

Praise for *The TMJ Healing Plan*

“This is the most useful book of its kind that has ever been written and should be required reading for all TMD patients, dentists who treat TMD, and physicians who see patients who might have TMD. I will definitely have my Orofacial Pain residents at UCLA read this book and have several copies available in my office. When given appropriate professional care...patients who use this book to eliminate harmful habits and implement appropriate home-care activities will have the best chance for a speedy and thorough return to normal function.”

— Joseph R. Cohen, DDS, FACD,
President, American Board of Orofacial Pain,
Adjunct Asst. Professor, UCLA Orofacial Pain,
TMD, and Sleep Apnea Residency Program

“This book is loaded with nuggets of information that can help patients help themselves. Cynthia Peterson has placed a lifetime of experiences into a guide to help not only TMJ disorders, but other common pain complaints. If you have face pain, this book will offer relief.”

— Jeffrey P. Okeson, DMD,
Provost’s Distinguished Service Professor
Professor and Chair, Department of Oral Health Science,
Director, Orofacial Pain Program, University of Kentucky College of Dentistry

“I have read virtually every text for the layperson in existence and this book is by far and away the best. Peterson has created a system that anyone can follow to overcome their TMJ disorder and resume a normal life once again. A masterpiece for clinician and laymen alike.”

— Will Shannon N.D
President
Australian Complimentary Medicine Association

“The best book ever on TMJ problems. I have ben a dental hygienist for 35 years and an oral myofunctional therapist for 31 years and this book says it all! For anyone suffering with jaw problems, help is on the way with this book!”

— Joy Moeller, BS,
RDH, Oral Myofunctional Therapist

“I have lectured to and taught thousands of orthodontists in the U.S., Canada, and around the world, and we all have a common need for a publication that educates patients. A high percentage of people in the U.S. and Canada suffer from varying degrees of TMJ disorders.... This book addresses all aspects of the disorder, including prevention, that I would want to share with my patients.”

— Randall K. Bennett DDS, MS

“Cynthia: I have read through your book with interest and feel that it presents an excellent program of self-management for TMD patients. Commonly, patients with TMD pain don’t know what they can do to decrease their pain and also don’t understand what they have been doing that may have influenced the development of their pain. I would unhesitatingly recommend this book to those suffering from TM disorders. I look forward to its publication.”

— Robert L. Merrill, DDS, MS,
Adjunct Professor, Director, Orofacial Pain and
Dental Sleep Medicine Center, UCLA School of Dentistry

The
TMJ
Healing
Plan

.....
TEN STEPS TO RELIEVING
HEADACHES, NECK PAIN
AND JAW DISORDERS
.....

Cynthia Peterson, PT

Foreword by James L. Guinn, DMD

Hunter
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DEDICATION

*This book is dedicated to my beloved children,
Aticus, Anna Caroline, and Amadeus.
May you use whatever time, talents, and abundance
God has blessed you with to bless the lives of others.*

*This book is also my gift to each of you
for a healthier, happier life.*

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Foreword

There may be no other clinical condition as misunderstood, misdiagnosed, and mistreated as jaw disorders and associated pain. Patients seeking help for these problems can easily be led to believe their problem is due to a particular cause, when the truth may lie elsewhere. This can occur whether the patient is seeking help on the Internet, through books, or during a consultation with a doctor. Too often, the person claiming to have knowledge about these problems has a bias or hidden agenda. Following the recommendations of such a person can lead to unnecessary (and expensive) treatment.

The average patient with a jaw disorder has seen several different doctors, most of whom had divergent opinions, and is still seeking relief after undergoing a variety of failed treatments. Often, friends and family members do not understand the pain and misery patients are enduring, because they look “normal.” Too many patients with these problems are dismissed by their doctors as being “just stressed out.”

To be fair, jaw disorders can be very challenging to diagnose and manage. This is true partly because two different patients with similar complaints can have totally different underlying conditions. Trying to apply the same treatment regimen to both patients can result in at least one of them receiving no significant benefit. Unless the cause (or usually the combination of several causes) is identified, a treatment plan with predictable results cannot be made.

While there may not be “easy” answers for patients with these problems, there are answers. This book goes a long way in providing those answers, but it does not advocate a “one-size-fits-all” or “cook-book” approach to treatment. What it does do is provide a wealth of information about the components of jaw disorders and the many ways harmful habits or poor lifestyle choices can lead to a constel-

lation of symptoms in the head, jaw, and neck. Thus, patients can identify potential causes for their particular condition, along with reasonable treatment options.

For patients with a jaw disorder, this book is an oasis in a desert of confusion, misinformation, and marketing hype. It is well researched and based on the best-available evidence at the present time. The recommendations provided here are conservative. Following these guidelines can certainly help but not hurt the patient. However, as the author points out, this book is not a substitute for a thorough evaluation by a qualified clinician, should your symptoms persist. There are obviously certain problems within this field (such as arthritis in the jaw) that patients cannot evaluate or treat themselves. While conservative management is always best, there can be underlying problems, which require specialized care and consideration using sound clinical judgment and evidence-based medical resources.

This book is appropriate for those seeking self-help options, as well as for those currently under the care of a clinician. It is a very good educational text on the anatomy and function of the jaw and related structures. Following the guidelines in this book can also help prevent a recurrence of jaw problems in the future.

Physical therapist Cynthia Peterson has been a great help to my patients for many years, as they have attended her excellent classes on jaw disorders. She has dedicated her professional life to educating and empowering patients. With this well-written resource book, many more people can have access to her knowledge, expertise, and insights. It will be a valuable guide for patients and an effective tool for clinicians treating these problems. It provides a wealth of well-documented techniques for relief of jaw symptoms.

It is my sincere hope that the clear and concise information in this book can provide answers for those suffering from chronic pain in and around the jaw. This book is written by someone who truly understands the nature and complexity of jaw disorders, as well as the impact these problems can have on a person's quality of life.

— James L. Guinn, DMD
Diplomate, American Board of Orofacial Pain

Preface

Years ago, I was diagnosed with an early breast cancer and underwent several major surgeries; before that, I lost my talented mother-in-law, who left a legacy of art that touches many lives, to cancer. As a result of these encounters with illness, I took a fresh look at my life to reassess how I might make a difference in the world. I am not an artist, although my bubble letters and suns are pretty good. Of course, my children and family were my first thought and priority. However, I wondered if I could leave any additional legacy.

This book is one answer to that question. I love being a physical therapist and empowering people, especially those who have TMJ-related disorders, with the education, tools, and exercises they need to become healthy and active again. I love being a detective of the body and deciphering why my patients are having problems.

When I first started teaching my patients about the jaw, neck, and back, I felt I was sharing hidden truths they badly needed but didn't have access to. My heart still aches each time I meet a twelve- or thirteen-year-old who has already destroyed his or her jaw joints. Unfortunately, people usually don't have a desire to learn and change until they find themselves in serious pain or experience a loss of function. Maybe for this reason, healthy habits rarely become a topic of conversation around the dinner table. But they should be.

After years of working with patients who suffered from head, neck, and jaw pain, I decided it was time to write this book. In my work and in this book, I offer an important supplement to the traditional medical model. That model primarily throws a pill or slaps a bandage at the problem, instead of digging deep and addressing the causes and contributing factors. Patients, too, demand a quick fix, rather than seeking to make the changes necessary for long-term relief. However, I believe we all need to find and eliminate the causes

of our problems and not just treat the symptoms. As Thomas Edison once said, “The doctor of the future will give no medicine, but will interest his patients in the care of the human frame, in diet and in the cause and prevention of disease.”

Imagine a walkway in front of your home that is full of bumps, gaps, and holes. You must traverse this path every day, and yet you frequently trip, slip, or fall into a hole. If the sidewalk is never repaired, you are likely to be hurt over and over again. Similarly, you and your health-care providers must find and patch as many holes as possible in your life’s pathways by correcting the causes or contributing factors you may unknowingly be falling into, so you are not doomed to “endless cycles of treatment and relapses.”¹ In this book, I offer information that can help you patch many of your own holes. No two people are the same; thus it is up to you to decide with your health-care providers which of the concepts I present that you wish to embrace. I focus on several hurtful habits that are possible causes or contributing factors for problems common to the TMJ population. I offer conservative and reversible ways to replace them with healthier habits.

My colleagues at Canyon Rim Physical Therapy and I have more than fifty years of combined experience in treating patients with a wide range of TMJ-related symptoms and problems and educating this patient population, with much clinical success. It often takes a team of dedicated professionals from all areas of the medical arena to ensure the whole patient is treated. In writing this book, I have sought out experts and incorporated the wisdom from multiple disciplines to create a multifaceted approach. This book gives you the basics for each specialty area addressed and at the same time provides the convenience of having all of the topics presented in one volume. My aim is to educate you on the basics and then point you in the right direction if more help is needed. This book introduces you to ideas and principles that are often overlooked in even the most clearly presented cases. I combine everything with some good old common sense and an occasional dose of humor. I also include stories and examples of patients throughout (to protect their privacy

and for the purpose of brevity, I have changed names and any identifying information).

Much more research and awareness is needed to improve the lives of those suffering from TMJ-related disorders. I will donate a percentage of the royalties I receive from this book to support TMJ-related research and awareness.

Most of all, I want to help people like you. This book is my gift to you for a healthier, happier life. May you and yours be blessed with all the wonderful things in life that money can't buy... such as health, love, and the kind of happiness that can only come back to you when you give it away.

Acknowledgments

This book would not have been possible without the unconditional support of my wonderful husband, Bruce, who helped me keep going whenever I felt overwhelmed or discouraged, my talented sister-in-law, Jenny Peterson, who helped with the illustrations and photos, and my dear father, Gary Sandquist. I am indebted and eternally grateful for all of my family, extended family, and God's kindness in prompting me to write this book and opening doors and hearts along the way.

I learned most of what I know about TMJ disorders from my physical therapy mentor and TMJ disorders expert, Steve Shupe, MS, PT, OCS; the owner of Canyon Rim Physical Therapy and one of the most clinically brilliant physical therapists I know. I also want to thank physical therapists Dede Lewis, Wendy Zeigler, Connie Thomsen, and Stacey Corrado. I have had the privilege of knowing and learning from dentist and TMJ expert Dr. James L. Guinn, who has dedicated his professional career and thirty years of his life exclusively to TMJ disorders. He treats patients from four states, and over 600 doctors look to him to help their patients. I am indebted to speech-language pathologist Hilary Wilson, who is specially trained in tongue thrust and swallowing disorders and who made sure my tongue and swallowing chapters were accurate.

Thank you to my fabulous photographers, Lara Gallagher, Clara Thorup, and Karen Harrop, and my marvelous models, Sunny Harvey, Lara Gallagher, Jodi Nichols, Lincoln Taylor, Sarah Edwards, Kathryn Gwynn, and Aticus Peterson. I have relied heavily on the work of many experts who have devoted their entire lives to TMJ and myofascial pain disorders. They are my professional heroes and include world-renowned TMJ experts Dr. Mariano Rocabado, Dr. Jeff Okeson, and Dr. Jeff Cohen who kindly reviewed my materials.

The late Dr. Janet Travell, and Dr. David Simons brilliant work is the foundation of my muscle chapter. I am grateful to physical therapist Steven Kraus, and Annette Iglarsh. I was guided by the work of talented ergonomist Alan Hedge. I appreciate the knowledge shared from speech language pathologists Hilary Wilson and Licia Paskay and Oral Myofunctional Therapist Joy Moeller.

I am appreciative of and impressed with Terrie Cowley, National TMJ Association President, who tirelessly serves this patient population and communicated with me on several occasions, and with Milton and Renee Glass, Jaw Joints & Allied Musculo-Skeletal Disorders Foundation (JJAMD) founders, who unselfishly devote their time and efforts to jaw joint disorders and were instrumental in having November named as Jaw Joint/TMJ Awareness Month®. Last, but not least, I have loved working with my capable and talented editors Alex Mummery and Jon O'Neal.

Important Note

The material in this book is intended to provide a review of resources and information related to temporomandibular joint disorders. Every effort has been made to provide accurate and dependable information. However, professionals in the field may have differing opinions, and change is always taking place. Any of the self-management techniques described herein do not replace a thorough evaluation and should be undertaken only under the guidance of a licensed health-care practitioner. The author, editors, and publishers cannot be held responsible for any error, omission, professional disagreement, outdated material, or adverse outcomes that derive from use of any of these treatments or information resources in this book, either in a program of self-care or under the care of a licensed practitioner. The author and publisher advise that you check with your physician or licensed health-care provider before starting any exercise, stretching, or self-management program.

... Introduction

Of all the joints in the human body, there are only two that most medical doctors refuse to treat and most insurance companies refuse to cover. Those two joints are your jaw joints, known as the TMJs. If headaches and neck pain are your primary concern, feel free to skip ahead to Chapter 4 about posture on page 29, but come back, as jaw problems often contribute to head and neck pain.

What Is TMJ?

TMJ is an acronym for the temporomandibular joint, which are the small joints located just in front of each ear. The TMJs are located where the ball-shaped end of your lower jawbone comes in contact with your skull. The lower jawbone, or *mandible*, is attached to the skull on each side by ligaments, muscles, and connective tissue. These two joints are used over a thousand times a day and make it possible for you to talk, eat, chew, swallow, sing, kiss, and make facial expressions. You even use these important joints when you sleep, because you swallow saliva throughout the night. (See Chapter 2 for a discussion of the anatomy of the temporomandibular joint.)

When people have pain or problems involving their temporomandibular joints, they often say, “I have TMJ”; however, that is like someone with ankle problems saying, “I have ankle.” Disorders involving the temporomandibular joints and the adjoining muscles and tissues have many names, including TMD (temporomandibular disorders), TMJD (temporomandibular joint disorders), CMD (cranio-mandibular disorders), or craniofacial pain and OFP (orofacial pain). In this book, I keep it simple and use the term *TMJ disorders* because it is more easily recognized, although in most medical circles, TMD would be the most common acronym used. The lack of

consensus even about what to call this disorder makes research difficult and illustrates the confusion people suffering from TMJ-related problems face. Sufferers are left to sort through the confusion and are often not sure where to turn for help. The TMJ Association's report to the National Institutes of Health (NIH) states that "TMD patients see on average 6.9 specialists before receiving a definitive diagnosis. Others, like actor Burt Reynolds, see [as many as] 13."²

According to a recent study in the *New England Journal of Medicine*, 40 to 75 percent of adults in the United States report at least one sign of temporomandibular disorders. TMJ disorders are most commonly reported in twenty- to fifty-year-olds. Both men and women experience TMJ problems; however, three to nine times more women than men seek treatment.³

The social impact of TMJ-related symptoms is alarming. An estimated \$30 billion a year are lost in productivity, along with 550 million lost workdays due to symptoms commonly associated with TMJ, such as headaches and facial pain.⁴ Other symptoms can include pain in the jaw joint and surrounding area (including the ear); the jaw locking open or closed; and neck, shoulder, and upper-back pain.

Who Should Read This Book?

If you have a head, neck, and jaw and like to eat, chew, swallow, sing, and talk without pain, then you should benefit from developing the healthy habits outlined in this book. The National Institute for Craniofacial Research (NIDCR) has instituted a "Less Is Often Best in Treating TMJ Disorders" campaign.⁵ According to the NIDCR, "Until there is science-based evidence to help health-care providers make sound treatment decisions, NIDCR suggests the following:

1. Try simple self-care practices.
2. Avoid treatments that cause permanent changes to the bite or jaw.
3. Avoid, whenever possible, surgical treatment for TMJ.

This book is full of simple self-care practices and information.

How Do You Know If You Have a TMJ Disorder?

Some people live with a TMJ disorder for years before it becomes painful enough to cause them to seek help. For others, the problem arises suddenly. Nevertheless, both types of people can have very similar symptoms. Others may have jaw joint problems and no pain. People with TMJ disorders seldom have the same complaints and often have multiple symptoms, which can include:

- facial pain and/or swelling
- headaches
- pain or discomfort in the jaw joint and the surrounding areas
- pain, catching, or difficulty opening or closing the mouth
- clicking or grating sounds in the jaws
- locking of the jaw, either open or closed
- ear pain, stuffiness, or ringing in the ears, with no infection present
- neck, shoulder, or upper-back pain
- difficulty in chewing, talking, or yawning
- unbalanced mouth opening or bite problems
- unexplained tooth pain in a healthy tooth
- tooth grinding or clenching
- morning jaw pain or fatigue
- difficulty swallowing

If you have multiple painful joints, you should be evaluated by a rheumatologist who studies joint diseases to ensure you don't have any underlying problems.

TMJ disorders are classified by the National Institutes of Health into the following categories. Many people experience symptoms from more than one or all three of these categories. I have simplified the terminology.

1. **Muscle pain and dysfunction**, or other problems with the mus-

cles and tissues of the jaw and surrounding areas. This is the most common category.

2. **Structural or internal problems**, which means that structures inside the joint are damaged, out of balance, or not working correctly. Symptoms can include clicking, grinding, crepitus (grating), and locking.
3. **Arthritis and degenerative inflammatory joint disorders** affecting the jaw joints, including osteoarthritis, rheumatoid arthritis, and fibromyalgia.

How to Use This Book

If you are at home and the smoke alarm goes off, what do you do? To do nothing is to risk tragedy. You would immediately investigate what triggered the alarm. Does the battery need to be changed in the smoke alarm or did you leave a roast in the oven and the kitchen is in flames? All too often, our body's alarms go off daily and we ignore them.

For example, after a late night you wake up in the morning on your stomach with your teeth clenched and one arm over your head, and you have a tension headache and a stiff jaw. Ignoring these alarms, you take two painkillers and sit down to a breakfast of chewy bagels and crunchy raw apples. After a quick shower, you grab a cup of coffee or your favorite cola and your 20-pound briefcase, purse, and/or child. Then you run out the door.

Maneuvering through morning traffic makes you tense; then you arrive at work, where the pain in your head, neck, or jaw gets worse. You slouch at your desk, holding the phone to your ear with your shoulder, while you simultaneously listen politely to a customer's complaints and finish typing a presentation. You chew on ice, chew on gum, and drink your third diet cola. You check your e-mail, with your keyboard and mouse at an uncomfortable angle. The stress and pain mount throughout the day, and all the while you wonder why your head, neck, and jaw hurt—never pausing to listen to your body's smoke alarms or investigate why they are going off.

It may not be possible to provide a permanent cure for problems

of the head, neck, and jaw. However, by applying the principles in this book, you can learn what perpetuates and even causes many of your body's head, neck, and TMJ alarms. Many causes are under your control and can be overcome.

As you can see from this example, many hurtful habits can irritate your head, neck, and jaw. Thankfully, there are some simple, safe solutions for many of the irritants and problems plaguing those suffering from jaw, head, and neck pain. Smart people like you are more interested than ever in being actively involved in their health care.

If you want to take charge of your health, this book can help you do the following:

- Eliminate hurtful habits and replace them with healthy ones.
- Prevent or slow irreversible damage to the jaw joints by addressing irritants.
- Increase awareness and understanding, which leads to increased compliance and better results. For example, a person with a tongue thrust that causes an overbite that then requires braces will certainly fare better if the tongue thrust can be eliminated. Or, a person with a locked jaw due to an overstretched ligament that requires surgery will certainly have better surgical results if she learns the ways the connecting bands became overstretched in the first place and how to change those hurtful habits.
- Employ conservative and reversible treatments. According to a 2008 report in the *New England Journal of Medicine*, 85 to 90 percent of people with a TMJ disorder can be treated with “non-invasive, nonsurgical, and reversible interventions.”⁶ The NIH pamphlet on TMJ disorders states, “experts strongly recommend using the most conservative, reversible treatments possible.”⁷ The treatments discussed in this book are both conservative and reversible and can benefit the general public as well as those suffering from specific TMJ symptoms.
- Decrease pain and dysfunction by learning to problem solve and self-manage many of your symptoms.
- Save money. TMJ disorders can be very costly. This book is a very cost-effective and smart way to start. If good habits are es-

established, they can reduce the need for more costly treatments. If other treatments are necessary, the concepts in this book set the stage for more successful outcomes with that treatment.

- Better understand medical terms and anatomy so that you can better understand reports and do meaningful searches on Medline and other reliable sources of information to help plan and coordinate your recovery.
- Be empowered to take charge of your health by keeping a symptom diary so you can start to recognize patterns and so you and your providers can “patch the holes” you may unknowingly keep falling into.
- Communicate more effectively with your health-care professionals.
- Bring disciplines together as a team, enabling coordinated treatment of yourself as a whole.

Putting the ideas from this book to work in your own life can help you find relief from painful symptoms and harmful habits. The suggestions you’ll read about are simple and have helped hundreds of other people. I encourage you to work together with your doctor, dentist, and other health-care providers to create the individualized plan that will work best for you. Now let’s get started.

1

Replacing Hurtful Habits

As you become aware of hurtful habits and their harmful consequences, you will be more willing to take the next steps and make a concerted effort to replace those hurtful habits with healthy ones. It *will* take some effort. Ideally, you could effortlessly pop a pill or push a button. We all get just one body, and since we cannot trade in our current body for a new one every 50,000 miles, you will be wise to take care of the only one you have. You are worth the investment.

From Hurtful to Healthy

The best way to change or remove a hurtful habit is to replace it with a healthy one. However, most of my patients don't even know that they are doing something that is hurtful to themselves. Reading this book is the first step, because it introduces you to the most common hurtful habits associated with headaches, neck pain and jaw disorders. As you read this book and become more aware, you can make a list of your specific hurtful habits and develop ideas on how to replace them with healthy ones. You can use Table 1.1 on the next page as a template. The "Checklist for Change" part of the table will make more sense as you read on.

You must also become aware of many of the subconscious things you are doing—things you do all the time without even thinking about them—that may be contributing to your symptoms. You must make posture, breathing, tongue and teeth position, and swallowing all conscious activities. Because habits come

Table 1.1: Turning Hurtful into Healthy

HURTFUL HABIT	HEALTHY HABIT	CHECKLIST FOR CHANGE
I sleep on my stomach.	I will sleep on my back or side.	<p>I will put a pillow under or between my knees when I sleep.</p> <p>I will place a pillow under my upper arm, use a body pillow, or sew a ball into the front of my pajamas to prevent me from rolling onto my stomach.</p> <p>I will tell my partner or spouse to wake me up if I sleep on my stomach.</p>
I slouch when sitting.	I will sit correctly.	<p>I need to adjust both the back of my computer chair and its arm supports.</p> <p>I will put a footstool under my desk.</p> <p>I will use back supports attached to my car seat.</p> <p>I will bring an inflatable back support when traveling.</p> <p>I will set my watch alarm to go off every hour during the day for two weeks to remind me to maintain a healthy posture.</p>

from doing the same thing over and over, you have to make yourself consciously go in the new direction until it becomes automatic. Then you must continue practicing the new habits until you perform them right consistently without even thinking about it. Only then can your healthy habit begin to operate subconsciously. For example, if you have been swallowing or breathing incorrectly for years, it will be easy for you to slip back into hurtful habits. So, to catch yourself from reverting to hurtful habits, you must be diligent. Review your action plan of healthy habits, which you will make at the end of this book. At first you should review it daily and weekly to learn and practice your new healthy habits, and eventually you can move on reviewing it monthly. Reassess whenever you have setbacks to determine which bad habits have crept back into your daily life.

The 10 Steps

This book presents a 10-step process. The steps do not have to be followed in any specific order; however, some steps do support each other. For example, healthy posture can make several of the helpful habits easier to achieve. Also, achieving the correct tongue position and strength can make it easier to swallow correctly. You will want to prioritize based on what activities you do most and that have the greatest impact on you. For example, you sleep in the same position for approximately eight hours at a time, so this is typically a *very* important step to fix early on. Also, if your symptoms get worse every time you work on the computer, then improving your computer posture and ergonomics will be a top priority.

As you read each step, please **take notes**. Write down the habits you need to change and the ideas you feel will be the most helpful in your situation. (If you own this book, you may even want to write in the margins.) When you reach Step 10, you will pull these notes together to create your own action plan. Later, when you assess how well your plan is working, you can save time by looking at your notes and reminding yourself of the most important points for you.

As you identify the habits you need to replace, **decide to make the necessary changes right at that moment**. For example, after reading about posture in sitting, find a back support and attach it to your chair. When you learn about the ideal sleeping positions, set up your pillows correctly right after reading about it. Other habits will require reminders.

Please use this book actively. Apply the suggestions I have made to your own unique situation, using the help of appropriate health-care professionals, if necessary. Every person's body and situation is different. If you come up with other ideas or suggestions, send them my way. I would love to share them with others who might also find them helpful. You can contact me via email at TMJHealingPlan@gmail.com, through my website at www.tmjhealingplan.com, or via Facebook.

2

Important Anatomy

Knowledge is power, so it is important for you to begin with a working knowledge of how the temporomandibular joint functions and is put together. This will help you understand what factors may contribute to dysfunction and pain. You'll better understand how the exercises and other suggestions made in the 10 steps that follow can help you.

The Temporomandibular Joints

The temporomandibular joints connect the lower jaw, or mandible, to the sides of your head, or temporal bones. Thus, they are called the *temporo-mandibular joints*, or the joints where these two bones come together (see Figure 2.1). There are two temporomandibular joints, one on either side. They are located very close to your ears. In fact, you can usually feel your temporomandibular joints move by gently placing your fingers in the opening of your ears and opening and closing your mouth. I think this is easiest to feel with your palms forward so that the soft pads of your fingers are facing the joint. The TMJs are somewhat like loose, flexible door hinges. They swing open like a door; however, they also glide or slide forward as you open your mouth. There are several components of the TMJs.

Temporal Bone

The temporal bone is the part of the skull on the sides of your head just above and around your ears. This area of your face is commonly

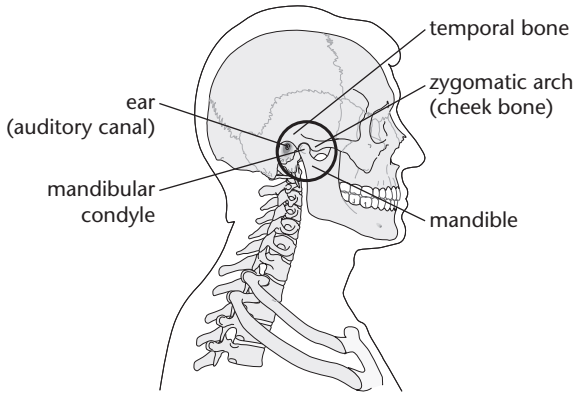


FIGURE 2.1: Skull with a view of the right temporomandibular joint (TMJ)

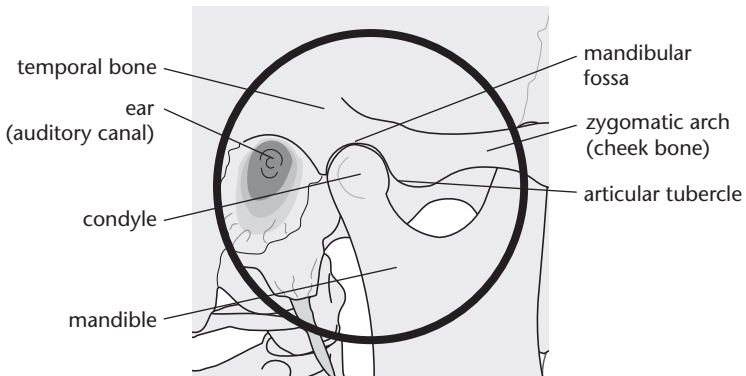


FIGURE 2.2: A closer look at the right temporomandibular joint (TMJ)

referred to as your temples and includes a part of your cheekbones called the *zygomatic arch*. There are rounded notches in the temporal bone called the *mandibular fossa* (see Figure 2.2). The fossa is the groove where the ball, or *condyle*, on top of the lower mandible connects and rotates with the temporal bone on each side of the head. In front of the groove, or fossa, is a bump called the *articular tubercle* that helps keep the condyle from gliding too far forward. The ear canal, or *auditory meatus*, is located in the temporal bone and is very close to the temporomandibular joints. This proximity helps explain why some TMJ symptoms include ear symptoms, such as pain, ringing in the ears, stuffy ears, and pressure.

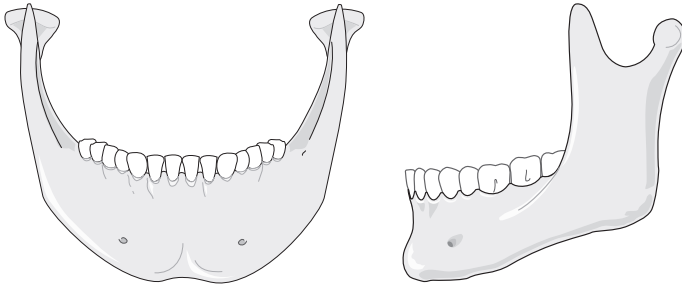


FIGURE 2.3: Front and side view of the mandible, or lower jaw

Mandible and Mandibular Condyle

Your lower jawbone is called the *mandible*. At the top of each side of the lower jaw bone, or mandible, is a ball-shaped bump called your *mandibular condyle* (see Figure 2.3). Some patients are born with abnormally shaped condyles, or they suffer from other problematic anatomical features that predispose them to TMJ problems. When patients have pictures taken of their TMJ and are told they have, for example, worn away 50 percent of their bone, the bone the doctor is typically referring to the ball-shaped condyle. Bones in the body are not designed to rub against each other. The point where the ball-shaped bone on top of the mandible articulates with, or moves against, the temporal bone is not an exception. Wearing down bones can really hurt. When bones rub together, the irritation can cause osteoarthritis. Bone spurs can develop, making the joint bumpy instead of smooth. Typically, grinding and crepitus, which sounds like tires crackling on gravel, are signs of wear and tear in the joint. Special equipment is sometimes necessary to detect very fine crepitus or grinding.

When the joint is irritated, it can cause or increase muscle soreness and tension, which further irritates the joint, creating a painful cycle. If you have arthritis or inflammatory problems throughout your body, such as rheumatoid arthritis, this process of degeneration tends to occur more quickly.

There is a fundamental feature of bone commonly called Wolff's Law. This law explains how cells respond to mechanical stimuli like movement and pressure. Its fundamental concept is that you need

the right amount of healthy movement and stress to make your bones and associated structures stronger.¹ This is why people who are prone to osteoporosis, or weakening of their bones, are told to exercise. Too little stress and movement can make the bones so thin that they resorb and become weak.

However, because we use our jaw joints so frequently, the problem is usually too much stress and abnormal movement, which can make the bones bumpy or cause them to wear down in an unhealthy way.

Unfortunately, I have seen a surprising number of teenagers who have advanced osteoarthritis and have already worn away 50 to 60 percent of the ball-shaped mandibular condyle. Because many of your joints tend to deteriorate over time, it behooves you to take good care of all your joints, including your jaw joints. If you don't, you may risk putting your ability to eat, talk, and swallow in jeopardy. In Chapter 3, I will discuss ways you can practice healthy movement and protect your jaw joints to help slow down this degenerative process.

Articular Disk

The articular disk is a dense, fibrous type of pad that is firm and flexible, somewhat like the cartilage in your knees. It is biconcave, or shaped like a donut with a depression in the middle but no hole. It fits somewhat like a loose baseball cap on top of the mandibular condyle (see Figure 2.4 on the next page). The disk is held in place not only by its shape but by bands of tissue that limit its movement. There is an anterior band in front and a posterior band in back. The disk sits between the mandible and temporal bones. Although the articular disk is similar to the cartilage separating the bones in your knees, it is much more active and dynamic. Unlike your knees, where the cartilage stays in place, the cartilage disk in your jaw joints moves. This can be problematic when the disk goes in the wrong direction. In your jaw joint, this is referred to as a dislocated disk. It moves independently of the condyle. This independent and complex movement, as seen in figures 9.1-9.3 on pages 171-173, is unique to the jaw joint and is necessary for your jaw to perform its many functions correctly.

The articular disk of the jaw joint is a dense, fibrous pad that is sometimes referred to as a *meniscus*. Some functions of the articular

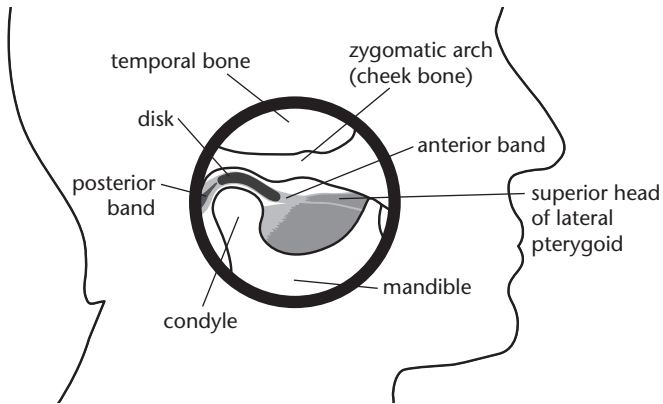


FIGURE 2.4: Articular disk, with anterior and posterior band and lateral pterygoid muscle

disk are to move like a shock absorber to help stabilize the joint and separate the bones. The disk protects the two bones of the jaw joint from rubbing together, especially during chewing and other movements. There is also a protective layer of fibrous tissue-type cartilage on the surface of the bones, where movement occurs, that protects the bones from wearing down and further reduces friction.² This protective layer can be more conducive to healing than that found in other joints, which is good.³ Like the cartilage in our hips and knees, the fibrocartilage disk of the TMJ can wear out over time. Trauma and pressure can distort, damage, and tear the cartilage. Too much stress on the joints accelerates degeneration of the cartilage, as well.⁴ Cartilage and joint surfaces generally wear down as we age, and cartilage can even disintegrate altogether. If this occurs, the result is bone rubbing on bone, which causes arthritis and can be painful. Protecting the disk is important and will be addressed in Chapters 3 and 9.

Synovial Joint and Joint Capsule

The TMJ is a synovial joint and produces synovial fluid that lubricates, cushions, and brings nutrients to the joint. The term *synovial* comes from the Latin word for “egg.” Indeed, synovial fluid has an egg-like, stringy consistency. This fluid stays in place because a capsule surrounds the joint. The fluid is squeezed in and out like a

pumping mechanism as you move the joint and is part of the reason gentle movement is healthy for the joint.

Normal movement of the TMJ creates a metabolic pump that “drives a small amount of synovial fluid in and out of the articular tissues” and brings nutrients and good stuff to the joint.⁵ This fluid also lubricates the joint so there isn’t as much friction. In a nutshell, this means healthy movement and the exchange of synovial fluid is good and vital for the joint to be healthy. However, sustained pressure, or joint compression, squeezes fluid out of the disk and doesn’t allow it back in until the pressure releases. This sustained pressure is common in people who clench their teeth, and it can be unhealthy and hurtful. It can cause the disk to become deformed, attached to the condyle, and can narrow the disk space. If the disk is adhered or stuck, surgery is sometimes performed to release the adhesions. A displaced disk can increase tension on the joint capsule and synovial membrane. It can adversely affect the amount of fluid surrounding the joint and possibly lead to degenerative changes.

The joint capsule is a fibrous membrane and, like a balloon, it surrounds the joint and attaches the mandibular condyle to the temporal bone. Inside the balloon is the disk in the middle, synovial fluid, ligaments, and connective tissue. The balloonlike joint capsule can sometimes become irritated or inflamed, causing *capsulitis*, which literally means “inflammation of the capsule.” Capsulitis can be painful and limit your ability to move your mouth.

Ligaments and the Anterior and Posterior Band

Your lower jaw, or mandible, is a loose bone that depends on a lot of structures to hold it in place. Ligaments and connective tissue are some of the structures that help hold together and stabilize the joint by limiting and restricting movement of the disk and bones. The disk is anchored in front by the anterior band and attaches to the joint capsule near the superior head of the lateral pterygoid (refer to Figure 2.4).⁶ A spasm or tightness in the lateral pterygoid can adversely pull on the disk. The disk is stabilized in the back by the posterior band that combines with other vascular tissue to attach the back of the disk to the bone. The posterior band is important in limiting

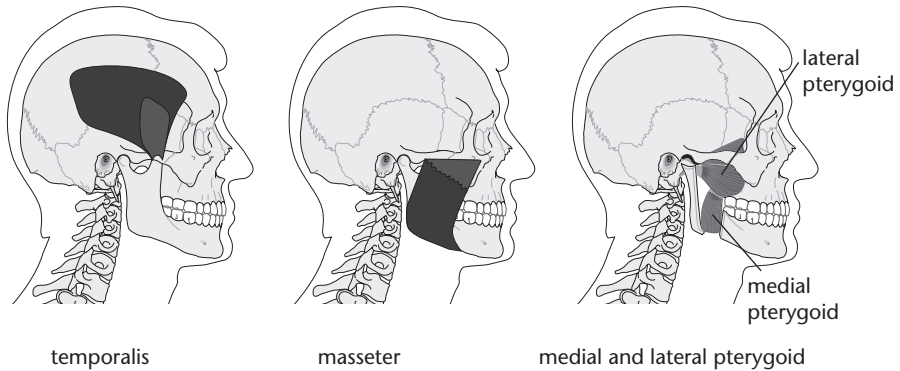


FIGURE 2.5: Muscles of mastication

motion of the disk forward at the end of opening. If it is damaged, the disk can move too far forward and even cause your jaw to lock. Trauma such as a whiplash injury or prolonged or forceful opening of your mouth are common culprits.⁷

Some people are born with loose joints, ligaments, and tissues throughout their body, including their jaw. This is a common problem in people with TMJ disorders and is referred to as joint hypermobility, or ligamentous laxity. It is important to understand that ligaments are not elastic. If they are pulled forcibly, they don't bounce back to their original shape and size. If they are repeatedly strained and abused, they can tear and lengthen, which adversely affects the stability and function of the joint. We will talk in more detail about the disk, ligaments, connective tissue, and hypermobility in Step 7, which is found in Chapter 9.

Muscles

Your jaw muscles enable you to do many things, including chew, swallow, open and close your jaw, and move your jaw from side to side and forward and backward. Some of the primary muscles of mastication are the masseter, temporalis, medial pterygoid, and lateral pterygoid (see Figure 2.5). Muscle pain and dysfunction are the most common symptoms of TMJ disorders. We will discuss these muscles and several other supporting and stabilizing head, neck, and jaw muscles in detail in Chapter 8.

need to be replaced with healthy ones. Get help from a specialist if you are not making progress or if you need help in any areas.

Choosing a Provider and Seeing a Specialist

I have *introduced* each of the healthy habits, but you may not be able to *implement* them alone. You may need a variety of specialists to help you along the way. Contact your local dental, PT or medical school and ask who specializes in your area of need. For example, most people we see at our clinic have been evaluated by a TMJ disorders expert who is a member of the American Board of Orofacial Pain to rule out any serious underlying problems. Then they are evaluated by a physical therapist with years of experience in head, neck, and jaw disorders and given an individual physical therapy treatment plan. You may need a breast feeding expert, a speech-language pathologist or an oral myofunctional therapist trained in tongue thrust and swallowing disorders to help you with swallowing and tongue thrust habits. Or you may need to see an ENT or allergist who can help open your airway, a sleep specialist if you have sleep apnea, or a counselor to help you overcome abuse issues. Whatever the case may be, it is still wise to set the stage for healing with these healthy habits. If you needed surgery or orthodontics, you would not want to revert to the hurtful habits that may have contributed to the problem in the first place or stop you from getting better quickly and completely. A recent *New England Journal of Medicine* report indicated that 85 to 90 percent of people with TMJ disorders could be treated with “noninvasive, nonsurgical and reversible interventions.” Those who don’t respond to a reasonable course of this type of nonsurgical intervention, generally within three to six months, may need to consider more serious options if the condition interferes with their normal activities and daily life. Some patients with serious joint problems, like a locked jaw, may need surgery early on.¹

I cannot emphasize enough how important it is for you to do your homework before choosing a provider or undergoing treatment. It is best if you can see a professional who specializes in head, neck, and jaw dysfunction. The jaw joints are one of the most complex joints,

and it is my opinion that head, neck, and jaw problems are probably the most difficult orthopedic condition to treat. I trained for two years and undertook intensive study and professional courses before independently working with this patient population.

It would be nice to believe that all health-care providers only care about your health and well-being. Most care very much, but there are some who are sidetracked by secondary gain. Unfortunately, money and tunnel vision can get in the way. I have seen far too many patients undergo irreversible procedures and waste thousands of dollars and end up worse than when they started. You must explore the conservative and reversible options first and then always get a qualified independent second opinion before doing something irreversible or extremely expensive. My motto is “Measure twice, cut once.” And the NIDCR says, “Less is often best.”²

This book is an effort to educate you so that you can more easily navigate the system and make better choices. Unfortunately, insurance companies and professions have taken your body as a whole and divided it into parts, as if they function separately. Your mouth and teeth are generally assigned to dental professionals. Your head, neck, and other body parts are assigned to medical providers, and your psychological, social, and emotional health are assigned to mental health providers. However, none of these body parts works independently. Add to that the joints that closely and intricately involve all three areas of your body, and insurance companies and many health-care providers turn you away or mistreat you because it is not their “area.” You must think of your body as a whole unit. But to treat all its parts, you may need to involve a team of professionals.

A Plea to Parents and Health-Care Professionals Working with Children and Young Adults

Hurtful habits developed and repeated as a child or as an adolescent can have permanent and often unfortunate and unnecessary ramifications. These habits can adversely affect how the bones and structures in the face and jaw develop, the arrangement of teeth, how breathing takes place, and how their posture develops. Although there is much that can be done as adults to reverse or minimize the

impact of hurtful habits that developed during childhood, it is not always possible to completely undo damage done during these formative years.

My plea is for parents and any health-care professional treating children and young adults to be aware of these hurtful habits and to help parents, young people, and caregivers become aware of how critically important it is for them to establish healthy habits while they are young. I believe that teaching and encouraging these healthy habits will help stem the ever-growing tide of chronic TMJ-related problems. The potential for improving the child, or young person's, quality of life is huge. Parents must be aware that sucking on a thumb or pacifier in the formative years can alter the development of normal tongue position, swallowing, breathing, and even facial development. The healthy habits represented by the acronym PoTSB TLC should be taught by doctors, dentists, and hygienists at annual check-ups and by parents at bedtime.

Health-care practitioners should be on the lookout for people with hypermobile joints, educate them on joint protection measures, and send them to a physical therapist to get them on a program to stabilize and protect their joints. Parents and practitioners alike should take a more active role in encouraging healthy sleep, postures, and positions, and in encouraging an active lifestyle with lots of healthy movement.

Opening the airway is first principle in the ABCs of first aid. If children can't breathe through their noses, they are headed for problems. Enlarged tonsils, adenoids, narrow sinuses, upper-respiratory problems, and allergies must all be seriously considered and resolved as early as possible.

Jim: A Mouth Breather

A seventeen-year-old named Jim grew up breathing through his mouth because he had narrow sinuses. He suffered many upper respiratory and sinus infections during his formative years. His face, mouth, and jaw developed abnormally because of this, and now he is about to undergo several major surgeries that will, among other things, open his sinuses and realign his jaw in an effort to put things back in order.

Parents should also be aware of the long-term impact that early jaw joint injuries can have. Think twice before signing your child up for boxing, karate, football, or other contact sports. Always use appropriate protective gear, including mouth guards.

My hope is that this book will raise awareness so that intervention will be received while development is still occurring so that many of these situations can be prevented and avoided.

Conclusion

Thank you for joining me on this journey. In this book I have tried to empower you with as much information as possible about this condition so that you can take appropriate steps and make any necessary changes in your life to allow for healing to take place. Although there may not be a “cure” for the orthopedic problems in your jaw or neck, following the guidelines in this book should allow you to function with much less discomfort and dysfunction.

I hope and pray you will benefit from these principles and that you will spread the word. These healthy habits are good for the general population and not just for those with pain and dysfunction. Tell your family and friends about these healthy habits. Tell your doctor and dentist. Read this book at your book club and you can all practice swallowing, clucking, and doing tongue push-ups together.

Resources

Academy of Orofacial Myofunctional Therapy

www.myoacademy.com or aamsinfo.org

American Academy of Sleep Disorders

www.sleepcenters.org

American Association of Oral and Maxillofacial Surgeons

www.aaoms.org/tmj.php

American Academy of Craniofacial Pain

www.aacfp.org

American Academy of Orofacial Pain

(856) 423-3629

www.aaop.org

Patient information handouts online and a directory to help you locate TMJ disorders expert in your area.

The American Chronic Pain Association

(800) 533-3231

www.theacpa.org

American Dental Association

www.ada.org/public/topics/tmd_tmj.asp

American Equilibration Society

www.aes-tmj.org

American Physical Therapy Association

www.apta.org

Offers consumer brochures and information on how to find a physical therapist.

American Speech Language Hearing Association

(800) 638-8255

www.asha.org

Can help you locate speech-language pathologists in your area. However, be sure they are trained in tongue thrust and swallowing disorders.

Cornell University Ergonomics Website

<http://ergo.human.cornell.edu> and <http://healthycomputing.com>
Ergonomic guidelines to help you set up all aspects of your computer workstation

International Association of Orofacial Myology

www.iaom.com

International Association of Tongue-Tie Professionals

www.tonguetieprofessionals.org

The Jaw Joints and Allied Musculo-Skeletal Disorders Foundation

www.tmjoints.org

LaLeche League International

LLL.org

**National Institute of Dental and Craniofacial Research:
National Institutes of Health**

www.nidcr.nih.gov/OralHealth/Topics/TMJ/TMJDisorders.htm

National Institutes of Health

www.nlm.nih.gov/medlineplus/ency/article/001227.htm

National Headache Foundation

(888) 643-5552

www.headaches.org

Headache diaries, diet and resources

National Fibromyalgia Association

www.fmaware.org

The TMJ Association

www.tmj.org

Nonprofit, patient-based advocacy group that provides information on TMJ disorders to patients, professionals, and the public and advocates for better research and treatment.

TMJ Hope

www.tmjhope.org

Recipes, resources and more

Notes

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Chapter 3

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Step 2: The Power of Posture: Learn How to Stand, Sit, and Sleep

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