Fitting the implant results in a permanent placement. Dentistry is changing in leaps and bounds, and techniques to refine and expedite this process are continuing to evolve. It is likely that in the very near future most implants and final crowns will be fitted at the same time.

Implants may seem like a natural tooth; however, they are still foreign objects being inserted into the bone. Implantation also carries the risk of failing. Notably, the bottom jaw is more readily accepting of an implant because the bone is more compact compared to the top jaw, where the bone is much more porous. In the upper jaw there is some risk of complication during placement, especially with the maxillary sinuses, when working in or near the back. When working on the lower jaw, care needs to be taken to avoid the main nerve trunk that runs along the jaw.

Although dental implants are an excellent option for single tooth replacement, they also can be used for multiple tooth replacements, as anchors for prosthesis such as bridges or dentures, and to assist in orthodontic movement.

Complications one may experience with an implant can include failure of the implant to integrate with the bone, periodontal disease occurring around an implant, or infection in the periodontium surrounding the implant. Herbal interventions for periodontal disease are discussed in the previous chapter; individual herbs and interventions are detailed in chapters 11 and 12.

BRIDGES

The second option for single tooth replacement is a permanent dental bridge, as seen in figure 9.2. An easy way to think about a bridge is three crowns fused together. Each tooth on either side of the missing tooth is prepared as if it was getting a crown. An impression is taken, and the bridge is fabricated and later cemented in place. The bridge has two crowns on either side, called *abutments*,

with a fake tooth, called a *pontic*, fused in the center.

The advantages of a bridge include its noninvasive nature compared to an implant. A bridge can also be beneficial if the abutment teeth need crowns due to wear and tear, for example, or caries, thus accomplishing two tasks at once by fixing adjacent teeth while filling a space.

Although porcelain fused to metal was long considered the standard for bridges and single crowns, there is a shift away from the use of metal materials toward porcelain and porcelain-like materials. Not only is porcelain thought to be a healthier option, it has greater aesthetic appeal.

The disadvantages of a bridge can include interfering with healthy teeth that abut a space. Also, cleaning around and under a bridge requires additional attention. A special floss threader is used to clean under the pontic. And because it is one unit, failure means that all of the teeth involved in the bridge are affected. Furthermore, the bridge, as a whole, does not provide as high a level of chewing efficiency because of its solid nature. Aesthetically, some bridges may not be as pleasing. True spacing between the abutments and the pontic is difficult to achieve, as they are all connected.



Fig. 9.2. A permanent bridge designed to span three teeth, with a central pontic

The most common complication that can occur with a bridge is decay. Although the bridge itself will not decay, it connects to natural teeth, and this connection area, as well as the root structure below it, can be susceptible to decay. Also, and importantly, the periodontium surrounding the bridge is still susceptible to periodontal disease. Furthermore, porcelain can chip, roots of abutting teeth can fracture under the bridge, and there is a chance that the bridge could become loose.

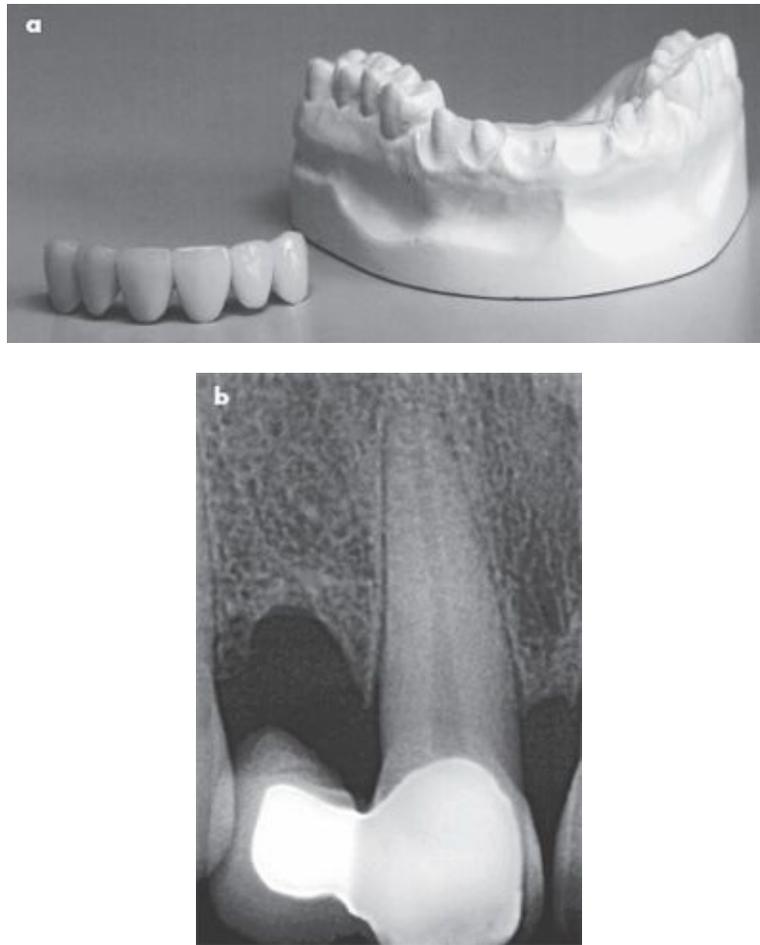


Fig. 9.3. Depictions of (a, above) a two-pontic bridge that spans six teeth total, and (b, right), a combination cantilever/Maryland bridge showing the cantilever pontic on the left, with a Maryland “wing” attachment on the central incisor on the right.

As previously stated, bridges can replace more than one tooth (as seen in figure 9.3a); can be longer, with more than two abutments and one pontic; can have the pontic on the end (called a *cantilever bridge*, as seen in figure 9.3b); or can have a pontic with “wings” glued to adjacent teeth, which is called a *Maryland bridge* (as seen in figure 9.3b).

REMOVABLE PARTIAL DENTURES

We’ve talked a lot about a single tooth replacement, but perhaps we have many teeth missing. Although there are various permanent prostheses, combinations of fixed implants, and bridge replacements, there are removable prostheses available as well. This type of replacement is usually used when someone is missing multiple teeth. Too, some people may not be suitable candidates for

implants, such as the medically compromised, who should indeed avoid surgical procedures whenever possible, as well as those who have had radiation therapy to the jaw and young people whose jaws are still growing. Furthermore, bridges are not recommended for areas with advanced bone loss. Finally, some people choose removable prosthetics because they're less expensive.

Flexible partials that contain no metal bars have become increasingly popular in recent years. These flexible nylon resin-based partials look more natural, are lightweight, and conform well to the mouth (compare color [plate 12a](#) with 12b and c). This translates into a very comfortable prosthesis.

As a removable replacement, the partial denture is affixed with clasps that connect it to existing teeth when inserted, as seen in color [plate 12a](#). Removable partial dentures often have a metal bar shaped to the prosthesis so that fake teeth and gum tissue can be attached to improve aesthetic appeal. There may be other projections of metal used to support and stabilize a partial.

One of the main advantages of removable partial dentures is that we can replace many teeth with a single prosthesis. Not only is this a workable solution for those of us who have lost teeth from various positions in either the upper or lower jaw, it also preserves other healthy teeth. Removable partial dentures are also typically less expensive than permanent, fixed options.

The list of potential disadvantages is long. One can experience sore spots and speech difficulties; chewing foods can become less efficient, food can work its way between the partial and the gums. Partial dentures can become loose, need readjustment, or need to be relined. Relines ensure a healthy fit. Dentures should fit snugly; they shouldn't move when we are chewing or talking, and they shouldn't hurt or cause sores or bleeding. The anchor teeth that either abut or are attached to the partial can easily become compromised through daily wear and tear, insertion and removal, or the pressure from the prosthesis. Another disadvantage is that bacteria can become trapped between the partial and the adjacent teeth. Partial dentures can break or go missing if we misplace them; those with metal are not aesthetically pleasing and they may alter both our ability and our perception of taste.

Some partials can connect to crowns on adjacent teeth with a male/female connector called a *precision attachment*. This provides a higher level of comfort and stability but typically increases the cost of the prosthesis.

A removable partial denture should be taken out nightly and cleaned

thoroughly, as it can get a biofilm and even a tartar buildup on it. Partials can be brushed just like permanent teeth; they can be rinsed in mouthwashes (as described in chapter 12) and taken out each night or for eight hours a day to allow the tissues to rest and recover from being covered. While there are many different types of plastic holders for partial dentures, they can also be left overnight in a glass of water.

Partials may also need whitening. While we can use sage leaves to whiten natural teeth, partial and full dentures are best whitened with a half-and-half mixture of water and 3 percent hydrogen peroxide.

DENTURES

Called *full dentures* or *false teeth*, these provide an opportunity to have a full set of teeth when there are no teeth in one or both jaws (see color [plate 13](#)). They are made of acrylic and are supported by the hard and soft tissues of the mouth. Typically an upper denture can be worn more comfortably and successfully, as more suction is created because it abuts the hard palate. Lower dentures can be difficult since they sit on a U-shaped ridge, and they can interfere with the tongue.

For those without teeth in one jaw or both, full dentures enable more precise mastication. This is a final treatment; at this point periodontal disease and tooth decay are no longer a concern. Some people give up on caring for their teeth and gums and ask for dentures. Aesthetically, full dentures offer a consistent look; size, shape, and tissue color can be altered to please the wearer.

Like partial dentures, full dentures have many disadvantages. The biggest one—and it is quite significant—is an altered sense of taste. With large amounts of acrylic standing between our delicious fare and us, salivary flow is reduced, digestion is compromised, and taste is altered. The denture acrylic can also interact with and alter the taste of food itself. Chewing may be quite difficult, and some foods may be omitted from a regular diet because eating them poses impossibilities. This can result in nutritional imbalances, as some wearers avoid hard, crunchy raw foods that are very beneficial to the teeth and gums and act as natural toothbrushes but are impossible to chew effectively with dentures.

Sores and fungal infections under the dentures are common. While these can be addressed with herbs, as described in chapters 11 and 12, it seems to make more sense for any number of reasons to keep one's teeth if at all possible.

Another difficulty with full dentures is that those with a strong gag reflex may struggle to tolerate them.

Once we lose all of our teeth in one or both jaws, the jawbones begin to change. For starters a constant state of recession begins. This leads to a persistent retraction of the ridge of bone that sits under the gums. This ridge is what the denture was built to sit on. As we lose this bone, we lose something called *vertical dimension*. The face begins to slowly collapse, altering one's appearance and giving the face a sunken-in look. The corners of the mouth turn downward, and the person can become prone to angular cheilitis (inflammation of one or both corners of the mouth, as described in chapter 10). Dentures need to be relined to compensate for disappearing bone. Occasionally, a completely new set of dentures will need to be made. Sometimes the ridge disappears entirely. This leaves nothing for a denture to adhere to. In other words, at this point there are no other options for replacing one's teeth and a person becomes toothless.

Like partials, full dentures are removable. This means we can lose them or leave them in a restaurant restroom, on a counter, or in a hotel room. They can break—not from being abandoned, just through wear and tear. Additionally, it is often the case that those with full dentures don't visit the dentist as often as people who have their own teeth. Many wearers only seek out a dental professional when they need to have their prostheses relined or something has gone wrong. Because visits are less frequent, there are fewer opportunities to observe changes in the mouth. This can lead to the late detection of changes, including oral cancer. For this reason, to promote health and well-being, denture wearers should visit a dentist at least once a year. The examination is likely to focus on an assessment of the mouth, including gum health, oral cancer screening, and an evaluation of the prosthesis. Dentures, like partials, should be removed at night or for eight hours every day to give the tissues and the bones a rest from the pressure and force of the prosthesis. Like partials, full dentures should be thoroughly cleaned in preparation for wearing the next day.

Mini-implants are small-diameter implants placed in the bone and used to help secure and stabilize full dentures. Most people are good candidates for these implants; however, they do increase the cost of treatment.

PROSTHESES FOR THE MASSES

Usually when we think of removable dental prosthetics, we think of partials or full dentures. Yet many of us have had the experience of dental prosthetics even with a full complement of teeth (as seen, for example, in the occlusal guard, illustrated in color [plate 14](#)). There are a variety of appliances for short-or long-term use, including:

- ✦ Athletic mouth guards
- ✦ Night splints
- ✦ Occlusal guards designed for bruxism (grinding of the teeth and/or clenching of the jaw)
- ✦ Orthodontic retainers
- ✦ Removable orthodontic appliances
- ✦ Sleep apnea appliances
- ✦ TMJ splints

Regardless of the appliance, it is important to follow directions for proper use and care, including thorough cleanings once or twice daily per instruction from a dental professional. This is crucial, as each of these appliances can be a breeding ground for bacteria, viruses, and fungi.

Sometimes we're asked to wear temporary appliances or fixtures when we are undergoing orthodontic treatment. Braces are the most common, being a series of brackets and bands with connecting wires and ligatures. While orthodontic treatment can involve many removable and fixed appliances, the more "stuff " we have attached to the teeth, the more places for food and bacteria to cling to, and the more clinging, the greater the scope for disease. Diligence when it comes to oral hygiene is of the utmost importance every day and is of even greater importance during orthodontic treatment.

Newer orthodontic techniques include the use of clear removable aligners that use gentle, gradual pressure to move teeth. That these aligners are removable is an asset during eating and cleaning.

While our teeth are on the move, being straightened and properly aligned for a healthy bite, we may experience some discomfort, especially when they've been recently adjusted. The inside of the lips and cheeks can be tender when first adapting to our newly placed hardware. Herbs (see chapter 12) can help to ease discomfort and reduce the likelihood of inflammation and infection following these and other interventions. Additionally, during orthodontic treatment we are

at a higher risk for tooth decay, gingivitis, and acute periodontal diseases (as described in chapters 7 and 8). For this reason it is especially important to continue with regular dental appointments and cleanings while undergoing orthodontic care.

Whether our teeth are on the move or have gone missing, appropriate care and early intervention are always preferable. Missing teeth shouldn't stand in the way of chewing, speaking, and smiling. Replacement options are many. Dental professionals can help us explore the options that are most suited to our individual needs.

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10

HABITS, CONDITIONS, AND DIAGNOSES AFFECTING THE MOUTH

In keeping with this book's practical approach to reclaiming our oral health, this chapter offers succinct summaries of the forty-nine habits, conditions, and diagnoses most commonly seen in general dental practice and therefore, likely to cross an herbalist's path also. This is a highly accessible reference chapter; our intent is to provide a basic overview of the most common oral conditions to lead the reader to the heart of this book: the herbal materia medica for the mouth found in chapter 11, and the guide to preparing herbal remedies found in chapter 12.

While dental professionals may recognize conditions of the mouth in an instant, most nonprofessionals will not. We may find ourselves leaving a practitioner's office wondering, *But what did they say, I've got leuko-what? or, Do I have an infection? Will it go away? or, What can I do?* This chapter addresses these and other questions in a nutshell. And for those readers who have knowledge of the use of herbs but who may not be familiar with the array of common dental conditions, this chapter provides a sound reference guide and a foundation from which to approach the subject of herbal dental care that is further developed in subsequent chapters.

We start the tour of these habits, conditions, and diagnoses with a summary table that enables each reader to address his or her own symptoms or the symptoms of their clients. We begin by describing each condition, using as little jargon as possible. Symptom profiles follow and are listed in order of reported frequency; *the most commonly reported symptoms are listed first, and the least reported are listed last.* We focus on symptoms of the mouth; however, **readers are reminded that many of the symptom experiences described for any one condition can extend far beyond the mouth to include other aspects of one's health.**

We differentiate between entries that are considered acute and those that are

chronic; some we mark as both. We found the latter to be a practical solution for conditions such as human papillomavirus (HPV), which is indeed a chronic disease but can, under certain conditions—stress, for example—flare up. The condition is chronic, the flare is acute, so we record HPV as both acute and chronic. We hope this helps readers understand how something can be fit into various categories at any single moment.

We identify whether a condition is systemic or localized. While many of the herbal interventions presented in this book are intended to provide relief, often a more robust approach to healing is to work both locally, i.e., in the mouth, and systemically. This approach would necessitate dividing the application of herbs: focusing on a specific site in the mouth, while simultaneously supporting one or more than one bodily system, be it the lymphatic, circulatory, immune, or other system, for example.

It could well be most effective to work both topically in the mouth *and* systemically when addressing inflammation of any type.

Understanding how long a symptom or condition is likely to persist is helpful to everyone and can certainly inform an herbal protocol. For this reason we give some general indication of the expected duration for each entry.

As bacteria, fungi, and viruses all affect the mouth, we identify whether a particular condition has a microbial component. This is of practical benefit and can help target the selection of herbs. For example, if a condition is of viral origin, we would certainly look to herbs with known antiviral properties.

We also record likely pharmaceutical interventions. Certainly, while many readers may wish to avoid pharmaceuticals, others will not, and information about possible pharmaceutical interventions can help inform the safe selection of herbs. Notably, pharmaceuticals as well as over-the-counter medications, nutritional supplements, and indeed herbs can and do interact with one another. A safe herbal protocol always includes an understanding of these interactions.

We identify how a dental professional might practically intervene, and how he or she might address a particular condition. A dentist might act immediately, or in a step-by-step manner, or may choose to wait and see. Oftentimes treatment varies based on individual circumstances. Like herbalists, at some point the dentist may also choose to refer to a specialist. This may be part of an initial assessment or may occur at a later point, depending on healing.

From an herbal perspective, what can readers take away from this chapter? We

ask that readers move forward with a clearer understanding of symptoms of the mouth and seek relevant herbal remedies as detailed in chapter 12 and as based on the knowledge of the herbs presented in chapter 11.

Not sure about herbal choices? Consult a professional herbalist.

We emphasize that many of the forty-nine habits, conditions, and diagnoses that are described in this chapter require that we work both locally, in the mouth, and systemically, in the whole body. At the same time we recognize that it is beyond the scope of this book to detail specific herbal protocols for every single entry listed in this chapter. After all, we are holistic practitioners, taking into consideration each individual person and his or her circumstances. Maurice Mességué, a renowned French herbalist, once said, “A man’s life [or a woman’s] and his body go together, they travel the same road. Each affects the other, so to treat the one you have to know the other.” In other words, it is not the diagnosis or the medication or even age that shapes and characterizes an individual. Acid reflux, for example, affects individuals differently. Knowing the diagnosis does not ensure that a single intervention will fit all affected individuals. Indeed, for an effective intervention we must work both with the body and the person; emotional and spiritual well-being should not be discounted.

HOW TO USE THE SYMPTOM CHECKLIST

To understand how herbs can be used to address the habits, conditions, and diagnoses described here, we encourage readers to use table 10.1, (along with tables 12.1 and 12.2 in chapter 12). A brief explanation of table 10.1 will help ensure a more thorough understanding and will better enable each reader to work smoothly and efficiently with the tables in chapter 12. In table 10.1: Across the top of table 10.1, a symptom checklist table, we list the habits, conditions, and diagnoses most commonly seen in the mouth. Down the left-hand column we list symptoms. “But wait,” you may say, “I recognize this list of symptoms. I’ve seen this list before.” True. You probably recognize many of these symptoms from the symptom checklist included in chapter 4; we include those same symptoms here (along with additional information) and come back to this catalog of symptoms again in chapter 12, in order to encourage our readers to develop a meaningful focus on the mouth.

Note that some boxes in table 10.1 are tinted; this means they are *the most*

commonly reported symptoms associated with that entry. While these symptoms are commonly reported, not every individual will experience them. For this reason we have tinted, and not checked, each of the associated boxes. We encourage readers to use this table in two ways: (1) to familiarize themselves with these most common symptoms and their associated forty-nine habits, conditions, and diagnoses, and (2) to mark with a check their *individual* experiences. In this way, at any given time, we can compare our own health experiences or those of our families or clients with commonly reported occurrences.

We encourage the reader to view table 10.1 as a template that may be copied multiple times for repeated personal use (it is also found in appendix 5). As conditions progress we can chart changes by filling out new copies of the table, checking off any new symptoms that emerge and leaving blank the boxes for symptoms that are no longer current. If we date the table each time we make a copy of it, and complete it, we'll be able to compare changes over time, and over the course of interventions. We can also retain copies of these tables after they have been completed by us, or our clients, and observe how different conditions present.

Table 10.1 is followed by more detailed summaries of each habit, condition, or diagnosis, listed in alphabetical order. Some readers may wonder why we do not include specific herbal recommendations for each diagnosis in this summary—primarily because herbal interventions vary from person to person, and because we do not personally know our readers, their associated conditions, or their life experiences and will not give one-size-fits-all recommendations. However, the foundational introduction for each of the habits, symptoms, conditions, and diagnoses presented here can most certainly be applied to the extensive information about individual herbs found in the materia medica (chapter 11). We can then marry this information with the therapeutic properties of the herbs as a means of choosing the appropriate herb(s) and preparation method(s) (as discussed in chapter 12).

We realize that accepting diagnoses from afar is never a good idea; we may have received a professional diagnosis years ago; it may have changed; or perhaps we have diagnosed ourselves, researching symptoms online, for example. This is key to using herbs effectively—a diagnosis does not really tell us a great deal about an individual; what matters most is one's personal experience.

While a diagnosis may guide further investigation of symptom experiences, it can also bias our interpretation of symptoms.

Consider, for example, diabetes. Diabetes is an ever-changing condition and is affected by activity, diet, stress, and physiology, to name but a few factors. Symptoms change as the condition progresses. While no two mouths are identical, we also believe that no two diabetics will have identical symptom profiles. For this reason we work with herbs on a person-by-person basis.

It is our goal that by the end of this chapter each reader will have acquired:

- ✦ A clearer understanding of the forty-nine habits, conditions, and diagnoses presented
- ✦ A clearer understanding of his or her own symptom profile or that of others
- ✦ A sound foundation on which to further explore in subsequent chapters the many herbal choices for the mouth

SUMMARIES OF COMMONLY OCCURRING CONDITIONS SEEN IN GENERAL DENTAL PRACTICE

Acid Reflux (GERD)

Description: *Acid reflux* is the common name for gastroesophageal reflux disease, or GERD, a condition in which the stomach's acid and contents leak backward into the esophagus **Symptoms:** Sensitivity (i.e., hot/cold) due to enamel erosion, bad breath/halitosis, dry mouth or sticky feeling in mouth, change in or loss of taste, soreness or tenderness of irritated gums, sores or lesions on gums from acid, swelling or inflammation of gums, bleeding of gums, stress (mental, emotional, physical) **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Systemic

Duration: Variable

Microbial component: Bacterial in some cases

Pharmaceutical interventions: Systemic antibiotics if bacterial in origin; topical fluoride for affected enamel; prescription drugs to target acidity, heal the esophagus, and/or combat reflux; antacids **Practical dental interventions:** Dental professional will monitor effects on dentition and treat as needed
Amalgam Tattoo

Description: A bluish-black or gray area of pigmentation on the oral tissues

caused by accidental implantation of dental amalgam into the tissues

Symptoms: Asymptomatic outside of a circumscribed dark pigmented area

Acute/chronic/recurring: Acute, chronic

Systemic/localized: Localized

Duration: Long term unless affected area is removed

Microbial component: None

Pharmaceutical interventions: None

Practical dental interventions: Dental professional will make a definitive diagnosis

Angular Cheilitis

Description: An inflammatory lesion or infection at the corners of the mouth, usually occurring on both sides; it appears as cracks or splits and is most commonly caused by fungus but can be caused by bacteria, ill-fitting dentures, or nutritional deficiencies of B-complex vitamins and iron **Symptoms:** Sores or lesions in the corners of the mouth, cracked or chapped lips, pain, soreness, tenderness, redness, and bleeding from affected area **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Localized; occasionally systemic if associated with nutritional deficiency **Duration:** Variable

Microbial component: Primarily fungal, occasionally bacterial

Pharmaceutical interventions: Depending on cause, can include topical antifungal, anti-inflammatory therapy, antibiotics, or vitamins

Practical dental interventions: Dental professional will adjust or replace ill-fitting dentures, if applicable, and will culture for fungus or bacteria and review oral hygiene

Aphthous Stomatitis

See Canker Sore

Black Hairy Tongue

Description: A harmless brown or black discoloration of the elongate papillae of the tongue that is related to smoking and tobacco use, diet, medications, or poor oral hygiene **Symptoms:** Brown or black coating on the tongue, bad breath/halitosis, dry mouth or sticky feeling in mouth, change in or loss of taste; can be asymptomatic outside of visual appearance **Acute/chronic/recurring:** Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: No reliable intervention currently available

Practical dental interventions: Dental professional will make definitive diagnosis and discuss smoking/tobacco cessation if applicable, as well as provide tongue hygiene recommendations BRONJ/ONJ

Description: Bisphosphonate-related osteonecrosis of the jaw, or BRONJ, and osteonecrosis of the jaw, or ONJ, are serious conditions of the jawbone that result in the death of bone matter; BRONJ is related to bisphosphonate drug therapy, often prescribed in the treatment of osteoporosis and similar diseases. ONJ can have many different and complex causes, including, but not limited to, chemotherapy, chronic steroid use, and infection **Symptoms:** Sores or lesions on the gums that don't heal; the following may or may not also be present, depending on location and severity: infection, pus, loose teeth, pain, redness, soreness, tenderness, swelling and inflammation, bad breath/halitosis

Acute/chronic/recurring: Acute, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None unless secondary infection is present

Pharmaceutical interventions: Variable

Practical dental interventions: Dental professional will typically refer to an appropriate specialist for a definitive diagnosis and course of treatment Bruxism

Description: The habit of clenching or grinding the teeth while awake or asleep

Symptoms: Asymptomatic typically, although some people experience soreness or tenderness in the facial and/or neck muscles, headache, popping in the TMJ, physical pressure in the jaws or muscles, toothache from clenching or grinding

through the enamel, loose teeth in extreme cases; stress of any type and anxiety or fear can be contributing factor **Acute/chronic/recurring:** Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Analgesics for discomfort, muscle relaxants

Practical dental interventions: Dental professional will monitor effects on teeth and will repair damage to dentition as needed; a mouth guard may also be recommended Candidiasis (in the oral cavity)

Description: Commonly referred to as a *yeast infection* or *thrush* when it occurs in the mouth, this is an infection caused by an overgrowth of the yeast *Candida albicans*

Symptoms: Coating on the tongue, cottage cheese patches, white areas that can be wiped off, dry mouth or sticky feeling in mouth, change in or loss of taste, bad breath/halitosis, cracked or chapped lips, redness under white patches, swelling or inflammation and pain in affected area **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Localized and/or systemic (certain systemic conditions, antibiotic use, and a compromised immune system can predispose) **Duration:** Variable

Microbial component: Fungus

Pharmaceutical interventions: Antifungal prescriptions, topical and/ or systemic

Practical dental interventions: Dental or health care professional can provide definitive diagnosis and oral hygiene recommendations (see also *angular cheilitis*) Canker Sore (Aphthous Stomatitis)

Description: Formerly referred to as *aphthous ulcer* and commonly called a *canker sore*, this noncontagious, small, often painful ulcer or sore can appear on any of the soft tissues inside the mouth **Symptoms:** Sores or lesions, pain, swelling and inflammation, soreness or tenderness in the affected area, redness around the lesion, white area within the ulcerated center; may be injury-or trauma-induced; fever can sometimes be present **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Localized; however, systemic connections cannot be overlooked

Duration: Lesions typically heal in one to two weeks

Microbial component: None proven

Pharmaceutical interventions: Analgesics, anti-inflammatory agents, anesthetics, antiseptics, steroids, and silver nitrate to ease symptoms **Practical dental interventions:** Dental professional can make a definitive diagnosis

Caries

Description: A common bacterial infection of a tooth, often called a *cavity* or *tooth decay* **Symptoms:** Often asymptomatic; however, any of the following can be experienced: sensitivity (i.e., hot/cold), soreness or tenderness at the infected tooth, toothache, bad breath/halitosis, general infection, pus, abscess in severe cases **Acute/chronic/recurring:** Acute, chronic

Systemic/localized: Localized (certain systemic conditions can predispose).

Duration: Progressive at variable rates until decay is removed and tooth is repaired

Microbial component: Bacteria

Pharmaceutical interventions: Topical fluoride application

Practical dental interventions: Dental professional will remove all of the decayed tooth structure and restore the affected tooth or teeth with a filling material Cavity

See Caries

Cold Sores

See Herpes

Cysts/Tumors (in the oral cavity and/or supporting structures)

Description: Cysts are fluid-filled sacs that occur within tissues in the body. Tumors are areas of swelling in the body caused by the abnormal growth of a mass of tissue; both are caused by a wide variety of conditions and can be benign or malignant **Symptoms:** Often asymptomatic; however, any of the following can be experienced: a lump, pain, physical pressure, soreness or tenderness, swelling and inflammation in the affected area, loose tooth or teeth if in the bone surrounding teeth, sinus pain if located in the sinus area, bleeding, infection, pus, redness, a visible white area if near the surface of any oral tissue, bad breath/halitosis; an abscess can be a type of cyst or tumor

Acute/chronic/recurring: Acute, chronic, recurring

Systemic/localized: Localized symptom experience likely of a systemic origin

Duration: Variable

Microbial component: Can be a secondary response to bacterial infection

Pharmaceutical interventions: Antibiotics if bacterial infection is present

Practical dental interventions: Dental professional will make definitive diagnosis and treatment recommendations; often will refer to appropriate specialist Denture Sores

Description: Sometimes referred to as *denture stomatitis*, a condition wherein irritations or sores occur beneath a denture **Symptoms:** Sores or lesions under a denture; swelling and inflammation; soreness or tenderness; pain, redness, bleeding, or blistering in the affected area; there may be a white area present, and it is usually affiliated with injury or trauma from ill-fitting dentures

Acute/chronic/recurring: Acute, chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None; however, secondary fungal or bacterial infection is probable

Pharmaceutical interventions: Topical anesthetic agents, antifungal or antibiotic therapy if secondary infection is present **Practical dental**

interventions: Dental professional will adjust or replace denture and provide

home-care instruction for care of the prosthesis Diabetes (oral manifestations)

Description: A group of metabolic diseases relating to cellular imbalances of insulin and blood sugar that impede wound healing; there is a direct cause-and-effect relationship with the prevalence of periodontal disease and blood-sugar maintenance **Symptoms:** Bleeding, redness, and swelling or inflammation of the gum tissue; sores or lesions; gum abscess; loose tooth or teeth possible in advanced periodontal disease; bad breath/halitosis; coating on the tongue; cottage cheese patches; dry mouth or sticky feeling in mouth

Acute/chronic/recurring: Acute, chronic

Systemic/localized: Systemic

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Antidiabetic drugs, insulin therapy

Practical dental interventions: Dental professional will monitor periodontal health and treat as needed Dry Mouth

See Xerostomia

Eating Disorders (oral manifestations)

Description: A variety of conditions related to abnormal eating habits, the most common being bulimia nervosa (characterized by binge eating and purging/vomiting) and anorexia nervosa (characterized by immoderate food restriction and irrational fear of gaining weight); oftentimes improper nutrition and gastric acid exposure, the hallmarks of these conditions, have harmful effects on the oral cavity **Symptoms:** Anxiety, fear; redness, swelling or inflammation; sores or lesions on the soft tissues inside the mouth; receding gums; dry mouth or sticky feeling in mouth; bad breath/halitosis; change in or loss of taste; sensitivity (i.e., hot/cold) due to erosion of the teeth from gastric acid (bulimia); feeling stressed mentally and/or emotionally can prompt the condition **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Systemic

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Monoamine oxidase inhibitors (MAOIs) and other antidepressants or anti-anxiety medications; topical fluoride for affected tooth structure **Practical dental interventions:** Dental professional will monitor

effects on dentition and treat as needed Erosion

Description: Also called *dental erosion* or *acid erosion*, this is the loss of tooth structure from acid exposure due to frequent consumption of acidic food and drink and/or gastric acid exposure; one type of loss of enamel along the gum line of a tooth can be due to abfraction, a condition associated with problems of occlusion (e.g., bruxism, oral habits, and malocclusion) **Symptoms:** Sensitivity (i.e., hot/cold), soreness or tenderness of the teeth, toothache due to loss of tooth structure; less common symptoms include receding gums and redness of the gums **Acute/chronic/recurring:** Chronic

Systemic/localized: Localized, but systemic if related to gastric acids

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Oral care remineralization products Recaldent (casein phosphopeptide), NovaMin (calcium sodium phosphosilicate), or amorphous calcium phosphate; topical fluoride for affected areas; antacids if related to gastric acid exposure **Practical dental interventions:** Dental professional can assess for treatment of dental issues as needed **Fluorosis (dental)**

Description: A developmental condition of tooth enamel that results from excessive exposure to high levels of systemic fluoride during tooth development; dental fluorosis can result in white or opaque spots visible on the enamel, or brown, pitted enamel in more severe cases **Symptoms:** Asymptomatic outside of white spots on the enamel (brown and pitted enamel in rare severe cases)

Acute/chronic/recurring: Chronic

Systemic/localized: Localized

Duration: Permanent

Microbial component: None

Pharmaceutical interventions: None

Practical dental interventions: Dental professional can do cosmetic procedures to improve enamel appearance Glossitis

Description: Inflammation of the tongue that can be caused by a wide variety of conditions **Symptoms:** Swelling or inflammation, redness and soreness, tenderness of the tongue, bad breath/halitosis, coating on the tongue, dry mouth or sticky feeling in mouth, change in or loss of taste, sores or lesions on the tongue; one common version is called *geographic tongue*, wherein maplike patches of discoloration appear on the tongue **Acute/chronic/recurring:** Acute,

chronic, recurring

Systemic/localized: Systemic and/or localized

Duration: Variable

Microbial component: Some forms can be bacterial, viral, or fungal

Pharmaceutical interventions: Corticosteroids, antibiotics, antivirals, antifungals

Practical dental interventions: Dental professional will make definitive diagnosis

Grinding/Clenching Teeth

See Bruxism

Description: A family of diseases that affect the periodontium, the supporting structures of the teeth; also referred to as gingivitis, periodontitis, and *periodontal disease*

Symptoms: Usually it is asymptomatic outside of redness and bleeding of the gums during brushing and flossing or when examined by a dental professional, until the more advanced stages; common symptoms as the disease progresses include bad breath/halitosis, swelling and inflammation, and soreness or tenderness of the gums; in advanced stages the symptoms include sensitivity (i.e., hot/cold) due to receding gums, abscess of the gum tissue, infection, pus, and loose tooth or teeth

Acute/chronic/recurring: Acute, chronic, recurring

Systemic/localized: Localized; however, systemic conditions can predispose

Duration: Variable

Microbial component: Bacterial, largely

Pharmaceutical interventions: Antibiotics (systemic or localized), Chlorhexidine rinse

Practical dental interventions: Dental professional will assess and treat according to the stage of the disease (see chapter 8)

Description: Exposure of the root of the tooth caused by retracting gum tissue, which can have a wide variety of causes

Symptoms: Aside from the gums receding, there are few symptoms; additionally, people report sensitivity (i.e., hot/cold) as more root surface is exposed; less common symptoms can be soreness or tenderness, redness, and swelling or inflammation of the gum tissue; loose tooth or teeth may occur in the most extreme cases

Acute/chronic/recurring: Chronic, occasionally acute

Systemic/localized: Localized; however, systemic conditions can predispose

Duration: Permanent

Microbial component: Bacterial if caused by periodontal disease or poor oral hygiene

Pharmaceutical interventions: None

Practical dental interventions: Dental professional will identify and address the cause (such as overaggressive brushing, oral hygiene, oral habits, oral piercings, eating disorders, and so on) and may refer to periodontist in severe cases Herpes (oral)

Description: An oral infection caused by the *Herpes simplex* virus, commonly called *cold sores* or *fever blisters*, and also known as *herpes labialis*; the initial infection, primary or acute herpetic gingivostomatitis, can include many symptoms inside the mouth; periods of viral dormancy are common; during active phases blisters typically appear on or around the lips **Symptoms:** Blisters and sores or lesions inside the mouth and throat in initial infection, and on or around the lips during recurrences; pain, redness, swelling and inflammation, soreness and tenderness, bleeding from affected area, fever, cracked or chapped lips, anxiety, fear; feeling scared and stressed mentally and/or emotionally can induce a recurrence **Acute/chronic/recurring:** Acute, recurring

Systemic/localized: Systemic and localized

Duration: Two to three weeks, each occurrence

Microbial component: Virus

Pharmaceutical interventions: Topical or systemic antivirals, analgesics, topical saturated fatty alcohols, supplemental lysine **Practical dental**

interventions: Dental professional will make a definitive diagnosis

HIV/AIDS (oral manifestations)

Description: Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) is a severe disease of the immune system that can have a significant impact on the oral cavity **Symptoms:** Varying greatly with the stage of disease, they include: coating on the tongue; cottage cheese patches; dry mouth or sticky feeling in mouth; change in or loss of taste; white areas from oral candidiasis; bleeding, redness, swelling or inflammation from gum disease; fever; blisters, sores, or lesions from secondary herpes infections; raised lump in the mouth (most often on the hard palate) that can be purple, brown, red, or black, called Kaposi's sarcoma **Acute/chronic/recurring:** Acute/chronic

Systemic/localized: Systemic, with localized manifestations

Duration: Permanent

Microbial component: Viral; secondary infections can be bacterial or fungal

Pharmaceutical interventions: Antiretroviral medications

Practical dental interventions: Dental professional can make recommendations for management of oral manifestations Human Papillomavirus, or HPV (oral)

Description: Human papillomavirus (HPV) is a viral infection of the mucous membranes that carries an increased risk of oropharyngeal cancer; more than 120 types of HPV have been identified; some thirty to forty types are sexually transmissible, and approximately twenty strains increase the risk of certain cancers; HPV-related oral cancers are on the rise and are expected to surpass the number of oral cancers related to tobacco use in the near future; oftentimes the infection clears on its own, but some persist and have the ability to cause malignancies

Symptoms: Often asymptomatic other than a tissue-colored lump or white area, occasional pain, physical pressure; swelling or inflammation can occur in the area if prone to irritation

Acute/chronic/recurring: Acute, chronic

Systemic/localized: Systemic and localized

Duration: One to fifteen years, depending on strain and persistence of infection

Microbial component: Virus

Pharmaceutical interventions: No treatment is currently available; an HPV vaccine may prevent infection by some strains

Practical dental interventions: Dental professional will make definitive diagnosis; biopsy and surgical excision of affected tissue if applicable

Hyperplasia
Description: Gingival hyperplasia is an enlargement of the gingiva that can have a wide variety of causes, most often resulting from chronic inflammation, periodontal disease, or pharmaceutical use; a variety of other less common causes also exists

Symptoms: Swelling or inflammation of the gum tissue that may or may not include soreness and tenderness and bleeding of the gums

Acute/chronic/recurring: Acute, chronic, recurring

Systemic/localized: Typically localized, although systemic factors are occasionally to blame

Duration: Variable

Microbial component: Bacterial if related to periodontal disease

Pharmaceutical interventions: Antibiotics if due to bacterial infection

Practical dental interventions: Dental professional will make definitive diagnosis and recommend appropriate treatment of periodontal disease, if a

factor, or surgical excision if severe Infection (oral)

Description: Invasion and multiplication in/on the oral tissues by bacteria, viruses, or fungus that can manifest in the oral cavity in a wide variety of ways; the most common oral infections are due to caries (cavities), gum (periodontal) disease, oral cancer, candidiasis, and oral herpes (see separate entries in this chapter); here we outline other localized types of general oral infections that can occur **Symptoms:** Infection, pus (including abscess of a tooth or the gums), fever; the affected area can experience swelling or inflammation, redness, pain, soreness or tenderness, bleeding, sores or lesions, physical pressure, lump, white area; an abscessed tooth may experience sensitivity (i.e., hot/cold) or toothache; sinus pain may result with infection near the sinus, and bad breath/halitosis may also occur **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: Typically bacterial but can be viral or fungal

Pharmaceutical interventions: Antibiotics, antivirals, or antifungals as needed; analgesics or anti-inflammatories **Practical dental interventions:** Dental professional will make definitive diagnosis and appropriate treatment recommendation or referral Kawasaki Disease

Description: An uncommon autoimmune disease resulting in inflammation of certain blood vessels; it is most commonly found in children under five years old, and its cause is unknown **Symptoms:** Fever, headache, redness, swelling or inflammation of the tongue, cracked or chapped lips that can bleed

Acute/chronic/recurring: Acute, chronic

Systemic/localized: Systemic

Duration: Outbreaks can last up to eight weeks

Microbial component: Unknown

Pharmaceutical interventions: Fever reducers, gamma globulin

Practical dental interventions: None

Leukoplakia (oral)

Description: This condition is a diagnosis of exclusion, characterized by white patches of excess keratin on the tissues of the oral cavity that are sometimes considered precancerous; it is usually linked with any combination of chronic tobacco or alcohol use, chronic irritation, or viral infection **Symptoms:**

Typically asymptomatic except for white areas that cannot be wiped off the mucosa **Acute/chronic/recurring:** Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: Sometimes affiliated with the Epstein-Barr virus or human papillomavirus (HPV), and occasionally these areas can harbor the fungus *Candida albicans* **Pharmaceutical interventions:** Beta-carotene may reduce recurrences

Practical dental interventions: Dental professional will make definitive diagnosis and possible biopsy and recommend excision if precancerous Lichen Planus (oral)

Description: A noncontagious condition that often appears as a lacy rash inside the mouth; its cause is unknown; however, it has been associated with allergic reactions and/or medications **Symptoms:** Redness and/or a white area that forms a lacy rash on the oral tissues; sores or lesions may occur with some variations, and the affected areas experience blisters, bleeding, soreness or tenderness, and swelling or inflammation; mental and/or emotional stress may cause it to manifest, and occasionally fever, lumps, and a change in or loss of taste are present **Acute/chronic/recurring:** Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None known

Pharmaceutical interventions: Anti-inflammatories, analgesics, steroids, immunosuppressants **Practical dental interventions:** Dental professional will make definitive diagnosis

Meth Mouth

Description: Severe dental decay, erosion, and damage to the oral cavity as a result of extended use of the recreational drug methamphetamine (meth)

Symptoms: Dry mouth, sticky feeling in the mouth, bad breath/halitosis, change in or loss of taste, toothache, soreness or tenderness due to extensive tooth decay, pain, popping in the TMJ due to affiliated bruxism, bleeding, redness of the oral tissues **Acute/chronic/recurring:** Chronic

Systemic/localized: Systemic and localized

Duration: Long term

Microbial component: None

Pharmaceutical interventions: Topical fluoride treatments, sialagogues (a drug or substance that increases the flow rate of saliva) **Practical dental**

interventions: Dental professional will repair damage to the teeth

Mouth Breathing

Description: The habit of breathing through the mouth as opposed to the nose causes the oral environment to dry out, resulting in inflammation of the oral tissues; occasionally there are physical abnormalities that result from this type of breathing; however, usually mouth breathing is a habit **Symptoms:** Dry mouth, sticky feeling in the mouth, swelling or inflammation, bad breath/halitosis, bleeding of the gums **Acute/chronic/recurring:** Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Steroid nasal sprays if applicable

Practical dental interventions: Dental professional will evaluate and provide oral care instructions for inflamed tissues and oral appliance if needed Nail Biting

Description: A common oral habit termed *onychophagia*, nail biting can be compulsive, and aside from the fingernails themselves, persistent biting can cause damage to the gingiva and teeth **Symptoms:** Often asymptomatic; however, injury or trauma can occur to the tissues, and sensitivity (i.e., hot/cold) and physical pressure can result; anxiety and fear can induce the habit

Acute/chronic/recurring: Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Antidepressants for severe cases

Practical dental interventions: Dental professional will repair any tooth damage

Nicotine Stomatitis

Description: A condition that appears as white or red patches on the palate from the heat of smoking (*stomatitis* refers to inflammation in the mouth); it also occasionally occurs from habitually drinking very hot beverages **Symptoms:** Asymptomatic other than red and white areas on the palate

Acute/chronic/recurring: Chronic, recurring

Systemic/localized: Localized

Duration: Remains during causative behavior and usually resolves one to two weeks after behavior ends **Microbial component:** None

Pharmaceutical interventions: Smoking-cessation pharmaceuticals if applicable

Practical dental interventions: Dental professional will make definitive diagnosis and discuss smoking cessation NUG/Vincent's Disease (Trench Mouth)

Description: Also referred to as *acute necrotizing ulcerative gingivitis* (ANUG), and more commonly as *trench mouth*, necrotizing ulcerative gingivitis (NUG), or Vincent's disease, is a painful, acute type of gum disease, more common among those with compromised immune systems **Symptoms:** Pain in the gum tissue, sores or lesions that are ulcerated and primarily occur on the gingiva between the teeth, fever, white area that is like a membrane on the gums, bleeding, swelling or inflammation, redness, soreness or tenderness of the gums, bad breath/halitosis, headache, anxiety or fear; feeling scared and mentally and/or emotionally stressed can be triggering factors **Acute/chronic/recurring:** Acute

Systemic/localized: Localized symptom experiences likely of a systemic origin

Duration: Variable

Microbial component: Bacterial

Pharmaceutical interventions: Antibiotics, analgesics

Practical dental interventions: Dental professional will debride affected tissues and provide oral hygiene instructions Nutritional Deficiencies (oral manifestations)

Description: Conditions caused in the oral cavity by lack of essential nutrition can include angular cheilitis, glossitis, susceptibility to infections, along with the general symptoms that follow **Symptoms:** Bad breath/halitosis, dry mouth or

sticky feeling in mouth, pain, redness, swelling or inflammation, sores or lesions, white areas on the oral soft tissues, coating on the tongue, cottage cheese patches, change in or loss of taste, cracked or chapped lips

Acute/chronic/recurring: Chronic, recurring

Systemic/localized: Systemic

Duration: Variable

Microbial component: Rarely

Pharmaceutical interventions: Nutritional replacements (i.e., supplements)

Practical dental interventions: Dental professional will provide oral care instructions and monitor affected tissues Oral Cancer

Description: The growth of cancerous tissue in the oral cavity; although the cause is unknown, factors that can increase the risk of contracting oral cancer include tobacco use, alcohol use, HPV virus, chronic infection, and chronic irritation of the gums

Symptoms: Often asymptomatic in the early stages; can appear as white areas, redness, or dark areas of the gingiva; sores or lesions; swelling or inflammation or a lump; occasionally affiliated with bad breath/halitosis, pain, bleeding from the tissues

Acute/chronic/recurring: Chronic, recurring

Systemic/localized: Localized or systemic (when metastatic)

Duration: Variable

Microbial component: Viral if affiliated with HPV, bacterial if related to chronic infection

Pharmaceutical interventions: Chemotherapy, radiation therapy

Practical dental interventions: Dental professional will biopsy and refer based on diagnosis Oral Piercings

Description: Decorative piercings of the tongue, lip, or uvula (that little structure that dangles down at the back of the mouth/entrance to the throat; it's attached to the rear of the soft palate)

Symptoms: Asymptomatic unless complications occur; these can include infection, pus, pain, redness, soreness or tenderness, swelling or inflammation, bleeding from the piercing site; sores or lesions or injury or trauma on adjacent areas of the mouth, including receding gums and loose tooth or teeth in severe cases

Acute/chronic/recurring: Chronic

Systemic/Localized: Localized

Duration: As long as the piercing is present

Microbial component: Bacterial if secondary infection is present

Pharmaceutical interventions: Antibiotics if applicable, analgesics for pain

Practical dental interventions: Dental professional will monitor and repair damage from piercing, as well as any complications that have resulted Osteoporosis (oral manifestations)

Description: Demineralization of bone density; this can occur for many reasons and can manifest in the jawbone; it may be detected by a dental professional

Symptoms: Typically asymptomatic; however, loose tooth or teeth and popping in the TMJ joint may occur in advanced cases; dentures that become ill-fitting may indicate bone loss due to osteoporosis **Acute/chronic/recurring:** Chronic

Systemic/localized: Systemic

Duration: Long term

Microbial component: None

Pharmaceutical interventions:

Bone-loss prevention and bone-rebuilding medications; hormones if applicable

Practical dental interventions: Dental professional will monitor bone levels and treat as needed Papilloma

Description: A general term for a tumor of the mucous membrane or skin epithelium; they are usually benign; sometimes, but not always, they are a result of HPV infection

Symptoms: They usually appear as a lump of tissue and occasionally as a white area of projected tissue **Acute/chronic/recurring:** Chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: Sometimes viral (e.g., HPV)

Pharmaceutical interventions: None

Practical dental interventions: Dental professional will make definitive diagnosis and may recommend cryotherapy or laser or surgical removal if necessary Pemphigus vulgaris (oral manifestations)

Description: An autoimmune disease characterized by a painful, chronic blistering skin condition that is difficult to control **Symptoms:** Blisters, sores or lesions, pain, swelling or inflammation, bad breath/halitosis, redness, white area

Acute/chronic/recurring: Chronic

Systemic/localized: Localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Immunosuppressive drugs and corticosteroids

Practical dental interventions: Dental professional will make definitive diagnosis

Pericoronitis

Description: An excessive inflammation, usually with an infection, of the tissue around an erupting tooth, typically a third molar or wisdom tooth, often seen in young adults aged 15 to 24 during wisdom tooth eruption **Symptoms:** Swelling or inflammation, pain, redness, soreness or tenderness, infection, pus, lump, bleeding, abscess, physical pressure, bad breath/halitosis in the affected area; sometimes fever is present **Acute/chronic/recurring:** Acute, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: Bacterial

Pharmaceutical interventions: Antibiotics, analgesics

Practical dental interventions: Dental professional will treat depending on individual circumstances Periodontal Disease

See Gum Disease

Pharmaceutical-Related Oral Issues

Description: Various pharmaceuticals can significantly affect the oral cavity; the most common symptoms are outlined here; however, as side effects can vary by medication, each fact sheet that accompanies specific pharmaceuticals should be consulted for additional information **Symptoms:** Bad breath/halitosis, dry mouth or sticky feeling in mouth, coating on the tongue, bleeding, redness, soreness or tenderness, sores or lesions, swelling or inflammation **Acute/chronic/recurring:** Depends on duration of the medication

Systemic/localized: Systemic

Duration: Variable

Microbial component: None

Pharmaceutical interventions: None

Practical dental interventions: Variable

Root Resorption

Description: The breakdown or loss of the root structure of a tooth; root resorption can originate from the inside of the tooth, i.e., from the pulp and spread outward, or from the outer part of the root surface and move inward; normal root resorption occurs when primary (baby) teeth are lost, but it is abnormal for a permanent tooth to experience root resorption; interventions to save the tooth are limited **Symptoms:** Usually asymptomatic until the advanced stages; the affected tooth can change color as resorption progresses, appearing yellow, brown, gray, or even pink; can be induced by injury or trauma to a tooth; sensitivity (i.e., hot/cold) is one of the first symptoms; loose tooth or teeth or abscess may occur when in advanced stage **Acute/chronic/recurring:** Chronic **Systemic/localized:** Localized

Duration: Variable

Microbial component: Bacterial, occasionally

Pharmaceutical interventions: Antibiotics if necessary

Practical dental interventions: Dental professional will make definitive diagnosis and treat accordingly Sinusitis

Description: An inflammation of the sinuses, commonly caused by infection, allergies, or stress **Symptoms:** Sinus pain, headache, physical pressure, sensitivity (i.e., hot/cold), referred tooth pain; often associated with the upper back teeth; swelling or inflammation, soreness or tenderness, bad breath/halitosis, dry mouth or sticky feeling in mouth **Acute/chronic/recurring:** Acute, chronic,

recurring **Systemic/localized:** Localized

Duration: Variable

Microbial component: Sometimes bacterial or viral

Pharmaceutical interventions: Antibiotics if necessary, decongestant nasal sprays, corticosteroids, allergy medications **Practical dental interventions:** Dental professional will rule out tooth problems

Sjögren's Syndrome (oral manifestations)

Description: An autoimmune syndrome that causes dryness of the mouth and affects the production of saliva; it is more commonly seen in women **Symptoms:** Often asymptomatic in the early stages; as dry mouth persists

symptoms include bad breath/halitosis, cracked or chapped lips, dry mouth or sticky feeling in mouth, redness of the affected tissues, increased caries

Acute/chronic/recurring: Chronic

Systemic/localized: Systemic

Duration: Variable

Microbial component: None proven

Pharmaceutical interventions: Topical fluoride application, sialagogues (a drug or substance that increases the flow rate of saliva)

Practical dental interventions: Dental professional will monitor effects on the oral cavity
Smoking

Description: Commonly, the use of tobacco; sometimes herbs or recreational drugs; the topical application of smokeless tobacco (snuff or chew) is included as well; these habits have extensive effects on the oral cavity and can be related to other conditions, including oral cancer, leukoplakia, nicotine stomatitis, and black hairy tongue (see separate entries for these conditions)

Symptoms: General symptoms include bad breath/halitosis, coating on the tongue, dry mouth or sticky feeling in mouth, change in or loss of taste, redness and/or white areas on the tissue; can be asymptomatic
Acute/chronic/recurring: Chronic, recurring

Systemic/localized: Systemic

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Smoking cessation medications

Practical dental interventions: Dental professional will monitor effects of smoking on the oral cavity and discuss smoking/tobacco cessation
Stress

Description: Emotional, physical, spiritual, and mental stress, whether singly or combined, can affect the entire body and can also manifest in the oral cavity; stress can be related to conditions such as acid reflux/ GERD, bruxism, canker sores, eating disorders, herpes, general infection, lichen planus, and NUG/Vincent's disease (see separate entries); it is also linked to more pronounced symptoms such as hypertension and hypothyroidism

Symptoms: Tension, headache, pain, physical pressure, soreness or tenderness of the facial muscles due to clenching or grinding, popping of the TMJ, dry mouth or sticky feeling in mouth, sores or lesions; an abscess may occasionally occur due to chronic stress
Acute/chronic/recurring: Acute, chronic, recurring

Systemic/localized: Systemic and/or localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Antianxiety medication, antidepressants, analgesics

Practical dental interventions: Dental professional will monitor effects on oral cavity

TMJ Disorders

Description: Disorders of the temporomandibular joint, or TMJ, are often termed *temporomandibular dysfunction*, or TMD; there are two jaw joints that hinge the lower jaw, and they are located forward of each ear; dysfunction most commonly involves displacement of the disc located within the TMJ; there is a wide variety of TMJ disorders, as well as causes, including injury and trauma, and they can be difficult to address **Symptoms:** Sometimes asymptomatic in the early stages; as the condition advances the symptoms include popping in the TMJ, pain, headache, soreness or tenderness, physical pressure, injury or trauma to the joint, mental and/or emotional stress, anxiety, and fear; feeling scared can predispose one for TMJ pain **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Anti-inflammatories, analgesics, muscle relaxers, antidepressants **Practical dental interventions:** Dental professional will monitor effects on oral cavity and treat as needed Torus/Tori/Exostoses

Description: Extra bone that forms on top of existing bone; typically, this bone growth appears on the roof of the mouth, on the tongue side of the lower jaw, and occasionally on the cheek side of the lower jaw **Symptoms:** Usually asymptomatic except for a visible or palpable lump that may appear like a slightly white area **Acute/chronic/recurring:** Chronic

Systemic/localized: Localized

Duration: Permanent

Microbial component: None

Pharmaceutical interventions: Analgesics if it becomes irritated

Practical dental interventions: Dental professional will provide definitive diagnosis; no treatment recommended unless it interferes with denture placement Trauma/Injury

Description: Trauma or injury can occur to any part of the oral cavity, including the mouth, teeth, or soft tissues; trauma or injury is associated with an accident or an existing condition, or disorders such as canker sores, denture sores, nail biting, oral piercings, root resorption, or TMJ disorders **Symptoms:** Depending

on the type and location of the trauma or injury, symptoms may include abscess, bleeding, headache, loose tooth or teeth, pain, popping, physical pressure, sensitivity (i.e., hot/cold), sinus pain, soreness or tenderness, sores or lesions, swelling or inflammation, and toothache **Acute/chronic/recurring:** Acute, with possible future chronic manifestations

Systemic/localized: Localized

Duration: Variable

Microbial component: Typically none

Pharmaceutical interventions: Varies widely based on circumstances but may include analgesics, antibiotics (if secondary infection is present), anti-inflammatories

Practical dental interventions: Dental professional will treat or refer based on individual circumstances

Trench Mouth
See NUG/Vincent's Disease

Wisdom Teeth (Third Molars)

Description: These are the last set of adult molars (see chapter 2, figure 2.1) to appear; typically, a wisdom tooth erupts as the backmost tooth in each quadrant of the mouth; we often have four, but it is not uncommon to have more or fewer; as the last teeth to erupt, they often cause problems such as pericoronitis (see separate entry) if they become impacted (i.e., unable to erupt completely) and can potentially damage neighboring teeth; we address the general complications here

Symptoms: They can be asymptomatic; however, common symptoms are soreness or tenderness, swelling or inflammation, pain, physical pressure, toothache, bleeding, abscess and/or infection, pus in the area, and bad breath/halitosis **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Localized

Duration: Variable

Microbial component: Bacterial if infection is present

Pharmaceutical interventions: Systemic or topical antibiotics if necessary, analgesics

Practical dental interventions: Dental professional will recommend treatment, oftentimes extraction

Description: Xerostomia (dry mouth)
The technical term for dry mouth, this condition can arise from any of multiple causes, including systemic disease, oral habits (including smoking a variety of herbs such as cannabis or tobacco, for example), anxiety, eating

disorders, mouth breathing, and certain pharmaceuticals **Symptoms:** Asymptomatic in the early stages, the common symptoms as it persists include dry mouth or sticky feeling in mouth, bad breath/ halitosis, coating on the tongue, cracked or chapped lips, change in or loss of taste, swelling or inflammation, soreness or tenderness, bleeding, redness of the oral tissues, sores or lesions, and anxiety and fear; feeling scared may induce an acute condition **Acute/chronic/recurring:** Acute, chronic, recurring

Systemic/localized: Systemic and localized

Duration: Variable

Microbial component: None

Pharmaceutical interventions: Topical fluoride application, sialagogues (a drug or substance that increases the flow of saliva) **Practical dental interventions:** Dental professional will monitor effects on oral cavity

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PART III

Herbs for the Mouth Herbs embrace taste and smell, touch and sight . . . and sound, too, if we slurp a tea or splash in a bath. In this way we can use herbs to encircle the person, not just the symptom.

Part 3 is all about herbs. Chapter 11, an herbal materia medica for the mouth, explores the parameters that comprise the individualized entries, then outlines the properties of each herb. Chapter 12 provides hands-on how-to instructions and recipes for a variety of formulations, in addition to those peppered throughout the book.

As is the case throughout this book, our focus is the oral cavity. In some instances, systemic suggestions accompany the suggestions for the use of herbs in the mouth. However, it may be more helpful with some conditions to work with an herbalist to formulate a well-rounded, balanced systemic herbal protocol.

11

AN HERBAL MATERIA MEDICA FOR THE MOUTH

Historically, our reliance on herbs for healing is likely to have preceded our written records about healing. For a long time herbs were the only medicines available to physicians, even Western physicians. Dentists, too. Each healer had his or her own repertoire of herbs. Some medicinal herbs were cultivated specifically for healing; others were native plants whose seasonal abundance in the wild provided ample access to healing for the common person. We call all these herbs our *materia medica*. It is likely that this Latin phrase, meaning “medical materials,” dates back to the Greek physician, pharmacologist, and botanist Dioscorides (circa 40–90 CE), who referred to his *materia medica libre*, his “free medical materials.” Perhaps it is from this allusion that we have come to think of medicinal herbs as “the people’s medicine,” because medical materials, more often than not, encompassed freely available local flora. Few professions retain the use of the phrase *materia medica*. Herbalism is one. Of late, the more general term *pharmacology*, i.e., the study of drugs, has seeped into common use.

Contemporary drugs are synthesized in a laboratory and standardized, often to contain but a single synthetic chemical constituent. The rationale is to ensure standardized dosing. In comparison, herbs offer a natural solution. Each contains a unique polypharmacy, a veritable cocktail of phytochemical constituents that together help to shift and rebalance the body. A polypharmacy is likely to result in a slower accumulation of microbial resistance, given that multiple compounds are present and not just one. This is of particular importance now, as increasingly we are being made aware of multidrug-resistant (MDR) species of bacteria, viruses, and fungi that are unaffected by contemporary drug interventions.

Skeptics argue that the lack of standardization is one of the single greatest weaknesses surrounding the use of medicinal herbs. But standardization dismisses the value of a polypharmacy, the “polychemical synergistic” mix, as

American botanist James A. Duke calls it (Duke 2012). It is indeed true that each plant presents a unique set of constituents. While plant specimens may be the same botanically, the proportions of chemical constituents in each plant will, and do, vary. Each is affected by its growing conditions, including light, temperature, and water availability. Each is further affected by the time of harvesting, handling methods, and storage. Added to this is the variability associated with various modes of preparation and delivery. And yet medicinal herbs stand the test of time. Surely this is what is meant by “evidencebased medicine.” Indeed, in light of these and other variables, herbal medicine is a safe, effective, affordable, and natural approach to health and wellbeing when used appropriately.

Most of the naturally grown foods we eat are as varied in their chemical constituents as the herbs we use as medicines. The taste of foods like blueberries, apples, or strawberries reflects this variability from fruit to fruit, berry to berry.

It is our hope that some readers may recognize a handful of medicinal herbs listed in this chapter as the very same herbs and spices that we have come to rely on in the kitchen. Other medicinals will likely be new to the reader.

Medicinal herbs are versatile. While most of us grew up in a culture where we were taught that a medicine had a single action, the majority of herbs have multiple actions, including effects that can be regulated by dosage and mode of delivery. For example, a cup of peppermint tea can be enjoyed at any time and certainly warrants appreciation; its aroma is to be savored, its taste prized. When we use this tea to cool the body or to address some digestive distress, we are using it medicinally. In such a case we may increase the frequency of consumption or change the mode of administration in accordance with the desired outcome. Or we may apply a cooled cup of peppermint tea topically by saturating a washcloth, or we might add it to a bath or a soaking bowl; the result in each case will be cooling.

Herbs engage the senses. While the application of isopropyl alcohol can be cooling, when used as part of a body bath to reduce a fever, for example, there is something far more grounding, perhaps more soothing, about the aroma of an herb. Herbs embrace taste and smell, touch and sight . . . and sound, too, if we slurp a tea or splash in a bath. In this way we can use herbs to encircle the person, not just the symptom. The route of delivery can be chosen to meet the needs and preferences of the individual. It is not just the symptom or its abeyance that is of concern; it is the whole person and the source of the

symptom.

“A man’s life and his body go together, they travel the same road. Each affects the other, so to treat the one you have to know the other.” Maurice Mességué (1921–) Herbal interventions are not static. We change interventions as the body shifts and responds to the medicinal components of plants. This might happen quickly in the case of a fever or bleeding, for example, or over weeks and months when working with gum disease.

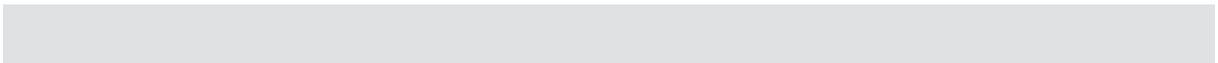
Herbs often have multiple actions. These in part influence our choices when formulating an intervention. We may consider herbs with respect to their *individual* actions, their actions as part of a formula in conjunction with other herbs, in relation to the individual user, the intended outcome(s) and, most definitely, each practitioner’s philosophical approach to healing.

INTRODUCTION TO THE MATERIA MEDICA

The forty-one herbs delineated here are presented alphabetically by their common names. They represent but a small portion of the medicinal herbs for the mouth that have been used historically, as there are literally hundreds that have been recorded, and no doubt many more whose use has gone unrecorded.

These forty-one herbs represent a practical subset, a materia medica that can be easily acquired and applied with both a high degree of surety and safety. That said, not all herbs can be used safely by all persons. It is important therefore to read through each entry to help ensure safety. If in doubt, consult an herbalist. For example, peppermint may seem like an ordinary herb to some of us; it certainly has many positive benefits for the mouth. Yet it may also exacerbate symptoms associated with sphincter function, including those described by the condition known as *acid reflux*, or GERD.

Interactions between herbs and medications, supplements, and, indeed, other herbs abound. As some may realize, an exhaustive list of precautions would span volumes and would no doubt still be incomplete. Therefore, the responsibility for use rests with each person. For sure, a professional herbalist can provide a clearer understanding of the use of herbs, helping us to navigate new waters and ensure the safe use of botanicals.



CAUTION

To ensure safety and because of possible interactions, it is very important to provide dental professionals, herbalists, and other health care professionals with a complete account of any medicinal herbs, supplements, over-the-counter drugs, or prescription pharmaceuticals that one is taking.

Dosing and modes of delivery are included in this chapter, while chapter 12 focuses on the details of how to prepare herbal remedies, and includes a number of recipes in addition to those peppered throughout the book. The use of individual herbs, or *simples*, as they are known, has a strong history in herbal medicine. Blending and formulating comes with practice and an understanding of various theoretical frameworks.

Finally, just as the taste and nutritional quality of our food is directly proportional to freshness, this is also the case with medicinal herbs. The quality of our medicinal herbs is directly proportional to their medicinal potency.

We describe each herb in terms of the fourteen characteristics listed below. The importance of these descriptors cannot be underestimated, and for this reason we take time to explain each one here.

Characteristics Used to Describe Medicinal Herbs in a Dental Materia Medica

- | | | |
|----------------------|--------------------------|--|
| ✦ Common name(s) | ✦ Taste and energy | ✦ Culinary use |
| ✦ Botanical name | ✦ Actions | ✦ Preparation(s) and dosage ¹ |
| ✦ Plant family | ✦ Antimicrobial activity | ✦ Combines well with |
| ✦ Part used | ✦ Indications | ✦ Notes |
| ✦ Fresh or dried | ✦ Safety issues | |
| ✦ Major constituents | | |

Common Names

Common names are geographically and culturally dependent ways of referring to plants. Common names change. It is not wise to talk about medicinals solely by their common names, as these can be misunderstood and misinterpreted easily. For example, in lieu of using the common name *peppermint*, some may refer to

the same plant as *green mint* or *field mint*. Common names can be temporary and can fall into disuse with the passing of time.

Common names can encompass terms of endearment, amusement, and utility. Common names can be invented by anyone, at any time—it all depends on how the moment takes us.

Botanical Name

Sometimes called a Latin name, a botanical name helps to identify a plant specifically. This is important because a reference to mints, for example, leaves the choice of which mint wide open. Specificity is the key to ensuring safety. As Latin is no longer an evolving language, its use here offers us an ideal platform when talking about plants.

Botanist Carl Linnaeus (1707–1778) standardized the naming of plants by means of the Latin binomial system that we use to this day.

Botanical names have two parts; the first part is called a genus and the second, a species. Both the genus and species names are italicized; the genus is always capitalized, and the species is never capitalized. The genus part of the botanical name designates a group of plants within a family of plants that share a finer suite of common characteristics. For example, the genus *Mentha* refers to the group of mint plants. However, it is often important to differentiate between members of the same genus when we want to work with subtler medicinal differences. We may wish to use peppermint instead of spearmint, or vice versa. In such an instance we specify a species. For example, within the genus *Mentha* we can talk about *Mentha piperita* (peppermint) or *Mentha spicata* (spearmint). There are situations when there is no need to specify a species, as any can be used with equal effect. In such cases, we refer to *Mentha* spp. (short for *Mentha* species) as a general means of identifying all species of mints. It is important to remember that unless it is indicated that any species will be equally effective, one species should not be substituted for another, as medicinal actions can vary markedly.

As noted previously, we use common names throughout this book; both common names and botanical names appear in the index.

Plant Family

Families of plants share a broad array of characteristics. Plant family names are given in Latin. Family names are always capitalized and never italicized. Mints,

for example belong to the family Lamiaceae. Like people, members of the same family may share characteristics; often, too, they do not.

Part Used

While we can and do use entire plants when making herbal medicines, more often than not we look toward a particular part of a plant. The above-the-ground (or aerial) parts of a plant include its seeds, fruits, leaves, flowers, and stems (see figure 11.1). When using trees, inner barks may be also harvested. Below-ground parts include roots, rhizomes, tubers, and bulbs.

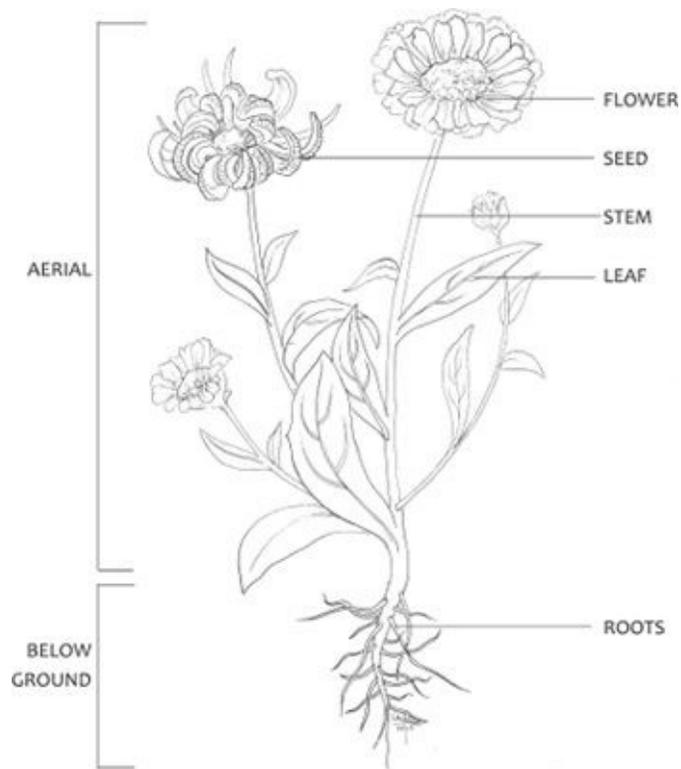


Fig. 11.1. Above-and below-ground parts of the medicinal herb calendula (*Calendula officinalis*) identify the seeds, leaves, flowers, and stems (aerial parts), and the roots.

Harvesting different parts of an herb varies seasonally. Generally, we collect medicinals from below the ground in the early spring or autumn, and above-ground parts are gathered at the appropriate time in the growing season.

Fresh or Dried

The distinction between using a fresh part of a medicinal herb or using an herb after it has been dried can and does matter. It's not a safe idea to substitute one for the other without a sound understanding of the actions of each herb. To do so

may compromise therapeutic value and possibly safety.

Major Constituents

Knowledge of chemical constituents provides an additional perspective when interpreting a plant's actions, as the constituents of roots are different from those of flowering tops, for example. For the more experienced herbalist or reader with some chemistry background, we include the major constituents of each herb.

Taste and Energy

Taste is an informative characteristic of a medicinal herb, as in some ways it provides a clue as to how an herb may be used as a medicine. For example: *✦* Sweetness is often associated with energy. Herbs with sweet tastes are often tonics or building herbs; they can be calming, too.

- ✦* Saltiness relates to our consumption of electrolytes. Salt can often enhance flavor, aid digestion, and strengthen teeth, bones, nails, and hair.
- ✦* Sour and bitter flavors can be warnings, and flavors such as these are likely to be associated with herbs used to cleanse, purify, tonify, or enhance the absorption of minerals.
- ✦* *Umami* indicates a savory or meaty taste, a taste we associate with proteins.
- ✦* Pungent herbs stimulate digestion and metabolism and can be used to relieve stasis and stagnation.
- ✦* Astringent herbs often absorb water. They are very important when tonifying tissues, including tissues of the mouth. Astringent herbs can also be used to help regulate bleeding.

There are many ways to describe the energetics of medicinal herbs. Here we restrict our reporting to *warm, hot, cold, dry, or moist*.

Actions

In the broadest sense, an herb's actions describe what we might expect from using it. The terminology we use for actions encompasses traditional pharmacology, e.g., *antibacterial, antiinflammatory, antioxidant, styptic*, as well as many other terms, which are all included in the glossary.

Antimicrobial Activity

Billions of microorganisms abide in the mouth and indeed throughout our bodies. The antimicrobial activities of herbs are reported generally in table 12.1

in chapter 12, and alongside each entry for herbs in this chapter. We know from historical use spanning centuries, even millennia, that some herbs have antiviral properties, others antifungal, and others antibacterial; some herbs display all three properties to varying degrees. Recently, antimicrobial activity has been a focus of scientific research, in an attempt to better characterize the activities of specific herbs, in response to specific pathogens. While it would be helpful indeed to include these findings in our materia medica, it is a considerable and complex question to understand how we might interpret and weight these reports. For example, some work has been carried out in a laboratory by growing pathogens under artificial conditions; some conclusions have been drawn from anecdotal accounts; some antimicrobial properties have been reported after observation for varying lengths of time and still other studies have arranged small groups of participants who were given one or multiple herbs in an effort to observe changes in the microbial composition of the mouth. Comparisons of these findings are indeed important and need to be addressed but are beyond the scope of this work.

Indications

Indications are best understood in response to the statement *A medicinal herb may be indicated when . . .* When what? When there is a fever, or a toothache, or our gums are swollen or bleeding, for example. Descriptors such as these are largely self-explanatory. We include indications that are supported both by traditional use and clinical research. In some instances, when an herb is indicated across a wide spectrum of conditions, we have limited our reporting to reflect those most relevant to the mouth.

Finally, in this section we include some of the habits, conditions, and diagnoses we summarized in table 10.1 and discussed in chapter 10. Readers are cautioned that an herb may well be of benefit to someone wishing to address one or more of these issues and indeed, may help to alleviate symptoms—it is very unlikely to be a “cure.” Rather, an herb is likely to contribute to the ease and wellbeing of an individual. For example, those diagnosed with Pemphigus vulgaris (an autoimmune disease) or pericoronitis (inflammation often associated with the eruption of a third molar) may experience bad breath. For each of these individuals cardamom can be of benefit, as sucking on a pod will both moisten the mouth and freshen the breath. As herbalists, we work more often with symptoms. Diagnoses provide additional information but rarely describe a person’s (symptom) experience.

Safety Issues

While these are the responsibility of each reader, some general remarks are included in this section. For example, herbs to be avoided, or used with caution, during pregnancy or while lactating are noted.

Allergies to specific plants should arouse caution when working with plants from the same plant family. Supplements, herbal or otherwise, as well as over-the-counter medications (OTCs), certainly other herbs, and particularly pharmaceuticals can and do interact with medicinal herbs. If uncertain or unfamiliar with herbal interactions, consult an herbalist.

Culinary Use

Straightforwardly, we answer *yes* or *no* to the question, “Is this medicinal herb used in cooking or in the preparation of food or drink?” Generally, if we cook with an herb, it’s likely to have a wider safety margin surrounding its use than if we do not use it in the kitchen.

Additionally, as we advocate complementary approaches to wellbeing, this entry may inspire readers to expand their use of culinary herbs that benefit the mouth.

Preparation(s) and Dosage: Decoctions, Poultices, Teas, Tinctures, Topical or Essential Oils

Detailed instruction as to how to prepare medicinals is given in chapter 12. Here, we introduce these essential medicinal terms as follows: **Decoction:** When we boil herbs in water to extract their medicinal qualities, we are decocting an herb. The resulting liquid is known as a *decoction*. Generally, it’s a mode of preparation reserved for roots, inner barks, and other very dense materials. We discuss how to decoct herbs in chapter 12; materia medica entries that follow simply suggest whether or not this may be a potentially helpful mode of delivery.

Poultice: A poultice is made from the topical application of an herb. It is often used to soothe or to draw inflammation from a source. We discuss making poultices in chapter 12; here we ask the question: Would a poultice be helpful? We answer *yes* or *no* and occasionally offer a brief comment.

Tea: Sometimes also called an *herbal tea*, a *tisane*, or an *infusion*, a tea is prepared by pouring boiled water over a specified amount of medicinal herb that may be fresh from the garden or previously dried and allowing this water-based

infusion to steep for a specified time.

Some people whose experience of herbal teas has yet to extend beyond the supermarket shelf find real herbal teas to be a pleasant surprise.

Tincture: Tinctures are often prepared by steeping medicinal herbs in a mixture of water and alcohol. We also use glycerites, which are tinctures made from vegetable glycerin, thus avoiding the use of alcohol. Generally, we prepare tinctures for each individual herb and combine as necessary for each changing health experience. Tincturing ratios such as 1:5 reflect the proportions of herb (marc) to liquid extraction medium (menstruum). Ratios accompany most entries, and preparation is discussed in detail in chapter 12.

Topical oil: Topical oils can be applied externally to reduce inflammation, ease pain, and promote wellbeing. Here we include two distinctly different oils for topical use; namely, infused oil and essential oil. The former is prepared by gently heating an herb in a chosen oil so that, like a tea, the oil takes on the medicinal properties of the herb. The latter, an essential oil, is a result of the pure distillation of an herb.

Dosing is discussed on an herb-by-herb basis and is affected by the mode of delivery (see chapter 12) and other individual characteristics.

Combines Well With

While it is common to use medicinal herbs individually, we often blend herbs to promote and balance healing. Here we offer suggestions, focusing on those herbs that appear in the materia medica that follows.

To some, the number of offered herbal combinations may seem broad for any given herbal entry. This is, in part, a reflection of the fact that we are working in the mouth and an herb may be of value because of its taste, or indeed its ability to mask a taste, as well as its action. Both taste and action are of importance, especially if we are considering compliance. In our review of the herbs listed as possible combinations we must remember that not all herbs listed should be blended together and that some of the herbs listed might be better associated with one or more forms of delivery, be it a mouth rinse, a poultice, or a tea, for example.

Notes

Of course, there may be information we'd like to share that doesn't fit neatly into any of the previous categories. What remains after editing, cutting, and

sifting, we've placed here, in the notes section.

THE HERBAL MATERIA MEDICA

Arnica

Other common names: European arnica, leopard's bane, mountain tobacco

Botanical name: *Arnica montana*, *A. chamissonis*, *A. cordifolia*, *A. latifolia*

Plant family: Asteraceae (Aster Family)

Part used: Flower

Fresh or dried: Fresh or dried

Major constituents: Sesquiterpene lactones, alkaloids, flavonoids

Taste/energy: Bitter, hot

Actions: Analgesic, antiinflammatory, antimicrobial, rubefacient, vulnerary

Antimicrobial activity: Antibacterial, antifungal

Indications: Abscess, acid reflux (GERD), bruising (externally), bruxism, denture sores, infection, inflammation, Kawasaki disease, NUG/St. Vincent's disease, oral piercings, pericoronitis, sore/ulcer, soreness (including jaw tenderness after a prolonged dental intervention), sprains, trauma, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment, wisdom teeth eruption

Safety issues: Extracts of arnica should not be taken internally unless directed to by a skilled practitioner; homeopathic preparations should not be taken internally during pregnancy or lactation; concerns persist regarding the use of *Arnica* spp. on open wounds as it may promote premature healing if an infection is present; *Arnica* spp. can cause skin irritation

Culinary use: No

Preparations and dosage:

Decoction: No

Poultice: Yes, of crushed or gently bruised flowers

Tea: 0.5 teaspoon flowers in about 8 oz. (240 ml) boiled water, steep 15 minutes; sip slowly during the course of the day

Tincture: 1 to 2 drops three to four times daily; tincture can also be diluted and applied topically; tincture preparation 1:5 or 1:2, 60 percent ethanol
Topical oil: Infused oil very helpful; can be applied frequently with notable effects

Combines well with: Bee balm, calendula, willow, yarrow

Notes: Homeopathic arnica (30C), 5 pellets up to three times daily for children two years and older; topical salves are also very effective but not nearly as effective as pellets, which may be a staple in any medicine chest Barberry

Other common names: Herb of the blood, pepperidge bush, yerba de sangre

Botanical name: *Berberis vulgaris*

Plant family: Berberidaceae (Barberry Family)

Parts used: Root, inner bark, leaves, and berries

Fresh or dried: Dried

Major constituents: Alkaloids, tannins, resin

Taste/energy: Bitter, cold

Actions: Alterative, antimicrobial, antiseptic, astringent (root), bitter tonic, cholagogue, expectorant (berries), hypotensive (berries), immune tonic, vasodilator (berries), vulnerary **Antimicrobial activity:** Antibacterial, antifungal, antiparasitic, antiprotozoal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), BRONJ/ONJ, candidiasis (thrush), caries, gingivitis, gum disease, herpes, HPV, hyperplasia, infection, NUG/Vincent's disease, oral cancer, oral piercings, periodontitis, sinusitis, sores/ulcers, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment **Safety issues:** Not to be taken during pregnancy or while breast-feeding; best avoided in infants

Culinary use: Berries have been used in preserves

Preparations and dosage:

Decoction: 1 teaspoon root in about 8 oz. (240 ml) cold water, simmer 15 minutes; divide into equal portions and consume three times daily **Poultice:** Yes, crushed berries or grated root

Tea: 2 teaspoons root in 8 oz. (240 ml) water, left to steep for about 1 hour three to four times daily

Tincture (root): 1.5 to 3 ml (30 to 50 drops) three to four times daily; root tincture preparation 1:5 10 percent glycerin, 60 percent ethanol **Topical oil:** Infused oil applied topically

Combines well with: Cayenne, cinnamon, clove, echinacea, goldenseal, myrrh, neem, oak, orange peel, peppermint, plantain, propolis, red raspberry leaf, rose hips, rosemary, sage, salt, slippery elm, stevia, thyme, turmeric, willow, wintergreen, yarrow **Notes:** The root is prized when addressing inflammation in

the mouth and sinuses; a drop of the tincture can be added to a neti pot in a single-drop dose; excellent addition to a mouthwash for periodontitis, although often gentler-acting herbs will suffice when addressing acute inflammation; berries are used for bleeding gums; berries are a valuable source of vitamin C; the inner bark can be used to gently scour the teeth and gums Barley

Other common names: Hulled barley, pearled barley, pot barley, Scotch barley

Botanical name: *Hordeum vulgare*

Plant family: Poaceae (True Grasses Family)

Part used: Grain (husk removed)

Fresh or dried: Dried

Major constituents: Starch, minerals, proteins, vitamins (e.g., B6, B2, folic acid)

Taste/energy: Sweet, cool

Actions: Nutritive, demulcent

Antimicrobial activity: No; see notes

Indications: Acid reflux/GERD, angular cheilitis, bruxism, candidiasis (thrush), diabetes, gingivitis, gum disease, herpes, infection (bacterial or fungal), inflammation, meth mouth, NUG/Vincent's disease, nutritional deficiencies, pericoronitis, periodontitis, stress, TMJ disorders **Safety issues:** Generally considered safe; grain contains gluten, although the use of the water made from barley seems to be better tolerated **Culinary use:** Grain, roasted and unroasted; less so the water

Preparation and dosage:

Decoction: 1 cup unroasted grain per 4 cups of water; cover and simmer gently 20 minutes; grain can be consumed as a nutritive food; the barley water is retained and used in half-cup (4 oz. or 120 ml) portions three times daily or more frequently *Poultice:* No

Tea: Roasted barley, while not used in a decoction, does make a highly nutritive tea; 1 teaspoon roasted barley can be steeped for 10 to 15 minutes *Tincture:* No

Topical oil: No

Combines well with: Fennel, stevia, and garlic, leeks, mushrooms, onions, scallions (grain and broth); both can be incorporated into soups as well as teas or decoctions of other herbs **Notes:** The antimicrobial action of barley water arises not from direct antimicrobial properties but from its effect on the pH of the

mucosa; the grain is an excellent breakfast choice, especially for diabetics and a useful oral rinse for candidiasis (thrush); the roasted grain can be brewed and used as a coffee substitute Bee balm

Other common names: Bergamot, Oswego tea, prairie bergamot, wild bergamot

Botanical name: *Monarda didyma*, *M. fistulosa*

Plant family: Lamiaceae (Mint Family)

Parts used: Flower, leaf

Fresh or dried: Fresh or dried

Major constituents: Volatile oils, monoterpenes, triterpenes, tannins, flavonoids

Taste/energy: Pungent, warm

Actions: Antiinflammatory, antimicrobial, antioxidant, antispasmodic, aromatic, carminative, nervine

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), bruxism, caries, colic, cysts/tumors, denture sores, fever, gingivitis, glossitis, gum disease, herpes, HPV, hyperplasia, infection, inflammation, Kawasaki disease, mild to moderate stress, NUG/Vincent's disease, oral cancer, oral piercings, pericoronitis, periodontitis, sinusitis, spasm, stress, teething pain, tenderness, tinnitus, TMJ disorders, trauma/injury, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment, wisdom teeth

Safety issues: Limit dosing during pregnancy

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: Generally no, but may be of help in combination with other herbs

Tea: 2 teaspoons in about 8 oz. (240 ml) boiled water, steep for 20 minutes (covered); drink 3 cups (240 ml) daily

Tincture: 1.5 to 2.5 ml (30–50 drops) four times daily; tincture preparation 1:5, 60 percent ethanol

Topical oil: Infused oil (flower or herb) is a very useful topical antispasmodic, antimicrobial, antiinflammatory

Combines well with: Arnica, calendula, chamomile, clove, echinacea, fennel, goldenseal, hops, kava, lavender, lemon balm, milky oats, orange peel,

peppermint, propolis, red clover, red raspberry leaf, rose hips, sage, skullcap, slippery elm, stevia, yarrow **Notes:** Leaves and flowers make an excellent salad addition; steam inhalation of both leaf and flower helpful for fungal inflammation of the sinuses/oral cavity, and a dilute (1:3) tea can be used in a neti pot after it has cooled; leaves and flowers can also be added to hand, foot, and body baths for their medicinal properties, and for aesthetic appeal Calendula

Other common names: Golds, marigold, Mary gowles, pot marigold, ruddes

Botanical name: *Calendula officinalis*

Plant family: Asteraceae (Aster Family)

Part used: Flower

Fresh or dried: Fresh and dried

Major constituents: Triterpenes, carotenoids, flavonoids

Taste/energy: Spicy, bitter, warm or neutral

Actions: Alterative, antiinflammatory, antimicrobial, antioxidant, antiplaque, antispasmodic (mild), diaphoretic, gastroprotective, nutritive, vulnerary

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Abscess, angular cheilitis, aphthous stomatitis (canker sore), candidiasis (thrush), denture sores, gingivitis, gum disease, herpes, HIV/AIDS, HPV, hyperplasia, infection, inflammation, Kawasaki disease, NUG/Vincent's disease, pericoronitis, periodontitis, sores/ulcer, wash for open wounds, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment **Safety issues:** Generally considered safe

Culinary use: Salads

Preparations and dosage:

Decoction: No

Poultice: Yes, of bruised flowers moistened with water, saliva, or a small amount of herbal tea

Tea: 2 teaspoons in about 8 oz. (240 ml) boiled water, steep 30 minutes; drink 1 cup (240 ml) three times daily

Tincture: Dose 1.5 to 2.5 ml (30 to 50 drops) four times daily; tincture preparation 1:5 or 1:2, 70 percent ethanol

Topical oil: An infused oil is very helpful when applied externally; promotes healing

Combines well with: Arnica (internally homeopathically or externally in an oil), bee balm, cayenne, cinnamon, clove, echinacea, fennel, goldenseal, hops,

lavender, lemon balm, marshmallow, myrrh, oak, peppermint, plantain, propolis, red clover, red raspberry leaf, rose hips, rosemary, salt, slippery elm, stevia, thyme, turmeric, yarrow **Notes:** The oil can be used on chapped lips; the tea is a useful addition to any mouthwash and especially one formulated for oral herpes or candidiasis (thrush); a few ml of the tincture can be placed on a toothbrush to massage sore gums; calendula self-seeds and grows easily Cardamom

Other common names: Bastard cardamom, Ceylon cardamom, ela, elaci, Malabar cardamom, sha-ren

Botanical name: *Elettaria cardamomum*

Plant family: Zingiberaceae (Ginger Family)

Parts used: Seed pod and/or seeds within

Fresh or dried: Dried

Major constituents: Monoterpenes, terpenes

Taste/energy: Pungent, warm

Actions: Antimicrobial, antioxidant, antispasmodic, aperient (mildly laxative), breath freshener, carminative, circulatory stimulant, diaphoretic, hypotensive, sialagogue **Antimicrobial activity:** Antibacterial, antifungal

Indications: Acid reflux/GERD, angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, candidiasis (thrush), caries, denture sores, glossitis, gum disease, halitosis (bad breath), herpes, HIV/AIDS, HPV, hyperplasia, indigestion, infection, lichen planus, meth mouth, mouth breathing, NUG/Vincent's disease, oral cancer, oral piercings, Pemphigus vulgaris, pericoronitis, periodontitis, plaque (excess), sinusitis, Sjögren's syndrome, sore throat, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment, wisdom teeth, xerostomia (dry mouth) **Safety issues:** Safe when used as directed

Culinary use: Yes

Preparations and dosage:

Decoction: 5 to 10 pods, bruised or crushed in about 8 oz. (240 ml) water, simmer with a lid 15 minutes; three to four times a day *Poultice:* No

Tea: 4 to 6 pods; 1 teaspoon bruised or crushed seed pods in about 8 oz. (240 ml) boiled water, steep 15 to 20 minutes (covered); drink 4 oz. (120 ml) three times daily *Tincture:* Dose 0.5 to 1 ml (10 to 20 drops) three times daily; tincture preparation 1:5, 70 percent ethanol

Topical oil: No

Combines well with: Cinnamon, clove, echinacea, fennel, milky oats, orange peel, peppermint, stevia, thyme, yarrow

Notes: Makes a fine everyday mouthwash; a whole pod can be placed in the mouth, between cheek and gum, to act as a mild sialagogue—and discarded before being replaced Cayenne

Other common names: Bird pepper, capsaicin, capsicum, cayenne pepper, chili, guinea pepper, habañero pepper, red pepper

Botanical name: *Capsicum annuum*, *C. frutescens*

Plant family: Solanaceae (Nightshade Family)

Part used: Fruit (i.e., the pepper)

Fresh or dried: Generally dried

Major constituents: Amides, vitamin C, flavonoids, volatile oils, carotenoids

Taste/energy: Pungent, hot, dry

Actions: Analgesic (topical), antiinflammatory (COX-2 inhibitor), antimicrobial, antioxidant, antiseptic, carminative, circulatory stimulant, diaphoretic, expectorant, metabolic stimulant, nutritive, rubefacient, styptic

Antimicrobial activity: Antibacterial, antifungal

Indications: Angular cheilitis, aphthous stomatitis, bleeding, BRONJ/ ONJ, candidiasis (thrush), denture sores, gingivitis, gum disease, HPV, impaired circulation, infection, inflammation, NUG/Vincent's disease, pain, papilloma, periodontitis, sores/ulcers, swellings, including toothache **Safety issues:** Avoid contact with eyes, penis, and vagina; may cause burning or if taken internally; GI irritation; should be avoided with acid reflux, known as GERD, and hemorrhoids **Culinary use:** Yes

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 0.125 (1/8) teaspoon powdered herb in about 8 oz. (240 ml) boiled water, steep 30 minutes to be consumed throughout the day; dilute 1 teaspoon in about 8 oz. hot water *Tincture:* Dose 2 to 8 drops two to four times daily, diluted in water or juice; tincture preparation 1:5, 80 percent ethanol *Topical oil:* Often effective to reduce pain; e.g., with neuralgia, shingles

Combines well with: Milk (an antidote) if its action is too hot; barberry, calendula, goldenseal, myrrh, neem, propolis, yarrow **Notes:** As is the case with many an herb, and especially with cayenne, more is not better; can be combined

with fresh orange or lemon juice in a warm drink; can be added to a formula to enhance the efficacy of other herbs; add raw honey for a gentler delivery
Chamomile

Other common names: Camomila, German chamomile, manzanilla, true chamomile

Botanical name: *Matricaria recutita*

Plant family: Asteraceae (Aster Family)

Part used: Flowers

Fresh or dried: Fresh or dried

Major constituents: Flavonoids, sesquiterpenes, terpenoids

Taste/energy: Sweet, warm, slightly moist

Actions: Antiinflammatory, antimicrobial, antiplaque, antispasmodic, carminative, diaphoretic, nervine, vulnerary

Antimicrobial activity: Antibacterial, antifungal

Indications: Aphthous stomatitis (canker sore), bruxism, candidiasis (thrush), colic, diarrhea, disease, eating disorders, gingivitis, gum disease, infection, inflammation, irritability, Kawasaki disease, lichen planus, nail biting, periodontitis, plaque, sleeplessness (children especially), stress, teething, tension, TMJ disorders, trauma/injury
Safety issues: Safe when used as directed; caution with allergies to other Asteraceae

Culinary use: No

Preparations and dosage:

Decoction: No

Poultice: Yes, of gently bruised flowers moistened with water, saliva, or an herbal tea

Tea: 1 to 2 teaspoons flowers in about 8 oz. (240 ml) boiled water, steep for 20 minutes (covered); drink 2 to 4 cups daily
Tincture: Dose 3 to 5 ml (60 to 100 drops) three to four times daily; tincture preparation 1:5 or 1:2, 50 percent ethanol

Topical oil: Useful, as an adjunct calming agent

Combines well with: Bee balm, clove, fennel, hops, kava, lavender, lemon balm, milky oats, peppermint, rose hips, skullcap, stevia
Notes: For sleeplessness combine with lavender, and use over several days; fresh has a notably different energy compared to dried, and a sweeter flavor; frozen chews (see chapter 6) are an excellent teething aide; caution should be taken not to

interchange Roman chamomile with German chamomile as the former is an abortifacient (in animals) while the latter has a long history of safe use during pregnancy and lactation (in humans); homeopathic chamomile (6C) is a very effective means of addressing pain during teething Cinnamon

Other common name: Cassia, Ceylon cinnamon, true cinnamon

Botanical name: *Cinnamomum cassia*, *Cinnamomum* spp.

Plant family: Lauraceae (Laurel Family)

Parts used: Inner bark and twigs

Fresh or dried: Dried

Major constituents: Coumarins, eugenol, phenolics, volatile oils, tannins

Taste/energy: Pungent, sweet, warm, dry

Actions: Analgesic, anthelmintic (pinworms), antiinflammatory, antimicrobial, antioxidant, astringent, carminative, circulatory tonic, hypoglycemic agent, peripheral vasodilator, styptic **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, candidiasis (thrush), caries, denture sores, diabetes, flavor enhancement, gastric ulcers, gingivitis, glossitis, gum disease, halitosis (bad breath), herpes, HPV, hyperplasia, infection, inflammation, meth mouth, NUG/Vincent's disease, oral cancer, oral piercings, periodontitis, plaque, soggy/atonic gums

Safety issues: Powder is safe when used as directed; excessive use during pregnancy or lactation is to be avoided

Culinary use: Yes

Preparations and dosage:

Decoction: 1 oz. herb in 32 oz. water, simmer 20 to 30 min. covered and 2 to 4 oz. can be consumed daily

Poultice: No

Tea: 0.25 to 0.5 teaspoon bark (powdered) in about 8 oz. (240 ml) boiled water, steep 15 to 20 minutes (covered); drink 4 oz. (120 ml) three to four times daily

Tincture: Dose 1 to 1.5 ml (20 to 30 drops), three times daily; tincture preparation 1:5, 70 percent ethanol

Topical oil: No

Combines well with: Barberry, calendula, cardamom, clove, marshmallow, orange peel, propolis, rose hips, salt, slippery elm, stevia, turmeric, willow, wintergreen, yarrow **Notes:** The essential oil is strongly antibacterial and

cautions on overuse pertain to medicinal doses and not culinary use of the powdered spice; as cinnamon inhibits plaque, it's a sound, tasty choice for a daily mouthwash or its base; post-extraction/scaling/filling, prosthetic fitting/adjustment as part of a mouth rinse Clove

Other common names: Ding-xiang (Chinese), lavanga (Sanskrit), tinghsiang (Chinese)

Botanical name: *Syzygium aromaticum* (synonym *Eugenia aromatica*)

Plant family: Myrtaceae (Myrtle Family)

Parts used: Unopened flower (clove) and pure essential oil

Fresh or dried: Dried

Major constituents: Flavonoids, monoterpenes, eugenol

Taste/energy: Pungent, hot, dry

Actions: Anesthetic (topically), antiemetic, antiinflammatory, antimicrobial, antimutagenic, antioxidant, antispasmodic, aromatic, astringent, carminative, expectorant **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, BRONJ/ONJ, bruxism, candidiasis (thrush), caries, cysts/ tumors, denture sores, gingivitis, glossitis, gum disease, halitosis (bad breath), herpes, HPV, hyperplasia, infection, inflammation, Kawasaki disease, leukoplakia, meth mouth, mouth breathing, NUG/Vincent's disease, oral piercings, periodontitis, soggy/atonic gums, sores/ulcers, teething, toothache, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment **Safety issues:** Safe when used as directed; may cause slight numbing on the tongue or gums

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: A clove can be placed in the mouth or near (or in) a tooth giving discomfort to relieve pain

Tea: 3 to 4 cloves or 0.25 teaspoon in about 8 oz. (240 ml) boiled water, steep 15 minutes (covered); drink 2 oz. (60 ml) three times daily *Tincture:* Dose 0.25 to 0.75 ml (5 to 15 drops) three times daily; tincture preparation 1:5, 70 percent ethanol

Topical oil: Pure essential oil (1 to 3 drops) can be applied directly or in a carrier oil such as coconut or olive, or in raw honey **Combines well with:** Barberry, bee balm, calendula, cardamom, chamomile, cinnamon, marshmallow, oak,

orange peel, plantain, propolis, rose hips, rosemary, salt, slippery elm, stevia, turmeric, willow, wintergreen, yarrow **Notes:** Flavor may be too intense for some people and may be better delivered in raw honey; the essential oil can be applied to the gums with a Q-tip; both the tincture and 1 to 3 drops of pure clove essential oil can be diluted in a glass of water as a mouthwash
Echinacea

Other common names: Kansas snakeroot, narrowleafed echinacea, purple cone flower

Botanical name: *Echinacea angustifolia*, *E. purpurea*

Plant family: Asteraceae (Aster Family)

Parts used: Root primarily; flower and seed, too, but a much milder action

Fresh or dried: Fresh/dried

Major constituents: Caffeic esters, phenolic acids, alkamides, volatile oils

Taste/energy: Pungent, cool

Actions: Alterative, antimicrobial, antiinflammatory, antitoxin, chemotherapy adjunct, immune stimulant, sialagogue, vulnerary **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Abscess, burns, candidiasis (thrush), gingivitis, glossitis, gum disease, herpes, immune stimulant, infection (acute onset), inflammation, pericoronitis, periodontitis, septic wounds, sinusitis, sores/ulcers, toothache, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment **Safety issues:** Generally safe

Culinary use: No

Preparations and dosage:

Decoction: 2 teaspoons dried root in about 8 oz. (240 ml) boiled water, simmer 15 minutes (covered), steep 30 minutes or longer; drink at least three times daily *Poultice:* No

Tea: No

Tincture: Dose 2 to 3 ml (40 to 60 drops) four to eight times daily; tincture preparation 1:2, 50 percent ethanol

Topical oil: No

Combines well with: Barberry, bee balm, calendula, cardamom, goldenseal, marshmallow, milky oats, myrrh, oak, orange peel, peppermint, plantain, prickly ash, propolis, rose hips, salt, slippery elm, stevia, thyme, turmeric, wintergreen, yarrow **Notes:** Often administered over a short period with frequent dosing; the

root can be chewed to relieve toothache; due to overharvesting, use should be restricted to the cultivated herb; post-extraction/scaling/filling, prosthetic fitting/adjustment as part of a mouth rinse and a few drops of the tincture can be added to a toothbrush for use to stimulate the gums Fennel

Other common names: Carosella, fenkel, fennel seed, finocchio, Florence fennel, large fennel, sweet fennel, wild fennel

Botanical name: *Foeniculum vulgare*

Plant family: Apiaceae (or Umbelliferae) (Carrot/Parsley Family)

Parts used: Seed, primarily; leaves and stalks have a milder action

Fresh or dried: Dried

Major constituents: Terpenoid ether, flavonoids, coumarins, rich in minerals (phosphorus, selenium, magnesium, thiamine, calcium) **Taste/energy:** Sweet, cool

Actions: Antiinflammatory, antimicrobial, antioxidant, antispasmodic, aromatic, carminative, diuretic, expectorant, galactagogue **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Acid reflux/GERD, angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, BRONJ/ONJ, caries, colic, denture sores, gas (flatulence), gastric distress, gingivitis, glossitis, gum disease, gum recession, halitosis (bad breath), herpes, indigestion, infection, meth mouth, mouth breathing, NUG/Vincent's disease, oral cancer, oral piercings, pericoronitis, periodontitis, Sjögren's syndrome, teething, upper respiratory inflammation, xerostomia (dry mouth) **Safety issues:** Safe when used as directed

Culinary use: Yes, both seed and leaf

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 1 teaspoon bruised seed in about 8 oz. (240 ml) boiled water, steep for 20 minutes or more (covered); drink 3 cups daily *Tincture:* Dose 3 to 5 ml (60 to 100 drops) three to four times daily; tincture preparation 1:5, 60 percent ethanol

Topical oil: To relieve spasm

Combines well with: Barley, bee balm, calendula, cardamom, chamomile, hops, lemon balm, milky oats, orange peel, peppermint, salt, stevia, thyme, turmeric, yarrow **Notes:** Frozen stalks can be used during teething to reduce pain; seeds

can be sucked to improve the breath and digestion; a tea makes a tasty base for a mouth rinse Goldenseal

Other common names: Eye root, ground raspberry, Indian plant, orange root, yellow puccoon, yellow root

Botanical name: *Hydrastis canadensis*

Plant family: Ranunculaceae (Buttercup Family)

Part used: Root (rhizome)

Fresh or dried: Dried

Major constituents: Isoquinoline alkaloids, phenolic acids, resin

Taste/energy: Bitter, cold

Actions: Antiinflammatory, antimicrobial, astringent, bitter, cholagogue, mucosal tonic

Antimicrobial activity: Antibacterial, antifungal, antiprotozoal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), bleeding gums, candidiasis (thrush), caries, cysts/tumors, denture sores, dyspepsia, gingivitis, gum disease, herpes, HIV/AIDS, HPV, infection (acute), inflammation (acute), Kawasaki disease, lichen planus, loose teeth, NUG/Vincent's disease, oral cancer, oral piercings, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, soggy/atonic gums, sores/ ulcers, swollen gums, wisdom teeth **Safety issues:** Not to be used internally during pregnancy or while breast-feeding; avoid use with infants

Culinary use: No

Preparations and dosage:

Decoction: 0.25 to 0.5 teaspoon root (powdered) in about 8 oz. (240 ml) boiled water, steep 30 minutes; drink 4 oz. (120 ml) three times daily *Poultice:* No

Tea: 0.5 teaspoon in 8 oz. boiled water; infuse 15 minutes; three to four cups a day

Tincture: Dose 1 to 1.5 ml (20 to 30 drops) three times daily; tincture preparation 1:5 60 percent ethanol

Topical oil: No

Combines well with: Bee balm, calendula, cayenne, echinacea, myrrh, neem, oak, peppermint, plantain, prickly ash, propolis, red clover, rose hips, sage, salt, slippery elm, stevia, turmeric, willow, wintergreen, yarrow **Notes:** In a nasal rinse for sinusitis (1 drop per neti pot in 3 to 4 oz. water); only cultivated roots should be purchased; calendula, propolis, myrrh, and thyme can be substituted

Hops

Other common names: Common hop, European hops, hop, hoppu, lupulin, lupulo, omerotu, oubion, serbetciotu

Botanical name: *Humulus lupulus*

Plant family: Cannabaceae (Cannabis Family)

Part used: Strobile (cone)

Fresh or dried: Dried

Major constituents: Bitter principles, volatile oils, resin, flavonoids, tannins

Taste/energy: Bitter, cold

Actions: Analgesic, antimicrobial, antispasmodic, anxiolytic, aromatic, bitter tonic, diuretic, sedative

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Anxiety, bruxism, denture sores, headache, infection, nervous tension, pain, sleeplessness, sore gums, spasm, teething, TMJ disorders, trauma/injury **Safety issues:** Avoid during pregnancy; can possibly potentiate the effects of alcohol, anxiolytics (anxiety inhibitors), and sedatives **Culinary use:** In brewing

Preparations and dosage:

Decoction: 1 to 2 teaspoons in about 8 oz. (240 ml) boiled water, simmer 5 to 10 minutes (covered), steep for 15 minutes; drink 2 cups daily **Poultice:** Hops gently warmed in an oven and applied topically reduces pain and can add to a sense of relaxation; lavender or bee balm, for example, can be added to enhance aroma **Tea:** No

Tincture: Dose 0.5 to 1.0 ml (10 to 20 drops) four times daily; tincture preparation 1:2.5, 70 percent ethanol

Topical oil: An infused oil for topical application

Combines well with: Bee balm, calendula, chamomile, fennel, lavender, lemon balm, rosemary, skullcap, stevia, yarrow

Notes: Can be added to a bath to relieve stress and promote sleep; the further addition of other aromatics will mask the musty aroma and flavor of the strobules; decoction has a very strong flavor and is unlikely to be well tolerated by toddlers and children (or even adults) even with the addition of stevia or other herbs to mask the flavor **Kava**

Other common names: Awa, kava kava, kava pepper, kawa, kew, tonga, yangona

Botanical name: *Piper methysticum*

Plant family: Piperaceae (Pepper Family)

Part used: Root

Fresh or dried: Dried

Major constituents: Kavalactones, flavonoids

Taste/energy: Bitter, warm

Actions: Analgesic, antimicrobial, antispasmodic, anxiolytic, diuretic, muscle relaxant

Antimicrobial activity: Antibacterial (slight), antifungal

Indications: Anxiety, fear, muscle spasm, nervousness, pain, stress, tension (acute and chronic), trauma/injury, TMJ disorders, wisdom teeth eruption

Safety issues: Not to be used during pregnancy or while nursing; can potentiate the effects of pharmaceuticals (sedatives, hypnotics, antidepressants) and use for more than three months at any one time should be discussed with an herbalist

Culinary use: As a social beverage among cultures of central and southern Pacific Ocean islands

Preparations and dosage:

Decoction: 1 to 2 teaspoons root in about 8 oz. (240 ml) water, simmer 15 minutes (covered), can be pureed; drink 4 oz. four times daily

Tea: See decoction

Tincture: Dose 2 to 4 ml (40 to 80 drops) three to four times daily; tincture preparation 1:5, 60 percent ethanol

Topical oil: No

Combines well with: Bee balm, chamomile, lavender, lemon balm, milky oats, skullcap, willow

Notes: To make a “kava daiquiri” and enhance absorption, coconut milk and/or pineapple juice can be added; kava enhances a sense of ease without compromising alertness; can help manage fears associated with dental consultations, perhaps in conjunction with other interventions

Other common names: Garden lavender, spike lavender, sweet lavender, true lavender

Botanical name: *Lavandula angustifolia*, *Lavandula* spp.

Plant family: Lamiaceae (Mint Family)

Part used: Flower

Fresh or dried: Fresh and dried

Major constituents: Volatile oils, flavonoids, monoterpenes

Taste/energy: Fragrant, cool

Actions: Analgesic, antidepressant, antimicrobial, antioxidant, antispasmodic, aromatic, carminative, nervine, rubefacient

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Bruxism, candidiasis (thrush), dreaming (to promote), emotional upset, headaches, infection, inflammation, insomnia, irritability, nail biting, nervousness, sleeplessness, sores/ulcers, stress, teething pain, tension, TMJ discomfort, trauma/injury, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment **Safety issues:** Generally considered safe

Culinary use: Yes, primarily baked goods, in raw honey and to season meats

Preparations and dosage:

Decoction: No

Poultice: Of warm flowers

Tea: 0.25 to 0.5 teaspoon flowers in about 8 oz. (240 ml) boiled water, steep for 15 to 20 minutes (covered); drink 2 cups daily or to enhance sleep, before bed

Tincture: Dose 0.5 to 1.5 ml (10 to 30 drops), three to four times daily; tincture preparation 1:5, 60 percent ethanol

Topical oil: Infused oil can be applied topically to ease tension, stress, and so on, and the essential oil (1 drop in a carrier oil) can also be applied topically

Combines well with: Bee balm, calendula, chamomile, hops, kava, lemon balm, milky oats, rosemary, salt, skullcap, stevia, wintergreen **Notes:** Useful in baths and in massage to relieve muscle tension and pain and to promote sleep; combines well with chamomile for teething infants and sleeplessness for both children and adults; is added to rice packs for its aromatic nervine

qualities



Plate 1. Beeswax dental filling made 6,500 years ago (Bernardini, *et al.* 2012)



Plate 2. Chew sticks (photograph courtesy of Dr. Fatemeh Ezoddini-Ardakani)



Plate 3. The correct angle and position of a brush when cleaning an outside tooth surface



Plate 4. Tongue scraper



a



b



c

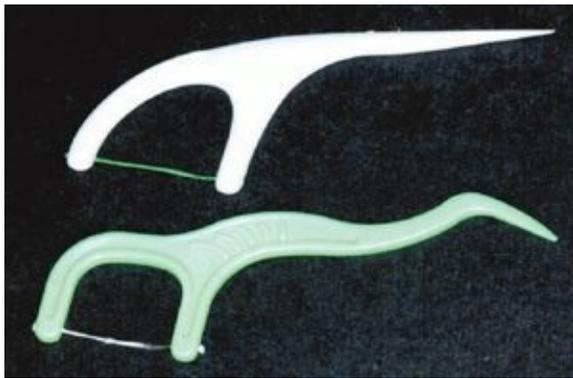
Plate 5. Correct positioning of dental floss: (a) along the right edge of a central incisor; (b) bringing the floss down between central and lateral incisors; and (c) again the floss is brought up to the gingival edge of the tooth



a



b



c

Plate 6. Interdental cleaners: (a) and (b), and (c), a preloaded flosser



a



b



c

Plate 7. A comparison of (a) healthy gums (note the stippled texture), (b) classic signs of gingivitis (photo courtesy of Dr. Randall Valentine), and (c) chronic periodontitis (photo courtesy of Dr. Robert D. Glassgow).



Plate 8. A model showing the effects of advanced periodontitis: tartar deposition under the gums and bone loss as a result of disease progression

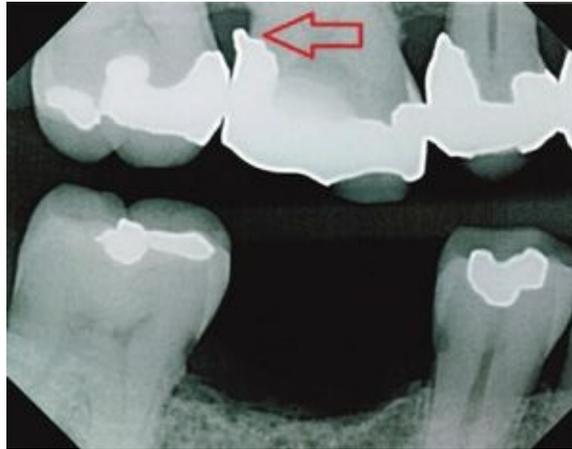


a



b

Plate 9. An example of nonsurgical periodontal treatment. Calculus, or tartar, has been removed from the teeth on the right side in both images and can be compared between its appearance immediately after scaling (a), and seven days later (b).



a



b



C

Plate 10. Examples of acquired and developed conditions, including an amalgam overhang, see arrow in (a), a permanently cemented orthodontic retainer with significant calculus accumulation and associated red and inflamed gums (b), and the “supraeruption” of a middle molar (c)



Plate 11. Side view of an implant



a



b



C

Plate 12. Removable partial dentures: (a) traditional metal, (b) flexible, and (c) flexible in place on its cast.



Plate 13. Full dentures



Plate 14. Occlusal guard, fabricated to reduce the effects of bruxism (excessive grinding of the teeth and/or clenching of the jaw)

Lemon balm

Other common names: Balm, balm mint, bee balm, garden balm, honey plant, Melissa, sweet balm

Botanical name: *Melissa officinalis*

Plant family: Lamiaceae (Mint Family)

Part used: Leaves

Fresh or dried: Fresh or dried

Major constituents: Essential oils, flavonoids, triterpenes

Taste/energy: Sour, cool

Actions: Antidepressant, antimicrobial, antioxidant, antispasmodic (mild), astringent (mild), carminative, diaphoretic (as a hot tea), febrifuge, nervine

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), bruxism, candidiasis (thrush), caries, colic, cysts/tumors, denture sores, fever, gingivitis, glossitis, gum disease, headaches (mild), herpes, HPV, hyperplasia, hyperthyroidism, infection, insomnia, Kawasaki disease, melancholia, nervous stomach, NUG/Vincent's disease, oral piercings, overexcitability (in children), pericoronitis, periodontitis, seasonal affective disorder (SAD), sinusitis, stress, teething, TMJ discomfort, trauma/injury, wash/part of a mouth rinse for post-

extraction/scaling/ filling/prosthetic fitting/adjustment, wisdom teeth, xerostomia (dry mouth) **Safety issues:** In larger doses, a mild thyroxin (thyroid) inhibitor, but generally considered safe

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: Yes, of gently bruised leaves moistened with water, saliva, or an herbal tea

Tea: 1 to 2 teaspoons in about 8 oz. (240 ml) boiled water, steep for 15 to 20 minutes (covered); drink 2 to 4 cups daily

Tincture: Dose 4 to 5 ml (80 to 100 drops) four times daily; tincture preparation 1:2, 50 percent ethanol

Topical oil: Infused oil is relaxing and a mild antispasmodic

Combines well with: Bee balm, calendula, chamomile, fennel, hops, kava, lavender, marshmallow, milky oats, myrrh, neem (not as a tea), orange peel, peppermint, propolis, red clover, rose hips, rosemary, salt, skullcap, stevia, thyme, willow, wintergreen; with fennel and chamomile for nursing mothers with colicky infants; with marshmallow for heartburn **Notes:** A useful herb when working with children; lemon balm (*Melissa officinalis*) shares a common name with bee balm (*Monarda* spp.), underlining the importance of correct botanical nomenclature in the use of medicinal herbs; lemon balm is a specific herb for all herpes viruses Marshmallow

Other common names: Althea, common marshmallow, common marshmallow, echte heemst, ghasul, hatmi, iviscus, khatmah, khitmi, malvavisco, marsh mallow, white mallow, wild mallow **Botanical name:** *Althaea officinalis*

Plant family: Malvaceae (Mallow Family)

Part used: Root

Fresh or dried: Dried

Major constituents: Mucilage (greater in root than in leaf), flavonoids, polysaccharides, pectin, vitamin A

Taste/energy: Sweet, cool

Actions: Antiinflammatory, antimicrobial, antitussive, demulcent, nutritive, vulnerary

Antimicrobial activity: Antibacterial

Indications: Abscess, acid reflux/GERD, angular cheilitis, aphthous stomatitis

(canker sore), cysts/tumors, denture sores, gingivitis, gum disease, hyperplasia, infection, inflammation, mouthwash, NUG/Vincent's disease, nutritional deficiencies, pericoronitis, periodontitis, poultice (as a base for other herbs), sores/ulcers, teething, trauma/injury, wisdom teeth, wounds **Safety issues:** Generally considered safe; can delay the absorption of pharmaceuticals (suggest separating ingestion by a few hours) **Culinary use:** Source of original marshmallow, but the root is distinctly different from the common grocery item

Preparations and dosage:

Decoction: 1 teaspoon chopped herb in 1 cup of water; simmer gently 10 to 15 minutes; drink three times daily; a cold decoction can be prepared using the same ratio and left at room temperature to infuse overnight *Poultice:* Yes, the grated root can be mixed with raw honey to make a paste, gently heated, on a plate for example, and applied as warm as tolerable without burning (especially useful in the mouth) *Tea:* 2 teaspoons dried root, 8 oz. warm water, steep for 1 hour (will become slimy); drink half a cup three to four times daily *Tincture:* Dose 5 to 6 ml (100 to 120 drops) three to four times daily; tincture preparation 1:5, 25 percent ethanol

Topical oil: No

Combines well with: Calendula, cinnamon, clove, echinacea, lemon balm, neem, orange peel, plantain, prickly ash, propolis, red clover, salt, skullcap, stevia, turmeric, wintergreen **Notes:** Avoid combining with herbs high in tannin (oak and willow, for example), as the mucilage and tannin do not mix well and can congeal; the root makes an excellent salve for burns; poultice and tea are the preferred modes of delivery as is a chew stick, which can be used for teething or cleaning; blends very well with honey Milky oats

Other common names: Common oat, groats, oat grass, oat straw (see notes, below), oats, wild grass, wild oats

Botanical name: *Avena sativa*

Plant family: Poaceae (True Grasses Family)

Part used: Fresh milky seed head ("spikelets")

Fresh or dried: Fresh (far more potent) and dried

Major constituents: Proteins, B vitamins, calcium, magnesium, silicon, sodium, vitamins A, E, and K, zinc

Taste/energy: Sweet, neutral-warm, moist

Actions: Antimicrobial, antispasmodic, nerve tonic, nutritive

Antimicrobial activity: Antibacterial, antifungal

Indications: Acid reflux/GERD, agitation, angular cheilitis, anxiety, aphthous stomatitis (canker sore), black hairy tongue, bruxism, candidiasis (thrush), diabetes, dryness, eating disorders, gingivitis, gum disease, insomnia, irritability, need of B vitamins (depleted, deficient, or due to stressors), nervousness, nutritional deficiencies, periodontitis, stress, TMJ disorders **Safety issues:** Safe when used as directed

Culinary use: No

Preparations and dosage:

Decoction: No

Poultice: A warm poultice is soothing and can be mixed with aromatic herbs; e.g., lavender, bee balm, thyme

Tea: 3 to 4 teaspoons seed heads, steep 15 to 20 minutes; drink 4 or more cups daily

Tincture: Dose 4 to 6 ml (80 to 100 drops), 1:2, 40 percent ethanol; take five or more times daily

Topical oil: No

Combines well with: Bee balm, cardamom, chamomile, echinacea, fennel, kava, lavender, lemon balm, orange peel, red clover, rosemary, salt, skullcap, stevia, thyme, turmeric, wintergreen **Notes:** *Oat straw* is the name often used for the seed and stem (often mechanically harvested); *oat seed* or *milky oats* refers to the seed alone, which is more potent; excellent relaxant in the bath; actions accumulate over time; very nutritive, especially during convalescence; a superior support during stressful times, be they physical, emotional, spiritual, or psychological Myrrh

Other common names: Myrrh gum, myrrh tree

Botanical name: *Commiphora myrrha* [syn. *C. molmol*]

Plant family: Burseraceae (Torchwood Family)

Part used: Gum (resin)

Fresh or dried: Dried

Major constituents: Monoterpenes, diterpenes

Taste/energy: Spicy, neutral

Actions: Analgesic, antiinflammatory, antimicrobial, antispasmodic, astringent, carminative, immune stimulant

Antimicrobial activity: Antibacterial, antifungal, antiparasitic

Indications: Angular cheilitis, aphthous stomatitis (canker sore), candidiasis (thrush), caries, gingivitis, glossitis, gum disease, herpes, HPV, hyperplasia, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, loose teeth, oral piercings, pericoronitis, periodontitis, redness, sinusitis, soggy/atonic gums, sores/ulcers, sore or painful mouth/ gums, swollen gums, trauma/injury, wisdom teeth, wound healing **Safety issues:** Contraindicated during pregnancy; may result in very mild thyroid stimulation

Culinary use: No

Preparations and dosage:

Decoction: 2 teaspoons resin in about 8 oz. (240 ml) boiled water, simmer 15 to 20 minutes (covered), steep 1 hour; drink 4 oz. (120 ml) four times daily

Poultice: Small pieces of resin can be placed in the mouth or in a tooth, as they will dissolve over time

Tea: No

Tincture: Dose: 1 to 2 ml (20 to 40 drops) three to four times daily; tincture preparation 1:5, 100 percent ethanol

Topical oil: Pure essential oil can be used in drop doses directly or in a carrier oil to reduce pain and discomfort associated with teething or toothache, or 2 to 3 drops can be added to about 10 oz. water as a gargle/mouth rinse **Combines well with:** Barberry, calendula, cayenne, echinacea, goldenseal, lemon balm, neem, oak, plantain, prickly ash, propolis, rose hips, sage, salt, slippery elm, stevia, thyme, turmeric, willow, wintergreen, yarrow **Notes:** Direct application of the essential oil may sting; adding it to a carrier oil or to raw honey makes application more comfortable; a solid addition to daily rinses; a few drops of an essential oil, or 2 ml of tincture can be added to a toothbrush to massage the gums, post-extraction/ scaling/filling, prosthetic fitting/adjustment as part of a mouth rinse **Neem**

Other common names: Indian lilac, nimtree, pride of China

Botanical name: *Azadirachta indica*

Plant family: Meliaceae (Mahogany Family)

Parts used: Leaves, inner bark, stem; occasionally the seed, although not in the mouth

Fresh or dried: Fresh and dried

Major constituents: Limonoids, terpenoids, triterpenoids, bitters, tannins, flavonoids, quercetin

Taste/energy: Bitter, cold

Actions: Analgesic, anthelmintic, anticarcinogenic, antifertility, antiinflammatory, antimicrobial, antioxidant, antiplaque, antipyretic, anti-tartar, astringent, bitter tonic, hypoglycemic agent **Antimicrobial activity:** Antibacterial, antifungal, antimalarial, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, BRONJ/ONJ, candidiasis (thrush), caries, cysts/tumors, denture sores, gingivitis, glossitis, gum disease, halitosis (bad breath), herpes, HPV, hyperplasia, infection, inflammation, Kawasaki disease, meth mouth, NUG/Vincent's disease, oral piercings, pericoronitis, periodontitis, mouth sensitivity, sinusitis, soggy/atonic gums, sores/ ulcers, wash/part of a mouth rinse for post-extraction/scaling/filling/ prosthetic fitting/adjustment, wisdom teeth **Safety issues:** Prolonged internal use can affect fecundity (fertility); spermicidal; not for use during pregnancy or lactation **Culinary use:** No

Preparations and dosage:

Decoction: Yes, cooled, then used as a wash or applied topically

Poultice: Leaves and bark moistened with water, saliva, or an herbal tea or blended with slippery elm

Tea: 1 to 2 teaspoons herb per 8 oz. water, steep 20 minutes, sweeten with honey or stevia

Tincture: Dose 0.5 to 1 ml (10 to 20 drops) two to three times daily; tincture preparation 1:5, 35 percent ethanol

Topical oil: From the seed

Combines well with: Barberry, cayenne, goldenseal, lemon balm, marshmallow, myrrh, oak, orange peel, plantain, prickly ash, propolis, red raspberry leaf, rose hips, slippery elm, stevia, turmeric, willow, yarrow **Notes:** Also used as a natural and effective insecticide; chew sticks are used in lieu of toothbrushing and effectively control decay; leaves and bark can also be added to a bath for topical/systemic effect; the aroma of the oil can be made more palatable with the addition of a drop of cinnamon or wintergreen essential oil; the taste can be masked, in part, with honey or stevia Oak

Other common names: White oak

Botanical name: *Quercus alba*, *Quercus* spp.

Plant family: Fagaceae (Beech Family)

Part used: Inner bark

Fresh or dried: Dried

Major constituents: Tannins, ellagitannin, triterpenes, flavonoids

Taste/energy: Astringent, bitter, dry, neutral

Actions: Antiinflammatory, antimicrobial, antioxidant, astringent, styptic, vulnerary

Antimicrobial activity: Antibacterial, antifungal

Indications: Abscess, angular cheilitis, aphthous stomatitis (canker sore), capillary bleeding, cysts/tumors, denture sores, gingivitis, gum disease, infection, inflammation, loose teeth, oral cancer, periodontitis, soggy/atonic gums, sores/ulcers, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment **Safety issues:** Generally safe; often used for short periods

Culinary use: No

Preparations and dosage:

Decoction: 1 teaspoon inner bark (powdered) in about 8 oz. (240 ml) boiled water, simmer 10 to 15 minutes (covered), steep 30 minutes; drink 2 oz. (60 ml) three times daily *Poultice:* A plug can be made with a pinch of powdered bark mixed with saliva, water, or herbal tea

Tea: No

Tincture: Dose 0.5 to 1 ml (10 to 20 drops) three times daily; tincture preparation 1:5, 30 percent ethanol plus 10 percent vegetable glycerin *Topical oil:* No

Combines well with: Barberry, calendula, clove, echinacea, goldenseal, myrrh, neem, plantain, prickly ash, propolis, rose hips, rosemary, sage, slippery elm (in a poultice), stevia, turmeric, willow, wintergreen, yarrow **Notes:** A milder astringent is made from decocting acorns; the inner bark is a sound astringent, for use with chronic periodontitis; a few milliliters can be applied to a toothbrush and gently massaged into the gums Orange peel

Other common names: Bergamot orange, bitter orange, orange, Seville orange

Botanical name: *Citrus aurantium*

Plant family: Rutaceae (Rue or Citrus Family)

Part used: Peel (most of the pith removed)

Fresh or dried: Fresh or dried

Major constituents: Alkaloids, flavonoids, limonene, terpenes, monoterpenes

Taste/energy: Bitter, sweet/cooling

Actions: Antiinflammatory, antimicrobial, antioxidant, antitumor, flavorant

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Acid reflux/GERD, candidiasis (thrush), cysts/tumors, denture sores, diabetes, expectorant, gingivitis, glossitis, growths, gum disease, halitosis (bad breath), herpes, HPV, infection, inflammation, NUG/Vincent's disease, nutritional deficiencies, oral cancer, pericoronitis, periodontitis, stress, swollen gums, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment **Safety issues:** May affect the absorption of pharmaceuticals, direct application of the essential oil may cause photosensitivity; to be avoided in the presence of excess stomach acid (hyperchlorhydria) **Culinary use:** Yes

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 0.25 to 0.5 teaspoon freshly ground peel in about 8 oz. (240 ml) boiled water, steep 10 to 15 minutes (covered); drink 2 to 4 oz. (60 to 120 ml) three times daily *Tincture:* Dose 0.5 to 1 ml (10 to 20 drops) three times daily; tincture preparation 1:5, 70 percent ethanol

Topical oil: 1 to 3 drops of the essential oil, topically (e.g., in raw honey), or in water four times daily

Combines well with: Barberry, bee balm, cardamom, cinnamon, clove, echinacea, fennel, lemon balm, marshmallow, milky oats, neem, peppermint, prickly ash, red clover, red raspberry leaf, rose hips, salt, slippery elm, stevia, thyme, turmeric, willow, wintergreen, yarrow **Notes:** Orange peel can be used to improve the flavor of medicinal preparations and is often an excellent choice to add to a tea blend; *C. sinensis* is sweeter, milder, and less warming than *C. aurantium* Peppermint

Other common names: American mint, brandy mint, field mint, horsemint, mint

Botanical name: *Mentha piperita*

Plant family: Lamiaceae (Mint Family)

Parts used: Aerial parts (mostly leaf), essential oil

Fresh or dried: Fresh or dried

Major constituents: Monoterpenes, diterpenes, flavonoids, tannins

Taste/energy: Pungent, cool

Actions: Analgesic, antiemetic, antimicrobial, antioxidant, antiseptic,

antispasmodic, astringent (mild), carminative, febrifuge, flavorant, nervine
Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, bloating, colic, fever, gastric disease, gingivitis, gum disease, halitosis (bad breath), headache, herpes, infection, lichen planus, meth mouth, migraines, nausea, NUG/Vincent's disease, oral cancer, Pemphigus vulgaris, periodontitis, sinusitis, stomach ache, toothache, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment
Safety issues: Generally considered safe; contraindicated with GERD/ acid reflux

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: A pinch for flavor if a quid or a wad of herb is to be placed on the site of inflammation

Tea: Fresh sprig steeped 5 to 15 minutes; 1 teaspoon dried herb steeped 10 to 15 minutes; drink 3 to 4 cups daily

Tincture: Dose 3 to 4 ml (60 to 80 drops) three to four times daily; tincture preparation 1:5, 45 percent ethanol

Topical oil: Essential oil, 1 to 2 drops on a Q-tip and applied directly to the tooth to relieve pain, up to three times daily
Combines well with: Barberry, bee balm, calendula, cardamom, chamomile, echinacea, fennel, goldenseal, lemon balm, prickly ash, orange peel, red raspberry leaf, rosemary, salt, slippery elm, stevia, thyme, willow, wintergreen, yarrow
Notes: A very useful herb for all ages and stages of health and wellbeing; excellent for reducing a fever and drawing heat

Plantain

Other common names: Broadleaf plantain, English plantain, greater plantain, narrowleaf plantain, ribwort

Botanical name: *Plantago major*, *P. lanceolata*, *Plantago* spp.

Plant family: Plantaginaceae (Plantain Family)

Parts used: Leaf, root, seed

Fresh or dried: If leaf, fresh (preferred); dried root and seed

Major constituents: Iridoids, mucilage, flavonoids, tannins

Taste/energy: Bland, bitter, cool

Actions: Analgesic, antiinflammatory, antimicrobial antioxidant, antitoxin, astringent (root), demulcent, laxative (seed), styptic (root), vulnerary
Antimicrobial activity: Antibacterial, antifungal, antiparasitic, antiviral

Indications: Leaf and root—abscess, aphthous stomatitis (canker sore), bleeding gums, candidiasis (thrush), cysts/tumors, denture sores, gingivitis, glossitis, gum disease, HPV, infection, inflammation (of mucous membranes), oral piercings, pain, papilloma, *Pemphigus vulgaris*, pericoronitis, periodontitis, sores/ulcers, stings, toothache (minor), trauma injury, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment
Safety issues: Generally considered safe

Culinary use: No

Preparations and dosage:

Decoction: Root only, 1 oz. in 32 oz. boiled water, simmer 30 min; 4 oz. three to four times daily

Poultice: Yes, as a quid or a plug of bruised leaf or root

Tea: 2 teaspoons dried leaf in 8 oz. hot water, steep for 15 minutes; drink 3 to 4 cups daily

Tincture: Dose 3 to 5 ml (60 to 100 drops) four times daily; tincture preparation 1:2, 30 percent ethanol

Topical oil: Infused oil can be used for scrapes and cuts

Combines well with: Barberry, calendula, clove, echinacea, goldenseal, marshmallow, myrrh, neem, oak, prickly ash, salt, slippery elm, stevia, turmeric, willow, yarrow
Notes: Fresh leaf is a superb poultice for drawing sores and abscesses; fresh leaf freezes well for use out of season; the tea can also be used externally and can be added to any mouthwash Prickly ash

Other common names: American prickly ash, common prickly ash, northern prickly ash, toothache tree

Botanical name: *Zanthoxylum clava-herculis*, *Z. americanum*, *Zanthoxylum* spp.

Plant family: Rutaceae (Rue or Citrus Family)

Part used: Inner bark

Fresh or dried: Dried

Major constituents: Alkaloids, lignans

Taste/energy: Pungent, dry, warming

Actions: Analgesic, antiinflammatory antimicrobial, antiplaque, circulatory

stimulant, rubefacient, sialagogue

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Abscess, aphthous stomatitis (canker sore), candidiasis (thrush), caries, denture sores, gingivitis, glossitis, gum disease, infection, inflammation (of mucous membranes), lichen planus, NUG/Vincent's disease, oral piercings, Pemphigus vulgaris, pericoronitis, periodontitis, plaque, sinusitis, toothache, wisdom teeth, xerostomia (dry mouth) **Safety issues:** Can potentiate other medications; use with care during pregnancy

Culinary use: No

Preparations and dosage:

Decoction: 1 teaspoon in about 8 oz. (240 ml) water, simmer 10 minutes (covered), steep 30 minutes; drink 2 oz. (60 ml) three times daily *Poultice:* Yes, topically for tooth pain as a plug or quid

Tea: No

Tincture: Dose 0.5 to 2 ml (10 to 40 drops) three to four times daily; tincture preparation 1:5, 70 percent ethanol

Topical oil: No

Combines well with: Echinacea, goldenseal, marshmallow, myrrh, neem, oak, orange peel, peppermint, plantain, rosemary, salt, slippery elm, stevia, turmeric

Notes: The addition of prickly ash to a formula can enhance the actions of herbs; used most often in conjunction with other herbs; can inhibit plaque formation; can be used as a dentifrice/toothpick; the stimulation of saliva may last for some time and can be quite pronounced with the smallest of doses; very useful with slippery elm in a poultice Propolis

Other common names: Bee glue, propolis balm, propolis balsam/ resin/wax, Russian penicillin

Botanical name: (Not applicable)

Plant family: (Not applicable)

Part used: Propolis is a coating that bees use to cover all interior surfaces of a hive to ensure tightness, strength, and asepsis; propolis is made from the various resins collected from the buds and bark of trees (especially poplars and conifers), to which bees add wax and salivary secretions **Fresh or dried:** Dried

Major constituents: Resins, balsams, essential oils, aromatics, wax, pollen, amino acids, flavonoids

Taste/energy: Pungent, cool-warm

Actions: Antiinflammatory, antimicrobial, antioxidant, cariostatic, immune stimulant, vulnerary

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Abscess, aphthous stomatitis (canker sore), avulsion, Band-Aid for wounds (a New-Skin liquid bandage alternative), burns (minor), cancer protocols, candidiasis (thrush), caries, chemotherapeutic support, cysts/tumors, denture sores, denture stomatitis, gingivitis, glossitis, gum disease, herpes, HPV, hypersensitivity, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/Vincent's disease, oral cancer, oral piercings, pain, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, sores/ulcers, trauma/injury, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment, wisdom teeth, wound healing **Safety issues:** Generally considered safe; may exacerbate asthma; use with caution if allergic to bee products (royal jelly, pollen, bee sting) **Culinary use:** No

Preparations and dosage:

Decoction: No

Poultice: Yes, often a piece of dried resin is placed alongside the site of inflammation/infection; a tincture of propolis can also be used to moisten a poultice of other herbs *Tea:* No

Tincture: Dose 2 to 3 drops four times daily; tincture preparation 1:5, 100 percent ethanol

Topical oil: No

Combines well with: Barberry, bee balm, calendula, cayenne, cinnamon, clove, echinacea, goldenseal, lemon balm, marshmallow, myrrh, neem, oak, rose hips, rosemary, sage, salt, slippery elm, stevia, thyme, turmeric, wintergreen, yarrow

Notes: When making a propolis tincture, American herbalist and author Rosemary Gladstar suggests freezing the propolis as well as all equipment to be used during powdering the resin, as this results in easy, gum-free grinding (Gladstar 2012); application of the tincture to open wounds may sting, and this can be offset by mixing the tincture in raw honey; extracts are a very useful addition to any irrigant Red clover

Other common names: Cow clover, cowgrass, meadow clover, peavine clover, purple clover, wild clover

Botanical name: *Trifolium pratense*

Plant family: Fabaceae (Pea Family)

Part used: Blossoms

Fresh or dried: Dried

Major constituents: Isoflavones, flavonoids, coumarins, minerals

Taste/energy: Sweet, cool

Actions: Alterative, anticancer, antiinflammatory, antimicrobial antispasmodic, antitumor, demulcent (slightly), expectorant, lymphatic tonic, nutritive, stimulates white blood cells, vulnerary **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Abscess, angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, candidiasis (thrush), caries, cysts/tumors, denture sores, gingivitis, gum disease, herpes, HIV/AIDS, HPV, infection, inflammation, NUG/Vincent's disease, nutritional deficiencies, oral cancer (with other herbs), oral piercings, papilloma, Pemphigus vulgaris, pericoronitis, periodontitis, sores/ulcers, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment **Safety issues:** Generally considered safe but use with caution with bleeding disorders and use is debated with estrogen-positive cancers

Culinary use: Fresh flowering tops in salads

Preparations and dosage:

Decoction: No

Poultice: Generally no, but may be added to other herbs when addressing oral cancers

Tea: 2 teaspoons flowers in about 8 oz. (240 ml) boiled water, steep for 30 minutes; drink 2 to 4 cups daily

Tincture: Dose 3 to 5 ml (60 to 100 drops) four times daily; tincture preparation 1:5, 40 percent ethanol

Topical oil: Infused oil applied externally

Combines well with: Bee balm, calendula, goldenseal, lemon balm, marshmallow, milky oats, orange peel, rose hips, stevia, thyme, turmeric, willow, yarrow **Notes:** Blossoms are very delicate; careful collection avoids discoloration upon drying

Red raspberry leaf

Other common names: Bramble, European red raspberry, hindberry, wild raspberry

Botanical name: *Rubus idaeus*, *Rubus* spp.

Plant family: Rosaceae (Rose Family)

Part used: Leaf

Fresh or dried: Dried

Major constituents: Flavonoids, tannins, vitamin C

Taste/energy: Sweet, neutral, dry

Actions: Antiinflammatory, antispasmodic (mild), astringent, nutritive

Antimicrobial activity: No

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, boggy swollen gums, denture sores, gingivitis, gum disease, inflammation, loose teeth, nutritional deficiencies, *Pemphigus vulgaris*, pericoronitis, periodontitis, soggy/atonic gums **Safety issues:** Generally safe

Culinary use: As a tea (the leaf)

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 2 teaspoons leaf in about 8 oz. (240 ml) boiled water, steep for 30 minutes; drink freely or 2 to 4 cups daily

Tincture: Dose 3 to 5 ml (60 to 100 drops) three to four times daily; tincture preparation 1:5, 30 percent ethanol plus 10 percent vegetable glycerin *Topical*

oil: No

Combines well with: Barberry, bee balm, calendula, neem, orange peel, peppermint, rose hips, sage, stevia, yarrow

Notes: The tea can be used as a compress for minor inflammation; an excess can cause internal dryness; a cold tea can be used as a laxative Rose hips

Other common names: Dog rose, haggebutt, wild rose

Botanical name: *Rosa canina*, *Rosa* spp.

Plant family: Rosaceae (Rose Family)

Part used: Hip (fruit)

Fresh or dried: Fresh and dried

Major constituents: Vitamin C, flavonoids, pectin, tannins, carotenoids

Taste/energy: Sour-sweet, cool

Actions: Antiinflammatory, antimicrobial, antioxidant, antiscorbutic (i.e., antiscurvy), astringent

Antimicrobial activity: Antibacterial

Indications: Angular cheilitis, aphthous stomatitis (canker sore), atonic mucous membranes, bleeding (of the gums), boggy tissue, candidiasis (thrush), caries, cysts/tumors, denture sores, diabetes, gingivitis, gum disease, infection, inflammation (chronic and acute), nutritional support/deficiency, oral cancer, Pemphigus vulgaris, pericoronitis, periodontitis, Sjögren's syndrome, soggy/atonic gums, sores/ulcers, vitamin C support **Safety issues:** Tannins may affect the absorption of some pharmaceuticals containing alkaloids, otherwise generally recognized as safe; note that of all of the herbs presented, roses (from which rose hips are harvested) are frequently treated with chemicals (e.g., fungicides), so care must be taken to avoid these when harvesting **Culinary use:** Yes, in the making of jellies, purees, and syrups, and in teas (somewhat sour)

Preparations and dosage:

Decoction: 2.5 teaspoons of hips (sliced) in 1 cup of water, simmer 10 minutes; filter; drink freely or two to four cups daily *Poultice:* No

Tea: 1 to 2 teaspoons rose hips, or more, steep 15 to 20 minutes; filter to remove hairs

Tincture: No

Topical oil: no

Combines well with: Barberry, bee balm, calendula, chamomile, cinnamon, clove, echinacea, goldenseal, lemon balm, myrrh, neem, oak, orange peel, propolis, red clover, red raspberry leaf, rosemary, sage, salt, stevia, thyme, turmeric, wintergreen, yarrow **Notes:** Rose hips can be used fresh; however, they are often picked after a first frost; hips are split lengthwise, and seeds and hairs are removed; they can also be strung on a string while fresh to dry whole, to be sliced before use to ensure integrity; while indicated when there is bleeding of the gums, they are not a styptic Rosemary

Other common names: Garden rosemary

Botanical name: *Rosmarinus officinalis*

Plant family: Lamiaceae (Mint Family)

Part used: Leaves

Fresh or dried: Fresh and dried

Major constituents: Volatile oils, tannins, monoterpenes, diterpenes, triterpenes, flavonoids

Taste/energy: Spicy, pungent, warm

Actions: Antiinflammatory, antimicrobial, antioxidant, antispasmodic,

astringent, carminative, chemoprotective, cholagogue, circulatory stimulant, diaphoretic, diuretic, nervine **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, bruxism, candidiasis (thrush), caries, cysts/tumors, denture sores, enhancing capillary integrity, gastrointestinal distress, gingivitis, glossitis, gum disease, halitosis (bad breath), herpes, HPV, impaired circulation, infection, inflammation, meth mouth, NUG/ Vincent's disease, Pemphigus vulgaris, pericoronitis, periodontitis, plaque, sinusitis, stress, tension, TMJ disorders, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment **Safety issues:** To be avoided internally during pregnancy (in medicinal doses only)

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: Perhaps

Tea: 0.5 teaspoon herb in about 8 oz. (240 ml) boiled water, steep for 15 to 20 minutes (covered); drink 2 to 3 cups daily *Tincture:* Dose 1 to 2 ml (20 to 40 drops) three to four times daily; tincture preparation 1:5, 70 percent ethanol

Topical oil: Infused oil topical application reduces muscle tightness and promotes relaxation; essential oil has been shown to have a marked antibacterial and antifungal activity and should be applied topically in a carrier oil; essential oil can relieve muscle tightness and address inflammation

Combines well with: Barberry, calendula, clove, hops, lavender, lemon balm, milky oats, oak, peppermint, prickly ash, propolis, rose hips, sage, salt, skullcap, stevia, thyme, yarrow **Notes:** Often a relaxant, can be used successfully to relieve a headache; a pleasing base to any mouthwash

Sage

Other common names: Common sage, garden sage, red garden sage, wild sage

Botanical name: *Salvia officinalis*, *Salvia officianalis* var. *rubia*

Plant family: Lamiaceae (Mint Family)

Part used: Leaf

Fresh or dried: Fresh and dried

Major constituents: Phenolics, flavonoids, tannins, monoterpenes, diterpenes,

triterpenes; high in calcium, magnesium, potassium, thiamine, vitamin A, zinc; volatile oils, including thujone, a major component of the essential oil

Taste/energy: Pungent, cool, dry

Actions: Antiinflammatory, antimicrobial, antioxidant, antiseptic, aromatic, astringent, carminative, diaphoretic (taken hot), expectorant, antidiaphoretic (cold), antiperspirant, vulnerary **Antimicrobial activity:** Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sores), black hairy tongue, candidiasis (thrush), caries, cysts/tumors, denture sores, gingivitis, glossitis, gum disease, halitosis (bad breath), herpes, HPV, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/Vincent's disease, oral cancer, oral piercings, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, soggy/atonic gums, tooth whitening, trauma/injury, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment, wisdom teeth **Safety issues:** Limit to culinary use during pregnancy and lactation; the essential oil contains high concentrations of thujone, which is a neurotoxin associated with extended use **Culinary use:** Yes

Preparations and dosage:

Decoction: 1 oz. in 32 oz. water, decoct covered 20 minutes, cool, strain (or not), and bottle; 4 oz. three times a day

Poultice: No

Tea: 1 teaspoon herb in about 8 oz. (240 ml) boiled water, steep for 20 minutes (covered); drink 2 to 3 cups daily

Tincture: Dose 1 to 2 ml (20 to 40 drops) three to four times daily; tincture preparation 1:5, 60 percent ethanol

Topical oil: Infused oil can be used topically on the cheek (and on the chest to ease respiration)

Combines well with: Barberry, bee balm, goldenseal, myrrh, oak, propolis, red raspberry leaf, rose hips, rosemary, salt, stevia, thyme, winter green, yarrow

Notes: The Latin word *salvia* means "savior"; sage has many uses and is a classic oral medicinal herb; it can be used as a tooth whitener and gargle Salt

Other common names: Sea salt, sodium chloride, table salt

Botanical name: (Not applicable)

Plant family: (Not applicable)

Part used: Crystals

Fresh or dried: Dried

Major constituents: Sodium, potassium, magnesium, calcium, depending on location from which it is gathered

Taste/energy: Salty, cool

Actions: Antimicrobial, antiseptic, astringent, vulnerary

Antimicrobial activity: Antibacterial, antifungal, antiviral (depending upon composition)

Indications: Abscess, adjuvant therapy during radiation and/or chemotherapy, angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, bleeding, candidiasis (thrush), caries, cysts/tumors, denture sores, gingivitis, gum disease, herpes, HPV, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/Vincent's disease, oral cancer, oral piercings, papilloma, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, soggy/atonic gums, sores/ulcers, "stringy saliva," trauma/injury, wash/part of a mouth rinse for post-extraction/scaling/ filling/prosthetic fitting/adjustment, wisdom teeth

Safety issues: Consumption of (table) salt should be avoided by people with high blood pressure; salt deficiency can be associated with low blood pressure; processed salts, i.e., table salts, can contain iodine, fluoride, or both (see notes that follow)

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 0.5 teaspoon per 4 oz. (120 ml) in warm water or until salt precipitates for a concentrated solution; this can be used as a mouthwash/gargle and is not swallowed
Tincture: No

Topical oil: No

Combines well with: Barberry, calendula, cinnamon, clove, echinacea, fennel, goldenseal, lavender, lemon balm, marshmallow, milky oats, myrrh, orange peel, peppermint, plantain, prickly ash, propolis, rose hips, rosemary, sage, slippery elm, stevia, thyme, willow, wintergreen, yarrow

Notes: Natural sea salts are preferred, unadulterated with either fluoride or iodine; commercially processed table salt is devoid of associated minerals and may affect hypertension differently than do natural products; for regular use, add 1 to 2 drops of essential oils (e.g., peppermint or myrrh) to saltwater or combine with about a tablespoon of salt and 0.5 tablespoon of baking soda to be used as a paste/scrub; warm saltwater makes an excellent mouthwash/gargle, especially in the presence of

inflammation, or rinse after meals or snacks and can be used freely Skullcap

Other common names: Blue pimpinell, helmet flower, hoodwort, mad dog, madweed, scullcap

Botanical name: *Scutellaria lateriflora*

Plant family: Lamiaceae (Mint Family)

Parts used: Aerial parts

Fresh or dried: Fresh, while flowering; can be dried, but only if storing for less than a few months

Major constituents: Volatile oils, flavonoids, iridoids, tannins

Taste/energy: Bitter, cool

Actions: Antioxidant, antispasmodic, anxiolytic, aromatic, astringent (mild), nervine

Antimicrobial activity: No

Indications: Agitation (mild), anxiety, bruxism, disease, fear, nail biting, nervous exhaustion, nervousness, oral piercings, sleeplessness, stress, teething, TMJ disorders, trauma/injury, wisdom teeth **Safety issues:** Generally considered safe; may potentiate some pharmaceuticals

Culinary use: No

Preparations and dosage:

Decoction: No

Poultice: Generally, no

Tea: 1 to 2 teaspoons in 1 cup of boiling water; infuse 10 to 15 minutes; drink three times daily or as needed

Tincture: Dose 3 to 5 ml (60 to 100 drops) three to four times daily; tincture preparation 1:2, 40 percent ethanol

Topical oil: An infused oil can promote a sense of ease when applied externally to the jaw, neck, shoulders

Combines well with: Bee balm, chamomile, hops, kava, lavender, lemon balm, marshmallow, milky oats, rosemary, stevia, willow **Notes:** Best tintured fresh from local sources to avoid adulteration; *S. galericulata* (common skullcap) has similar actions when tintured fresh and possibly dry also Slippery elm

Other common names: Indian elm, moose elm, red elm

Botanical name: *Ulmus rubra*, *Ulmus* spp.

Plant family: Ulmaceae (Elm Family)

Part used: Inner bark

Fresh or dried: Dried and powdered

Major constituents: Mucilage

Taste/energy: Bland-sweet, cool

Actions: Anodyne (mild, local), anticariogenic, antiinflammatory (local), antimicrobial, antitussive, demulcent, nutritive, vulnerary **Antimicrobial activity:** Antibacterial, antifungal

Indications: Angular cheilitis, aphthous stomatitis (canker sore), burns (mild), caries, cysts/tumors, denture sores, gingivitis, gum disease, infection, inflammation (mucous membranes), Kawasaki disease, lichen planus, meth mouth, nutritional deficiencies, periodontitis, sores/ulcers **Safety issues:** Generally considered safe, a nutritive herb; may be best avoided as a simple with oral presentations of candidiasis due to its starch content **Culinary use:** Yes

Preparations and dosage:

Decoction: No

Poultice: Yes, as a simple or in conjunction with other herbs, moistened with water, saliva, or tincture

Tea: 0.5 to 1 teaspoon inner bark (powdered) in about 8 oz. (240 ml) boiled water, steep for 1 or more hours; drink 3 to 4 cups daily *Tincture:* No

Topical oil: No

Combines well with: Barberry, bee balm, calendula, cinnamon, clove, echinacea, goldenseal, myrrh, neem, oak, orange peel, peppermint, plantain, prickly ash, propolis, salt, stevia, thyme, turmeric, willow, wintergreen, yarrow

Notes: Lozenges can be prepared with the powdered herb and raw honey combined to form a paste, and these can be kept for some time in a sealed container or in the freezer; powdered herb can be used to provide nutrients if given as a porridge when food is intolerable; can be packed into a hollow tooth to reduce discomfort; is also an excellent addition to a mouth poultice, hence its many pairings; tea can be used as a gargle/mouthwash; when taken as a food or an infusion, slippery elm is a bulk fiber Stevia

Other common names: Sugarleaf, sweet leaf, sweetleaf

Botanical name: *Stevia rebaudiana*

Plant family: Asteraceae (Aster Family)

Part used: Leaf

Fresh or dried: Dried

Major constituents: Steviol glycosides, diterpenoids

Taste/energy: Sweet, cool

Actions: Anticariogenic, antimicrobial, antiplaque, nutritive

Antimicrobial activity: Antibacterial

Indications: Caries, diabetes, erosion, as a sugar substitute, to sweeten any preparation without increasing risk of caries or caloric intake **Safety issues:** Generally considered safe

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 1 teaspoon per cup of water; this is likely to be too sweet to drink; however, this tea once cooled can be poured into a bag, frozen into a thin sheet, and broken into pieces; the pieces can then be used to sweeten beverages, for instance, as needed *Tincture:* 1:5, 60 percent ethanol, used by the drop as a sweetener

Topical oil: No

Combines well with: Most herbs for the mouth, beverages in general, and baked goods

Notes: Reports of sweetness vary; stevioside, which is 200 to 300 times sweeter than sucrose, can be used as a noncaloric substitute for sugar, in beverages and in baking, for example; safe for use with diabetes; dried leaf is far superior to commercial extracts; recipes abound on the Web for use in cooking; as a sweetener for other tinctures; helps to moderate the pH of the mouth as many foods do (see chapter 13) Thyme

Other common names: Common thyme, garden thyme

Botanical name: *Thymus vulgaris*, *Thymus* spp.

Plant family: Lamiaceae (Mint Family)

Parts used: Leaves and flowers

Fresh or dried: Fresh and dried

Major constituents: Monoterpenes, essential oil (thymol), tannins, flavonoids

Taste/energy: Pungent, warm

Actions: Anthelmintic, antiinflammatory, antimicrobial, antioxidant, antiseptic,

antispasmodic, aromatic, astringent (mild), carminative, expectorant

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, candidiasis (thrush), caries, cysts/tumors, denture sores, gingivitis, gum disease, halitosis (bad breath), herpes, HPV, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/ Vincent's disease, oral piercings, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment, wisdom teeth **Safety issues:** Generally considered safe

Culinary use: Yes

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 1 teaspoon dried herb in about 8 oz. (240 ml) boiled water, steep 10 to 20 minutes (covered); drink 2 to 3 cups daily *Tincture:* Dose 1.5 to 2 ml (30 to 40 drops) three times to four times daily; tincture preparation 1:5, 60 percent ethanol

Topical oil: Essential oil diluted in a carrier oil for inflammation of the gums/periodontitis can be applied topically or added to a rinse for mouthwash/gargling **Combines well with:** Barberry, calendula, cardamom, echinacea, fennel, lemon balm, milky oats, myrrh, orange peel, peppermint, propolis, red clover, rose hips, rosemary, sage, salt, slippery elm, stevia, turmeric, yarrow **Notes:** Cultivars such as lemon thyme (*Thymus x citriodorus*) can also be used; thyme used to be carried by judges and nobility in posies to guard against illness and the odors of others; combines well with aromatics in a mouth rinse and with fennel and cardamom for candidiasis (thrush) Turmeric

Other common names: Haldi, haridra, Indian saffron, yellow ginger

Botanical name: *Curcuma longa*, *C. domestica*

Plant family: Zingiberaceae (Ginger Family)

Part used: Rhizome

Fresh or dried: Fresh or dried

Major constituents: Volatile oil, monoterpenes, sesquiterpenes, curcuminoid pigments, carotenoids, flavonoids

Taste/energy: Pungent, warm

Actions: Analgesic, antibacterial, anticholesteremic, antiinflammatory, antioxidant, antispasmodic, antitumor, aromatic, bitter, carminative, cholagogue, hepatoprotective, immunoregulator, nutritive, styptic, tonic, vulnerary

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Abscess, angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, bleeding, candidiasis (thrush), caries, cysts/ tumors, denture sores, gingivitis, glossitis, gum disease, herpes, HPV, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/Vincent's disease, oral cancer, oral piercings, osteoporosis, pain, papilloma, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, Sjögren's syndrome, soggy/atonic gums, sores/ulcers, spasm (mild), trauma/injury, wash/part of a mouth rinse for post-extraction/scaling/ filling/prosthetic fitting/adjustment, wisdom teeth

Safety issues: As a culinary herb it is generally considered safe; some discussion persists regarding its therapeutic use during pregnancy; avoid with bile duct obstruction **Culinary use:** Yes, as a spice and a beverage

Preparations and dosage:

Decoction: Yes; can also be decocted in milk or coconut milk

Poultice: Yes, moistened with saliva, water, or an herbal tea to form a paste; likely to give rise to temporary staining

Tea: 0.5 teaspoon herb in about 8 oz. (240 ml) boiled water, steep 45 minutes (covered); drink 2 to 4 oz. (60 to 120 ml) four times daily *Tincture:* Dose 2 to 4 ml (40 to 80 drops) three to four times daily; tincture preparation 1:5 or 1:2, 60 percent ethanol

Topical oil: No

Combines well with: Barberry, calendula, cinnamon, clove, echinacea, fennel, goldenseal, marshmallow, milky oats, myrrh, neem, oak, orange peel, plantain, prickly ash, propolis, red clover, rose hips, slippery elm, stevia, thyme, willow, yarrow **Notes:** Absorption is improved when mixed with fats; e.g., milk, coconut milk, or ghee; has been used traditionally to "purify" breast milk; makes an excellent mouthwash but will result in temporary staining; post-extraction/scaling/filling, prosthetic fitting/adjustment as part of a mouth rinse
Willow

Other common names: Bay willow, black willow, laurel willow, osier, white willow

Botanical name: *Salix alba*, *S. nigra*, *Salix* spp.

Plant family: Salicaceae (Willow Family)

Parts used: Inner bark from young branches; leaves afford mild action

Fresh or dried: Dried

Major constituents: Glycosides, tannins, phenolic acids, flavonoids

Taste/energy: Bitter, cold

Actions: Bark—analgesic, antiinflammatory, antipyretic, antirheumatic, astringent, styptic (mild)

Antimicrobial activity: No

Indications: Abscess, angular cheilitis, aphthous stomatitis (cankersore), black hairy tongue, bleeding, BRONJ/ONJ, bruxism, candidiasis (thrush), caries, cysts/tumors, denture sores, discomfort, gingivitis, glossitis, gum disease, headache, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/Vincent's disease, oral cancer, oral piercings, pain, Pemphigus vulgaris, pericoronitis, periodontitis, sinusitis, Sjögren's syndrome, soggy/atonic gums, swelling, tenderness, toothache, TMJ disorders, trauma/injury, wash/part of a mouth rinse for post-extraction/scaling/filling/prosthetic fitting/adjustment, wisdom teeth **Safety issues:** Generally considered safe; tannins may inhibit the absorption of minerals when taken internally over prolonged periods **Culinary use:** No

Preparations and dosage:

Decoction: 1 to 2 teaspoons in about 8 oz. (240 ml) water, simmer 15 minutes (covered), steep for 30 minutes; drink 4 oz. (120 ml) four times daily

Poultice: Yes, blends well with barberry, goldenseal, oak, slippery elm, plantain, turmeric

Tea: No

Tincture: Dose 2 to 4 ml (40 to 80 drops) three to four times daily; tincture preparation 1:5, 30 percent ethanol plus 10 percent vegetable glycerin

Topical oil: Infused oil (bark) for topical application as needed to relieve discomfort

Combines well with: Arnica, barberry, cinnamon, clove, goldenseal, kava, lemon balm, myrrh, neem, oak, orange peel, peppermint, plantain, red clover, salt, skullcap, slippery elm, stevia, turmeric, yarrow **Notes:** Baths with bark added can reduce generalized achiness; unlike aspirin, willow doesn't cause inhibition of platelet aggregation or significantly thin the blood; poultice can be used to astringe the gums and curtail bleeding; post-extraction/scaling/filling, prosthetic fitting/ adjustment as part of a mouth rinse Wintergreen

Other common names: Aromatic wintergreen, boxberry, checkerberry, deerberry, mountain tea, partridge berry, teaberry, thé du Canada **Botanical**

name: *Gaultheria procumbens*

Plant family: Ericaceae (Heather Family)

Parts used: Leaf, essential oil

Fresh or dried: Dried or fresh

Major constituents: Glycosides, including salicylic acid, gaultherilene

Taste/energy: Sweet, dry, cool

Actions: Analgesic, antiinflammatory, antimicrobial, antiplaque, aromatic, astringent, circulatory stimulant, febrifuge, rubefacient

Antimicrobial activity: Antibacterial, antifungal, antiviral

Indications: Angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, caries, cysts/tumors, denture sores, fever, gingivitis, glossitis, gum disease, halitosis (bad breath), herpes, HPV, infection, inflammation, headache, Kawasaki disease, lichen planus, meth mouth, NUG/Vincent's disease, oral cancer, pain, papilloma, *Pemphigus vulgaris*, pericoronitis, periodontitis, plaque, soggy/atonic gums, sores/ulcers, toothache, wash/part of a mouth rinse for post-extraction/ scaling/filling/prosthetic fitting/adjustment, wisdom teeth

Safety issues: Generally considered safe

Culinary use: Chewing gums

Preparations and dosage:

Decoction: No

Poultice: No

Tea: 2 to 3 teaspoons leaf in about 8 oz. (240 ml) boiled water, steep for 40 minutes (covered); drink 2 to 3 cups daily

Tincture: Dose 1.5 to 2 ml (30 to 40 drops) four times daily; tincture preparation 1:2, 40 percent ethanol

Topical oil: Essential oil, 1 drop topically for toothache

Combines well with: Barberry, cinnamon, clove, echinacea, goldenseal, lavender, lemon balm, marshmallow, milky oats, myrrh, oak, orange peel, peppermint, propolis, rose hips, sage, salt, slippery elm, stevia, yarrow

Notes: The berry is a tasty wild food; steam from either the essential oil of wintergreen or its tea can be used to relieve sinusitis and a headache; leaves can be chewed to inhibit plaque formation; the essential oil is often better tolerated in raw honey or mixed with slippery elm; confusion must be avoided as wintergreen shares a common name, *partridge berry*, with a distinctly different medicinal herb, *Mitchella repens*, and the two should not be confused Yarrow

Other common names: Milfoil, thousand leaf, woundwort

Botanical name: *Achillea millefolium*

Plant family: Asteraceae (Aster Family)

Parts used: Leaf, flower, root

Fresh or dried: Fresh or dried

Major constituents: Flavonoids, monoterpenes, alkaloids, sesquiterpenes

Taste/energy: Bitter, pungent, neutral, dry

Actions: Analgesic, antiinflammatory, antimicrobial, antispasmodic astringent, bitter tonic, diaphoretic, hepatoprotective, styptic, vulnerary **Antimicrobial activity:** Antibacterial, antiprotozoal, antiviral

Indications: Abscess, angular cheilitis, aphthous stomatitis (canker sore), black hairy tongue, bleeding, candidiasis (thrush), caries, cysts/tumors, denture sores, extractions, gingivitis, glossitis, gum disease, infection, inflammation, Kawasaki disease, lichen planus, meth mouth, NUG/ Vincent's disease, oral analgesic, oral piercings, Pemphigus vulgaris, pericoronitis, periodontitis, soggy/atonic gums, sores/ulcers, toothache, trauma injury, wash/part of a mouth rinse for post-extraction/scaling/ filling/prosthetic fitting/adjustment, wisdom teeth **Safety issues:** Allergies to other plants in the Asteraceae family may result in similar sensitivities; contraindicated during pregnancy **Culinary use:** No

Preparations and dosage:

Decoction: No

Poultice: Yes; as a styptic it is useful fresh or dried; if bleeding does not stop by using the leaf, flower, or root, more herb can be applied on top of previous applications; bandage should not be removed until after bleeding is controlled

Tea: 1 teaspoon in about 8 oz. (240 ml) boiled water, steep 30 to 40 minutes (covered); drink 2 to 4 cups daily

Tincture: Dose 1.5 to 3 ml (30 to 60 drops) three to four times daily; tincture preparation 1:5, 45 percent ethanol

Topical oil: Infused oil can be a useful part of an herbal medicine chest for external application to stave bleeding and reduce inflammation **Combines well with:** Arnica, barberry, bee balm, calendula, cardamom, cayenne, cinnamon, clove, echinacea, fennel, goldenseal, hops, myrrh, neem, oak, orange peel, peppermint, plantain, prickly ash, propolis, red clover, red raspberry leaf, rose hips, rosemary, sage, salt, slippery elm, stevia, thyme, turmeric, willow, wintergreen **Notes:** Before and after

extraction/scaling/filling, prosthetic fitting/ adjustment as part of a mouth rinse; traditionally 51 yarrow stalks were used for divination when consulting the I Ching, a Chinese classic known as *The Book of Changes*

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HOW TO PREPARE HERBAL REMEDIES

There is elegance, art, science, and mystery to combining herbs to improve their powers. This is the craft of the herbalist. Not only do we address symptoms and provide relief, we also rely on herbs to rebalance function, promote the body's ability to heal itself, and afford individualized support throughout it all. This comes with experience.

In this book we focus on offering solutions that promote health and wellbeing and provide relief. It's important to remember that often a holistic approach is better achieved by working in conjunction with a practicing professional herbalist. We encourage readers so inclined to find an herbalist to work with (see appendix 1 for resources) as they build a broad-based understanding of how to formulate for the whole body, and not just a part.

Herbs offer a wealth of medicinal potential—in their actions, and in how we choose to use them, including mode of delivery and how we blend them. In a guide such as this it is almost impossible to create a holistic protocol for the many individual readers who will come to this resource in search of relief. Therefore, here we take a practical approach. In chapter 11 we outlined each of forty-one herbs that together compose a foundational suite of herbal resources for the mouth—an oral materia medica. Here, in chapter 12, we offer detailed instructions on how these resources can be applied in different situations.

We start with a few general points about identification, quality assessment, and dosing. We move on to basic instructions on how to make teas and decoctions, and their uses. Then we describe the use of poultices, washcloths, and the application of heat. We discuss oils and the difference between pure essential oils and how to infuse oils at home. We go on to describe how to make tinctures; then we take a look at how to make toothbrushes.

We introduce herbs grouped by the actions we have identified throughout this book. This will be helpful when searching, for example, for an antiinflammatory or a styptic to stop bleeding. We suggest that if perusing herbs by these categories, it would be helpful to read, or reread, the profiles of each herb listed in chapter 11 before choosing an intervention. Here we offer the herbs listed in chapter 11 under a number of headings; for example, we present herbs by action, whether alterative, analgesic, antiinflammatory, antimicrobial, antioxidant, aromatic, astringent, circulatory stimulant, demulcent, immune support, nervine,

rubefacient, styptic, or vulnerary. A concise summary can be found in table 12.1.

We've also identified culinary herbs in table 12.1. Though we realize that many of the herbs presented in chapter 11 may well be new to readers, we believe that it is important to highlight herbs that are routinely used in cooking, as they are likely to be more familiar to general readers. Additionally, when healing ourselves, if we have the opportunity to use food in the process it would be shortsighted not to avail ourselves of this pleasure. In this way we can expand our use of medicinal herbs by including them more often in our everyday fare. As Hippocrates said, "Let food be thy medicine and medicine be thy food."

Many readers will want to search for herbs to meet their individual needs. We may wish to use herbs singly, as simples, or in formulas to provide relief for symptoms in the mouth. As health profiles change and evolve, we can, by working with an herbalist, build a systemic protocol, one that addresses the whole body's needs and that complements the use of herbs specifically for topical application in the mouth.

Next we offer a table of herbs by symptom, allowing for a straightforward reference. By now the reader should be somewhat familiar with the many symptoms we address in this book, as we come back to them again and again (see chapters 4 and 10).

Finally, we present recipes. These represent a limited introduction to the countless combinations of herbs for the mouth and complement those presented throughout *Dental Herbalism*.

ABOUT IDENTIFICATION AND ASSESSING QUALITY

Many of us who use herbs for medicinal and culinary purposes grow our own, without chemicals. This allows us to oversee quality, harvesting, and preparation. But not all herbs grow everywhere; each has its own set of growing needs. Growers can improve their harvests by identifying plant hardiness zones (see appendix 3) before planting.

Plant a dental herb garden. This could be a beautifully simple way to promote interest in herbs for the mouth while ensuring a wholesome and easily available source of herbs. Whether planting a windowbox, a small garden, or a sitting area, we could consider sowing taller perennials such as bee balm, echinacea, and fennel with some shorter choices such as calendula, sage, and thyme. Both yarrow and red raspberry can add an untamed air to any planting but, of course, are not suited to windowbox plantings.

When using herbs as medicine, correct identification is imperative to ensure safety. If purchasing live plants from nurseries it is important to know their genus and species, as actions can vary between species, as is the case, for example, with *Echinacea angustifolia* and *Echinacea purpurea*.

Some herbs that we use for making medicine can be collected from forests, such as wintergreen, or from pastures, such as yarrow. Collecting herbs in this way is called *wildcrafting*. It's safe and healthy to observe a few guidelines when wildcrafting: first and foremost, accurately identify the herb; next, avoid harvesting along roadsides and contaminated lands. Contamination increasingly limits harvesting opportunities, since we cannot assume that lands are uncontaminated. It's imperative that we harvest only what we need and not take the last root or shoot of anything, as we have a responsibility to ensure that herbs will be available in the seasons to come. Care should be taken with all herbs and with some in particular. As each harvesting season approaches, confirm whether an herb is endangered or threatened by visiting the United Plant Savers website, which is listed in appendix 1. If an herb is endangered, we can look for an alternative or refrain from harvesting in excess and leave at least 95 percent of it in place for harvesting by future generations. Conversely, prolific and invasive species such as berries from the *Rubus* genus can often be harvested more vigorously.

Herbs may be purchased dried and sometimes fresh (see appendix 2 for purchasing resources). Whether fresh or dried, assessing their integrity is

important, as potency will vary with the age of the material. Practically, we can assess the quality of herbs visually by looking at their color and feel. Just as we have come to differentiate between a crisp, fresh green string bean and a limp colorless imposter, so we can get to know the look and feel of our herbs.

We can further assess their quality by considering their aroma. Herbs, whether fresh or dried, have a distinctive aroma, including roots, leaves, and most obviously, flowers. The absence of aroma points to age. Dried herbs that lack a characteristic smell are likely best used in a compost pile. Such is the case for culinary and medicinal herbs alike. Therefore, if we use small amounts of an herb, or use it only occasionally, then it is best to harvest or purchase small batches to ensure freshness and, by-and-large, potency

Taste, like aroma, is also an indicator of freshness. We all agree that there's little point in flavoring food with some tasteless old rosemary or thyme. They might best be composted. These observations may seem obvious or simplistic, but together, taste, smell, appearance, and touch form the basis of a reliable assessment of the integrity of an herb. We call this an *organoleptic assessment*. Remember, the medicines we make will only be as effective as our starting ingredients.

DOSING

Throughout this book we have provided dosing suggestions for an average-size adult, someone weighing around 150 pounds. While dosing strategies can and do vary from practitioner to practitioner, we work within a very safe dosing window.

When coming to an herb for the first time, common sense says to use it as directed. If an herb is to be used for someone who is particularly frail or who weighs significantly less than 150 pounds—an infant or toddler, or the elderly, for example—we adjust the dose downward. Conversely, we can adjust upward also, but often only with the guidance of a professional herbalist.

Generally we don't suggest offering a cup of herbal tea to an infant; rather we recommend doses in teaspoon amounts three to five times daily; tinctures are often used in five-to ten-drop doses.

DOSING WITH DILLING'S FORMULA

We can approach dosing for the very young by using Dilling's formula: $(\text{Age in years})/20 =$ portion of adult dose to be administered.

Let's take a look at how this works. To dose a child who is an average-sized 4-year-old, we would adjust an adult dose as follows: $4/20=2/10$ of an adult dose, which reduces to $1/5$ of the adult dose.

In other words, we would administer $1/5$ of the suggested adult dose, as youth and sensitivity dictate. Too, we should observe caution when dosing the old and the frail, perhaps decreasing an initial dose by half, or more, to avoid overwhelming the body.

Dosing may be altered based on a number of factors, two of which are discussed here. If a condition is acute, such as a toothache, an abscess, or even a muscle spasm, we often dose more frequently than when addressing chronic conditions, such as chronic periodontitis. Dosing strategies other than those listed here can be discussed with an herbalist.

Unlike many pharmaceuticals that are manufactured to be administered to persons in predetermined doses, regardless of nutritional status, lifestyle, and/or our personal natures, the roots of herbal medicine lie in addressing one's *individual* needs. This, in itself, may be a new concept to many accustomed to Western allopathic medicine. But consider this: why should we dose each individual in the exact same manner? As herbalists, we adjust dosing strategies

based on many considerations, including the stage of an illness, symptom experiences, and our knowledge of the many factors that may affect the actions of an herb, including allergies, pharmaceutical usage, and yes, the individual person. Additionally, to further ensure safety, we can introduce an herb slowly, at a lowered dose and dosing frequency, and increase both slowly to avoid complications while monitoring for any possible reactions.

MAKING HERBAL REMEDIES: TEAS, DECOCTIONS, POULTICES, TINCTURES, AND MORE

Whatever it is we're making, if it's not to be used immediately it is imperative that we label our herbal medicines to ensure their safe use. Whether we're putting our liquid medicines in glass jars or storing dried herbs in the same; whether they will be stored in a freezer or in a cupboard, herbal medicines *must* be labeled clearly. "How clearly?" someone once asked. Herbal medicines should be labeled so precisely that a stranger could confidently choose an herbal medicine from a shelf and administer it safely. Labels should include a date, the name of the herb (common and botanical names), dosage, and a list of all ingredients if it is blended. Some herbalists also like to include batch and the location(s) from which the herbs were harvested, as shown in figure 12.1.

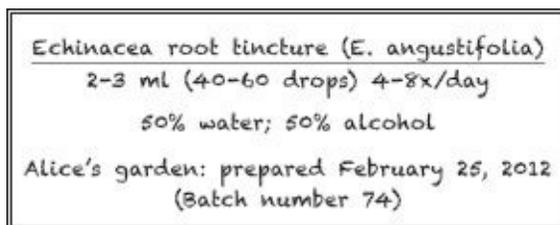


Fig. 12.1. Labeling helps to ensure safe use; include name, date, all ingredients, batch, and dose.

Note: Commercial manufacturers are bound by an entirely separate, highly structured set of regulations regarding labeling and preparation of herbal medicinals.

Now, with labels in place, let's get on with preparing herbal medicines. A few general instructions follow.

Teas

Teas are usually made from leaves, flowers, and other aerial parts of an herb; they can be made from fresh or dried material. Note that the former generally

requires two to three times the amount per serving, as dried herbs contain less water than fresh herbs. We can add loose herbs to a teapot or a cup or we can contain them in an infuser. Some cups and teapots have these built in. They may also be purchased, or we can use disposable teabags or any natural cloth to contain herbs while they steep. Herbal teas are often left to infuse for ten or more minutes. When preparing teas with aromatic herbs such as rosemary or chamomile, we place a cover on the cup or mug, such as a saucer, for example, to retain the oils that would otherwise escape in the steam. Teas may be sweetened with raw honey or stevia.

A note about stevia: a cup of stevia tea would undoubtedly be cloyingly sweet. We can, however, use a tiny pinch of herb or steep stevia as a tea and leave it to cool before pouring it into a freezer bag. Then, we can simply lay the bag flat in the freezer. Once frozen, we simply hit the bag and watch the thin sheet of frozen stevia tea break into ice chips. These can be used to sweeten drinks as needed.

Decoctions

We use decoctions to extract the medicinal properties of herbs from denser materials of a plant such as its roots and bark, as in the case of echinacea root and willow bark.

Generally, we make a decoction by simmering the requisite herb in a covered saucepan over a low heat for fifteen to thirty minutes. A commonly used ratio for decocting herbs is to add 1 ounce of herb to 32 ounces of water (or 28 g herb to 946 ml water).

When making herbal medicines, give the microwave a rest! Microwaving medicine defeats the purpose, as not only do we lose what control we may have over water temperature, but also, the vibrations created as a result of the wave actions generated by a microwave change the essence of our medicines. When reheating, if making larger batches, warm preparations on a low to medium stovetop setting.

Administering Teas and Decoctions

Teas and decoctions can, of course, be sipped and in this way taken internally. Certainly both teas and decoctions can form foundations for mouth rinses and gargles as well. In addition to these more obvious ways of administering medicinal herbs, here are a few creative and practical ideas for use in alternative

ways.

Popsicles: For inflammation, swelling, stings, bites, and infection . . . and, of course, just because they can taste so good, popsicles make an excellent mode of delivery in general and for the mouth in particular. What? No popsicle trays left over from years gone by? Then read on . . .

Ice cubes: Ice cubes offer a marvelous way to deliver herbs. If making teas or decoctions, we may not wish to use an entire preparation all at once. Liquids can be frozen after cooling to room temperature and thawed for later use or used frozen, taking advantage of the anesthetizing effects of cold. Wooden sticks can be placed into each cube to make homemade popsicles. They often bring a smile to children (and adults) at a time when a smile is needed. Remember, when popping ice cubes out of trays and into freezer bags for storage, be sure to label bags and, of course, ice cube trays themselves.

Dedicated ice cube trays for freezing herbal preparations make a lot of practical sense.

Baths: The skin is our biggest organ. When we soak the skin in an herbal preparation we are absorbing the medicinal actions of the herbs. Teas and decoctions can be added to baths to take advantage of their medicinal actions. They can be added to hand or foot baths or to whole-body baths, and they can be used with a cloth to give a gentle bed bath. When adding hot teas and decoctions to baths of any sort, take care not to burn the skin. Can fresh or dried herbs be added directly to a foot bath or a bathtub? Absolutely. Like teas and decoctions, they are relaxing and smell wonderful, and their actions are easily absorbed. To reduce cleanup, socks, knee-high stockings or panty hose can be used to contain herbs easily in a bath. Simply add the desired amount of herb and tie it off. When herbs are added to a bath and contained in this way they can also be used like a loofa to gently massage the skin, or as a toy, or they can simply be hung from a faucet as the tub fills with water.

Breast milk: Sometimes it's not all that easy to give an infant an herbal tea. And more often than not, both a mom and her baby might benefit from the actions of an herb. When a nursing mother drinks an herbal tea she is able to dose both herself and, indirectly, her child, through her breast milk. We might try this approach if both mom and baby are in need of soothing, or, for example, to distribute the antimicrobial actions of an herb at the time of an infection such as

thrush. Note that care should be taken when choosing herbs all the time, and certain herbs should be avoided during pregnancy; others are to be avoided while lactating. We've identified some of these herbs in chapter 11, but it's always a good idea to refresh one's memory and double-check that an herb is safe for use under ever-changing situations.

Washcloths: Washcloths, warmed, can be used to give a bed bath and also, when frozen, as chews for teething infants or toddlers (in this way we combine the anesthetizing actions of cold with, for example, the calming actions of an herb such as chamomile). Teas as well as decoctions can be used to saturate a cloth prior to freezing. We like to let cloths sit in the herbal preparation for ten minutes or more prior to ringing out excess moisture and freezing. Does the time the washcloth steeps affect the medicinal quality of the herbs being delivered in this way? We think so.

Compresses

Warm herbs applied externally in the form of a compress can help relax muscles and temperament and relieve pain; applied this way, herbs can both feel and smell delightful. Any piece of natural fiber or a small muslin bag can be used to contain the herbs used in a compress, which can be applied directly to many a body part. A compress can be warmed by the sun or in a low-temperature oven. Again, microwave ovens should be avoided. Care must be taken to avoid excessive heat when applying a warm compress to the face, as our skin is very tender and can burn easily. Sometimes, it is soothing to initially apply a compress *over* another layer of fabric, a washcloth, for example, to protect the skin from excessive heat.

Poultices

A poultice, a medicinal mass of herbs that can be applied to sores or lesions, is a very effective way to deliver herbal medicine, especially in the mouth. A poultice can be applied to the skin, on the lips, or directly on the gums. Fresh or dried plant material can be used, the amount depending on the area to be covered. Poultices are left in place for varying lengths of time. When working with an advanced case of periodontitis, for example, we might leave a poultice in place in the mouth overnight before removing it and rinsing the mouth of any remaining plant debris. We do not reuse materials from one application to another.

How much herb should be used when making a poultice? A small poultice for

the inside of the mouth, to reduce swelling, might require a pinch of herb. Simply moisten the herb with water, saliva, a tea, or a decoction to make a stiff paste and apply.

Multiple herbs may be used in making a poultice, and here there are many options. For example, we may want to combine the analgesic action of willow with the antiinflammatory, antimicrobial, and styptic actions of barberry and yarrow, or we may choose to work with turmeric alone. Indeed, we can combine small wads, or quids, of these herbs and apply them topically to the gums. Alternatively, for example, we may choose to use a small amount of barberry and yarrow teas steeped together to moisten a wad of willow, and in this way deliver the actions of all three herbs locally.

Oils

There are two distinctly different types of oil preparations that are very effective when working in and around the mouth. One is essential oil, the other infused oil. Let's look at each.

The distillation of pure plant essential oils is an age-old science and art; there are probably very few herbalists or households with a still capable of distilling essential oils from plants; see appendix 2 for a source listing. These are used in drop doses. Very few essential oils can be ingested or applied directly to the body. Often we use carrier oils such as extra-virgin olive oil. Coconut oil is another alternative. Raw honey also makes an excellent medium for delivering the healing actions of an essential oil to the mouth, as in itself honey has a strong antimicrobial action. While there are a host of further possible carriers, we have little experience in their application within the mouth.

Increasingly, synthetic aromatherapy oils are being marketed and sold as "air fresheners." As the packaging of these impure oils can sometimes resemble that of pure essential oils, it's important to find labeling that identifies the therapeutic safety of any oil. They might be described as "100 percent pure" or "therapeutic grade." A few sources are listed in appendix 2.

Some essential oils cannot be taken internally, as they may be poisonous or may, for example, burn the mucosal membranes. Nonetheless, a safe understanding of the application and use of a pure essential oil can be a practical asset to healing the mouth, and several different oils can be quite effective for reducing pain and promoting healing of the teeth and the tissues. Care should be taken, as with herbs in other forms, not to exceed the recommended dose.

Infused oils, unlike essential oils, are relatively easy for anyone to make at home. Infused oils make a useful and practical addition to any apothecary. Just as we infuse a cup of tea so the liquid takes on the properties of an herb, we can do the same with oil. One approach is to fill a glass container with a chosen herb, then add sufficient oil to cover the herb, seal it tightly, and place it in the sun, allowing the heat of the sun to warm the oil and thus draw the medicinal properties of the herb. Some people may live in a place where this approach is impractical, in which case a double boiler or slow cooker can be used to infuse an oil—a common method among many herbalists.

For consistent results, a yogurt maker is another useful tool for infusing oil. It provides constant heat and allows for the evaporation of moisture. Use half-pint glass jars, and fill each with freshly torn herb or dried herb as needs warrant. Then fill each jar with oil. Again, cold-pressed extra-virgin olive oil is one example of a healthful choice, though other oils can be used to good effect. When adding oil, it is important to stir and eliminate air pockets. Place each jar in the yogurt maker. Often yogurt makers hold five to seven half-pint jars at any given time. With the yogurt maker lid in place but jars uncovered, leave the herbs to infuse for seventy-two to ninety-six hours. An end point can be chosen arbitrarily; for example, the ninety-sixth hour, or, with experience, we can allow the herbs to infuse in oil until the desired aroma, taste, or color is achieved. Once strained and bottled after cooling, these oils can be used separately or blended as needed. Infused oils made in this way, without the addition of vitamin E as a preservative, generally have a shelf life of about two years. If fungus begins to grow in the oil or if it develops a rancid smell, discard the oil.

Tinctures

Herbal tinctures are liquid extracts that when prepared in an alcohol base have a very long shelf life—years, even decades. Historically, tinctures have been prepared in grain alcohol, vodka, wine, brandy, or rum. They have also been prepared in other media, including vinegar and glycerin, resulting in alcohol-free medicinals that can benefit those who wish to refrain from ingesting alcohol. Tinctures can be prepared at home or in a clinic and are also available at herb shops, in health food stores, and from any number of herbal suppliers. Many herbalists make their own tinctures (see appendix 1 for resources).

When using alcohol to create a tincture for medicinal purposes it's best to avoid alcohol with *added* flavorings and colors, as their absorptive capacity is limited compared with vodka or grain alcohol. Also, flavorings may contain

unwanted sugars or chemicals. For many herbalists, grain alcohol is a first choice when it is available; vodka is another favorite. Too, a choice of alcohol may be based on the source of any given alcoholic spirit as, for example, vodka is made from potatoes and gin is made from juniper berries.

Whichever alcohol is chosen, the alcohol content must be at least 20 percent (40 proof) when using dried plant material, and 40 percent (80 proof) when using fresh herbs. This ensures preservation. When working with herbs that have a high tannin concentration, such as willow bark, we generally add 10 percent glycerin to an alcohol-based tincture to promote a more efficient extraction.

Know thy herbs! A tincture will only be as good as its ingredients.

Various methods can be used to tincture. The common folk method involves no weighing, and tincture batches will vary greatly in terms of their potency—more so than tinctures in which a few calculations have been made.

In the materia medica in chapter 11 we have listed directions for tincturing each entry, following a weights and measures system familiar to most herbalists. For example, in the case of yarrow, *Achillea millefolium*, we list tincturing instructions as 1:5, 45 percent for dried plant material. This notation may be unfamiliar to some and warrants an explanation.

The ratio 1:5 describes the proportion of herb (called the *marc*) to liquid (called the *menstruum*). In other words, if we were tincturing 100 grams (g) of herb, we would determine the total volume of menstruum by multiplying the weight of the herb by the ratio of menstruum to be used: thus, 100 g x 5 equals 500 ml total menstruum. To calculate the amount of alcohol needed to achieve a 45 percent solution, we multiply 0.45 x 500 ml, to get 225 ml of alcohol. In the case of yarrow, we make an alcohol-based tincture without the addition of glycerin, as yarrow does not have a high tannin concentration. Lastly, we calculate the amount of distilled water needed to bring the volume up to 500 ml. In this example, 500 ml (total volume menstruum) minus 225 ml alcohol equals 275 ml water. Often it is preferable to use (steam) distilled water in lieu of tap water, as tap waters can contain chlorine, fluoride, microbes, and who knows what else.

In the next stage of tincturing, we combine the marc and menstruum in a glass jar with a tight-fitting lid and store this in a dark place at room temperature (about 70 degrees Fahrenheit, or 21 degrees Celsius) for three weeks or longer. Some of us shake the jar weekly to promote a more even extraction, some of us

do not. Just as in the case of an herbal tea or decoction, where we use water as the menstruum to extract the medicinal components of an herb, with a tincture we use alcohol to extract the same. Various plant components extract more or less well in the presence of different alcohol concentrations. This can be seen throughout the materia medica in chapter 11, as extraction guidelines vary from herb to herb.

Finally, we strain the tincture. We retain the menstruum, and this resulting liquid is what we call a *tincture*; some herbalists call it an “extract.” The tincture should be labeled. The marc, the remaining herbal material, can then be composted.

These basic steps can be followed for making a variety of tinctures (though the ratios change from herb to herb). Herbalists prepare tinctures differently, each one using the method that works best for themselves. Some, for example, take into account the amount of water in the marc to reduce variability between batches still further, while others do not.

HERBS BY ACTION

The actions, or properties, of herbs were introduced in chapter 3, in our general discussion of tooth-powder ingredients, and elaborated on in the materia medica in chapter 11. Here again we offer readers an opportunity to build on their knowledge of herbs for the mouth and consider the actions of each of the materia medica entries in chapter 11. As can be seen from both table 12.1, and the profiles of herbs included in chapter 11, each herb can be described by multiple actions.

Simples

We can work with great effectiveness, and safely, with what are known as *simples*; that is, single herbs. We begin by considering which actions would most benefit our present situation. There are many ways of classifying and understanding herbs; their actions are one way. As the health of the mouth changes, it is possible to change our choice of individual herb and in so doing keep pace with the healing process. Herb by herb, simple by simple, one herb at a time, we can rely on the medicinal properties of these plant allies.

Recipes for a host of various herbal combinations, in addition to those scattered throughout our work, are listed later in this chapter.

To illustrate how we might use table 12.1 when focusing on the actions of single herbs, let's consider herbs to heal a recently developed sore on the gums. It is likely that at the very least we would look to an antiinflammatory action to reduce inflammation, an antimicrobial action to reduce the likelihood of infection, and vulneraries to aide in healing. Reading the chart and looking at these three actions, we have several herbal choices available to us: yarrow, turmeric, propolis, or calendula would each be sound single-herb choices. Each affords many of the properties we require. We can explore specifics relating to each herb in chapter 11 before making a choice about where to start an herbal protocol.

Blends

When we use multiple herbs in a single solution, we blend to create a multitiered effect whereby herbal actions are echoed and supported by a web of medicinal choices offering complementary actions. For example, continuing with the

previous examples in the discussion of simples, a yarrow and turmeric blend would enhance efficacy and afford added astringency. Likewise, yarrow and calendula, when blended, provide greater antiinflammatory and antimicrobial actions and certainly offer enhanced antifungal activity. In such a blend, yarrow introduces a styptic action as well. In the case of the persistent bleeding of a recently developed sore, the addition of yarrow would promote healing.

After consulting table 12.1, it is then important to reexamine the herbal profiles offered in chapter 11 to make herbal choices. For example, we have placed considerable emphasis on antiinflammatory and antimicrobial herbs. While table 12.1 identifies many antimicrobial herbs, it is important to return to the profiles in chapter 11 to distinguish between those herbs that would make sound antiviral choices (needed when addressing human papilloma virus [HPV], for example), and those that are solid antifungals (better suited when working with thrush, or *Candida* spp.).

In addition to using herbal blends, many conditions of the mouth and elsewhere in the body can benefit from additional vitamin B and C support (see table 12.1). In general, neither of these vitamins is likely to be the primary reason for choosing an herb, although the concentrations of vitamins and minerals in an herb can and do affect our herbal choices. Vitamins and minerals can certainly potentiate herbal actions. For example, vitamin C helps support the production of collagen, an important protein. Supporting collagen production in the broadest possible way should be an ongoing focus for us all, and especially when working with gingivitis and periodontitis, along with identifying those herbs that contribute to the goal of healing.

We build more and more effective formulas through experience, combining actions to address underlying imbalances and to provide relief. It is a skill that comes with practice. Until we cultivate this skill, consulting a professional herbalist can be helpful in getting questions answered and refining herbal selections. We suggest being cautious about combinations, moving forward carefully, and consulting a professional herbalist with questions and concerns.

KEEP IT SIMPLE

More is not always better. While many herbs are associated with the same or similar actions, it is *never* necessary to use *all* the herbs listed in table 12.1 for any one action. Remember, simples can be highly effective. Will Morris, acupuncturist, renowned expert on Chinese pulse diagnosis, and herbalist, was once overheard asking, “What *single* herb would you use to change someone’s life?” It is an important question that every herbal student, practitioner, and casual user should consider.

HERBS BY SYMPTOM

With a knowledge of the actions of herbs, we can marry our choice of herbs with symptom experiences. The same list of symptoms that we have referred to throughout this book is used in table 12.2 on page 276.

We first presented this list of symptoms in chapter 4, in a format that allows one to monitor and identify changes in oral health. Next, we presented the list of symptoms in table 10.1 in chapter 10, in our discussion of the various conditions that can affect the mouth. We return to it again here.

We encourage readers at each turn to develop a meaningful focus on the mouth by becoming familiar with the symptom checklist, using it as an ongoing reference.

When we first began to develop a symptom checklist, we started with commonly reported symptoms. We found that the list was almost endless. For example, we differentiated between sites in the mouth where bleeding was reported (gums, tongue, cheek, lips) and different types of pain, such as teething, newly fitted braces, a toothache, and unknown injuries to the mouth, to name but a few. We then realized that we could be of more practical assistance by not asking our readers to wade through a long list of symptoms that would span many pages.

Rather, we ask that readers use the generality of symptom descriptions as an opportunity to more carefully consider their own symptom experiences and those of others when building practical herbal interventions.

HANDS-ON AND HOW-TO

Here we provide information on how to apply the materia medica presented in chapter 11. We cover many topics already touched upon elsewhere and expand upon the occasional recipes presented throughout our work. We detail how to make cleaning aids such as toothbrushes, chew sticks, powders, mouthwashes, and rinses; how to prepare poultices and compresses; and how to address inflammation and infection such as gingivitis and periodontitis, pain and discomfort, fear and anxiety. For each we offer alternatives and suggestions with the intention that they be shaped and molded to meet individual needs. We hope that our readers will consider how best to apply the materia medica presented in chapter 11 to the increasingly familiar suite of symptoms we have worked with throughout the book. Interventions presented in this section of our work provide a starting point for home and clinic to enhance the health of the mouth, reduce inflammation, and support our overarching ambition, that we all remain dentate.

The recipes given in this section can often be combined for enhanced effectiveness. To ensure safety, it is very important when using medicinal herbs, supplements, OTCs, and pharmaceuticals to inform dental professionals, herbalists, and other health care professionals of our regular use of these preparations.

Chew Sticks and Homemade Toothbrushes

Neem, alfalfa, arak, garcinia, sumac, birch, dogwood, marshmallow, horseradish, licorice, and cottonwood are all suitable botanicals for making chew sticks. (A reminder about using neem: it can affect fertility and should be avoided by men and women wanting to conceive.) Traditionally, a chew stick is about 5 inches (13 cm) in length and anywhere from 0.25 to 0.5 inches (0.6 to 1.3 cm) in diameter. With a choice root or twig, bark removed from the section to be inserted in the mouth, the end of the stick is either splayed by hand or chewed.

We can also flavor certain roots and use them to clean the mouth. Phytotherapist David Hoffmann (1990) suggests boiling 5-inch (cleaned) pieces

of marshmallow root (ends peeled) in water with a cinnamon stick and cloves until tender. After carefully removing each, they are placed in brandy for twenty-four hours before being removed, dried and stored for later use.

Alternately, we can make our own toothbrushes. A homemade toothbrush may have a splayed end or a piece of textured cloth can be wrapped around a stick to provide a scrubbing surface. The opposite end can be shaved to have a pointed edge to be used as a toothpick (see figure 12.2).

Using a chew stick, or indeed a homemade toothbrush, will be a new experience for many, and as with many new experiences, we may be aware of new sensations. Having used a traditional toothbrush for oh-so-many years, any change is likely to feel “different,” perhaps awkward. With repeated use over the course of a short while, we’ll be able to work more comfortably with a new tool and grow more accustomed to its new shape, size, and feel as we establish a new routine. Only then, or perhaps even after a dental professional examines our mouth after months of use, will we be able to compare and assess the efficacy of the change.

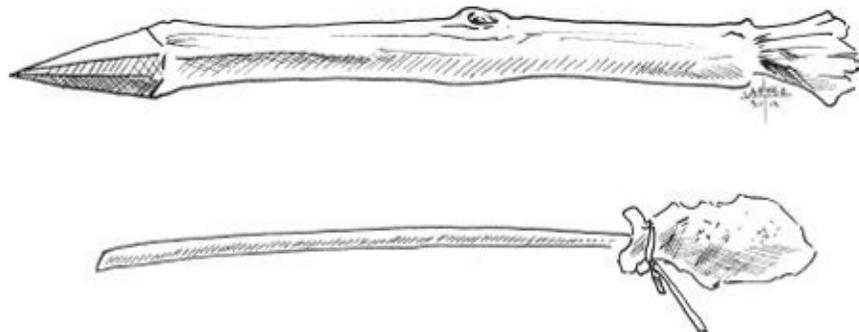


Fig. 12.2. Examples of homemade toothbrushes: the chew stick (above) has a pointed tip (left) and splayed fibers for brushing (right); a makeshift toothbrush (below) with a cloth tip for cleaning (drawing based on images from Werner *et al.* 1992).

It’s important to remember that just like a commercially sold toothbrush the homemade variety should be disposed of every three months (or after an illness) and replaced with a new tool. And certainly making one’s own toothbrush not only offers a creative outlet, it also is a good alternative to filling the local landfill with more plastic.

Tooth Powder

Most of us didn’t grow up using tooth powders and don’t yet appreciate their usefulness or their advantages (see chapter 3 for just some of these advantages).

They make excellent choices to promote oral health, have been used for centuries, and can be blended in large or small batches, altering flavor and herbal action to meet individual needs. They are economical to prepare and have a long shelf life.

Baking soda can be used as a simple tooth powder or as the primary ingredient of a basic formula. Its acid-reducing and antiseptic characteristics, coupled with its soft, low abrasive properties, make it an excellent stand-alone or component for a tooth powder. Baking soda has the added benefit of decreasing surface stains on the teeth.

The addition of one or two drops of an essential oil—cinnamon, clove, peppermint, or wintergreen, for example—to about a tablespoon of baking soda will transform flavor and aroma and do wonders for the mouth and the breath.

After choosing herbs to use in a customized tooth powder, perhaps the next most important consideration is to ensure that the herbs we select are powdered finely enough to avoid abrading the teeth and gums. With time and effort, small amounts of herb may be powdered using a mortar and pestle, but this is slow work. It is unlikely that blenders will powder herbs sufficiently, although a Vitamix blender can often accomplish this task. Herbal suppliers can and do offer dried herbs in powdered form, and when purchased from a reputable supplier, these powders are easy to work with and blend effectively.

Recycled glass jars with tight-fitting lids as well as canning jars make excellent storage containers for herbs for the mouth and especially for tooth powders. It's important to choose storage vessels of appropriate sizes when storing differing volumes of herbs. We should always store smaller volumes in smaller vessels, thereby limiting the volume of air trapped in the storage jar. This helps to promote freshness.

Michael Moore's Tooth Powder

Renowned American herbalist Michael Moore influenced, taught, and one way or another reached many practicing herbalists in the United States and abroad. His work often emphasized the materia medica of the U. S. Southwest and helped in bringing it into mainstream botanical medicine. Michael created several tooth powders, one of which we include here (Moore 1997):

Arrowroot	12 oz. (340 g)
Orris root	4 oz. (113 g)
Baking powder	1 oz. (28 g)
Licorice root	1 oz. (28 g)

Myrrh	1 oz. (28 g)
Cloves	1 oz. (28 g)
Cinnamon	1 oz. (28 g)
Yerba mansa	1 oz. (28 g)
Peppermint essential oil	20 drops (1.3 ml)
Wintergreen essential oil	10 drops (0.7 ml)

The herbs in this formula are finely powdered, blended, and stored in a sealed glass jar. Michael’s recipe provides a sound starting point for an excellent, all-around tooth powder; note the following possible substitutions:

- ✦ Baking soda can be substituted for baking powder.
- ✦ Nutmeg can be substituted for cinnamon.
- ✦ 5 drops of clove oil can be substituted for wintergreen and peppermint.
- ✦ Finely ground fresh black pepper adds a bit of a zing as well as an added antiinflammatory component.

In addition to these alternatives, it may be of value to refer back to those suggestions offered in our discussion of gum disease in chapter 8—particularly the herbal actions indicated in table 8.2—when creating a tooth powder to assist in managing chronic periodontitis.

Salt: Scrubs and Rinses

Salt—that’s sea salt—is a very important, widely available, and inexpensive resource for the mouth and probably constitutes the simplest, most effective “tooth powder.”

Salt scrubs can be used for a variety of purposes, such as exfoliating dry or dead skin from the body in general and in particular as an excellent medium for cleaning the mouth. Natural sea salt can be used as a toothpaste (it is, though, rather salty) and can be applied using a brush or a fingertip. In addition to its wound-healing properties, salt provides a valuable antimicrobial intervention.

A traditional brushing remedy is to use a combination of common garden sage leaves and sea salt. Three or four dried sage leaves can be toasted carefully until crisp or just blackened. With the addition of sea salt, this will yield enough brushing material for two to three uses.

Saltwater Rinsing

Saltwater can be used alone or blended a thousand ways, depending on our

choice of herb. Salt is an excellent antiinflammatory and a sound, everyday, affordable intervention. For those interested in the myriad of salts, their origins and differing compositions, Mark Bitterman's manifesto, *Salted* is an excellent resource. It is worth remembering that often the processing of natural salts from different locations removes health-promoting minerals and results in what many of us know as "table salt." Processed table salts, as compared to sea salts, are not only devoid of these minerals but may have fluoride or iodine added. The following are a few suggestions for how to incorporate saltwater rinsing into a daily regimen:

Basic salt solution: One teaspoon natural sea salt in half a pint of pure water is a reasonable starting place for those with sensitive mouths. A stronger saline solution will astringe the gums further; three to four teaspoons can be used routinely. Stir well until the salt is dissolved and an accumulation, or precipitate, is observed.

Salt and baking soda: Two teaspoons of baking soda can be added to a salt rinse for those who have an affinity for baking soda. It's often used as a means of affecting the pH of the mouth, making it more alkaline. Some people find the taste of baking soda difficult to tolerate. Herbal teas and decoctions can provide a more supportive and tastier foundation in lieu of water or, for example, a drop of an essential oil such as peppermint can improve flavor.

Salt and herbs: Half a teaspoon of any of the following tinctures can be added: cinnamon, clove, echinacea, goldenseal, myrrh, propolis, red clover, rosemary, sage, thyme, and/or yarrow. Additionally, as just mentioned, a tea or a decoction can form the basis of any salt rinse. Like water, sufficient salt should be added to take advantage of the antiinflammatory and antimicrobial actions that salt provides.

Salt and essential oil: Add one or two drops of pure essential oil such as clove, peppermint, wintergreen, or cinnamon to a saltwater rinse.

Herbal Mouth Rinses

Mouth rinses are used to remove loose debris, freshen the breath, and tighten the gums. They can also be used to promote health and wellbeing. They are most often composed of tinctures, decoctions or teas, or blends and can be used for a variety of purposes, from the daily cleansing of a healthy mouth to the healing of diseased mouth, such as one afflicted by chronic periodontitis.

The key is to change the choice of herbs to keep pace with the changing condition of the mouth.

As well, it is important that herbal mouth rinses not be left to sit around in forgotten corners; any surplus can be stored in the refrigerator. In this way various batches with different actions and flavors can be stored, blended, and/or used interchangeably.

Rinsing is often the only way to clean the mouth in its entirety. The liquid is swished and gargled, pulled between the teeth, sloshed around in the mouth, and then spit out. Always remember, the liquid used to rinse the mouth should never be swallowed after use.

While we discussed members of the Lamiaceae family of herbs in the “square rinses” box in chapter 3, here we offer further suggestions for a variety of mouth rinses. One of the strengths of the herbs included in this section is that they can be used for multiple conditions of the mouth and recipes can be altered to meet individual needs.

- ✦ Stevia, for sweetness and for its antimicrobial and nutritive properties can be added to any mouthwash recipe. How to make a stevia tea to sweeten multiple beverages is discussed in the stevia entry in the materia medica found in chapter 11. We suggest avoiding commercial products and working with the leaf, which can be fresh or dried, or a tincture of the leaf in drop doses. Remember, the stevia leaf is very (very) sweet.
- ✦ As a reminder, rinses featuring the square-stemmed herbs include teas or tinctures of bergamot, rosemary, sage, thyme, or lavender. g To freshen the breath, use a tea or tincture of peppermint, rosemary, fennel, or anise.
- ✦ Mouthwash favorites with a high vitamin C content (more effective choices when addressing gingivitis, early stages of periodontitis, thrush, and other oral manifestations that present challenges to the mucosa) include rose hips, red raspberry leaves, blackberries, and hibiscus flowers.
- ✦ For acute conditions consider blending echinacea, calendula, plantain, yarrow, myrrh, propolis, prickly ash, and/or willow—especially willow in the presence of any pain or discomfort.
- ✦ Cardamom, cumin, fennel, and orange peel make a delicious tea (respectively, in proportions of 2:1:1:0.5) that can also be used as a mouthwash, to freshen the breath, and as a digestive tonic.
- ✦ Cinnamon and cloves afford antimicrobial activity; for broader action, add one

or more of the following: calendula, myrrh, propolis, sage, rosemary, thyme, rose hips, or cayenne. Note: only the tiniest pinch of dried cayenne should be added, as it is very hot, or two to five drops of tincture to one pint of rinse.

- ✦ Barbara Griggs, author of *Green Pharmacy*, reminds us that cloves, or their essential oil, can be used to stem tooth pain and that about a teaspoon of tincture (4–5 ml) can be added to a small glass of warm water and used regularly to help firm gums and stave off cavities.
- ✦ For early to moderate periodontitis, we can look toward barberry, echinacea, myrrh, cayenne, cinnamon, propolis, and/or oak.
- ✦ For advanced periodontitis, barberry and goldenseal (2:1) are effective additions to any blend.

As a rinse for before and after visiting a dental professional, and especially if the mouth is prone to bleeding, or an extraction is scheduled, a reliable antimicrobial blend such as the following reduces the likelihood of further infection by providing broad-spectrum antimicrobial action.

Yarrow	1 teaspoon of tincture
Myrrh	1 to 3 drops pure essential oil
Echinacea	2 teaspoons tincture
Plantain	2 teaspoons of fresh juice (or leaves can be used to make a quid)
Willow	10 drops of tincture

Calendula, turmeric, barberry, and goldenseal can also be used, as needed.

Rosemary Gladstar's Healing Mouthwash

Rosemary Gladstar is an American herbalist and the author of many well-known books on herbs. This recipe comes from her *Herbs for the Home Medicine Chest* (Gladstar, 1999) and is a useful intervention when early and moderate signs of inflammation appear.

- ¾ cup water (180 ml)
- ¼cup vodka (60 ml)
- 40 drops (2 droppersful) calendula tincture
- 40 drops (2 droppersful) goldenseal tincture
- 20 drops (1 dropperful) myrrh tincture
- 1 to 2 drops peppermint essential oil

After mixing and shaking, two to three tablespoons of this mixture can be diluted

in water daily and used as a mouth rinse.

Poultices to Draw Inflammation

Poultices are an often overlooked means of easing discomfort and promoting healing. Poultices can be used externally on the cheek, for example, to soothe pain, increase blood flow and reduce swelling. They can also be applied to the gums and mucosa of the mouth directly to draw an infection, for example. Sometimes too, like a heating pad, they are valued for the comfort they provide.

Poultices are made from fresh or dried, bruised, powdered, cut, and sifted or shredded herbs. Powdering herbs to be used for a poultice isn't critical, as these herbs will not be used for brushing, although care should be taken not to aggravate or irritate the mouth further by applying a highly abrasive wad of plant material. The quantity of herb to be used will vary depending on point of application and the size of the individual. Herbs can be combined or used singly. Ideally, we want to apply a poultice over the entire area in question. Herbs can be moistened with their own juice if fresh, such as with a plantain poultice, or with a small amount of saliva (spit), water, tea, tincture, or a decoction, providing just enough moisture to bind plant material together and offer an additional herbal action. The herb is then wadded up and applied directly to the gums, or other points in the mouth—taking care not to overpack an area or block the airway. When used externally, a Band-Aid, washcloth or other means of securing herbs can be used. Most poultices are used at room temperature, and of course, their medicinal value is directly related to the herbs we choose. For example:

- ✦ For an abscess, fresh plantain can be used as a simple. The fresh leaves are bruised or briefly chewed (preferred) to release their juices, then placed tightly on the affected area. Inside the mouth, the poultice will be held in place between the cheek and the gums.
- ✦ Any number of herbs can be combined with plantain, including echinacea, powdered marshmallow, slippery elm, willow, or prickly ash if there is discomfort.
- ✦ Willow and oak make an excellent poultice for a toothache and abscess, respectively; the former primarily addresses pain and discomfort, the latter adds a strong astringent action.
- ✦ An often used household remedy is a tea bag—yes, a black-tea tea bag. Like its popular application to draw a sty on the eyelid, so too it can be used to

draw inflammation in the mouth—an especially practical remedy. Simply moisten a dry bag with water and an herbal tea, decoction, or tincture (to combine effects), and gently bite into the bag without causing it to burst. Bags can be moistened repeatedly in a short single sitting of about 30 minutes with warm water if necessary.

- ✦ Raw honey can be used as the base of any poultice in the mouth, as it's an excellent antimicrobial.

Hot Compresses

Hot compresses can be used to enhance comfort, to provide a sense of confidence, and to help relieve pain. Herbs can be combined as desired. Obviously, it is important to consider herbal actions, but the aroma of an herb is also key, since placing an external compress on the face near the nose allows us to appreciate the full aroma of our herbal intentions.

Many things can contain the herbs we use in a compress: an old (clean) sock or stocking or a folded towel are great. Heat the herbs gently in the sun or in a low oven until warm, and avoid microwaves.

- ✦ Milky oats, hops, or a blend of the two can promote relaxation and sleep.
- ✦ Milky oats, chamomile, and bergamot flowers offer a sense of calm and ease and are especially helpful if there is excess inflammation, spasm, or tension.
- ✦ e soothing and aromatic.
- ✦ Chamomile and lavender are a favorite for relaxation and can induce a sense of sleepiness in both adults and children.

Often, but not always, pain that increases with the application of heat can be indicative of the presence of an abscess. As is the case with any intervention, our intent is to heal and not to harm. If pain does not subside, if an abscess is not palpable or visible, then consult a dental practitioner or an herbalist.

Coping with Stress, Fear, and Anxiety . . . or Just Plain Coping

Perhaps a visit to the dentist or even thinking about a visit to the dentist brings up a little discomfort, fear, or anxiety. Here we present herbs that can be delivered differently, be it in a tea or tincture or as a useful, highly portable, and effective topical oil. With the exception of kava, each can be infused in an oil, applied topically and/or taken internally. For example, to relieve tension, we can apply an infused oil to the neck and shoulders, the wrist, or the soles of the feet (be careful to avoid slipping). Oils can be rubbed into the skin, including the

face, avoiding orifices, as oils are easily absorbed. For tension carried in the jaw, oils can be massaged into the tissues just behind the ear and along the jawline. It's important to remember when we're using multiple delivery systems (a foot soak, an oil, a tincture, and a tea, for example) that each application constitutes a dose or part of a dose and care should be taken not to exceed the dosing guidelines outlined in chapter 11. Here's a fine example of when and how an experienced herbalist can help build a successful, safe, and effective coping strategy. Effective modes of delivery will vary based on individuals, personal preferences, situation, and availability. However, the examples that follow can all be added to a full body, hand, or foot bath; imbibed, or even blended into a poultice.

- ✦ Chamomile and milky oats make an excellent combination to gently soothe the spirit; they are also suitable for infants.
- ✦ Bee balm, chamomile, and peppermint help if there is spasm.
- ✦ Lemon balm and rosemary, or lemon balm and chamomile, are relaxing teas that soothe the spirit.
- ✦ Chamomile and lavender, or chamomile, bergamot, and skull-cap, can be used for relaxation, to promote sleep, and to reduce spasm.
- ✦ Skullcap, milky oats, and kava can help to allay fears and reduce anxiety. Kava is often best used as a tincture or a decoction.

Finally, it is worth remembering that aromatherapy can be an effective means of increasing comfort, and we should not forget this when we turn to herbs themselves or their essential oil extracts.

Addressing Pain

There are many ways we can make pain and discomfort more manageable. Often a multipronged approach is more effective than relying on a single approach, especially if pain is severe. It's important to realize that a great number of sensations often accompany the feeling of pain and it is not simply a painkiller or an anodyne that will "make someone feel better." For example, we might also tense our muscles in response to pain; we might become unsettled, even frightened; we might feel cold or run a temperature; indeed, we might feel irritable due to inflammation and/or a pervading sense of discomfort; we might be sleep deprived or even hungry as pain in the mouth makes eating difficult; we might be temporarily dehydrated, and a heaviness or tightness may pervade.

Nervines (see table 12.1) are particularly valuable additions when addressing discomfort.

Suggestions for relieving pain and discomfort follow.

- ✦ A clove bud can be placed on a painful spot within the mouth with a significant pain-reducing effect.
- ✦ Myrrh, clove, wintergreen, and peppermint essential oils applied topically in drop doses help ease discomfort.
- ✦ Willow has an effect often described, like wintergreen, as akin to aspirin and can be used for tenderness and general discomfort. It can be decocted or incorporated into a poultice, taken internally as a tincture, applied directly to the gums or externally on the skin, for example. It can also be blended with other herbs (see chapter 11).
- ✦ Prickly ash, cayenne, turmeric, and yarrow can be applied topically in a poultice, either singly or in varying ratios, depending upon the individual and his or her level of discomfort. Like willow, these herbs can also be swabbed directly onto the gums. It is worth remembering that prickly ash is a sialagogue—too much in the mouth will cause excessive salivation.
- ✦ Infused oil of arnica can be applied externally, and homeopathic pellets can be dissolved under the tongue to help relieve inflammation.
- ✦ Roasted and ground turmeric can be massaged into aching teeth to eliminate pain and swelling. (Note: Turmeric yields a lovely yellow color like its rhizome, even in the mouth.)
- ✦ Rosemary Gladstar, a significant energy in the resurgence of herbalism in America, suggests for a toothache a combination of equal parts of organically grown goldenseal, myrrh, and turmeric. She suggests powdering the herbs and adding a drop of clove oil to make the powder into a thick paste before applying it topically as need be (Gladstar 1999).
- ✦ Chamomile and fennel teas, as well as chamomile and lavender, are soothing for teething infants. These can be administered directly to infants in teaspoon doses, or the benefits of the tea can be transferred by a nursing mother to an infant via breast milk. These teas can also be used to infuse chews, as discussed previously (see Teething, chapter 6).
- ✦ For gingivitis and periodontitis, a paste (1 teaspoon of turmeric, 0.5 teaspoon of salt, and 0.5 teaspoon of mustard oil) can be rubbed on the teeth and gums twice daily to provide relief. (Again, turmeric may stain.)

Jean Valnet's Toothache Remedy

A medical doctor and practitioner of aromatherapy for more than thirty years, Jean Valnet is regarded as one of the world's foremost authorities on essential oil therapy. He offers us this formula for toothache (Valnet 1980):

- 50 g (1.8 oz.) arnica flowers
- 10 g (0.4 oz.) clove buds
- 10 g (0.4 oz.) cinnamon
- 10 g (0.4 oz.) ginger (root)
- 100 g (3.5 oz.) aniseed (anise seed)
- 1 L (34 oz.) alcohol (grain alcohol or vodka preferred)

These herbs are macerated and left to infuse the alcohol for eight days before straining and retaining the liquid. Valnet suggests one teaspoon of this infusion in a half glass of raw honey water (one teaspoon raw honey dissolved in four ounces [120 ml] warm water), swilled two to three times daily. After rinsing, spit out the solution.

Thrush

Candidiasis and candida are terms used when we talk about thrush, a common oral infection (see chapter 10). Men, women, and children can all contract thrush, and it's important to be able to swiftly identify, or indeed rule out, the presence of this fungal infection. Our interventions will vary from person to person and will need to be adapted, as is the case in all of herbal medicine, to each individual's age and wellbeing.

A Mouthwash for Thrush/Candidiasis

Overcoming a candida overgrowth often necessitates changes in our oral health regime as well as a personalized systemic protocol. Additionally, barley water, blended with half teaspoons of barberry, calendula, goldenseal, and red clover, make an effective oral rinse in the case of a thrush infection.

To make barley water, use 1 cup of barley to 4 cups water; simmer, covered, 20 to 30 minutes. Reserve the liquid after straining, and use it as a basis for mouth rinses. Additionally, the resulting liquid can be drunk freely each day, while the leftover barley can be added to food. It's important to remember that, while barley water can be drunk freely as a beverage, when used as a rinse, it is never swallowed.

With any thrush infection, barley water can be used to moderate the pH of the

mouth and support the digestive system as a whole. Also, marshmallow and yarrow tea can be used as a wash, a rinse, or both. Finally, as a reminder, slippery elm may exacerbate symptoms of thrush.

World-renowned herbalist, naturopath, and educator Mary Bove suggests the following herbal treatment for thrush (Bove 2001):

Swab the mouth multiple times daily with an infusion of 1 oz. (30 ml) warm water, to which is added 5 drops each of tinctures of black walnut (*Juglans nigra*), bloodroot (*Sanguinaria canadensis*), and spilanthes (*Spilanthes* spp.); follow with a *Lactobacillus bifidus* solution (1 capsule to 4 oz. warm water per day) as a daily wash until symptoms disappear.

Gingivitis and Periodontitis

We introduced herbal interventions for gingivitis and periodontitis in chapter 8. In addition, when we formulate for these chronic conditions we generally choose from the use of rubefacients (i.e., circulatory stimulants such as cayenne), aromatics (cayenne, cinnamon, rosemary, thyme), astringents (red raspberry leaves, goldenseal, myrrh, oak, plantain, yarrow), immune-supporting herbs (barberry, echinacea, neem, propolis turmeric), and styptics (yarrow and oak are the finest), along with foods (see chapter 13 for a discussion of foods that promote oral health. Support from vitamins B and C can be gleaned from many sources, including barley, red raspberry leaf, rose hips, and slippery elm. We can also supplement with ascorbic acid. Finally, vulnerary herbs (e.g., calendula, myrrh, plantain, and propolis) help heal wounds.

Other herbal strategies might include:

- ▀ A rinse of a diluted tincture of myrrh, or propolis, or a few drops of the essential oil with a small pinch of dried cayenne powder, or a few drops of tincture.
- ▀ A rinse of barberry, cinnamon, myrrh, oak, and capsicum.
- ▀ For advanced periodontitis, a tincture which combines barberry and goldenseal at a ratio of 2:1, to which oak and propolis can be added in drop doses is useful as a rinse.
- ▀ A paste of turmeric and water is usefully applied nightly; water can be replaced by very small amounts of either a decoction or a tea of yarrow, barberry, and/or cinnamon to enhance activity.

An all-around useful mouthwash can be made by combining:

Goldenseal	1 oz. (30 ml) tincture
Myrrh	½ oz. (15 ml) tincture
Peppermint	2 drops essential oil
Cinnamon	2 drops essential oil

This can be used neat or diluted in water and used as needed.

**Jethro Kloss's Herbal Liniment
(to be applied topically, only to the gums)**

Jethro Kloss was an early twentieth-century pioneer in natural herbal remedies, perhaps best known for his seminal work *Back to Eden*, from which this recipe comes (Kloss 1939):

Tinctures of:

Myrrh	2 oz. (60 ml)
Goldenseal	1 oz. (30 ml)
Cayenne	0.5 oz. (15 ml)

Kloss suggested dissolving herbs in 1 quart rubbing alcohol (70 percent) and letting the jar stand for seven days, shaking daily. Then the liquid is decanted and stored, while the herbs are composted. The liquid can be applied topically to the gums or used as a mouth rinse but caution should be taken not to swallow the liquid.

Throughout this chapter we have attempted to expand on the suite of recipes presented throughout our text in a way that enables those with less experience of herbs for the mouth to move forward. Of equal importance, we hope we provide more fluid ideas about how to combine herbs to encourage the more experienced reader to blend in a less prescriptive manner.

Given that hundreds of herbs for the mouth have been used for generations, indeed millennia, there are a myriad of recipes and sources to investigate, develop, and incorporate into the foundational materia medica presented in chapter 11 and applied here in chapter 12. Perhaps most importantly, we have restrained our focus and urged readers to become familiar with a small, safe suite of herbs, their actions and interactions before launching into broadening a materia medica (and associated recipes).

We would do well to remember . . . if we could offer one herb to change a

person's life, which might we choose? Our choice of herb, how it is prepared and administered, and how it's used needs to be supported more broadly by sound oral hygiene and healthy food choices that will make a lifetime of difference.

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PART IV

Sustaining a Healthy Mouth

The doctor of the future will give little medicine but will interest his patients in care of the human frame, diet, and in the cause and prevention of disease.

THOMAS A. EDISON

Here in part 4 we look at how we might sustain our oral health. We underscore the importance of realizing that our oral health is not separate from our overall health and that indeed our oral health is a pillar upon which we can build.

Specifically, we look at food and drink and discuss the well-established links between oral health and other systems in our bodies, as we introduce what's called the "oral-systemic connection," emphasizing its importance when it comes to good health and general well-being. We provide examples of how we might ask clients, family, and friends about the health of mouth and in our final chapter we bring to the table eighteen contemporary topics that we believe are of such importance they warrant consideration in a book of this type.

THE MOUTH AS A MICROCOSM OF THE BODY

We began this book by introducing the idea that one's whole being is connected to every single tooth. There is ample evidence that demonstrates the critical relationship between the health of the mouth and the health of the whole body, and here we present current thinking. Additionally, we discuss how we might ask about the mouth when working with others.

THE ORAL-SYSTEMIC CONNECTION

The digestive, respiratory, and circulatory systems come together in the mouth. It is in the mouth that the blood, mixed with the oxygen it carries, nourishes the teeth one by one, entering each tooth through its root. This provides a continuous exchange of nutrients between the mouth and the rest of the body.

As can be seen in the list of oral-systemic connections provided on page 333, it is not one, two, or even ten chronic systemic conditions that are also associated with oral health; there are many, and the list is growing daily. American dentist Willoughby D. Miller, a pioneer in oral microbiology over a hundred years ago, would not be surprised by the data that we have been steadily amassing. In his seminal 1891 paper, "The Human Mouth as a Focus of Infection," he suggested associations not unlike those being reported today. Yet in 2014 there are still many people who find the connection between oral health and general health to be an obscure, if not far-fetched, idea.

Because for some people the oral-systemic connection may be a fuzzy concept, let's step away from the mouth for a moment and consider an analogy that might make this idea clearer. Picture it: A person is walking on the edge of a wood—a springtime hike to unearth some wild garlic. While walking, she accidentally trips over a rock, falls, scrapes a knee, and punctures her hand on a thorn. Both the knee and the hand start to bleed. Perhaps our hiker thinks about cleaning these minor wounds. She might use spit, taking advantage of the antiseptic properties

of saliva. If an herbalist, she might locate some plantain and chew it a bit and then apply a fresh leaf poultice to her wounds. Or, if near a pure stream, she might clean the affected areas with water or, if she was foresighted enough to bring her hiker's first-aid kit along, she might apply some antibacterial salve to reduce the likelihood of infection at the site of the wounds. In any case, not only does our hiker want to avoid an infection at the sites of her wounds, more generally, she wants to avoid the possible spread of infection to elsewhere in the body.

Now, instead of a scraped knee or a puncture wound on a finger, let's return to the mouth. As with our imaginary hiker, any site of oral infection should be treated both to heal the local infection and to prevent that infection from spreading to other locations in the body via the lymph system or the bloodstream. On page 333 we provide a list of conditions for which an oral-systemic connection has been noted in recent scientific literature.

In an effort to help our readers better understand links between oral and systemic health, we have expanded upon these entries in the text that follows, making brief statements underscoring current trends in scientific thought. Note that for many of the entries that follow we are talking about inflammation. When inflammation is present, immunity can be compromised and healing (of ulcers, herpes lesions, etc.) is slowed, sometimes to an almost imperceptible speed.

Oral-Systemic Connections Reported in the Scientific Literature

- # Alzheimer's disease
- # arthritis
- # brain and neurological disorders
- # cancer
- # cardiovascular disease
- # compromised immune function
- # diabetes
- # gastrointestinal cancer
- # HIV
- # hypertension
- # implants
- # kidney disease

- # liver disease
- # lung disease
- # male reproductive health
- # medication (interactions) and periodontal disease
- # obesity
- # oral and head-neck cancer
- # osteoporosis
- # pancreatic cancer
- # pregnancy
- # scurvy
- # stroke
- # systemic lupus
- # tobacco and/or alcohol abuse
- # ulcers

To intervene successfully, we will benefit from both local and systemic interventions.

Alzheimer's disease has been linked with periodontal disease, as bacteria similar to those found in the mouth were found in four samples of brain tissue in a small study of ten Alzheimer's patients. These bacteria were not found in the brain samples from people without Alzheimer's (Kamer 2009) (Linden 2013) (Poole 2013).

Arthritis: Those bacteria associated with gum disease produce an enzyme called peptidylarginine deiminase (PPAD). This enzyme circulates through the bloodstream and amplifies the effects of collagen-induced arthritis (Bingham 2013) (Kamer 2009) (Laugisch 2013).

Brain and neurological disorders: Although occurrence is rare, pathogens that thrive in an untreated abscess in the mouth can spread to the brain or neck (Kamer 2009) (Sen 2013) (Warren 2014). See also: Alzheimer's, Stroke.

Cancer: The link between bacteria associated with periodontal disease and various types of cancer is a relatively new area of study. Some authors have reported possible links with pancreatic, lung, kidney, blood, head-and-neck, GI tract, colon, and prostate cancers. It is suspected that the persistent, chronic, low-

grade infection of periodontal disease reduces the body's immune response, which, in turn, increases the risk for cancer (Arora 2009) (Balakesavan 2013) (Chaturvedi 2013) (Kamer 2009) (Michaud 2013) (Shakeri 2013) (Virtanen 2013).

Cardiovascular disease has been linked with the inflammation of blood vessels and inflammatory markers, such as C-reactive protein (CRP). These markers have been linked with periodontal disease. Additionally, in the presence of inflammation, bacteria can enter the bloodstream and complicate existing cardiovascular conditions (Dietrich 2013) (Tonetti 2013) (Vedin 2013).

Compromised immune function: Periodontal disease is a chronic inflammatory disease that continually burdens the immune system. As this disease progresses, bleeding in the mouth happens more frequently, increasing the likelihood of bacteria entering the bloodstream, where they can circulate freely to all parts of the body (Cekici 2014) (Nagasawa 2013).

Diabetes: Periodontal disease complicates diabetes and diabetes predisposes individuals to periodontal disease. Both conditions are chronic inflammatory diseases that exacerbate each other (Borgnakke 2013) (Chapple 2013) (Levine 2013) (Pendyala 2013).

Gastrointestinal cancer: Studies have shown a correlation between the likelihood of developing GI-tract cancers, increasing tooth loss and poor oral health (Shakeri 2013).

HIV: The impact of HIV on the immune system increases the likelihood of developing periodontal disease (Contreras 2014) (Gonçalves 2013) (Vernon 2013).

Hypertension: A link has been observed between periodontal disease and some types of hypertension, although evidence of the exact correlation is not yet established (Hanaoka 2013) (Leong 2014) (Rivas-Tumanyan 2013).

Implants: Surgically placed implants and prosthetic joints can be affected by bloodborne bacteria that is associated with periodontal disease (Marcinkiewicz 2013) (Rimondini 2014) (Watters 2013).

Kidney disease: Bacteria associated with periodontal disease and its associated inflammation contribute to kidney disease (Ariyamuthu 2013) (Chambrone

2013) (Kamer 2009).

Liver disease: The chronic nature of periodontal disease causes the liver to make C-reactive protein (CRP), an inflammatory marker. As a result of the need to cleanse the blood of this inflammatory marker, and of bacteria, the liver can become overworked and stressed (Åberg 2013) (Ishikawa 2013) (Kamer 2009) (Raghava 2013).

Lung disease: Bacteria in the mouth can be inhaled into the lungs and cause infection or exacerbate existing lung conditions (Bansal 2013) (Barros 2013) (Linden 2013).

Male reproductive health: Prostate-specific antigen (PSA) secretions have been found to be higher among men with both periodontal disease and prostate cancer as compared with those who have one or the other. Authors of a single study have suggested that chronic inflammation, such as found in periodontal disease and prostatitis (inflammation of the prostate) can damage blood vessels, which could lead to impotence (Arora 2009) (Eltas 2013) (Joshi 2010) (Matsumoto 2013).

Medication and periodontal disease: Many medications, sold both over the counter and as prescriptions, reduce the production of saliva. This often leaves the mouth drier and therefore more susceptible to bacteria that cause periodontal disease. In addition, some medications can stimulate growth of the gingiva, which leads to difficulty in keeping the mouth clean (Alani 2014) (Ghezzi 2014) (Thiagarajan 2012).

Obesity: Recent suspected associations between periodontal disease and obesity point to decreased immune response and a possible reduction in blood flow to oral tissues. Additionally, periodontal disease may well exacerbate the metabolic syndrome associated with obesity (Fadel 2013) (Jagannathachary 2010) (Levine 2013) (Linden 2013) (Singh 2013).

Oral and head-neck cancer: Treatments for oral and head-and-neck cancers can adversely impact the oral environment, by inhibiting salivary flow, for example, and increase susceptibility to periodontal disease. Immunosuppression is a risk factor for cancer, and certain strains of oral HPV infections have been implicated in oral cancers (Chaturvedi 2013) (de Moraes 2013) (Meurman 2010) (Sudhakar 2013).

Osteoporosis: Investigation continues on this possible bidirectional link; however, suspicions point to the inflammatory response of periodontal disease leading to lower mineral bone density, as well as estrogen deficiency, accelerating periodontal ligament and bone loss (Darcey 2013) (Dodd 2013) (Guiglia 2013).

Pancreatic cancer: A link has been observed between periodontal disease and the risk of pancreatic cancer (Arora 2009) (Michaud 2013).

Pregnancy, gingivitis: Hormone fluctuations during pregnancy often lead to a condition called “pregnancy gingivitis” (Geisinger 2013) (Sun 2013). See more on this condition in chapter 6.

Pregnancy, preterm, low-birth-weight babies: Periodontal disease contributes to systemic inflammation and infection. A link between maternal periodontitis and preterm and low-birth-weight babies has been observed, but the exact association is still unknown (Han 2010) (Kerpen 2006).

Scurvy: Caused by a vitamin C deficiency, oral manifestations include spongy and bleeding mucous membranes in the mouth. Scurvy is also characterized by a reduction in formation of collagen, a protein integral to vascular health (Al-Dabagh 2013) (Japatti 2013).

Stroke: Inflammatory markers from periodontal disease travel through the blood, causing inflammation of the blood vessels, increasing the risk that fatty plaque will break off the vessel wall and cause an ischemic stroke (Lee 2013) (Sen 2013).

Systemic lupus: Those diagnosed with systemic lupus erythematosus (SLE), often experience oral lesions, TMJ dysfunction, and periodontal disease. Currently, it has been suggested that periodontal disease has an especially adverse effect upon those with SLE due to the immunosuppression arising from the disease (Kim 2006) (Kobayashi 2003) (Tugnet 2013).

Tobacco and/or alcohol abuse: Tobacco use, most notably smoking, and frequent alcohol consumption can have a negative impact on our oral health by predisposing us to xerostomia (dry mouth), periodontal disease, and oral cancer (Critchley 2003) (Edwards 2004) (Shiu 2004) (Tezal 2004).

Ulcers: Mouth ulcers can occur and reoccur as a result of several systemic

diseases, including Crohn's disease, colitis, HIV, *Herpes simplex* virus and other diseases that, due to their chronic nature, have a significant impact on the immune system. Additionally, gastric ulcers have been found to harbor the same bacteria present in periodontal disease, raising further questions regarding a possible correlation (Aminov 2013) (Brito 2013) (Dye 2002) (Lankarani 2013).

Some of these oral-systemic links are long established and well understood; others are new or suspected and are being studied.

Perhaps our gums bleed routinely every time we brush our teeth—maybe not everywhere, just in one little spot. Or let's suppose that our gums are a little inflamed. Perhaps they bleed occasionally when we use a toothpick or dental floss, or when we're having our teeth cleaned. Remember, we have more bacteria in our mouths than there are people on planet Earth. It is entirely likely that one or more of these organisms will enter the bloodstream. It is in just this way that inflammation in the mouth, which can cause sores, bleeding, or no symptoms at all, can affect our overall health.

Combine poor oral hygiene with the presence of a mixed population of both “good” and “bad” bugs in the mouth; an inflammatory condition; any supplement, pharmaceutical, or herb that affects the integrity of the mucous membranes; any vitamin or mineral deficiency; lack of access to a dentist, for financial reasons, for example; smoking; the regular use of alcohol or other recreational drugs; and/or stress, and we further exacerbate an already complex situation.

Of course, many factors can determine what happens next. One possibility is that we may seek some help from a health care professional because we don't feel very well. Perhaps we'll arrange for an appointment to see a dental professional because our gums are bleeding or our mouths are sore or we think we have a cavity. It's unlikely we'll talk about our general health or what we eat and drink or any of the interventions that we're using when we do go to the dentist, though.

If you're reading this book, perhaps you are the kind of person who would consult an herbalist to discuss a health problem such as respiratory issues, a persistent cough, or a growing sense of tightness or fatigue. Even so, if you're like most people, it's unlikely you'll mention that you're having some bleeding in the mouth because it seems unrelated, or you just don't think of it because it's become routine and “normal” and seems only distantly (if at all) related to the persistent cough or fatigue you're experiencing. It's even more unlikely that at

the time of writing this book an herbalist will ask you about your oral health beyond possibly asking to look at your tongue. By and large, it's only dental professionals that inquire after the health of our mouths.

Our main message throughout this book has been that the mouth is a microcosm of the whole body, so it's time we take this into consideration in our approach to our health. It's time for a change.

TAKING AN ORAL HEALTH HISTORY

As herbalists we should take as much care detailing an oral-health history as we would any other part of a client's health history. After all, a better understanding of the health of the mouth can inform how we might work with our clients more efficaciously. While it may be rare that a person consults an herbalist to address mouth pain or oral discomfort, often herbalists are approached to give educational advice and suggest herbs for any of a host of inflammatory conditions, including the potentially oral-systemic conditions listed in this chapter. Therefore, it would behoove us to ask questions relating to oral health in any client intake or interview. But what questions, precisely? How might we, as nondental professionals, expand our work to support, sustain, and improve a client's oral health? Though the following suggestions for how to conduct an oral health assessment are written with professional herbalists in mind, dental professionals and other holistic practitioners might also consider these questions, or variations, as a method of obtaining a more well-rounded oral health history from clients.

When making a new or follow-up appointment with a dental professional or an herbalist, make a list of all medications, supplements, and herbs that are being taken on a regular basis prior to the appointment. An up-to-date list is always helpful.

The Initial Assessment

Our physical assessment of a client begins when we first greet her or him. We may, for example, observe the person's gait as she approaches a door; take note of her pallor; notice the temperature, texture, or moistness of her hand following a handshake; observe the qualities of the person's eyes; and we may also begin to notice that person's mouth.

- ✦ Is it open or closed?
- ✦ Are the lips moist? Dry? Cracked?
- ✦ Are there sores present on the face? Around the mouth, in particular?
- ✦ What color are the teeth? Are there any overt signs of decay? Drug use?
- ✦ How is the breath? Does it smell? Of what?

As we begin to collect information relevant to a client's health through simple observation, we might inquire about the person's daily oral care regimen and

related issues (as discussed in greater detail in chapter 3), even before we ask about the health of the mouth specifically. For those herbalists with little or no experience with collecting information about the mouth from their clients, the following might serve as a guide:

- ✦ Ask about the person's toothbrushing routine. Twice a day? Twice a week? Monthly? Before meals? Before sex? Thirty minutes after beverages? Ask the client to describe how she brushes or even to give a demonstration, as it's important that she reaches all surfaces when brushing.
- ✦ Ask how much time is spent attending to oral health each day—morning, afternoon, and evening. From this we can determine if the person is a member of the “rush-'n'-brush club,” sneaking in a cursory brushing before running off to take care of something “more important.”
- ✦ We can ask about toothbrushes and find out what type the person uses, manual or powered? Perhaps we can suggest a natural alternative such as a chew stick if the person is open to natural alternatives. We can ask her if she rinses or washes her toothbrush and when it was last replaced.
- ✦ We can inquire about the toothpaste or powder the client uses—is it a healthy choice? Does she like it? How does her mouth feel after brushing? Does she make it herself? What's in it?
- ✦ Flossing—is it done regularly or not at all? When was floss last purchased? If she does floss, what brand does she use? Does she like flossing? If she does use floss, we can ask for a demonstration of her technique and perhaps offer a few pointers. We can easily have dental floss available for demonstration purposes.
- ✦ We can ask about the gums, too. Does she use any other implements on her gums? Threaders for under bridges? Interproximal brushes? A Waterpik? If so, when? Often or occasionally?
- ✦ Does the client “pull oil” (see chapter 3)? If so, what types of oil does she prefer? How often does she do this? How long has she been doing this? Since she was sixteen, or forty-five, or only since last week? Has she noticed any changes since she began oil pulling?
- ✦ What about mouthwashes and rinses? Does she use a commercial preparation? What brand? Does it contain artificial ingredients? Is it high in sugar or alcohol, possibly exacerbating conditions of the mouth? Does she make her own rinse from medicinal herbs (such as those described in chapter 12)?

Maybe she rinses with water, or saltwater . . . How often does she rinse?

- ✦ Does she have any oral habits? Nail biting? Chewing on pen caps? Habitual toothpick use? Tobacco use?
- ✦ Does she have any removable dental appliances? If so, what specifically; how, when, and with what are they cleaned? When were they acquired? Do they fit?

Having established a client's basic oral care pattern, we might then ask about contact with other health care professionals. Who is the person's dentist? Hygienist? Does she work with an acupuncturist, naturopath, or primary-care physician? A massage therapist? Does she work with an osteopath or a chiropractor? Does she see a therapist, a psychiatrist, a psychologist? When did she last see any of these professionals, and is she comfortable working with them?

Some people may report, for example, that they haven't consulted health-professional X because they haven't had the need to. Or perhaps the person was dissatisfied with the care she last received. Maybe she is new to the area, doesn't know anyone, and needs a referral. Or perhaps she has limited finances when it comes to using any of these kinds of professionals. As practitioners we must be ready to meet any of these responses with helpful suggestions or guidance if needed. It may even be necessary to respond to requests for referrals.

Knowing more about the ways in which our clients generally support their own health can inform our understanding of their health status and shed some light on how we might best work with each person, as well as how each person works with her-or himself.

The Detailed Oral Assessment

Once we determine the basic health practices of the client, we are then ready to dive in, to ask more focused questions concerning the health of the mouth:

- ✦ Do you have any discomfort in or around the mouth? Swelling? Redness?
- ✦ Do you notice any bleeding? With or without brushing or flossing?

It's always helpful to get some measure of frequency, location, and intensity by asking clients clarifying questions such as "How often?" or "Where, precisely? All over, or at the same site each time?" or "Do you spit out a lot of blood after brushing? Is your toothbrush pink? Bright red? Do you bleed after flossing? Has bleeding changed of late?"

We can then go on to ask more questions:

- ✦ Do you have any decayed, missing, or filled teeth?

Often people don't know how many teeth they have, so this question can be answered by means of a joint exploration of the client's mouth. This may require a mirror, as both the practitioner and the client explore the mouth. Each discovery can be marked on the tooth charts as needed.

Remember that charts of both primary and permanent teeth can be found in appendix 5. These are useful personal and clinical tools when taking an oral health history. Sites of discomfort can be noted.

This is an ideal time to inquire about past dental work, i.e., root canals, extractions, orthodontics, and so on, as well as accidents or injuries. Looking into the mouth, we may see a buildup of tartar or plaque, or not. If oral care is scanty and there is an absence of tartar buildup, especially on the inside of the bottom incisors, it's likely that the mouth is somewhat acidic.

Finally, we can look more generally at the mouth as a whole:

- ✦ Looking at the color of the tissues, do they seem pink and well oxygenated? Are there any open sores? Swellings? Can we easily see debris in the mouth where perhaps food has lodged in difficult-to-reach areas?
- ✦ What about the tongue, both its surface and its underside? If you are new to tongue diagnosis, several reference materials exist to better understand the tongue.

As we go into this kind of detail with a client we can discuss our observations with the person, mirror in hand.

Before we conclude an oral assessment, let's not forget to ask some basic questions concerning a client's medical history, as this has bearing on the health of the mouth.

- ✦ Are there any health issues for which you are taking prescription medications, and if so, which medications?

While obtaining this information, it is also helpful to inquire about how often prescription medications are taken, if they are taken as directed, and the name(s) of the prescribing physician. Here is where recent antibiotic use can be recorded.

We can then proceed to ask:

- ▄ What over-the-counter medicines do you take? For what condition(s)? Daily, or as needed?
- ▄ Do you take supplements? Specifically, any liquids, pills, or capsules on a daily or regular basis? Manufacturer's name?

The recommended or suggested dosing and the client's actual dosing regimen can both be recorded. As with prescriptions, many supplements and over-the-counter medications are not taken as directed; asking specifically about use helps broaden our understanding of the person. And of course we need to inquire about the use of any medicinal herbs, or herbs in general. Here, it's worth noting that some people will be able to identify herbs when asked about supplements while others will not. It's therefore imperative to ask about herbs specifically:

- ▄ Are you taking any herbs, or medicinal herbs, on a regular basis?

Here, it's important to record the (botanical) names of each herb being taken. Be as specific as you can in your questions:

- ▄ Are you taking the herbs fresh or dried? Encapsulated? Powdered? Are they in liquid form, such as an alcohol-based or alcohol-free tincture, or prepared as a decoction or a tea? How often are they being taken? What is the source? Where were they purchased?

We go into this kind of detail because many people use herbs from questionable sources, perhaps bottled and dispensed by big business, not by herbalists or credible herb suppliers. Of course, herbalists know it is best to obtain medicinal herbs from reputable suppliers or from other herbalists (see appendix 2 for recommended herbal resources), or to personally wildcraft them. Certainly, as is the case with the profusion of dental information on the Web, there are great inconsistencies when it comes to information about herbs. For this reason having sound information and knowing about quality sources for herbs is critical. Additionally, we have talked often enough about herb-drug interactions. These interactions can develop just as surely in a dental chair as a result of drugs used to anesthetize, sedate, relieve pain, or limit infection as they can elsewhere. Some herbs and herbal combinations—either with other herbs or pharmaceuticals—can have an effect on bleeding and coagulation, which can complicate many dental procedures. It's imperative that we keep all of our health

care providers up to speed about our uses of herbs. It may well be necessary to suspend an herbal protocol before a dental intervention to avoid interactions or complications. To be sure—ask a qualified herbalist.

We have already noted how the effects of stress on the whole person can be reflected in many conditions affecting the body and the mouth in particular, such as inflammation of the gums. So while we are inquiring about a client's medical history, let's remember to ask about the person's level of stress. We can ask:

- ▀ How would you describe stress in your life? Does it affect you on a daily basis? Does it interfere with sleep? Digestion? Do you feel it in your muscles? Does it affect a positive outlook? In what ways? Is it possible to moderate its sources? How might you find relief?

Medical practitioners and herbalists alike agree that moderating stress is essential to achieving health and well-being; here, as herbalists, we know we can recommend remedies that can enable the client to create some measure of ease in her or his life.

Oral Care Recommendations

Once the detailed assessment has been completed, there is an opportunity to provide guidance and suggestions for a personalized herbal oral care regimen. It may be more helpful to our clients, be less overwhelming, and result in greater cooperation on the part of our client if we break down our overarching, long-term goals into small, manageable, attainable goals. These can be identified and agreed upon between the client and the practitioner. For example, if our aim is for a person to brush two to three times a day for two to three minutes, and brushing presently takes place only in the morning, and in a rushed fashion at that, we can suggest a change in habit by setting a once-a-day goal of brushing for two to three minutes, then move forward from there. Or we might want to work toward incorporating a variety of foods that promote oral health, or limit the consumption of acidic drinks, with the intention of eliminating them by a comfortable future date, or we may want to prepare, use, and compare three mouth rinses, perhaps focusing on preferred flavors for ourselves and each of our household members.

If you are an herbalist, you might want to cultivate a professional dental ally with whom you can discuss questions regarding the mouth. A dental professional wanting to be more supportive of those clients seeking natural approaches to managing their oral health can benefit equally by forging a solid relationship with a reputable herbalist, who can assist in

addressing questions of quality and sources, as well as consulting on herbal combinations and dosing.

As herbalists we know that foods and nourishing traditions are critical to our overall health, and to the health of the mouth in particular. Working with patients and discussing topics such as eating seasonally and using herbs, both culinary and medicinal, will benefit a client's oral health and empower each person to improve his or her level of self-care. And if we suspect excess acidity in the oral environment, we can suggest food choices to help balance the pH of the mouth.

In an effort to further personalize care, dental professionals may also benefit from the suggested oral health care questions we have outlined in this chapter, to supplement their current assessment tools. We realize that some dental professionals without any herbal training are likely to be reticent about recommending herbal interventions and are more comfortable with standard pharmaceutical interventions to address dental problems. These professionals may well choose to work with an herbalist or others who, for example, have the expertise to address nutritional interventions. We take heart in the on-going interest in the ever-growing scientific literature supporting the efficacy of the use of herbs to manage oral health. We trust that this growing literature will help to breed confidence in these interventions and support the ethnobotanical reports that have been gathered over centuries.

In many situations the forty-one herbs highlighted in the materia medica (chapter 11) are quite sufficient for addressing such common problems as inflammation, healing, sores, and infectivity, whether viral, fungal, or bacterial. Dental professionals might note that relying on herbs for support for many conditions has the added benefit of delivering a polypharmacy, thereby limiting dependency on pharmaceuticals. This can be one small step toward curbing the inadequacy of a number of drugs in today's multidrug-resistant (MDR) environment.

FREQUENTLY ASKED QUESTIONS

Many questions arise concerning the relationship between the mouth and the whole body. The following is a sampling of what we've been asked.

Question: If I have bleeding gums, is it inevitable that I'll get bacteremia?

Answer: Bacteremia, the presence of bacteria in the blood, is certainly not inevitable even if gums bleed. Possible, yes. Probable? This depends on many factors, including our oral health status, eating habits, food and beverage choices, the effects of any stressors on the body, physical activity levels, emotional well-being, and any number of health-related conditions that may or may not be present. But practically, why take the risk? If attending to our oral health reduces the likelihood of inflammation elsewhere in our bodies, regardless of how it presents, be it arthritis, prostatitis, cardiovascular disease, diabetes, osteoporosis, scurvy, then it makes sense to reduce the risk.

Question: I have been diagnosed with diabetes. If I care for my mouth, will that help my blood sugar levels?

Answer: Yes. Diabetes is well known to have a bidirectional relationship with periodontal disease. That means that it's a two-way street. Periodontal disease is a chronic inflammatory disease that adversely affects the metabolic control of diabetes. Conversely, people with diabetes are at a significantly greater risk of periodontal disease due to their exaggerated inflammatory response to bacteria and decreased wound-healing ability. So the answer is absolutely—daily oral hygiene will manifest its benefits, in part, in better control of blood sugar levels.

Question: I have diabetes. If I care for my diabetes, will it help the health of my mouth?

Answer: Yes. Without a doubt, as the integrity of the mucous membranes is affected by consistent attention to moderating blood sugar levels. This too affects healing, circulation, and the likelihood of infection. So the answer is absolutely for the second time in a row—if caring for diabetes includes attention to food, beverages, activity levels, and being well hydrated, then we are, in fact, feeding the body and supporting it with the tools needed for a healthy mouth. Indeed, what we eat affects the mineral composition of our saliva.

Question: I am going to have knee replacement surgery. Is there a risk of the bugs in my mouth affecting the surgery?

Answer: Yes. Sites of surgical implants have been found to harbor microorganisms found in the mouth. Caring for the mouth will increase the likelihood of a successful replacement surgery. Be sure to ask your orthopedist or dental professional about the current guidelines regarding antibiotics and dental treatment both before and after surgical implants and joint replacement surgeries, as guidelines are apt to change.

Question: My mouth isn't bleeding, but my gums look swollen. Does this mean I will get heart disease or endocarditis?

Answer: No. Swollen gums are indicative of inflammation. Inflammation is our body's way of saying, "Hey—something's not right here." It would be a good idea to have a dental exam to rule out disease and investigate the source of the inflammation. We can change our eating habits, curb our sugar intake, avoid allergens, quit smoking, and walk more; we can also explore the herbal remedies found in chapters 11 and 12 and perhaps even seek a professional opinion from an herbalist.

Question: If I take care of my mouth, will my condition improve?

Answer: Most likely. For certain it won't do any harm.

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CONCLUDING REMARKS

It is perhaps apposite to look backward before looking ahead.

It was over 300 years ago, in 1683, in the town of Delft, in Holland, that tradesperson and scientist Anthony Leeuwenhoek wrote to the Royal Society with news of “animalcules.” His letter described what he observed from samples taken within his own mouth and the mouths of others. Today we call these animalcules *microorganisms*. Generally speaking, microorganisms are not visible to the naked eye. Perhaps this is a good thing, as billions reside in our mouths.

Fast-forward 200 years, and in 1891 Willoughby D. Miller, a graduate of Pennsylvania Dental College, wrote about the human mouth as a focus of infection:

During the last few years the conviction has grown continually stronger, among physicians as well as dentists, that the human mouth, as a gathering-place and incubator of diverse pathogenic germs [i.e., microorganisms], performs a significant role in the production of varied disorders of the body, and that if many diseases whose origin is enveloped in mystery could be traced to their source, they would be found to have originated in the oral cavity. (Miller 1891)

More recently, many people are returning to Miller’s idea that inflammation perceived elsewhere in the body may well have its origins in the mouth (as discussed in chapters 1 and 14). To date, some of the scientific discussions and studies on this topic have identified associations between oral health and the microorganisms found in the mouth and other conditions, including autoimmune diseases, brain abscesses, candidiasis, carotid artery stenosis, cognitive dysfunction, colon cancer, diabetes, erectile dysfunction, heart disease, infectious endocarditis, kidney infection, low fertility in men, lung infection/COPD, mononucleosis (Epstein-Barr virus, glandular fever), mouth and throat cancer, obesity, osteoporosis/osteonecrosis pancreatic cancer, preterm/ low-birth-weight babies, respiratory infection, stroke, tuberculosis, and vitamin C deficiency (scurvy), to name but a few examples.

General readers of this book may well recognize that inflammation is one of our biggest health concerns. This may be obvious in our personal lives and in the lives of others around us, as it often manifests as some form of imbalance. In addition to its arising in the mouth, inflammation presenting elsewhere in the body might well be observed, described, or diagnosed by any number of terms.

Herbalists have the opportunity to see countless examples of inflammation. It is of great concern, as it presents regularly in clinical practice in any number of guises, including acid reflux/heartburn, acne, allergies and sensitivities, asthma, atherosclerosis, bronchitis, cancer, celiac disease, chronic pain, cirrhosis, colitis, compromised immunity, Crohn's disease, dementia, dermatitis, diabetes, eczema, edema, emphysema, fibromyalgia, gastroenteritis, gingivitis, heart disease, hepatitis, hypertension, insulin resistance, joint pain/arthritis/rheumatoid arthritis, metabolic syndrome (syndrome X), nephritis, obesity, osteopenia, osteoporosis, Parkinson's disease, periodontal disease, prostatitis, psoriasis, sinusitis, Sjögren's syndrome, spastic colon, stress, systemic candidiasis, tendonitis, urinary tract infections, and vaginitis, to name but a few. And yet, in clinical encounters—per our herbal training—few of us stop and ask to observe the mouth in its entirety. While some of us were trained to examine and interpret the tongue, rarely have we moved beyond this muscle to ask about the teeth, gums, and mucosa, or to inquire about dental care, prostheses, recent extractions, fillings, and so forth. We may well be asked for suggestions before or after professional care by a dentist, but rarely do we look into the mouth when asked to address inflammation elsewhere in the body, or during a client intake. Now is the time to change this outdated approach.

Notably, as herbalists, our protocols sometimes vary in their efficacy for no identifiable reason. Of course there are individual differences, and as holistic practitioners we honor these day to day and client to client. Yet still there can be elusive pieces to the puzzle. While we may work with inflammation systemically, with tinctures and teas, decoctions, and oils of many types, and often, too, food and beverages, it is rare that we also work topically in the mouth. If the roots of inflammation were to reside in the mouth, then we may overlook the cause of a systemic problem; if oral inflammation exacerbates inflammation experienced elsewhere in the body, then systemic protocols will continue to be of value, yet the roots of inflammation will be forever enveloped in mystery. Getting to better know the mouth is another tool for us as herbalists.

Dental professionals, of course, know the mouth well and are familiar with

subtle changes in texture, color, odor, and appearance. Yet although the profession has grown to include a wealth of sound general practices and specialties, many of the interventions offered rely on pharmaceuticals and synthetic solutions. Often this includes standard regimens that leave little room for individualized variations. Many people are coming to see this reliance as unbalanced, unhealthy, and a threat to themselves and the environment. Many people are looking for more natural alternatives, a less frequent use of antibiotics, fewer artificial chemicals, and other ways to sustain and maintain oral health naturally.

We wish that each section of our readership take something away for themselves, something practical, inspiring, and, yes, health promoting.

We have presented a sound understanding of the mouth and various conditions of the mouth. For many of our readers this opens a necessary door that can serve to enhance daily care.

We have highlighted changes that occur in the mouth. Perhaps this book will be a useful resource during an infant's teething times. Readers might well return to our work in times of distress, when pain or discomfort present in the mouth, or when caries abound and infection takes hold. Indeed, recognizing inflammation and changes in the mouth would be a desirable outcome of taking the information contained in this book to heart, by getting to know it, working through it, initiating oral care diaries, and even, simply, remembering to change our toothbrush after we are sick.

We have implored our readers to no longer abdicate oral health to professionals whom we are likely to see fewer than a handful of times each year.

If we are to keep our teeth, then we need to ensure we play an active role in our oral health care.

As we have demonstrated, the health of our mouths cannot be separated from our general health. To this end, to facilitate record keeping that enables us to track the relationship between the mouth and the rest of the body, we have provided symptom checklists and diagrams of the mouth for both children and adults to monitor changes more readily. We have addressed common questions and offered how-to guides for herbalists and nonherbalists. We have offered an opportunity for any reader to look into the mouth and to explore it as an herbalist might.

The heart of this book is the materia medica for the mouth, drawn from classic

and contemporary texts across hundreds of years. From this historical database we have culled a manageable number of forty-one plant allies. Many readers will recognize several culinary herbs here, additionally prized for their medicinal values. Our herbal choices are not “scary” or “foreign,” but recognizable, easily accessible, even common. The materia medica includes cultivars and weeds chosen as being helpful in a practical way, and here too our choices are *safe*. Our emphasis on safety, coupled with an awareness of how our book might be used as a reference (and perhaps not always read cover to cover) resulted in the exclusion of some notable herbs for the mouth, because dosing, the availability of mass-market preparations, or a combination of both of these variables left some uncertainly regarding their inclusion in a work such as ours.

Just as there are countless descriptions and compilations of medical materials for various systems of the body (e.g., digestive, respiratory, reproductive), here we hope that readers will spend time with the forty-one herbs that comprise a basic materia medica for the mouth. As with other reference compendia, we hope that users will take time to make these medical tools their own, adapting them and customizing them to meet individual needs. We trust that the summary charts, presented both by action and by symptom, will be of use not just to those coming to herbs for the first time but also to herbal practitioners. Note that we work with the most commonly reported symptoms. We ask that readers remember that our symptom list, while broad ranging, is not all-inclusive. With respect to our interventions, recipes, and formulas, they are safe, simple, effective, and practical.

With the material we have chosen to include in this book we offer a solid foundation on which to build and explore medicinal herbs for the mouth. We join those people, namely, patients, clients, and practitioners, who are all moving steadfastly in the direction of truly integrated care. *Dental Herbalism: Natural Therapies for the Mouth* is a cross-disciplinary collaboration and represents a real effort and commitment to work holistically, not just in our words, but in real-life practice.

Most of all, we trust we have provided enough information for people to get started. We believe that this is what’s most important—to simply get started using herbs for the mouth.

APPENDIX 1

PROFESSIONAL ORGANIZATIONS

HERBAL ORGANIZATIONS

United States

American Botanical Council

6200 Manor Road
Austin, Texas 78723
Phone: 512-926-4900
<http://abc.herbalgram.org>
e-mail: abc@herbalgram.org

An independent research and education organization dedicated to the responsible use of herbs and medicinal plants; publishers of *Herbalgram*

American Herbalists Guild

125 South Lexington Avenue, Suite 101
Asheville, North Carolina 28805
Phone: 617-520-4372
<http://americanherbalistsguild.com>
e-mail: office@americanherbalistsguild.com

A non-profit educational organization representing herbalists specializing in the medicinal use of plants; promotes a high level of professionalism and education in the study and practice of therapeutic herbalism; welcomes students and the general public; offers a "Find an Herbalist" service to the general public

Herb Society of America

9019 Kirtland Chardon Road
Kirtland, Ohio 44094
Phone: 440-256-0514
www.herbsociety.org
herbs@herbsociety.org

Dedicated to sharing the knowledge, use, and delight of herbs

International Herb Association

P.O. Box 5667

Jacksonville, FL 32247-5667

www.iherb.org

An international trade association with a focus on education, service, and opportunities for development

The Society for Economic Botany

<http://cms.gogrid.econbot.org>

president@econbot.org

Fostering research and education on the past, present, and future uses of plants

United Plant Savers

P.O. Box 400

East Barre, Vermont 05649

Phone: 802-476-6467

www.unitedplantsavers.org

e-mail: office@UnitedPlantSavers.org

Dedicated to the protection of native medicinal plants in the United States and Canada for generations to come

Australia

National Herbalists Association of Australia

P.O. Box 45

Concord West NSW 2138

In Australia: 02-8765-0071

Outside Australia: 61-2-8765-0091

www.nhaa.org.au

e-mail: nhaa@nhaa.org.au.

Representing highly trained Western herbalists and naturopaths in Australia, with a mission to serve and support the profession and practice of Western herbal medicine and connect members of the general public with practitioners

Canada

Alberta Association of Practicing Herbalists (AAPH)

www.albertaherbalists.com

Canadian Council of Herbalist Associations/CCHA

362 Ste-Catherine

Longueuil, Quebec J4H 2C1

<http://herbalccha.org> (contact form at website)

Unifying, promoting, and serving herbal practitioners through active communication with government, the public, and between other herbalist associations in Canada

Canadian Herbalist's Association of BC (CHA of BC)

c/o Innisfree Farm

3636 Trent Road

Courtenay BC V9N 9R4

www.chaofbc.ca

e-mail: general@chaofbc.ca

An organization for herbalists in and around British Columbia

Guilde des Herboristes

CP 47555 Plateau Mont-Royal

Montréal (Québec)

H2H 2S8

Phone: 514-990-7168

www.guilledesherboristes.org

e-mail: info@guilledesherboristes.org

Bringing together members of the general public with professionals from traditional herbalism

Herbalist Association of Nova Scotia

P.O. Box 31232

Halifax, Nova Scotia

B3K 5Y1

www.herbalns.org

e-mail: admin@herbalns.org

Promoting the knowledge, acceptance, and practice of herbalism through education, networking, and the celebration of plants

Ontario Herbalists Association

P.O. Box 123

Station D
Etobicoke, Ontario
M9A 4X2
Canada
In Canada: 1-877-OHA-HERB
(642-4372)
Outside of Canada: 416-236-0090
www.herbalists.on.ca
info@herbalists.on.ca

Promoting safe and natural healing with plant medicines, providing standards of education and practice for professional herbalists, encouraging public understanding of herbs and herbalism, and offering a “find a registered professional herbalist” service to the general public

New Zealand

New Zealand Association of Medical Herbalists

<http://nzamh.org.nz>

e-mail: info@nzamh.org.nz

Representing highly trained, accredited practitioners of herbal medicine in New Zealand and offering “find an herbalist” services to the general public

United Kingdom

National Institute of Medical Herbalists

Clover House

James Court

South Street

Exeter EX1 1EE

england

Phone: (011-44) 01392-426022

www.nimh.org.uk

e-mail: info@nimh.org.uk

Promoting the benefits, efficacy, and safe use of herbal medicine through its membership throughout the UK; setting the profession’s educational standards and running an accreditation system for training establishments (members required to have professional indemnity, public liability, and medical malpractice insurance); assisting the general public in finding a qualified herbalist

U.S. DENTAL ORGANIZATIONS

American Dental Association (ADA)

Phone: 312-440-2500

www.ada.org

Academy of General Dentistry (AGD)

Phone: 888-243-3368

www.agd.org

American Dental Hygienist (ADHA)

Phone: 312-440-8900

www.adha.org

American Dental Assistants Association (ADAA)

Phone: 312-541-1550

www.dentalassistant.org

Dental Resources by State

Each listing provides contact information for that state's board of dentistry, association for dentists, and association for hygienists. These listings are a great resource to locate free dental clinics or events, community outreach services, and access to dental care, as well as educational materials. Telephone numbers and websites are included, when available.

Alabama

Alabama Board of Dental Examiners

205-985-7267

www.dentalboard.org

Alabama Dental Association

334-265-1684

www.aldaonline.org

Alabama Dental Hygienists' Association

256-658-2727

www.aladha.org

Alaska

State of Alaska Board of Dental Examiners

907-465-2542

www.commerce.state.ak.us

Alaska Dental Society

907-563-3003

www.akdental.org

Alaska State Dental Hygienists' Association

907-349-1553

www.alaskadha.org

Arizona

Arizona State Board of Dental Examiners

602-242-1492

www.azdentalboard.us

Arizona Dental Association

480-344-5777

www.azda.org

Arizona State Dental Hygienists Association

602-717-0375

www.asdha.org/arizona-state-dentalhygienists.aspx

Arkansas

Arkansas State Board of Dental Examiners

501-682-2085

www.asbde.org

Arkansas State Dental Association

501-834-7650

www.arkansasdentistry.org

California

Dental Board of California

916-263-2300

www.dbc.ca.gov

California Dental Association

800-232-7645

www.cda.org

California Dental Hygienists' Association

916-993-9102

www.cdha.org

Colorado

Colorado State Board of Dental Examiners

303-894-7800

www.dora.state.co.us/DENTAL

Colorado Dental Association

303-740-6900

www.cdaonline.org

Colorado Dental Hygienists' Association

e-mail: codha@codha.org

www.codha.org

Connecticut

Connecticut State Dental Commission

860-509-7590
www.ct.gov/dph

Connecticut State Dental Association
860-378-1800
www.csda.com

Connecticut Dental Hygienists' Association, Inc.
203-210-5600
www.cdha-rdh.com

Delaware

Delaware State Board of Dental Examiners
302-744-4500
www.dpr.delaware.gov/boards/dental

Delaware State Dental Society
302-368-7634
www.delawarestatedentalsociety.org

Delaware Dental Hygienists' Association
www.delawaredha.org

District of Columbia

District of Columbia Board of Dentistry
877-672-2174
<http://hpla.doh.dc.gov>

District of Columbia Dental Society
202-547-7613
www.dcdental.org

DC Dental Hygienists Association
www.dcdh.org

Florida

Florida Board of Dentistry

850-245-4474

<http://floridadentistry.gov>

Florida Dental Association

850-681-3629

www.floridadental.org

Florida Dental Hygiene Association

850-896-0603

www.fdha.org

Georgia

Georgia Board of Dentistry

404-651-8000

<http://gbd.georgia.gov>

Georgia Dental Association

404-636-7553

www.gadental.org

Georgia Dental Hygienists' Association

www.gdha.org

Hawaii

Hawaii State Board of Dental Examiners

808-586-2702

<http://hawaii.gov/dcca/areas/pvl>

Hawaii Dental Association

808-593-7956

www.hawaiiidentalassociation.net

Hawaii Dental Hygienists' Association

808-239-7973

www.hdha.net

Idaho

Idaho State Board of Dentistry

208-334-2369

www.isbd.idaho.gov

Idaho State Dental Association

208-343-7543

www.TheISDA.org

Idaho Dental Hygienists' Association

www.idha.org

Illinois

Illinois State Board of Dentistry

217-782-8556

www.boardofdentistry.net

Illinois State Dental Society

217-525-1406

www.isds.org

Illinois Dental Hygienists' Association

800-550-4342

www.idha.net

Indiana

Indiana State Board of Dentistry

317-234-2054

www.in.gov/pla/dental.htm

Indiana Dental Association

317-634-2610

www.indental.org

Indiana Dental Hygienists' Association

219-798-2340

www.indiana-hygienists.org

Iowa

Iowa Dental Board

515-281-5157

www.dentalboard.iowa.gov

Iowa Dental Association

515-986-5605

www.iowadental.org

Iowa Dental Hygienists' Association

www.iowadha.com

Kansas

Kansas Dental Board

785-296-6400

www.dental.ks.gov

Kansas Dental Association

785-272-7360

www.ksdental.org

Kansas Dental Hygienists' Association

www.kdha.org

Kentucky

Kentucky Board of Dentistry

502-429-7280

www.dentistry.ky.gov

Kentucky Dental Association

502-489-9121

www.kyda.org

Kentucky Dental Hygienists' Association

502-645-5459

www.kydha.org

Louisiana

Louisiana State Board of Dentistry

504-568-8574

www.lsbdb.org

Louisiana Dental Association

225-926-1986

www.ladental.org

Louisiana Dental Hygienists' Association

www.ldha.org

Maine

Maine Board of Dental Examiners

207-287-3333

www.mainedental.org

Maine Dental Association

207-622-7900

www.medental.org

Maine Dental Hygienists' Association

www.mainerdh.org

Maryland

Maryland State Board of Dental Examiners

410-402-8501

www.dhmh.state.md.us/dental

Maryland State Dental Association

410-964-2880

www.msda.com

Massachusetts

Massachusetts Board of Dentistry

617-973-0971

www.boardofdentistry.net

Massachusetts Dental Society

800-342-8747

www.massdental.org

Massachusetts Dental Hygienists' Association

978-701-3195

www.massdha.org

Michigan

Michigan Board of Dentistry

517-335-0918

www.boardofdentistry.net

Michigan Dental Association

517-372-9070

www.smilemichigan.com

Michigan Dental Hygienists' Association

517-381-8557

www.mdhatoday.org

Minnesota

Minnesota Board of Dentistry

612-617-2250

www.dentalboard.state.mn.us

Minnesota Dental Association

612-767-8400

www.mndental.org

Minnesota Dental Hygienists' Association

www.mndha.com

Mississippi

Mississippi State Board of Dental Examiners

601-944-9622

www.msbde.state.ms.us

Mississippi Dental Association

601-664-9691

www.ms dental.org

Mississippi Dental Hygienists' Association

www.mdhaonline.org

Missouri

Missouri Dental Board

573-751-0040

<http://pr.mo.gov/dental.asp>

Missouri Dental Association

573-634-3436

www.modental.org

Missouri Dental Hygienists' Association

www.mdha.org

Montana

Montana Board of Dentistry

406-841-2390

www.dentistry.mt.gov

Montana Dental Association

406-443-2061

www.mtdental.com

Montana Dental Hygienists' Association

406-256-7384

www.montanadha.org

Nebraska

Nebraska Board of Dentistry

402-471-2115

www.boardofdentistry.net

Nebraska Dental Association

402-476-1704

www.nedental.org

Nebraska Dental Hygienists' Association

402-761-2216

www.nedha.org

Nevada

Nevada Board of Dental Examiners

702-486-7044

www.nvdentalboard.nv.gov

Nevada Dental Association

702-255-4211

www.nvda.org

Nevada Dental Hygienists' Association

www.nvdha.org

New Hampshire

New Hampshire Board of Dental Examiners

603-271-4561

www.state.nh.us/dental

New Hampshire Dental Society

603-225-5961

www.nhds.org

New Hampshire Dental Hygienists' Association

603-868-7475

www.nhdha.org

New Jersey

New Jersey State Board of Dentistry

973-504-6405

www.njconsumeraffairs.gov/dentistry

New Jersey Dental Association

732-821-9400

www.njda.org

New Jersey Dental Hygienists' Association

856-236-6968

www.njdha.org

New Mexico

New Mexico Board of Dental Health Care

505-476-4680

www.boardofdentistry.net

New Mexico Dental Association

505-294-1368

www.nmdental.org

New Mexico Dental Hygienists' Association

www.nmdha.org

New York

New York State Board of Dentistry

518-474-3817

www.op.nysed.gov/prof/dent/

New York State Dental Association

518-465-0044

www.nysdental.org

Dental Hygienists' Association of the State of New York, Inc.

518-477-0343

www.dhasny.org

North Carolina

North Carolina State Board of Dental Examiners

919-678-8223

www.ncdentalboard.org

North Carolina Dental Society

919-677-1396

www.ncdental.org

North Carolina Dental Hygiene Association

919-510-0944

www.ncdha.org

North Dakota

North Dakota Board of Dentistry

701-258-8600

www.nddentalboard.org

North Dakota Dental Association

701-223-8870

www.nddental.com

North Dakota Dental Hygienists' Association

www.nddha.org

Ohio

Ohio State Dental Board

614-466-2580

www.dental.ohio.gov

Ohio Dental Association

614-486-2700

www.oda.org

Ohio Dental Hygienists' Association

800-543-3104

www.odha.net

Oklahoma

Oklahoma Board of Dentistry

405-522-4844

www.ok.gov/dentistry

Oklahoma Dental Association

405-848-8873

www.okda.org

Oklahoma Dental Hygienists' Association

www.okdha.org

Oregon

Oregon Board of Dentistry

971-673-3200

www.oregon.gov/dentistry

Oregon Dental Association

503-218-2010

www.oregondental.org

Oregon Dental Hygienists' Association

503-924-1181

www.odha.org

Pennsylvania

Pennsylvania State Board of Dentistry

717-783-7162

www.dos.state.pa.us/dent

Pennsylvania Dental Association

717-234-5941

www.padental.org

Pennsylvania Dental Hygienists' Association

www.pdhaonline.org

Puerto Rico

Puerto Rico Board of Dental Examiners

787-765-2929

www.salud.gov.pr

Colegio de Cirujanos Dentistas de Puerto Rico

787-764-1969

www.ccdpr.org

Rhode Island

Rhode Island State Board

401-222-2828

www.health.ri.gov/hsr/professions/dental.php

Rhode Island Dental Association

401-825-7700

www.ridental.com

Rhode Island Dental Hygienists' Association

www.ridha.org

South Carolina

South Carolina State Board of Dentistry

803-896-4599

www.llr.state.sc.us

South Carolina Dental Association

803-750-2277

www.scda.org

South Carolina Dental Hygienists' Association

www.scdha.org

South Dakota

South Dakota State Board of Dentistry

605-224-1282

www.sdboardofdentistry.com

South Dakota Dental Association

605-224-9133

www.sddental.org

South Dakota Dental Hygienists' Association

www.sddha.org

Tennessee

Tennessee Board of Dentistry

615-532-5073

<http://health.state.tn.us/boards/dentistry>

Tennessee Dental Association

615-628-0208

www.tenndental.org

Tennessee Dental Hygienists' Association

615-777-8342

www.tndha.org

Texas

Texas State Board of Dental Examiners

512-463-6400

www.tsbde.state.tx.us

Texas Dental Association

512-443-3675

www.tda.org

Texas Dental Hygienists' Association

512-220-7800

www.texasdha.org

Utah

Utah Board of Dentists and Dental Hygienists

801-530-6628

www.dopl.utah.gov/licensing/dentistry.html

Utah Dental Association

801-261-5315

www.uda.org

Utah Dental Hygienists' Association

www.udhaonline.org

Vermont

Vermont Board of Dental Examiners

802-828-2390

<http://vtprofessionals.org/opr1/dentists>

Vermont State Dental Society

802-864-0115

www.vsds.org

Vermont Dental Hygienists' Association

www.vdha.org

Virginia

Virginia Board of Dentistry

804-367-4538

www.dhp.virginia.gov/dentistry

Virginia Dental Association

804-288-5750

www.vadental.org

Virginia Dental Hygienists' Association

888-734-8342

www.vdha.net

Virgin Islands

Virgin Islands Board of Dental Examiners

340-774-0117

Virgin Islands Dental Association

340-776-5050

Washington

Dental Quality Assurance Commission

360-236-4893

www.doh.wa.gov

Washington State Dental Association

206-448-1914

www.wsda.org

Washington State Dental Hygienists Association

www.wsdha.com

West Virginia

West Virginia Board of Dentistry

877-914-8266

www.wvdentalboard.org

West Virginia Dental Association

304-344-5246

www.wvdental.org

West Virginia Dental Hygienists' Association

www.wvdhasmile.org

Wisconsin

Wisconsin Dentistry Examining Board

608-266-8098

<http://dsps.wi.gov>

Wisconsin Dental Association

414-276-4520

www.wda.org

Wisconsin Dental Hygienists' Association

www.wi-dha.com

Wyoming

Wyoming Board of Dental Examiners

307-777-6529

plboards.state.wy.us/dental

Wyoming Dental Association

307-237-1186

www.wyda.org

Wyoming Dental Hygienists' Association

307-777-7387

www.wyomingdha.org

Dental Specialty Organizations

Academy of General Dentistry

www.agd.org

American Academy of Cosmetic Dentistry Charitable Foundation

www.aacd.com

American Academy for Oral Systemic Health

www.aaosh.org

American Academy of Oral and Maxillofacial Pathology

www.aaomp.org

American Academy of Oral and Maxillofacial Radiology

www.aaomr.org

American Academy of Pediatric Dentistry

www.aapd.org

American Academy of Periodontology

www.perio.org

American Association of Endodontists

www.aae.org

American Association of Oral and Maxillofacial Surgeons

www.aaoms.org

American Association of Orthodontists

www.mylifemysmile.org

American Association of Public Health Dentistry

www.aaphd.org

American College of Prosthodontists

www.prosthodontics.org

American Public Health Association

www.apha.org

America's Tooth Fairy

www.ncohf.org/our-programs/affiliate-network

Association of Clinicians for the Underserved

www.clinicians.org

Association of State and Territorial Dental Directors

www.astdd.org

Center for Health Care Strategies, Inc.

www.chcs.org

Centers for Disease Control and Prevention, Division of Oral Health

www.cdc.gov/oralhealth

Children's Alliance

www.childrensalliance.org

Children's Dental Health Project

www.cdhp.org

Christina's Smile

www.csmile.com

Dental Lifeline Network

www.dentallifeline.org

Give Kids A Smile

www.ada.org/givekidsasmile

Healthy Smiles Healthy Children

www.aapd.org/foundation

Indian Health Service

www.ihs.gov

Medicaid (dental)

www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Benefits/Dental-Care.html

Medicare (dental)

www.medicare.gov/coverage/dental-services.html

Mouth Healthy by the ADA

www.mouthhealthy.org

National Association of Dental Plans

www.nadp.org

National Association of Free and Charitable Clinics

www.nafcclinics.org

National Children's Oral Health Foundation

www.ncohf.org

National Dental Association

www.ndaonline.org

National Institute of Dental and Craniofacial Research, National Institutes of Health

www.nidcr.nih.gov

National Maternal and Child Oral Health Resource Center

www.mchoralhealth.org

Operation Smile

www.operationsmile.org

Oral Cancer Foundation

<http://oralcancerfoundation.org>

Oral Health America

<http://oralhealthamerica.org>

Organization for Safety, Asepsis and Prevention

www.osap.org

Smile For a Lifetime

www.s4l.org

Smile Train

www.smiletrain.org

Special Care Dentistry Association

www.scdonline.org

GENERAL INFORMATION

**FDA (Food and Drug
Administration)**

www.fda.gov

Fluoride Action Network

www.fluoridealert.org

The Forsyth Institute

www.forsyth.org

Natural Resources Defense Council

www.nrdc.org

APPENDIX 3

HERBAL CULTIVARS AND WILDCRAFTING

Here we include resources relevant to those of us who grow herbs, or want to grow herbs, as well as those who collect, or wildcraft, as we have addressed these topics in our text.

PLANTING A DENTAL HERB GARDEN: PLANT HARDINESS ZONE MAP

Gardeners and growers are interested in minimum and maximum temperatures throughout each growing season, and the length of the seasons themselves. This knowledge helps one to select which plants will thrive in any given location.

Zones change as climates change. The Agricultural Research Service of the U.S. Department of Agriculture publishes a map of growing zones each year. The map is based on average annual minimum winter temperatures. An interactive GIS (geographic information system) map is available for exploration nationally, by state, or by zip code, at <http://planthardiness.ars.usda.gov>.

WILD MEDICINALS AT RISK

United Plant Savers (www.unitedplantsavers.org) compiles “at-risk” and “to-watch” lists of medicinal plants that are currently considered most sensitive to the impact of human activities. These plants are in decline due to expanding popularity and shrinking habitat and range. The lists are published for the benefit of the plant communities and wild animals and are of use to harvesters, farmers, consumers, manufacturers, retailers, and practitioners. United Plant Savers is not

asking for a moratorium on these plants, but rather, an increasing awareness of the sensitivity of these medicinals. Wild plants found on these lists need our care and attention. If a plant's name appears on the "At-Risk" list, we ask readers to avoid using this plant if another can offer the required medicinal actions, or use a cultivar. Plants listed on the "To-Watch" list need our care and attention, too; their use should be conserved. As these lists are ever changing, we ask readers to consult the United Plant Savers website. **Plants listed in our materia medica are preceded with an asterisk in the lists below.**

At-Risk List

American ginseng (*Panax quinquefolius*) Black cohosh (*Actaea racemosa*, syn. *Cimicifuga racemosa*) Bloodroot (*Sanguinaria canadensis*) Blue cohosh (*Caulophyllum thalictroides*) *Echinacea (*Echinacea* spp.) Eyebright (*Euphrasia* spp.) False unicorn root (*Chamaelirium luteum*) *Goldenseal (*Hydrastis canadensis*) Lady's slipper orchid (*Cypripedium* spp.) Lomatium (*Lomatium dissectum*) Osha (*Ligusticum porteri*, *Ligusticum* spp.) Peyote (*Lophophora williamsii*) Sandalwood (*Santalum* spp. [Hawaii only]) Slippery elm (*Ulmus rubra*)
Sundew (*Drosera* spp.)

Trillium, Beth root (*Trillium* spp.) True unicorn (*Aletris farinosa*) Venus flytrap (*Dionaea muscipula*) Virginia snakeroot (*Aristolochia serpentaria*) Wild yam (*Dioscorea villosa*, *Dioscorea* spp.) ***To-Watch List***

*Arnica (*Arnica* spp.)

Butterfly weed (*Asclepias tuberosa*) Cascara sagrada (*Frangula purshiana*, syn. *Rhamnus purshiana*) Chaparro (*Castela emoryi*)

Elephant tree (*Bursera microphylla*) Gentian (*Gentiana* spp.)

Goldthread (*Coptis* spp.)

Kava kava (*Piper methysticum* [Hawaii only]) Lobelia (*Lobelia* spp.)

Maidenhair fern (*Adiantum pedatum*) Mayapple (*Podophyllum peltatum*)

Oregon grape (*Mahonia* spp.)

Partridge berry (*Mitchella repens*) Pink root (*Spigelia marilandica*)

Pipsissewa (*Chimaphila umbellata*) Spikenard (*Aralia racemosa*, *A. californica*)

Stone root (*Collinsonia canadensis*) Stream orchid

(*Epipactis gigantea*) Turkey corn (*Dicentra canadensis*) White sage

(*Salvia apiana*)

Wild indigo (*Baptisia tinctoria*) Yerba mansa (*Anemopsis californica*)

APPENDIX 4

USEFUL CONVERSIONS, OR YOUR PINT'S BIGGER THAN MY PINT

Throughout our text we've used metric units to measure solids, liquids, volume, and temperature because it simplifies the math associated with medicine making and helps us understand measurements taken in the mouth. As herbal preparations originate from around the world, and systems of weights and measures vary globally, using the metric system provides uniformity and avoids confusion.

For example, when it comes to measuring liquid volumes, it would be logical to think that a gallon is a gallon and a tablespoon is a tablespoon. Actually, this is not the case. For example: 1 gallon U.K. = 4,546.1 milliliters 1 gallon U.S. = 3,785.4 milliliters The difference? About 760.7 milliliters, or more than a full bottle of wine! As for tablespoons? In the U.K., a tablespoon is equal to four teaspoons; in the U.S. it is equal to three.

Conversions may come in handy when working through the recipes we present in this book. Some terms are archaic, as are the uses of herbs for the mouth. Also, as we collect herbal formulas from around the world, converting them into metric units avoids confusion and, most importantly, promotes safety.

WEIGHTS

1 dram (Dr.)	0.1 ounce (oz.)
1 grain (gr.)	64.8 milligrams (mg)
1 gram (g)	0.04 oz.
1 kilogram (kg)	35.27 ounces = 2.2 pounds (lb.)
1 milligram	0.015 grain = 0.000035 oz.
1 ounce	28.4 g
1 pound = 16 ounces	453.6 g
1 scruple (s)	1.3 g

VOLUMES

1 cubic centimeter (cc) = 1 milliliter (ml)	20 drops (gtt)*2
1 dram	3.7 ml
1 fifth	757.1 ml
1 fluid ounce U.K.	28.4 ml
1 fluid ounce U.S.	29.6 ml
1 fluid pint U.K.	568.3 ml = 20 fluid oz. U.K.
1 fluid pint U.S.	473.2 ml = 16.0 fluid oz. U.S.
1 gallon U.K.	4546.1 ml
1 gallon U.S.	3785.4 ml
1 gill (gi.) U.K.	142.1 ml
1 gill U.S.	118.3 ml
1 liter (L)	1000 ml
1 liter	35.2 fluid oz. U.K.
1 liter	33.8 fluid oz. U.S.
1 milliliter	1 cc
1 minim (min.)	0.1 ml
1 quart (qt.) U.K.	1136.5 ml
1 quart (qt.) U.S.	946.4 ml
1 shot	29.6 ml

LENGTH/DEPTH

1 centimeter (cm.)	10.0 millimeters (mm)
1 foot (ft.)	12 inches (in.)
1 inch	2.54 cm

TEMPERATURE

98.6° Fahrenheit (°F)	37.0° Celsius (°C)
100° F	38° C
250° F	121° C
350° F	177° C
450° F	232° C

COMMON U.S. HOUSEHOLD MEASURES

1 cup (c.) U.S.	236.6 ml
1 cup (metric)	250.0 ml
1 jigger	44.4 ml
1 shot	29.6 ml
1 tablespoon (T.) U.K.	14.2 ml

1 tablespoon U.S.

1 tablespoon U.K.

1 tablespoon U.S.

1 teaspoon U.K.

1 teaspoon U.S.

14.8 ml

4.0 teaspoons (teasp.) U.K.

3.0 teasp. U.S.

3.6 ml

4.9 ml

APPENDIX 5

ORAL HEALTH CHARTS AND TABLES

A Quick Reference Guide

Please use the tooth charts, symptom checklist, and tables 10.1, 12.1, and 12.2 included in this appendix as templates that may be copied multiple times for recordkeeping purposes.

The primary and permanent tooth charts are for the recording of a dental history, documenting numbers of teeth, any work that has been done (fillings, crowns, bridgework, etc.), and the positions of any teeth that are a concern.

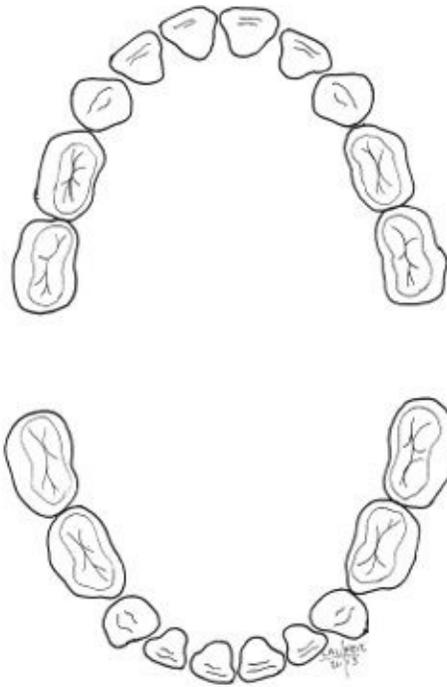
The symptom checklist can be used to identify changes, as a memory aide when talking with health care professionals, or when making choices about herbal protocols or other interventions.

Table 10.1 lists the forty-nine symptoms that are most commonly found in the mouth. Put check marks in the appropriate boxes to chart the conditions present at any given time. Changes can be monitored by filling out new copies of the table and/or checking off any new symptoms that emerge.

Use table 10.1 in concert with tables 12.1 and 12.2 to select appropriate herbal remedies for the symptoms and conditions in your own mouth or the mouths of others.

PRIMARY TOOTH CHART

Dental Herbalism: Natural Therapies for the Mouth



Name: _____ Date: _____

Number upper teeth: _____

Number lower teeth: _____

Each tooth may be identified as healthy (H), decayed (D), filled (F); (M/E) can be used for missing/extracted, (BR) for bridge work, and (RC) for root canal. Also include the observations about the gums throughout the mouth, noting any puffiness (P), redness (R), swelling (S), tenderness (T), or bleeding (B).

PERMANENT TOOTH CHART

Dental Herbalism: Natural Therapies for the Mouth



Name: _____ Date: _____

Number upper teeth: _____

Number lower teeth: _____

Each tooth may be identified as healthy (H), decayed (D), filled (F); (M/E) can be used for missing/extracted, (BR) for bridge work, and (RC) for root canal. Also include the observations about the gums throughout the mouth, noting any puffiness (P), redness (R), swelling (S), tenderness (T), receding (RG), or bleeding (B).

ORAL HEALTH GENERAL SYMPTOM CHECKLIST

Dental Herbalism: Natural Therapies for the Mouth

Use this checklist as a general guide and mark all symptoms that apply today. Note if they are new (N), sudden (S), recurring (R), and/or long-standing or chronic (C)

Name: _____

Date: _____

- abscess
- anxiety/fearful/feeling scared
- bad breath/halitosis

- pain
- popping
- pressure (physical)

- | | |
|--|---|
| <input type="checkbox"/> bleeding | <input type="checkbox"/> receding gums |
| <input type="checkbox"/> blister | <input type="checkbox"/> redness |
| <input type="checkbox"/> coating on the tongue | <input type="checkbox"/> sensitivity (e.g., hot/cold) |
| <input type="checkbox"/> cottage cheese patches | <input type="checkbox"/> sinus pain |
| <input type="checkbox"/> cracked/chapped lips | <input type="checkbox"/> soreness/tenderness |
| <input type="checkbox"/> dry mouth/sticky feeling in mouth | <input type="checkbox"/> sores/lesions |
| <input type="checkbox"/> fever | <input type="checkbox"/> stress (emotional/mental) |
| <input type="checkbox"/> headache | <input type="checkbox"/> swelling/inflammation |
| <input type="checkbox"/> infection/pus (general) | <input type="checkbox"/> taste, change in/loss of |
| <input type="checkbox"/> injury/trauma | <input type="checkbox"/> toothache |
| <input type="checkbox"/> loose tooth/teeth | <input type="checkbox"/> white area |
| <input type="checkbox"/> lump | <input type="checkbox"/> asymptomatic (no symptoms) |

Current diagnoses: _____

Allergies (plants, pharmaceuticals, foods, other): _____

Prescription or over-the-counter (OTC) medications, supplements, herbs:

GLOSSARY

abscess: an infected area in the mouth or elsewhere in the body that contains pus

abfraction: a theory regarding loss of enamel along the gum line of a tooth that is associated with problems of occlusion (i.e., bruxism, oral habits, and malocclusion)

abortifacient: a substance that can induce a miscarriage

abutment: in dentistry, a connecting element used in a bridge, removable partial denture, or implant

acid: having a pH of less than 7

acid reflux: a condition in which the stomach acid and contents leak backward into the esophagus

acrylic: a synthetic tooth or gum color material used for making dental prosthesis such as dentures

acupuncture: an essential aspect of traditional Chinese medicine (TCM) used to prevent, diagnose, and treat disease and improve general health, through the insertion of fine needles into open energy channels that flow through the body

acute: short-lived, as compared to chronic

ADA: acronym for American Dental Association

adjuvant: a drug, herb, or food used to modify the effects of a previous therapy; often used in relation to chemotherapy

aerial: the above-ground part of a plant

AGD: acronym for Academy of General Dentistry

AHG: acronym for American Herbalists Guild

AIDS: acronym for *acquired immunodeficiency syndrome*

alkaline: having a pH greater than 7

allergy: hypersensitivity that can result in an adverse set of symptoms after exposure, ingesting, inhaling, or touching a substance

alteratives: herbs that are often used in the detoxification of the person and his or her blood as they affect metabolism and nutrition; sometimes called *blood*

purifiers or depuratives

alveolar bone: jawbone that supports and anchors the roots of the teeth

amalgam tattoo: a bluish black or gray area of pigmentation on the oral tissues caused by accidental implantation of dental amalgam into the oral tissues

anaerobe: an organism that lives without oxygen

analgesic: an herb or pharmaceutical used to reduce pain

anesthesia: loss of sensation via administration of gases or anesthetic drugs

anesthetic: a substance that induces insensitivity to pain

angular cheilitis: an inflammatory lesion or infection at the corners of the mouth, most commonly caused by fungus, but can be caused by bacteria, ill-fitting dentures, or nutritional deficiencies of B-complex vitamins and iron

anthelmintic: a vermifuge used to expel intestinal parasites

antibacterial: a substance that curtails the growth of bacteria by either by killing them or limiting their growth; something that destroys, inhibits, or suppresses bacterial growth

antibiotic: a plant or its extract or a chemical from another source either derived from nature or manufactured that inhibits the growth or kills microorganisms

anticarcinogen: something that reduces the occurrence or severity of cancer or acts against cancer

anticariogenic: protects against caries (cavities)

antifungal: a substance that curtails the growth of fungi by either killing them or limiting their growth

anti-inflammatory: a substance that reduces inflammation

antimalarial: a substance that curtails the growth of the protozoan parasite that causes malaria by either killing it or limiting its growth

antimicrobial: a substance that curtails microbial growth by either killing the microbes or limiting their growth

antioxidant: a chemical that limits or prevents oxidative damage and the formation of free radicals

antiprotozoal: a substance that curtails protozoan growth by either killing the bugs or limiting growth

antipyretic: used to reduce a fever

antiseptic: generally these liquids, creams, resins, or oils are applied to tissue or the skin to reduce the possibility of infection from microorganisms

antispasmodic: an herb that eases involuntary muscle contraction

antitoxin: counteracts a toxin and is best used with guidance from an herbalist

antiviral: effective against viruses

ANUG: acronym for *acute necrotizing ulcerative gingivitis* (see NUG)

anxiety: a feeling of unease, nervousness, or worry

anxiolytic: an herb, drug, food, or activity that helps to moderate feelings of anxiety

aperient: a mild laxative

aphthous stomatitis: a small, often painful, noncontagious ulcer or sore on any of the soft tissue inside the mouth; a canker sore

aphthous ulcer: outdated term for aphthous stomatitis, or a canker sore

apiary: a honey farm or a place where bees are kept; a collection of hives

aromatic: having a noticeable aroma or smell. Aromatics contain volatile fragrant essential oils of plants that aid digestion

astringent: a substance that tightens tissues or mucous membranes; often involving tannins

asymptomatic: the absence of symptoms, often used to describe a stage in a disease or illness where no symptoms are detected

atonic: lacking in tension or tone; often used to describe tissue and mucous membranes

avulsion: a state in which a part of the body detaches from its normal point of insertion by either trauma or surgery

ayurveda: an ancient Sanskrit term used to describe the science of life; the traditional medical science of India

bacteremia: a bacterial infection characterized by bacteria in the bloodstream

baking powder: a blend of sodium bicarbonate and cream of tartar which should not be confused with baking soda

baking soda: finely powdered sodium bicarbonate; historically used in cooking, cleaning, and as a toothpaste or dentifrice

bicuspid: also known as a *premolar*, a tooth that has two cusps and is only found in the permanent dentition, which has eight total

biodegradable: anything that is capable of breaking down and decomposing and often makes good compost

biofilm: a cluster of microorganisms, usually bacteria as well as yeasts, fungi,

and protozoa that form a living colony and thrive under a mucilaginous protective coating attached to a surface. Biofilms can form on human tissue, teeth, and other solids, as well as on liquid surfaces.

bioflavonoids: found in brightly colored fruits, especially berries, and vegetables; valued for their antioxidants and ability to strengthen connective tissue and enhance the effects of vitamin C

bisphenol A: commonly referred to as BPA, a plastic with documented health risks surrounding its use

bitters: a combination of medicinal herbs with a bitter taste used to support digestion

black hairy tongue: a harmless brown or black discoloration of elongate papillae of the tongue that can be related to smoking, tobacco use, diet, medications, or poor oral hygiene

blister: a small bubble on the skin that is filled with fluid

botanical name: sometimes called a *Latin name*; scientific term that helps to identify plants more specifically by genus (first part of term) and species (second part of term)

bridge: a set of one or more false teeth supported by a framework that replaces one or more missing teeth

BRONJ: acronym for *bisphosphonate-related osteonecrosis of the jaw*

bruxism: the habit of clenching or grinding the teeth while awake or asleep

buccal: relating to the mouth or cheek

calculus: also known as *tartar*, a form of hardened dental plaque

calorie: a measure of the energy necessary to raise the temperature of 1 gram of water by 1 degree Celsius (1.8 degrees Fahrenheit); 1 calorie = 4.1858 joules

candidiasis: an infection caused by an overgrowth of the yeast *Candida albicans*

canine: also known as a *cuspid*, a tooth with one point. There are four in the primary dentition and four in the permanent dentition.

canker sore: common name for *aphthous stomatitis*

carbohydrates: a class of foods that contain cellulose from plants, starches, and sugars

caries: a common bacterial infection of a tooth; commonly known as a *cavity*

cariostatic agent: a process, chemical, food, or herb that inhibits the formation

of caries

carminative: an herb that is rich in many phytochemicals, including volatile oils, is soothing to the gut wall, and eases inflammation

cavity: decayed part of a tooth (*see* caries)

cementum: a specialized layer of bonelike connective tissue covering the root of a tooth

chew stick: roots and twigs used to clean the teeth and gums and dislodge debris in the mouth, to massage the gums, and to deliver medicine directly to the tissues of the mouth

chlorophyll: the pigment in green plant cells that absorbs light and provides energy

cholagogue: stimulates the flow of bile from the liver

chromagen: coloring agent

chronic: of a stained duration; usually lasting a long time, or regularly recurring

circulatory stimulants: enhance blood flow through tissues

cleft palate: a congenital split in the roof of the mouth

cold sore: an infection caused by the *Herpes simplex* virus

colic: intermittent pain in the abdomen, often the result of intestinal gas and particularly common among babies

common name: geographically and culturally dependent ways of referring to plants

Conception or Central Vessel: one of eight extra meridians or energetic pathways in traditional Chinese medicine (TCM) that begins at a point on the perineum directly between the legs, moves up the front of the body, and ends at a point on the lower lip. It governs the flow of qi for all the yin meridians.

C-reactive protein: a protein in the blood used as a measure of bodily inflammation

crown: the part of the tooth covered by enamel, usually visible in the mouth

CRP: acronym for *C-reactive protein*

culinary: of or relating to food

cultivar: a plant that is purposely grown, often to promote particular characteristics such as shape or taste, compared to wild plants that arise without attention to propagation

cuspid: also known as a *canine*, a tooth that has one point. There are four in the

primary dentition and four in the permanent dentition.

cysts: fluid-filled sacs that occur within tissues in the body

debride: the removal of material from a wound to promote healing

decay: also known as a *cavity*, or *caries*; destruction of the tooth

deciduous teeth: known as *milk teeth* or *baby teeth* or *primary teeth*; the first set of teeth, twenty in all

decoction: the boiling of a medicinal herb, usually in water, to extract its medicinal qualities

demineralization: the abnormal loss of minerals from dental enamel, often because of excess acid in the mouth

demulcent: substances with a soothing action when applied to membranes, tissues, wounds, and so on

dental amalgam: a dental filling material comprising mercury and other metals

dental assistant: a person who assists the dental professional providing patient treatment, be it the professional a hygienist, a dentist, or a surgeon, for example

dental hygienist: dental professionals who focus on education, prevention, and treatment of oral diseases to protect the teeth, gums, and overall health

dental implant: an artificial replacement for the root of a tooth that is anchored into the jawbone

dentifrice: a powder or paste used to clean the teeth and gums

dentin: the hard bony tissue under tooth enamel that makes up the majority of a tooth

dentist: a doctor who specializes in oral health

dentures: false teeth

diabetes: a group of metabolic diseases relating to cellular imbalances of insulin and blood sugar

diagnosis: a label applied to a cluster of symptoms that can inform care

diaphoretic: promotes sweating

Dilling's formula: a means of adjusting dose based solely on the age of a person

diuretic: promotes urination

DMF: acronym for *decayed, missing, or filled*

dry mouth: *see* xerostomia

dyspepsia: stomach upset

edentate: someone who is toothless

edentulism: having no (natural) teeth; also referred to as *edentulous*

enamel: hard white substance covering the crown of a tooth

enzyme: a chemical produced by the body that is necessary to initiate a chemical action or reaction

erosion: particularly *dental erosion* or *acid erosion*; refers to the loss of tooth structure from acid exposure due to acidic food and drink and/or gastric acid exposure

essential oil: the result of a distillation process to obtain oils from a plant that typically exude the characteristic aroma of the plant from which they were extracted

ethanol: ethyl alcohol

ethnobotany: the study of the use of different plants, including medicinal herbs, by different cultures throughout the world

exostoses: *see* torus

expectorant: helps to loosen mucus and allow its passage up through and out of the throat

extraction: the action of taking something out with force, such as a tooth

eye teeth: upper canine, or cuspid, teeth

FAGD: acronym for Fellowship in the Academy of General Dentistry

family: when referring to plants, a grouping that shares a broad array of characteristics

febrifuge: helps reduce a fever

fecundity: potential reproductive capacity

fertility: the ability to reproduce offspring; applies to both plants and animals

fever: an elevation of body temperature above 98.6 degrees Fahrenheit (37 degrees Celsius)

fever blister: an infection caused by the *Herpes simplex* virus, commonly called a *cold sore*

filling: a dental restorative material used to restore tooth structure

flatulence: gas

flavonoid: *see* bioflavonoid

flavorants: adds (an appealing) taste

floss: a soft thread of material used to clean between the teeth

fluoride: a naturally occurring but nonessential element

fluorosis (dental): a condition affecting the enamel of the tooth resulting from excessive exposure to high levels of systemic fluoride during tooth development

frenula: plural of *frenulum*

frenulum: a small fold of tissue that constrains the motion of a part of the body

frenulum (lingual): a small fold of tissue under the tongue that has a restraining function and attaches the tongue to the floor of the mouth

fungemia: a fungal infection characterized by fungi or yeast in the bloodstream

fungus: a general way to describe yeasts and molds, some of which are microscopic and some that are not

galactagogue: supports or enhances the production of milk from the breast

gargling: the movement of a liquid in the mouth by effectively exhaling through the liquid, thus causing it to move

gastroprotective: safeguards the digestive tract

GERD: acronym for *gastro esophageal reflux disease*

gingiva: also known as *gums*, the mucous membrane that covers the tooth-bearing part of the jaws

gingivitis: inflammation of the gums

glossitis: inflammation of the tongue

gluten: a protein found in many processed grains, including wheat starch, wheat bran, wheat germ, couscous, cracked wheat, durum, einkorn, emmer, farina, faro, fu, gliadin, graham flour, kamut, matzo, semolina, and spelt

Governing Vessel: a traditional Chinese medicine (TCM) term referring to one of eight extra meridians or energetic pathways that starts at the midpoint between the coccyx and the anus, ascends along the spinal column to the nape of the neck, and crosses over the head along the forehead before descending to the bridge of the nose, then the lips, and finishing at the frenulum inside the upper lip. It governs the flow of qi for all the yang meridians.

gum disease: also called *periodontal disease*, a disease affecting the periodontium (the supporting structures of the teeth)

gum recession: exposure of the root of the tooth caused by retracting gum tissue

gums: also known as *gingiva*, the mucous membrane that covers the tooth-bearing part of the jaws

halitosis: malodorous breath; breath that smells bad

hard palate: the bony front part of the roof of the mouth

hepatoprotective: protecting the liver

herbalist: a holistic health care professional who relies primarily on medicinal herbs and sustenance to support the body, restore balance, optimize health, and promote well-being

herpes (oral): an infection caused by the *Herpes simplex* virus, commonly called *cold sores*

HFCS: acronym for *high-fructose corn syrup*

HIPAA: acronym for Health Information Portability and Accountability Act

HIV: acronym for *human immunodeficiency virus*

holistic: a realization of the importance of the whole and the interdependence of parts, including the physical, mental, emotional, and spiritual elements of a being

HPV: acronym for *human papillomavirus*

hydration: watering ourselves

hyperplasia: an enlargement of the gingiva

hypertensive: an herb that results in elevating blood pressure

hyperthyroidism: an overactive thyroid gland

hypoglycemic agent: used to decrease the level of glucose in the blood

hypotensive: an herb that results in the lowering of blood pressure

hypothyroidism: an underactive thyroid gland

implant: *see* dental implant

incisor (central or lateral): narrow-edged tooth at the front of the mouth. Primary and permanent dentitions each have four central incisors and four lateral incisors.

indication: best understood in response to the statement, “A medicinal herb may be indicated when . . .”

inflammation: a biological response to a potentially harmful stimulus, often characterized by redness, swelling, heat, pain, and sometimes loss of function

insomnia: difficulty falling asleep, remaining asleep, or both

kapha: an ayurvedic term used to describe the bodily water humour, which is one of three constitutional types

Kawasaki disease: an uncommon autoimmune disease resulting in inflammation of certain blood vessels

lactation: the production of milk, as in breast-feeding

latex: a milky white plant fluid

LDH: acronym for Licensed Dental Hygienist

lesions: an area of tissue that has suffered damage

leukoplakia (oral): a diagnosis of exclusion characterized by white patches of excess keratin on the tissues of the oral cavity

lichen planus (oral): a noncontagious condition that often appears as a lacy rash inside the mouth

liniment: *see* salve

lymphatic tonic: an herb or combination of herbs, foods, or activities that invigorate the lymphatic system

MAGD: acronym for Mastership in the Academy of General Dentistry

malocclusion: the misalignment of teeth

mandible: lower jawbone

marc: the used herb resulting from making, for example, tinctures

materia medica: Latin for *medical materials*; the body of collected knowledge about the therapeutic properties of any substance used for healing (i.e., medicine)

maxilla: upper jawbone

maxillary sinus: a pair of sinus cavities in the upper jawbone

MDR: acronym for *multidrug resistant*; a term often used to describe microorganisms, especially bacteria that have developed a resistance to pharmaceuticals; the term is not used in reference to herbs

MDS: acronym for Master of Dental Surgery

melancholia: a sustained feeling of sadness, sometimes combined with a sense of gloom or foreboding

menses: a term for menstruation, referring to blood loss during this part of the reproductive cycle of a woman

menstruum: the liquid, or solvent that the medicinal constituents of a plant will dissolve into when making, for example, a tincture. The menstruum can

include the following: alcohol, vinegar, water, vegetable glycerin, oil, or wine

meth mouth: common term to describe severe dental decay, erosion, and damage to the oral cavity as a result of extended use of the recreational drug methamphetamine (meth)

metric: a decimal system of measurement commonly used throughout the world

microorganism: generally, an organism that cannot be seen with the naked eye, including bacteria, viruses, and fungi

molar: a grinding tooth in the back of the mouth. The primary dentition has eight total, and the permanent dentition has twelve.

mouth ulcer: open sore or lesion in the mouth

MRSA: acronym for methicillin resistant *Staphylococcus aureus*

mucosal tonic: fortifying the mucous membranes

mucous membrane: a membrane rich in mucous glands. In the mouth it is referred to as the *oral mucosa*, and it lines the oral cavity, including the gums

natal teeth: teeth that are present at birth

naturopathic: an approach to sustaining wellness that relies on natural interventions in lieu of synthetic drugs or surgery; the medical practitioner of such an approach is a *naturopath*

neck: the neck of a tooth refers to the constriction between the root and the crown

neonatal teeth: teeth that erupt through the gingiva during the first month of life

nervine: herbs that have a soothing, sometimes relaxing effect on our physical, emotional, and spiritual bodies

neutral: having a pH of 7

NHAA: acronym for National Herbalists Association of Australia

nicotine stomatitis: a condition that appears as white or red patches on the palate from the heat of smoking and occasionally from habitually drinking very hot beverages

NIMH: National Institute of Medical Herbalists (not to be confused with the National Institute of Mental Health)

NUG: necrotizing ulcerative gingivitis, also called *Vincent's disease*, or *acute necrotizing ulcerative gingivitis (ANUG)*, or *trench mouth*; a painful, acute type of gum disease, more common among those with a compromised immune system

numbness: partial or total lack of sensation

nutritive: provides nourishment

occlusal: relating to the occlusions of the teeth and/or the portion of a tooth that comes in contact with a tooth in the opposite jaw

oil pulling: Westernized adaptation of the ayurvedic practice of rinsing the mouth with sesame oil, although other oils can be substituted

ONJ: acronym for *osteonecrosis of the jaw*, a serious condition that results in the death of bone matter

oral cancer: cancerous tissue in the oral cavity

oral cavity: of or relating to the mouth

oral hygiene: the result of the regular application of cleaning techniques to maintain the health of the mouth

organoleptic: an assessment of herbal quality that relies on sight, smell, taste, and feel

osteoporosis (oral manifestations of): demineralization of bone density in the mouth

OTC: acronym for *over-the-counter* [medicine]; i.e., medicine that can be obtained without a physician's prescription

palates (hard and soft): the roof of the mouth that separates the cavities of the nose from the mouth

palliative: providing relief

papillae: small bumps or projections on the surface of the tongue that give the tongue its characteristic texture and are home to many of our taste buds

papilloma: a general term for a tumor of the mucous membrane or skin epithelium

partial: a denture that replaces one or more teeth in a dental arch

PDL: an acronym referring to the periodontal ligament, which is a group of connective tissue fibers that connect a tooth to the jawbone

Pemphigus vulgaris (oral manifestations): an autoimmune disease characterized by a painful, chronic, blistering skin condition that is difficult to control

pericoronitis: an excessive inflammation, usually with an infection, of the tissue around an erupting tooth, typically a third molar, or wisdom tooth

periodontal disease: a disease of the supporting structures of the teeth

periodontal ligament: a group of connective tissue fibers that connect a tooth to the jawbone, shortened to PDL

periodontitis: inflammation of the tissue around the teeth

periodontium: specialized tissues that surround and support the teeth

permanent teeth: the adult dentition comprised of thirty-two teeth that replace the primary teeth

pH: a measure of acidity or alkalinity based on a 14-point scale on which a value of 1 is most acidic, 14 is most alkaline, and the midpoint (7) reflects neutrality

pharynx: the cavity behind the mouth that connects to the esophagus

PHDH: acronym for Public Health Dental Hygienist

PHDHP: acronym for Public Health Dental Hygiene Practitioner

pitta: an ayurvedic term used to describe the bodily fire humour, which is one of three constitutional types

plaque: a sticky bacterial deposit on the teeth that is continually forming

pocket: also called *gingival pocket*, the crevice between the gum tissue and tooth, or the *periodontal pocket* if periodontal disease is present

pontic: the portion of a dental bridge that substitutes for a missing tooth

poultice: the topical application of herbs, often to draw or reduce inflammation

pregnancy gingivitis: red, swollen, tender, bleeding gums caused by the hormonal changes associated with pregnancy

premolar: also known as the *bicuspid*, a tooth that has two cusps and is only found in the permanent dentition, which has a total of eight premolars

primary teeth: known as *milk teeth* or *baby teeth* or *deciduous teeth*, they are the first set of teeth, twenty in all

probiotic: a source of multiple microorganisms used to support a healthy digestive tract, and should not contain sugar

proof: a measure of the percentage of alcohol (ethanol) in any (commercial) liquid

prophylaxis: in dentistry, a preventive procedure involving removal of plaque/calculus and stain via scaling and polishing

prosthesis: in dentistry, a fixed or removable appliance used to replace one or more missing teeth

protein: foods containing long chains of amino acids and nitrogenous organic

compounds

pulp: the vascular center part of a tooth made up of living connective tissue and cells

pyorrhea: a dated term for periodontitis

qi: in traditional Chinese medicine (TCM), a creative or formative life force or energy; sometimes spelled *chi*

quid: a wad of plant material chewed to clean the mouth

radiograph: an X-ray

RDH: acronym for Registered Dental Hygienist

RDHAP: acronym for Registered Dental Hygienist in Alternative Practice

receding gums: also called *gingival recession*, the retraction or loss of gum tissue that causes exposure of the roots of the teeth

rectum: the last section of the large intestine ending at the anus

remineralization: the process whereby a tooth's minerals are restored or replaced to the enamel of the teeth

RH, AHG also RH(AHG): acronyms for Registered Herbalist, American Herbalists Guild

RHT: acronym for Registered Health Therapist

rinsing: the swirling of liquid in the mouth to rid the mouth of debris; often includes gargling

root: the part of a tooth that is embedded in the jaw

root canal: a dental procedure that replaces the pulp of a tooth

root resorption: the breakdown or loss of the root structure of a tooth

rubefacient: brings blood to the surface by dilating our blood vessels

saliva: the complex liquid secreted by the salivary glands into the mouth; also called *spit*

salivary glands (parotid, submandibular, sublingual): glands with ducts that produce saliva

salt: see sea salt

salve: an ointment, liniment, or balm applied topically to the skin or in some instances to a mucous membrane to promote healing or to add moisture

scaling: a procedure performed by a dentist or a dental hygienist that removes deposits of plaque and tartar from the tooth surface. When done below the

gum line it is called a *deep* or *periodontal scaling*.

sea salt: a natural product resulting from the evaporation of seawater. Sea salt contains no added chemicals and is rich in minerals, mainly a variety of salts found in seawater

seed: an energy-dense unit of reproduction containing a fertilized plant ovule, often capable of developing into another plant

septic: infected, often with bacteria

sialagogue: an herb that promotes the production of saliva

simples: single herbs, often tinctures, compared to blends of more than one herb

sinus: air cavities in the cranial bones, especially those near the nose and connecting to it

sinusitis: inflammation of the sinuses, commonly caused by infection, allergies, or stress

Sjögren's syndrome (oral manifestations of): an autoimmune syndrome that causes dryness and affects the production of saliva

SLS: acronym for *sodium lauryl sulphate*, a detergent often used in personal-care products

soft palate: the fleshy and flexible part of the roof of the mouth closest to the throat

sp./spp.: abbreviations for *species* (singular and plural)

spasm: involuntary muscle contraction

spermicide: a plant or chemical that limits the viability of sperm

Stephan Curve: an example of how the pH of the mouth changes over time in response to various stimuli that affect the mouth

stress: emotional, physical, spiritual, or mental imbalance, occurring either singly or together, that manifest throughout the body, including the oral cavity

styptic: staunches bleeding

sublingual: below the tongue

sugar: a fermentable carbohydrate

supraeruption: the process of a tooth continuing to grow out of the gum line

systemic association: a relationship between one system of the body and another

tannins: astringent plant substances that are used to tighten tissue; can cause proteins to curdle and come out of solution and historically used to treat

animal hides

tartar: also known as *calculus*, a form of hardened dental plaque

taste buds: clusters of nerve endings on the tongue and lining of the mouth that provide the sense of taste

TCM: acronym for *traditional Chinese medicine*

tea (herbal): a water-based infusion of fresh or dried herb that can be consumed for pleasure, medicinal purposes, or both

teething: the eruption of teeth through the gingiva

temporomandibular dysfunction: *see* TMD

tetracycline: a group of broad-spectrum antibiotics that can permanently affect tooth coloration, blackening or darkening the enamel if administered during tooth development

third molars: *see* wisdom teeth

thrush: a common term for an oral infection caused by an overgrowth of the yeast *Candida albicans*

tincture: a liquid preparation made by infusing usually an alcohol-based solution with a medicinal herb; can also be made with a glycerin base. Tinctures can be taken orally or applied topically.

tissue: cells often of a similar structure that perform a similar function

TMD: acronym for *temporomandibular dysfunction*; pain and dysfunction of the muscles of mastication (the muscles that move the jaw) and the temporomandibular joints (the joints that connect the mandible to the skull); most commonly involves displacement of the disc located within the temporomandibular joint; also termed *temporomandibular joint disorder*

TMJ: acronym for *temporomandibular joint*

tongue scraper: an implement used to clean the surface of the tongue; also called *tongue cleaner* or *brush*

tonic: an invigorating medicinal taken to support or enhance vitality and a feeling of well-being

toothache: pain in a tooth

topical: applied externally, for example, to the surface of the skin; not taken internally

tori: *see* torus

torus: extra bone that forms on top of existing bone

traditional Chinese medicine (TCM): an ancient medical system that utilizes a holistic approach to prevention, diagnosis, and treatment and includes recognition and understanding of the concepts of qi, yin, yang, the five elements, and four diagnostic methods. It relies on the identification of patterns, or syndromes, and interventions using either individual or combined therapies such as acupuncture, Chinese herbal medicine, moxibustion, and massage.

trench mouth: *see* NUG

tumor: an area of swelling in the body caused by the abnormal growth of a mass of tissue

ulcer: an open sore on the skin or mucous membrane

umami: a kind of meaty taste

UTI: acronym for *urinary tract infection*

uvula: the fleshy tissue at the back of the soft palate that hangs above the throat

vascularity: any part of a body, or plant, that contains a large number of vessels capable of circulating fluids, be they blood, lymph, or sap

vasodilator: dilates blood vessels

vata: an ayurvedic term used to describe the bodily air humour, which is one of three constitutional types

vermifuge: used to expel intestinal parasites

Vincent's disease: *see* NUG

viremia: a viral infection characterized by virus particles in the bloodstream

vitamin C: an essential vitamin and integrally associated with collagen production

vulnerary: a remedy used to heal wounds

wisdom teeth: the last set of adult molars, sometimes called *third molars*, that typically erupts as the backmost tooth in each quadrant of the mouth

xerostomia: dry mouth

yeast infection: *see* candidiasis

FOOTNOTES

[*1.](#) Including decoction, poultice, tea, tincture, topical, or essential oil

[*2.](#) We note that the consistency of each liquid will affect the volume of each drop, as will the size of the dropper.

ABOUT THE AUTHORS



Leslie Alexander is a practicing professional herbalist and co-owner of Restoration Herbs in Franklin, Pennsylvania. She received her B.Sc. in environmental sciences from Fairleigh Dickinson University in Teaneck, New Jersey, and her Ph.D. in biological sciences from Heriot-Watt University in Edinburgh, Scotland. After working for several years in academia as a researcher, focusing on environmental factors affecting health, particularly children's health, Leslie retrained as an herbalist. She was invited to join the American Herbalists Guild as a professional member in 2009 and is presently serving a term on the AHG Council. She is a member of the American Academy for Oral Systemic Health and the American Botanical Council. Currently she divides her time between clinical practice, gardening, and her work as an educator, working with students and professionals, offering lectures and workshop opportunities for continuing education. In addition to her focus on both medicinal and culinary herbs, particularly herbs for the mouth, Leslie enjoys foods of all sorts, the outdoors, laughter, and tai chi.



Photo by Heather Mencer

Linda Straub-Bruce is a practicing registered dental hygienist in Erie, Pennsylvania. She graduated from the University of Pittsburgh School of Dental Medicine and received a Bachelor of Science in education from Edinboro University in Edinboro, Pennsylvania. Linda has been in clinical practice since 1989, treating patients of all ages and levels of oral health. She is licensed in the administration of local anesthesia and is a licensed public health dental hygiene practitioner. Her professional affiliations include the American Dental Hygienists' Association, the Pennsylvania Dental Hygienists' Association, the Northwest Dental Hygienists' Association, the Pennsylvania Academy of Dental Hygiene Studies, the American Academy for Oral Systemic Health, and the National Dental Practice-Based Research Network. She is active in community dental health events and her local dental hygiene association, presents continuing education lectures to other dental professionals, and enjoys the outdoors and volunteering at her son's school.

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