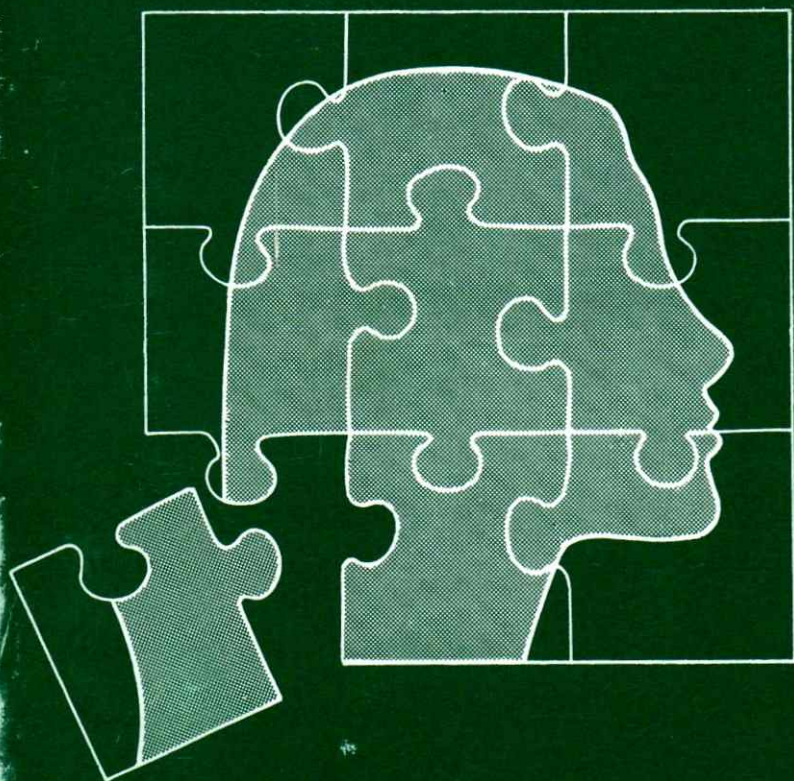


Solving the Pain Puzzle:

Myofascial Pain Dysfunction Syndrome



by Mary Lynn Pulley, M.Ed.
and Sharon Carr

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Myofascial Pain Dysfunction

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INTRODUCTION

YOU ARE NOT ALONE!

This booklet is written for people who suffer from Myofascial Pain Dysfunction. (MPD)

This is a chronic illness which you may have never heard of, but which quietly affects the lives of many people. If you are one of those people, you will relate to the condition described in this booklet.

We use the term Myofascial Pain Dysfunction (MPD) to describe a group of symptoms which involve pain in the muscles around the face. The word "myofascial" emphasizes the role the muscles play. "Myo" is the Greek word for muscle, and "fascial" refers to connective tissue in muscle.

You may have seen other terms to describe this same group of symptoms. Popular magazines typically use the term **TMJ**. This is short for **Temporomandibular Joints**, the two joints which connect your jaw to your head. Dentists speak of "Cranio-mandibular Dysfunction" (cranio = head; mandibular = jaw). In this booklet, we use the term **MPD**.

Estimates show that this disorder afflicts up to 40 million Americans. Everywhere we find books, articles, and support networks for people suffering from more commonly recognized illnesses such as cancer, arthritis, or diabetes. Yet even though MPD is very widespread, it is not easy to find information about it.

Remember – you are not alone!

With this in mind, please read carefully. Share this booklet with your family and loved ones. This will help you, and those near you, to gain a better understanding of your condition. **Understanding** is the first step toward effective treatment.

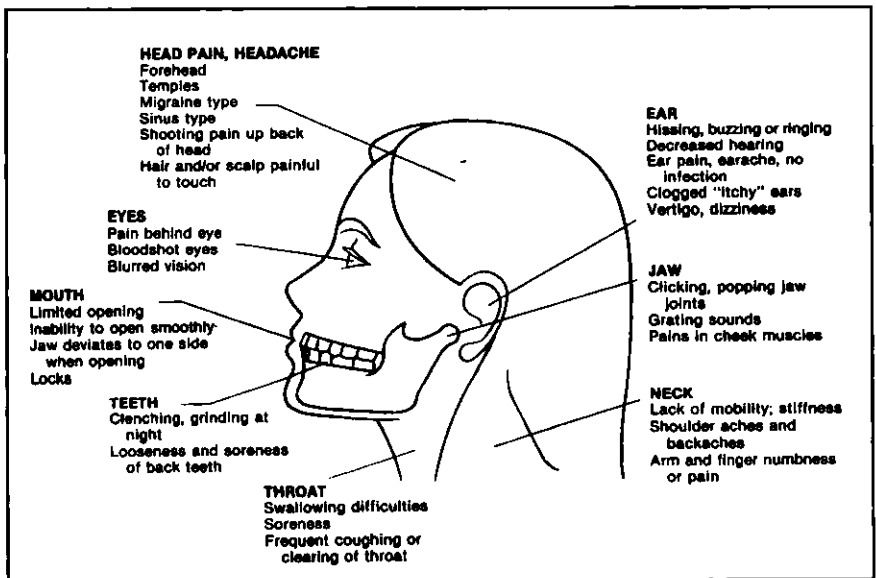
MYOFASCIAL PAIN DYSFUNCTION

DO YOU HAVE ANY OF THESE SYMPTOMS?

The symptoms of MPD are many and varied. The most common symptoms we see among our patients include:

- Headaches
- Pain behind the eyes
- Dizziness
- Neck, shoulder or back pain
- Numbness in fingers and arms
- Facial Pain
- Difficulty swallowing
- Unexplained loosening of the teeth
- Limited movement or locking of the jaw
- Earaches, stuffiness or ringing
- Clicking or grating sounds in the jaw joint
- Pain or soreness in and around the jaw joints

Below is a more complete list of symptoms associated with MPD. Look at it carefully. Did you ever think that these might be related to your bite?



WHO SUFFERS FROM MPD?

Anyone can suffer from MPD. It is quite common in varying degrees and occurs in all age groups. Because of the variety of symptoms, however, and the fact that it is often misdiagnosed, it is difficult to arrive at an extremely accurate number of sufferers. We say that the typical MPD patient is female between the ages of 19 and 40.

Studies show that approximately 75% of all MPD patients are female. This percentage may be somewhat skewed because the majority of people who visit doctors' offices are female. Nevertheless, females have the unfortunate distinction of bearing 85% of the nation's headaches, as well as the larger portion of MPD problems.

A recent survey of over 400 patients at the Temporomandibular Joint and Facial Pain Clinic at the University of Pennsylvania demonstrated that the age range showing the highest incidence is 19 to 28 years.

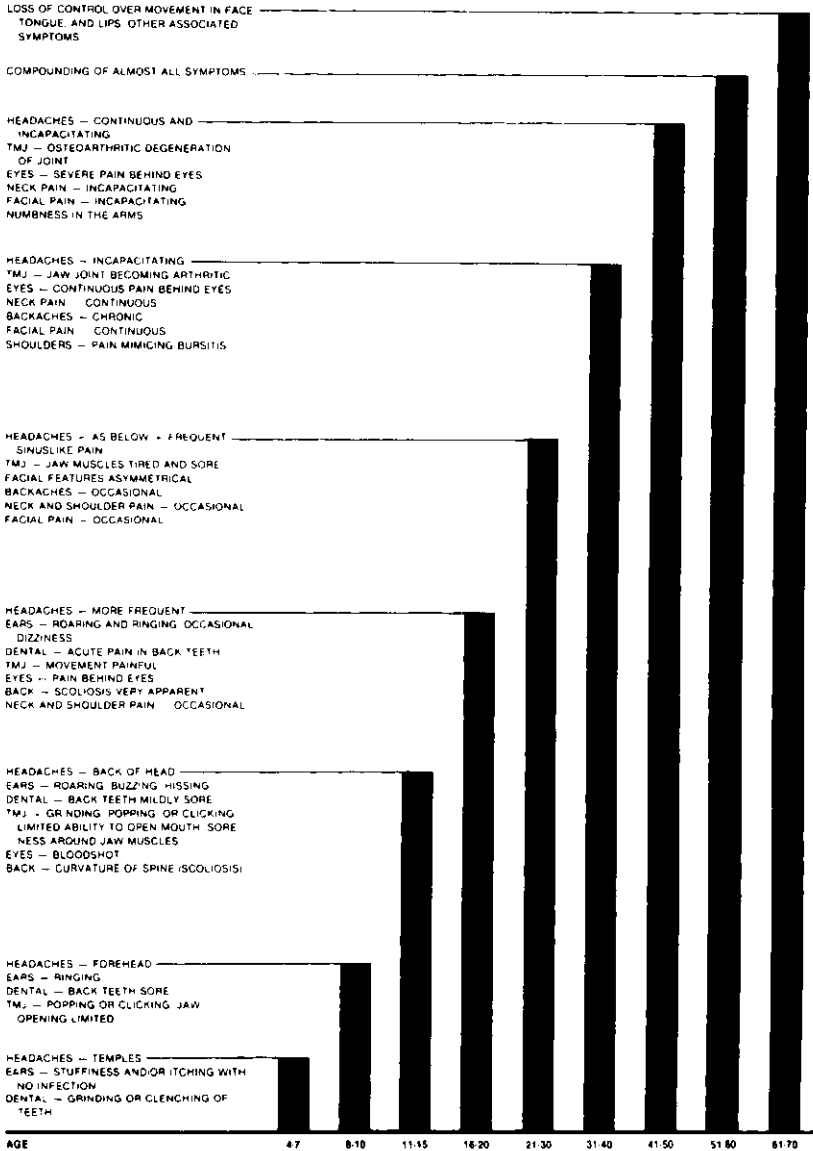


Your temporomandibular (jaw) joints are located just in front of your ears. You can feel their movement if you place your fingers in front of your ears – now open and close your mouth.

WHAT HAPPENS IF MPD GOES UNTREATED?

This is hard to predict. It may be that nothing at all will happen. On the other hand, your symptoms might become much worse. Dr. Lawrence Funt and Dr. Brendan Stack studied many cases of MPD and traced symptoms in people from age 4-70. The chart on the opposite page shows how the symptoms might increase in both number and severity as you get older.

THE F-S INDEX* OF THE CRANIOMANDIBULAR PAIN SYNDROME



*An evolutionary progressive and cumulative clinical index pattern correlated from symptoms documented in craniomandibular pain patients by Lawrence A. Funt (Bethesda, Maryland) and Dr. Brenda C. Stack (Falls Church, Virginia) - Directors of the National Capital Center for Craniomandibular Pain.

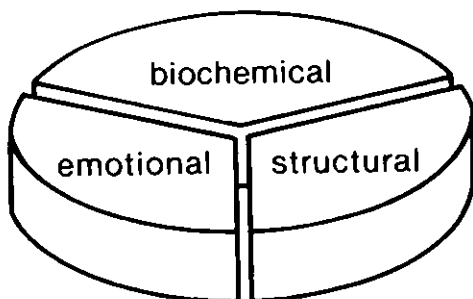
Contributing Author: Diseases of the Temporomandibular Apparatus: A Multidisciplinary Approach, as published by the Mundy Company, August 1977.

WHAT CAUSES MPD?

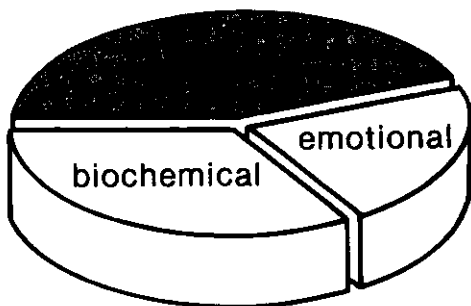
We do not think of a person “catching” a heart attack or cancer overnight. Similarly, most people do not “catch” MPD. As a chronic degenerative disease, it often takes years to develop. Since we will not find a simple virus, we must consider many different contributing factors.

Have you ever seen a jaw come walking into a dentist’s office by itself? We hope not! That jaw happens to be attached to a whole person with a unique personality. This is why we must consider many different aspects of the individual when discussing the cause. We will divide these aspects into three groups: structural, emotional, and biochemical. All of these components are disturbed to some extent when a person suffers from MPD.

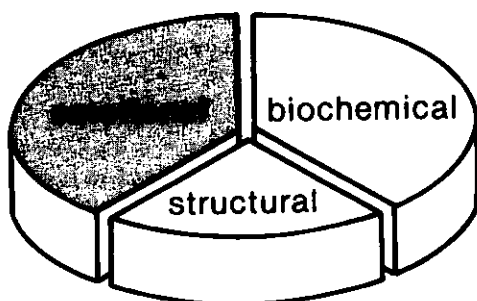
To better understand the relationship between the structural, emotional, and biochemical aspects, imagine a pie divided into three wedges:



Though all of these aspects are affected by this illness, seldom are all three affected to an equal extent. For instance, it may be that a structural imbalance is the primary cause of pain. In this case, the pie would look like this:



Or, it may be that emotional factors (tension and stress) are the main problem. In this case, the pie would look like this:



When diagnosing MPD, we will try to assess the relative impact of each of these components. This will help to determine the most effective course of treatment for you.

It may be that you were not aware of any symptoms until you woke up one day with, for example, an excruciating headache. To explain this, June Biermann and Barbara Toohey in their book, *Women's Wholistic Headache Relief Book*, developed their Dam Theory for those "damn headaches."

They compare headaches to a dam, behind which there is a reservoir. Rain, hail, sleet, snow, and various runoffs all cause the water level behind the dam to rise. When too many of these factors combine, the water spills over the dam, causing a devastating flood in the valley below.

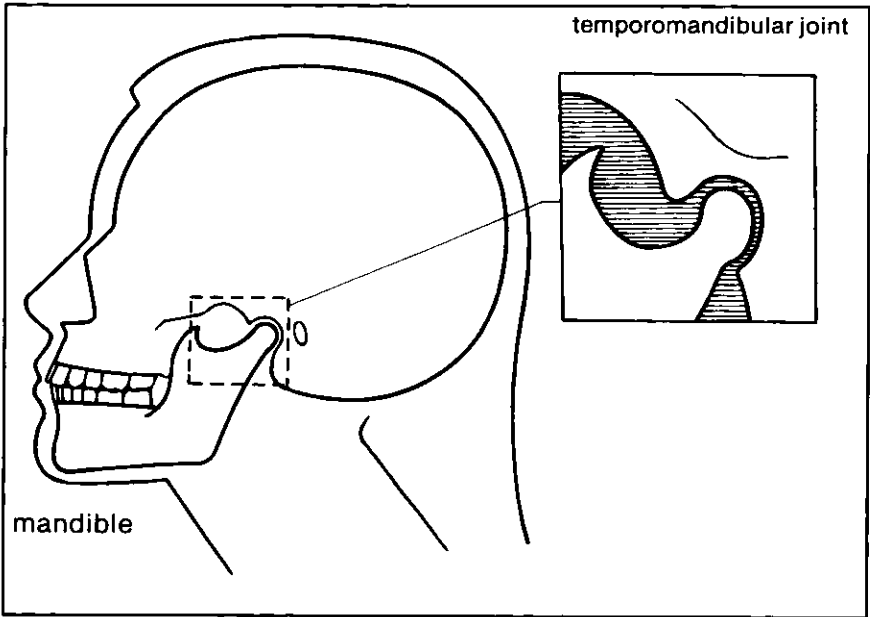
Similarly, many different lifestyle factors can combine which could aggravate MPD – such as structural imbalances, stress, fatigue, certain foods and drinks and even chewing gum. Any one of these is a single drop in the bucket, but taken together, they precipitate into a full-blown MPD condition.

STRUCTURAL

There is always an underlying structural weakness behind MPD. Nearly all of us have a structural weak spot somewhere in our bodies. For some people, it is their stomach, and they are prone to ulcers. For others, it is their heart, and they are prone to heart attacks. For you, it is your jaw, and this is why you are prone to MPD.

Your structural weakness stems from a condition which dentists call “**malocclusion**” (literally: “bad bite”). This means that your upper and lower teeth do not close together in the right way. Just as a table needs four legs firmly on the floor for support, your teeth must fit firmly together to support the muscles in your face for chewing and swallowing.

Your teeth are part of your skeletal system. They are attached to your jawbone, or mandible, which is one of the 206 bones in your body. The mandible looks something like this:



You can see that your jaw is attached to your head, or temporal bone, by your temporomandibular joints. These two joints happen to be the most complex in your entire body. They are ball and socket joints which have the unique capability of moving in three directions simultaneously – up or down, forward or backward, and to the left or right.

It is important to realize that both your temporomandibular joints and teeth are part of the same bone. The position of your temporomandibular joints is determined by the way your upper and lower teeth close together. When they close together, they are in **occlusion** (meet properly). Your occlusion dictates the position of your jaw in relation to your skull. Dentists call this the **craniomandibular** relationship.

Malocclusion is when your bite is such that your skeletal system is in disharmony with your neuromuscular system. This means that your teeth are forcing the muscles of your face and jaw into a strained and unnatural position.

The muscle activity of your face and jaw is extremely complex. Think about it - simultaneously muscles move your lips, tongue, cheeks, eyes, throat, the inner portions of your ear, and your jaw.

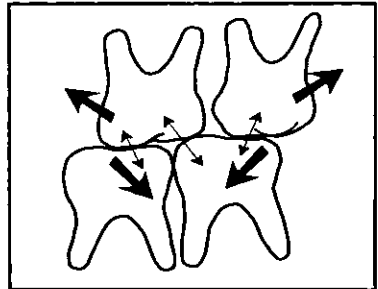
In fact, neurologists have recently mapped out which regions of your brain control the various parts of your body. There is a control relationship between the cerebral cortex and specific parts of the body.

Distortions occur because the amount of cerebral activity dedicated to a part of the body is not proportional to the size of that part, but to the precision with which it must be controlled. Much of your cerebral cortex is dedicated to your face and neck. The muscle activity in this area is indeed complex.

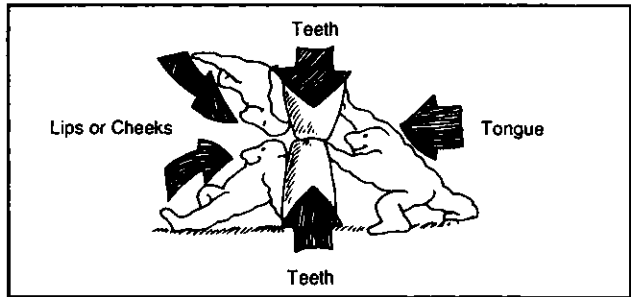
Malocclusion, or "bad bite," can be caused by something extreme, such as whiplash injury or a blow to the head. But even minor changes, such as a missing tooth or a high filling, can result in MPD.

You probably never connected a missing tooth with your headaches. Most people do not, which is why most MPD headaches are so puzzling. Yet, if your teeth are not providing the proper bracing support for your jaw against your skull, the muscles of your face and jaw compensate by forcing your teeth to come together for chewing and swallowing. Since you swallow at least once each minute, this means your teeth close together over 2,000 times each day and night. When the jaw must twist, or torque, in order for the teeth to close together, the muscles are put into a strained and unnatural position. This muscle spasm is the key to myofascial pain.

Imbalanced Chewing Forces

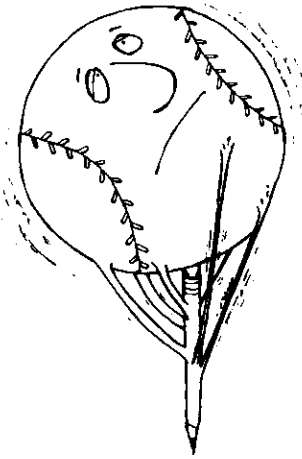


Balance of Forces



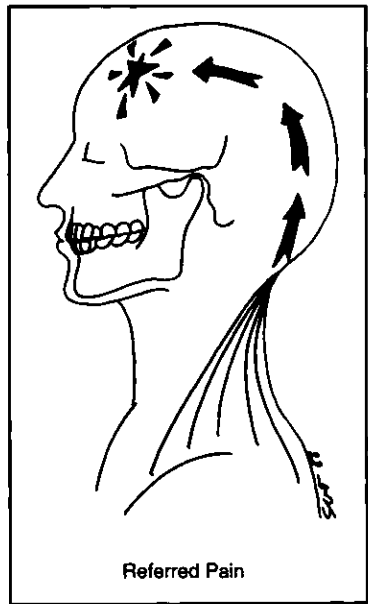
Imagine if you had to sit on a chair which had a nail poking out one side of it. Since you would not want to sit on the nail (and probably prefer not to sit on the chair), you would torque your body to one side and hold up one hip. After a while this position would become extremely uncomfortable and certain parts of your body would start to feel pretty sore. This is the same thing that happens to the muscles of your face when they are forced into an unnatural position because of your bite. Eventually the strained muscles become sore and painful.

Not only do the muscles of your face and jaw become sore because of this constant strain, but they also shorten. This can cause problems in the muscles of your neck, head, back, and even down into your chest.



Your head sits delicately balanced on top of your neck because of a complex coordination of these muscles. Imagine it as a baseball balanced on top of a pencil and held in place by a number of rubber bands; some would stretch, some would shorten, and the baseball would be thrown off kilter! Similarly, when even a single jaw, neck, or shoulder muscle becomes shortened, all of the other muscles are forced to overwork to keep the head balanced on top of the spinal column.

Muscles which are under constant strain can develop “trigger points.” These feel like knots, or nodules, which are painful when you press on them.



Sometimes trigger points can be the source of referred pain. Referred pain is when a pain originates in a part of the body that differs from the area where it is felt. These can be tricky to detect, because the painful area is not the source of the problem. We are able to detect the real source of pain by mapping the referred pain patterns.

SUMMARY

You see that people who suffer from MPD have a structural imbalance in their jaw-to-skull relationship.

This is caused by a bad bite (malocclusion) which has two consequences. First, it alters the position of your temporomandibular joints and places excessive pressure on the nerve-filled area surrounding them. Second, it twists, or torques your jaw into a strained position. This can affect the muscles in your face, head, neck, back, and shoulders. Muscles under constant strain are painful!

To correct this, the jaw must be brought back into a muscularly balanced position. Before explaining how this is done, let us discuss how chronic muscle stress affects you emotionally and biochemically.



EMOTIONAL

It is as important to know the person who has the disease as to know the disease the person has. Sir William Osler

For many years, MPD was thought to be a psychosomatic illness (psyche = mind; soma = body). This means that the problem originated in the mind (e.g. a feeling of stress and tension) and manifested itself physically through this particular group of symptoms (e.g. clenching teeth or headaches). Examples of psychosomatic, or stress-related illnesses, are ulcers and hypertension. It is important to realize that even though the problem begins in the mind, the physical symptoms themselves are very real.

We believe, however, that for the most part MPD is of **somatopsychic** origin. In other words, the problem begins with a structural imbalance (“soma”). The resulting pain and discomfort around the facial area causes a feeling of anxiety and tension (“psyche”). This “uptight” feeling causes increased muscle tension which worsens the physical problem.

Only by removing the underlying cause – correcting the structural imbalance – can we truly correct the problem.

In some cases, patients have clenched their teeth for so long that it has become a habit. It is a tension-related habit, like biting your fingernails. Like all habits, it is repeated so often that it becomes an unconscious act. You may continue to clench your teeth even if the structural problem is corrected. In this case, we must break your habit by bringing it to your conscious awareness and changing your behavior.

There is another psychological aspect we must consider. This is the emotional effect of pain. Researchers have found that pain around the mouth and face has a great deal of emotional significance. Compare a blow to your face with breaking your big toe. Pain around the face is more frightening because it is closer to your brain and vital control centers. The face is also tied closely to your self-concept, therefore discomfort or physical distortion in this area is especially anxiety-provoking.

We can safely say that the pain caused by MPD is stressful in all cases. Dr. Barbara Brown talks about the much-ignored “second illness.” This is the

mental and emotional reaction we experience from being sick. It is a very real illness with very real and important effects on the mind and body. Think about the emotional reactions to headache pain. The inability to perform up to your expectations – both personal and public – involves a tangle of nearly every negative emotion known to psychology: anxiety, depression, frustration, and anger. The anxiety is multiplied by fear of the unknown – not knowing how long the illness will last, not knowing where the money will come from to support treatment.

It is evident that MPD patients suffer a great deal of emotional stress. This stress level varies, depending on your individual makeup. Some people react more emotionally than others.

A study at Temple University showed the individual variability of our responses to stress by teaching students to meditate. Once the students reached a very relaxed state, a researcher said very loudly in the next room, “John, may I please have the needle?” Some students barely responded, while others nearly jumped out of their chairs.

This shows us that the amount of stress you experience depends on these things:

$$\text{STRESS} = \text{STRESSOR} + \text{INDIVIDUAL MAKEUP}$$

(stress)

Some of the variables which comprise individual makeup are: sex, age, occupation, environmental factors (diet, physical fitness), and personality traits and attitudes.

SUMMARY

Thus we see that one result of living with a chronically painful condition such as MPD, is that it places you under a great deal of emotional stress. The mind and body are complexly interwoven, so that even though the problem may stem from a physical displacement of your jaw, the resulting discomfort will affect you emotionally as well. This sets up a vicious cycle in which feeling tense and uptight increases muscle spasm, which increases your pain. Breaking this cycle involves not only correcting the physical problem, but also learning to cope effectively with the emotional stress involved.

BIOCHEMICAL

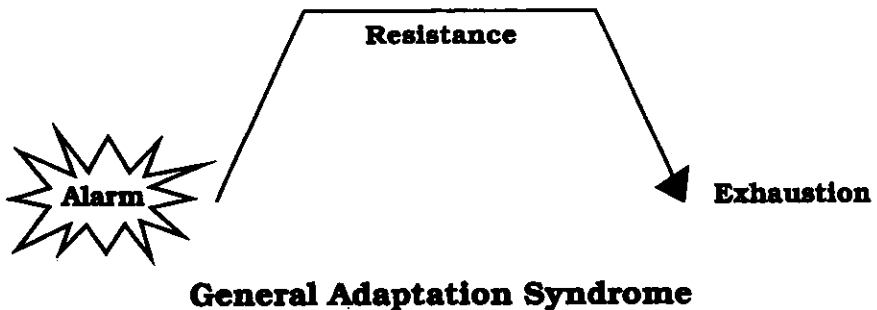
Not only does sustained, chronic stress affect you emotionally, but it also affects you biochemically.

Dr. Hans Selye, the famous stress researcher, defines stress as “the rate of wear and tear on the body.” When a person is under chronic stress, the body wears down at a much faster rate. Dr Selye found that when people are under stress, their body goes through a predictable series of three stages: alarm, resistance, and exhaustion. He calls this the General Adaptation Syndrome.

In the *alarm* stage, the body gears itself up for action. Think of a cat that arches its back and hisses when in danger. Though humans are usually a bit more subtle, their body also prepares itself for either “fight or flight.” The heart beats faster, blood vessels constrict, palms sweat, and so forth. All of these physiological reactions are a positive coping mechanism for stress on a short-term basis.

The next stage, *resistance*, is the body’s adaptation to long-term, chronic stress. Certain glands, such as the hypothalamus and pituitary, are forced to operate at an above-normal rate. Obvious signs of stress are not evident, but just as a machine gradually wears out, so does the human machine eventually become the victim of constant wear and tear.

At the final stage, *exhaustion* sets in and the body breaks down. This is where chronic diseases (which Dr. Selye calls “diseases of adaptation”) occur, such as heart attack, diabetes, ulcers – and for some people, MPD.



It is important to note that not all stress is harmful. Dr Selye differentiates between positive stress, which he calls “eustress,” and harmful stress, which he calls “distress.” Eustress is the stress we experience from a challenging situation or exciting event. It provides us with energy for peak performance. Distress, however, is experienced when the amount of stress we undergo is excessive and never ceases. Constant pressures from work or family can be a cause of distress. Chronic pain can also be a cause of distress. This is the type of stress we will refer to which leads to exhaustion.

Dr. Selye discovered that as part of this General Adaptation Syndrome, the body undergoes certain biochemical changes. When confronted with stress, two main hormone groups – catecholamines and cortisone – rush to the body’s aid and mobilize it for action. Again, this is what causes our mouth to become dry, our heart rate and blood pressure to increase, our palms to sweat, and so forth. However, constant overproduction of these hormones will eventually lead to biochemical imbalance within our system.

Biochemically, each of us is unique. Therefore, it is difficult to make generalized recommendations for vitamin and mineral supplementation to meet your particular needs. It is agreed that certain vitamins are used excessively when a person is under continuing stress. These include vitamins C and B-complex. Without supplementation, these vitamins can be depleted from your system when your body is under chronic stress.

You can see that as an MPD patient, your body is placed in a constant state of stress. The severity varies, and there is quite a difference between those people who experience an occasional click in their temporomandibular joints and those who suffer from constant, severe pain. Yet, in either case, the body will mobilize itself to fight against the stressor. Biochemical changes occur to provide the body with energy for adaptation. This energy is finite, and will eventually run out – just like the fuel in your car. Of course, the faster the rate at which it is used, the sooner it will run out. This is why nutrition is so important for the MPD patient. Adequate vitamins and nutrients must be supplied to your overworked system. This helps to provide your body with energy for functioning and avoids adding the additional stress of vitamin depletion and mineral imbalance.

SUMMARY

MPD is a syndrome which affects you both physically and emotionally. It involves many factors which we have tried to simplify by breaking it down into three parts – structural, emotional, and biochemical. In most cases, the structural imbalance is our primary concern and must be corrected before we can relieve the emotional and biochemical effects of stress on your body.

DIAGNOSIS

MPD is often called “the great imposter.” No wonder! Because of the number and variety of symptoms it is difficult to detect. How many people would think of visiting a dentist if suffering from headaches, ear stuffiness, or neck pain? Consequently many go from doctor to doctor trying to find relief. This can be extremely frustrating – and costly! You may even begin to wonder, “am I crazy?” Since MPD is so seldom recognized, people who suffer from it often receive little support.

This is why an accurate diagnosis is so important. It is the key to successful treatment. Below is an outline of a diagnostic procedure. The dentist may use any or all of these procedures to arrive at a diagnosis:

1. An interview to discuss your medical history in relation to your MPD condition, onset of pain, symptoms, and contributing factors.
2. A clinical examination to explore tenderness in the muscle groups of your jaw, head, neck, shoulders, as well as your teeth and bite, and other related factors such as ear blockage and posture.
3. X-rays of your jaw joints in open, closed, and rest positions.
4. Casts (models) of your teeth to obtain a record of your biting and chewing pattern.
5. Use of TENS -- Transcutaneous Electrical Stimulation -- to relax the muscles of your jaw.
6. An analysis of your jaw movements.
7. An analysis of your muscle activity.
8. Recording of jaw joint sounds.

TENS

TENS and other instruments that measure jaw movement and muscle activity are widely used in dentistry, so we will describe these in more detail.

What is it?

TENS stands for Transcutaneous Electrical Neural Stimulation. Do not be intimidated by the term. Basically, TENS is a way to relax muscles. This concept has been used therapeutically for some time. In fact, in 76 A.D. a Roman physician claimed to be able to control headache pain with the energy produced by electrical fish! Various kinds of electrotherapy have been used for one condition or another ever since.



Today, modern dentists are using low frequency TENS to specifically relax the muscles of your face and jaw. It does this by delivering a slight electrical impulse through the nerves which control the muscles of facial expression and chewing. This rhythmic pulsing relaxes the muscles by increasing blood flow.

When muscles are in spasm, they contract and shorten. This constricts blood flow and traps unwanted toxins. When toxins build up in your muscles, the muscles become painful.

TENS mechanically breaks up muscle spasm. By causing rhythmic, repetitive contractions of the muscles, fresh blood is pumped in while the toxins are flushed out. Usually, pulsing with TENS for approximately 45 minutes will allow the muscles to relax. Recent research shows that low frequency TENS also promotes pain relief by causing chemical changes in the body.

Endorphins (which means “the morphine within”) are natural substances produced by the body which relieve pain. TENS stimulates the production of endorphins. These pain suppressing chemicals are a natural anesthetic which last beyond the TENS treatment itself.

What Does it Do?

Low frequency TENS can be used in dentistry in three ways:

1. It relaxes muscles and allows us to determine a muscularly-oriented jaw-to-skull relationship.
2. It relieves pain caused by spasm and tension.
3. It closes the jaw through space to a position which is most compatible with relaxed muscles.

What Does it Feel Like?

When TENS is used to stimulate the nerves which affect the muscles of your face, it will cause the muscles to contract. Consequently, your jaw will jerk slightly upward each time a pulse is emitted. This is similar to a knee jerk.

Most people enjoy the sensations of this machine. The rhythmic pulsing is relaxing, similar to massage. Occasionally, patients initially find the sensation irritating. Yet most find that it relieves the feeling of tightness around their face and neck.

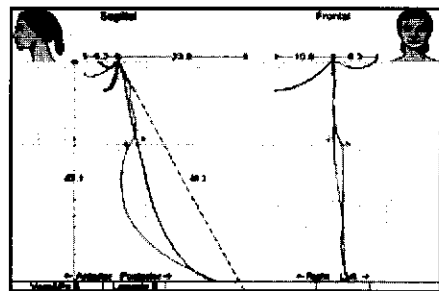
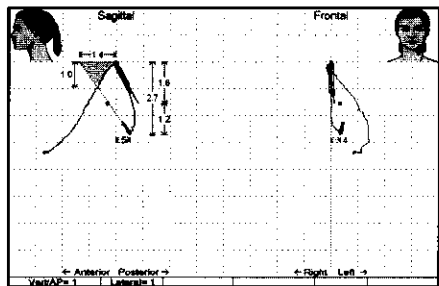
After pulsing, patients describe their feelings by such words as "calm," "unknotted," and "tired." Often they have greater mobility in their muscles. Sometimes patients have more redness or color to their face, and occasionally skin temperature and perspiration are increased. Again, this is because increased blood flow is ridding the muscles of toxins.

MEASURING JAW MOVEMENT

For many years, dentists have not had an objective way of measuring jaw movements. Tracking jaw movement is very important, however, to truly understand whether or not your jaw is functioning properly. If you were having heart pains, you certainly would not expect a physician to diagnose your condition by simply feeling your pulse! Likewise, dentists must use sophisticated medical instruments to measure jaw dysfunction. These dentists are referred to as “neuromuscular dentists.”

Computerized electronics have now made it possible for us to have this diagnostic capability in our office. We can now track and record tiny jaw movements with a degree of accuracy far greater than with the human eye.

How so? A tiny magnet is placed just below your lower front teeth. The movements of your jaw are tracked through a sensor array, which you wear like a pair of glasses. This transfers the information to a computer which then displays it on a screen so that we now have a “peephole.” In other words, we can see exactly how your jaw is moving whether or not your lips are open or closed. The information is also stored and recorded so that it can be referred to at a later date.



MEASURING MUSCLE ACTIVITY

Muscle activity is measured by using an instrument called surface electromyography (SEMG). Like TENS, electromyography has been used by various medical specialties for some time. Only recently, however, have dentists begun to appreciate its clinical application.

By taping small EMG electrodes over particular muscles of the face, head, and neck, we can monitor the amount of tension in these muscles. Muscles operate like tiny batteries in that they give off small electrical currents. When tense, they give off a higher electrical charge. The EMG electrodes pick up this activity and transmit it to an instrument where it is recorded and displayed. Now we have an objective way of measuring how much muscle tension you are experiencing.

We use electromyography in two ways. First, we use it to determine whether or not the muscles are truly relaxed. Second, we are able to see how your muscles work together when functioning (i.e. chewing). Remember that when a malocclusion exists, your muscles must torque to bring the jaw together. By identifying which muscles are working harder, we are able to determine where adjustments need to be made in your bite to relieve these muscles of strain.

We have described diagnostic procedures based on the most sophisticated technology presently available. *Not all dentists have access to all of the computerized instrumentation, but this does not prevent them from diagnosing and treating MPD effectively.*

It is also important to keep in mind that when making a diagnosis, dentists are trying to determine the primary source(s) of your pain. Many people with MPD pain experience related neck and shoulder pain which results from poor postural habits. When this is the case, physical therapy or chiropractic work may be required to correct the postural relationship of your head, neck, and shoulders before the bite can be corrected.

Muscles are sensitive to both physical and emotional stress. In some cases, identifying and learning how to deal with emotional stress may be an important part of the treatment. Do remember, however, that no relaxation technique or medication will eliminate pain primarily caused by an occlusal/structural imbalance.

RECORDING JAW JOINT SOUNDS

While sounds occurring in the jaw joint, by themselves, do not necessarily indicate the need for treatment, most doctors feel that they are important signs when combined with other information about you. Studying these sounds can aid the doctor in better understanding the status and function of your jaw joint through sound tracings. Without a computer based sonography device, the doctor studies the popping and clicking sounds by listening through a stethoscope. With sonography the popping, clicking, and even grating sounds during opening and closing movements can be detected and analyzed more thoroughly. This diagram shows how diagnosis of MPD and other head, neck, and facial pain problems has evolved:

Hearing by Ear ➡ Stethoscope ➡ Sonography

It's easy to see why the sonograph is an accurate method of capturing and analyzing these significant sounds.



The test takes but a few minutes and you will wear a headset that looks similar to that of a small portable radio while you open and close your mouth several times and slide your jaw side to side. The sensors over both of your jaw joints capture the sound vibrations and they are recorded in the computer for later study.

When sounds occur as you open or close your mouth, how loud the sound is, and whether it is a soft or sharp sound, all have specific meaning to the doctor. Sonography is not only a diagnostic tool, it may also be used to monitor the course of treatment.

TEST YOURSELF

You may run a preliminary diagnostic screening on yourself by answering these questions:

- Do you have a grating, clicking, cracking or popping sound in either or both jaw joints when you chew?
- Do you have sensations of stiffness, pressure or blockage in your ears? Is there excessive wax production?
- Do you ever have a ringing, roaring, hissing or buzzing sound in your ears?
- Do you ever feel dizzy or faint?
- Is your jaw painful or locked when you get up in the morning?
- Are you ever nauseous for no apparent reason?
- Do you fatigue easily or consider yourself chronically fatigued?
- Are there imprints of your teeth on the side of your tongue?
- Does your tongue go between your front teeth when you swallow?
- Do you have pain or soreness in any of the following areas: jaw joints, upper jaw or teeth, lower jaw or teeth, side of neck, back of head, forehead, behind eyes, temples, tongue or chewing muscles?
- Is it hard to move your jaw from side to side or forward and backward?
- Do you have difficulty chewing your food?
- Do you have any back teeth missing?
- Have you had extensive dental crowns and bridgework?
- Do you clench your teeth during the day or at night?
- Do you grind your teeth during the day or at night?
- Do you ever awaken with a headache?
- Have you ever had a whiplash injury?
- Have you ever worn a cervical collar or head neck traction?
- Have you ever experienced a blow to the chin, face or head?
- Have you reached the point where drugs no longer relieve your symptoms?
- Does chewing gum start your symptoms?
- Is it painful, or is there soreness, when you press on your jaw joints or on the cheek just below them?
- Do your fingers sometimes go numb?
- Is it painful to stick your little finger into your ears with your mouth open wide and then close your mouth while pressing forward with those fingers?
- Does your jaw deviate to the left or right when you open wide? (Look in mirror.)
- Are you unable to insert your first three fingers vertically into your mouth when it is opened wide?

As seemingly unrelated as these questions might sound, answering yes to any one of them could indicate a possible MPD condition. You may know other people who experience one or several of these symptoms. Share this list of questions with them. Perhaps you will help friends discover the source of their discomfort which otherwise might go unrecognized.

TREATMENT

Once all diagnostic information is collected, we can determine the best course of treatment. Typically, treatment will follow these steps:

1. **Relieve muscle spasm and pain.** TENS is one of the most effective ways to do this. Sometimes moist heat packs applied to the face or massaging the sore muscles will also help. Occasionally pain medication or mild muscle relaxant drugs are prescribed.
2. **Stabilize the bite.** When muscles have been tight for a long time, it takes a while for them to relax. During this phase, the bite can be temporarily corrected with the help of a splint, or orthotic, which fits over the teeth. This allows us to make easy adjustments to your bite until it reaches a stable position. Once symptoms are relieved and the bite is stabilized, then it can be permanently built to the correct position.
3. **Long-term management.** There are various ways that your bite can be corrected in a more permanent way. Below are five approaches:

Coronoplasty/Equilibration – selectively reshaping the contours of the teeth to correct the bite. This is a fairly simple procedure which can be used when the bite has minor discrepancies.

Removable Overlay Partials – permanent orthotics which are designed to maintain an accurate and stable bite.

Reconstruction – adding height to the teeth to provide structural support.

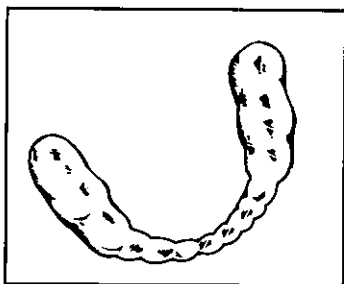
Orthodontics (Braces) – when teeth are very healthy in both children and adults, they may be moved to the correct neuromuscular position.

Orthognathic (Jaw) Surgery – in a very small percentage of cases, surgical realignment of the upper and lower jaws may be required to correct the bite.

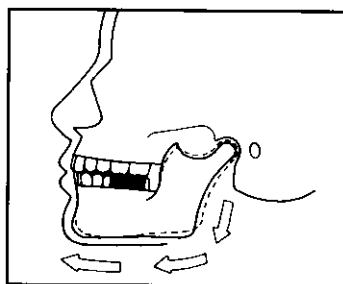
What is an orthotic?

Orthotics are known by various names, such as splint, or bite guard. The term orthotic is most accurate because it means a mechanical appliance designed for orthopedic use.

Orthotics are also made in various ways. Typically they are made of lightweight clear acrylic and fit over your lower back teeth. Many people who suffer from MPD have back teeth which are too short. The orthotic adds height to your teeth to provide structural support. Providing support for your back teeth rotates your jaw down and forward. With this support, the muscles do not have to strain to bring your teeth together.



Orthotic Device



Orthotic device in place brings the jaw down and forward

What Will the Orthotic Feel Like?

The purpose of the orthotic is to change the way the teeth close together so that the muscles are balanced. It is hard to predict how you will feel at first. Sometimes it takes a while to get accustomed to having something over your teeth.

Eventually, you will become very used to this new position and it will feel strange when you remove the orthotic. Your teeth will feel "lost". They will miss the support. Many patients find that once accustomed to the orthotic, a headache begins shortly after removing it. This usually stops once it is replaced in the mouth. Again, this vividly shows that your teeth must have this extra support in order for the muscles to relax.

Will People Notice That I'm Wearing an Orthotic?

When worn, the orthotic is barely noticeable. Most people will probably never know you are wearing one.

How Long Will I Wear an Orthotic?

This is difficult to estimate because each patient is unique. Initially, we must check the orthotic frequently. As your muscles are changing, they may wear or otherwise change the acrylic surface of the orthotic. Gradually, your bite will begin to stabilize and the orthotic will require less frequent checks. Your dentist will judge the time period best for your particular situation.

Why Can't I Permanently Wear an Orthotic?

There are several reasons:

1. It is usually made of acrylic which does wear down over time.
2. Long-term wearing is not hygienic; it can become an irritant to gum tissue.
3. It fits tightly around your teeth and over time the orthotic may move them.

Some orthotics have been designed that are appropriate for long term use, and this is something which you may wish to discuss with your dentist.

SUPPORTING THERAPIES

We have devoted the majority of our discussion to the structural aspects of MPD. Recall that it is a structural-emotional-biochemical problem. Often it is helpful for patients to receive other types of therapy along with treatment. Below are some therapies which work compatibly with the dental work and often enhance recovery rate:

Physical Therapy: Physical therapists work primarily with soft tissues (muscles and connective tissue) to restore normal function and reduce pain. To do so, they use a variety of technologies and physical techniques. For instance, they may teach you about proper posture and movement to minimize the stress placed on various muscles and joints. Other modalities include: ice, heat, ultrasound, massage, and TENS.

Massage Therapy: Muscle therapy work on the head and neck is extremely helpful in any head, neck & facial pain injury, strain or repeated physical stress. Massage flushes the toxins from the soft tissues, relieves trigger points, nerve entrapment and promotes relaxation.

Counseling/Stress Management: Since emotional stress is so closely related to muscle tension, it is often helpful to discover the sources of lifestyle stresses and how to cope with them effectively. There are a variety of stress management techniques which can be helpful. These include: hypnotherapy, biofeedback, relaxation tapes, or meditation. Sometimes more in-depth psychotherapy is necessary to uncover thoughts or feelings which may relate to physical symptoms.

Physicians: With chronic head pain, it is often a good idea to visit a medical doctor first to rule out any medical disorders which the head pain might be signaling (brain tumors, meningitis, or high blood pressure). Physicians may prescribe medications to relieve the pain. Though medications may be required for a period of time, we generally prefer a *non-medication approach* since they will mask symptoms and therefore could interfere with the course of treatment.

Ear, Nose, Throat (ENT) Specialist: There is a close relationship between breathing and your bite. The lower part of the nasal cavity is also the upper limits of the oral cavity. Consequently, what affects one affects the other.

If the airway is blocked for any number of reasons, such as allergies or respiratory infections, the ENT specialist can work to correct this so that the dentist can determine the proper bite.

Chiropractic: Structural misalignments and/or muscle imbalances are many times involved with the jaw joint. Chiropractors perform adjustments to help the body stay in alignment just as the splint keeps the jaw joints in alignment.

IN CONCLUSION. . .

Simply reading this booklet carefully and digesting the information places you among the well informed. Please share this knowledge with others. You will be amazed at the number of people who are experiencing these symptoms and do not know where to turn for help. By informing the public, we can begin a grassroots effort to direct afflicted people toward dentists who are familiar with treating MPD problems.

Most likely, finding the **source** of your pain has been the most difficult challenge of all. This booklet should help you have a greater understanding of your condition and give you some insight into MPD in general and how it might specifically be affecting you. We hope this helps you to begin fitting together the pieces of this puzzling ailment so you can move confidently toward recovery.

TMJ/MPD SUPPORT GROUPS ARE NEEDED: There are fewer than 10 support groups around the country for this disorder. If you are interested in starting one, contact TMDData Resources for a packet on "How to Start a TMJ Support Group".

If you would like to read more about MPD, we have included a list for further reading on the following page.

References for this booklet are available upon request

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ABOUT THE AUTHORS. . .

Mary Lynn Pulley, M.Ed., originally wrote this booklet in 1982. At the time, she worked as a biofeedback therapist with numerous people suffering from Myofascial Pain Dysfunction (MPD) and Temporomandibular Joint Disorders (TMD). Mary Lynn received her master's degree in Counseling Psychology from the University of North Carolina. She was the founder of MyoData Systems in Seattle where she created and distributed TMJ-related educational materials for doctors around the country who treat it.

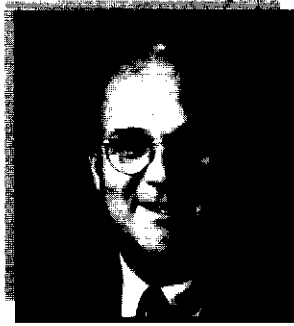
Sharon Carr purchased the company in 1990 from Mary Lynn. She continues to support TMD and, more recently, Sleep Dentistry practices with educational materials and a complete line of services. As a consultant, speaker, and author she builds practices and assists doctors in understanding what patients go through and what they need. Sharon revised and updated this booklet in 1997 and again in 2005.

In addition to supporting doctors, she founded the TMJ & Stress Center in 1990 to offer support for TMJ sufferers around the world. This support center, as well as MyoData Systems, now operates under the name of TMDData Resources in Albuquerque, NM.

As a TMJ sufferer herself, Sharon has a mission to help educate the public through newspaper and magazine articles, television and radio appearances. Publications she has authored include many articles, brochures, booklets and a quarterly newsletter called, "TMJ News 'n Views." TMDData provides information for patients on TMD and up-to-date listings of books, support pillows, as well as a packet on "How To Start A TMJ Support Group" that is available by calling (800) 533-5121.

Additional copies of this booklet and other materials may be ordered through:

TMDData Resources
(formerly MyoData/TMJ & Stress Center)
800 Branding Iron SE
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BERNARD D. SLOTA, D.D.S., began his practice in 1977 and in the last 20 years has gained special education and experience needed in diagnosing/treating head, neck, facial pain, temporomandibular disorders (TMD), orthodontics, and full mouth rehabilitation. To stay up-to-date with the latest studies and information, he has acquired many hours of continuing education. Recently, he graduated from the world-renowned Las Vegas Institute for Advanced Dental Studies and now is a clinical instructor at the Institute. Other intense training has included Mid-American Orthodontics and studies through many international leaders in these fields.

He has added the neuromuscular concept to his practice and experiences tremendous success. *His philosophy is a conservative, non-surgical approach* to head, neck and facial pain with an emphasis on multidisciplinary networking. Objective documentation and verification of trauma and injuries is provided through the use of state-of-the-art, computerized technology for TMD diagnosis and treatment.

A few of his professional memberships include:

- American Academy of Craniofacial Pain
- American Association for Functional Orthodontics
- American Dental Association

The practice provides a relaxed, caring atmosphere in a modern setting. Staff consists of highly trained professionals who have a sincere interest and dedication to patient needs.

Bernard D. Slota, D.D.S.

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