SPECIAL REPORT

UNDERSTANDING

TMJ SYNDROME

BY PAUL R. WHITE, D.D.S.
TMD, or temporomandibular disorders, are problems that relate to your bite, jaw joint, and the muscles of your head and neck. TM disorders may develop for many reasons. One of the most common causes is the clenching and grinding of your teeth. This tightens your jaw muscles and stresses your jaw joint. Trauma to the jaw may also directly injure the joints or muscles. Additional causes include a “bad” bite (malocclusion), missing teeth, skeletal abnormalities of the jaws, poorly fitting bridges or dentures, or psychological factors (stress and tension). Even certain occupations which result in prolonged, excessive, or unusual movements of your jaw can be factors.

There is no simple solution to TM disorders. Restoring a patient to a normal state of health may require several different types of therapy. The goals of treatment are to reduce muscle tension, regain a stable bite, and restore your jaw joint to normal function. Treatment works best when both self-care and professional care are utilized. The duration of your treatment may last a few months up to several years, depending on the severity of your problem, and may include several treatment modalities.
A medical and dental evaluation helps pinpoint the causes of a TM disorder, and these evaluations are the first steps in planning for treatment. Your medical and dental history provides information about symptoms, general health, and family or social problems, which may relate to this condition. Evaluating this information may be crucial in determining the cause of your TM disorder. A physical examination of your head and neck detects specific TMD symptoms. Palpation of your head and neck muscles, as well as your jaw joint, is performed to detect areas of inflammation, pain, and swelling. An examination of your ears, eyes, nose, and throat is then performed to rule out pathologic conditions. Additionally, a thorough oral evaluation is needed to assess your dentition (teeth) and your bite, and to carefully measure the range of your jaw motion.

A variety of diagnostic tests can be done to confirm (or rule out) a TMD condition. Tomographic x-rays of your temporomandibular joint are simple to obtain and relatively inexpensive. They record images of the bone and may reveal joint damage, fractures, or tumors. CAT scans and MRI scans are highly specialized and more expensive tests which yield detailed images of the bone and soft tissues. These detailed images provide details that x-rays cannot, such as possible damage to your discs and ligaments. An electromyogram (EMG) is a test which can measure the tightness or tension in your muscles. Dental casts are models of the teeth that help diagnose a bite problem. These models can be mounted on an articulator, or a jaw movement simulator, to reproduce and analyze the movement of the lower jaw.

Understanding the anatomy of the surrounding structures is important when providing treatment of TM disorders. The temporomandibular joint is the hinge where your upper and lower jaws connect that allows you to open and close your mouth while eating or speaking. The only bone in your skull which moves is your lower jaw, known as the mandible. The mandible joins the skull on the right and left sides at the temporomandibular joint (TMJ) which is directly in front of the ears. The mandible articulates (interacts) with the maxilla (upper jaw) through the teeth. The upper and lower teeth contact to form the bite (occlusion) so chewing can occur. The better your teeth line up, the more stable your bite and TM joint will be. In a healthy mouth, the TM joints are in their most stable position when the teeth fit together in a perfect bite and the jaw muscles are completely relaxed.
Like any joint in your body, the TMJ is formed like a “ball and socket” and functions as a “hinge” between two bones (in this case, the upper and lower jaws). Unlike any other joint in your body, the TMJ joint slides forward and backward out of the socket when the mouth is opened or closed. Inside the TM joint is a “shock absorber” (disc) that facilitates a gliding action between the ball and socket when your jaw moves. Ligaments hold the ball, socket, and disc in close approximation and help to stabilize the joint. Groups of muscles attach to your joint and your lower jaw, and these muscles contract and relax to allow your mouth to open and close during speech and chewing.

Because your muscles, bite, and joint work together, a problem with any one of the three may result in a temporomandibular disorder (TMD). Stress, tooth clenching, or a bad bite can cause your jaw muscles to tighten up. This “tightening” forces your upper and lower jaws closer together, placing pressure on your TM joint, and causing excessive wear on your teeth. When your jaw muscles overtighten a change in your head position occurs which, in time, causes a change your upper body posture. These changes in posture can literally be a “pain in the neck” and shoulders and can also lead to numbness in your fingers and ringing or fullness in your ears. Excessive pressure is also exerted on the disc and can displace it forward, resulting in a clicking or popping sound when your jaw moves. Sometimes the clicking and popping is accompanied by pain. This anteriorly displaced disc becomes an obstacle in the path of your jaw (condyle) as the mouth is opened. A clicking sound results as the condyle forces its way past the obstruction. In the early stages, this condition may be reversible if the causative factor or factors can be found and treated. In some cases, the obstruction cannot be bypassed and a “closed lock” (limited opening) condition results where an individual may find it difficult to open or close their mouth. This may occur as an early or late consequence of a displaced disc.
Many types of “bad” bites (malocclusions) disrupt the position of the TM joint. In certain cases, the “ball” part of the TM joint is displaced backwards, which results in the disc being moved forwards. Once again, the result is a clicking or popping joint.

Joint problems can occur independent of your muscles and your bite. They may result from an injury (trauma to the jaw) or from disease (arthritis). An injury may stretch your ligaments, allowing the disc to become displaced. It can also cause a fracture, which may dislocate the “ball” from the socket. Arthritis, a chronic condition, may slowly damage and destroy the ball, the socket, and the disc. A very serious temporomandibular disorder may develop as a result of either of these causes.

Treatment for a temporomandibular disorder begins with the patient. The most important thing you can do while healing is rest your jaw. Resting your jaw relaxes your muscles and takes the pressure off the TM joint. The key to resting the jaw is to keep your teeth apart. Practicing good posture, eating soft foods, and reducing stress will also help. Other self-care techniques, which help to relieve the symptoms of a TM disorder, include the application of ice and heat, and gentle massage and jaw exercises. Ice helps to reduce the swelling caused by inflammation, and heat helps to relax muscles and to improve circulation. Passive range of motion exercises help to restore a normal range of motion to your jaw by improving flexibility and strengthening your muscles.
When a physician or dentist determines that a patient is suffering from a TM disorder, he or she may likely opt to treat them by prescribing appropriate medications. As an initial treatment, muscle relaxant and anti-inflammatory drugs are very effective in relieving the pain and disability associated with a TM disorder. If stress or tension is present, then anti-anxiety medications may also be prescribed.

In many instances, stress may be a major factor in the development of a TM disorder. Managing daily stress is one of the best ways to restore harmony to the muscles and the TM joint. Biofeedback therapy is an excellent way to manage stress. This technique helps you to achieve an understanding of what’s going on inside your body so that you can learn to consciously control your body’s stress responses such as tightening your muscles around your jaw. There are other techniques, such as deep breathing and yoga, which also produce relaxation. Regular exercise, a healthy, soft diet, and techniques to maintain proper posture are also very helpful. Sometimes the pain from a TM disorder and the stress of daily life are just too much to handle. In these instances, support from a group or individual (psychologist) may help you to manage the stress and ease the isolation caused by the chronic pain of a TM disorder.

A variety of physical therapy techniques, such as thermal therapy, postural training, mobilization, electrical stimulation, and ultrasound, can help you regain harmony between your jaw and muscles. Physical therapy is especially beneficial when your disc, ligaments, and other joint structures are recovering from an injury. Physical therapy not only promotes healing and reduces pain and swelling, but also aids in muscle relaxation and increases your jaw’s range of motion.

One of the most common and effective types of treatment for a TM disorder is the occlusal splint (orthotic). Splint therapy is recognized as an excellent method of establishing harmony between your muscles, bite, and your joints. There are many types of splints that work in various ways but accomplish many of the same goals. Splints reduce tooth grinding by keeping your teeth apart, help to relax your muscles by changing their length, and reduce pain by relieving pressure on your disc and TM joints. Initially, you may notice a slight difficulty speaking and chewing while wearing the splint. However, with continued wear, most patients adapt readily to the splint and are thankful for the relief from pain and jaw improvements that they obtain from the appliance. In fact, many patients find that if they stop wearing the orthotic, their pain returns immediately.
In some cases of TM disorders such as “closed lock,” disc perforation, and degenerative arthritis, temporomandibular joint surgery may be necessary to restore harmony to your jaw joint, eliminate pain, and improve function. Often, surgery is the most effective treatment, especially when the mouth won’t open because of a “closed lock” condition.

Arthroscopy is the surgical procedure used most often for TM joint disorders that do not respond to other treatments. Through a small hole in your skin, a tiny arthroscope (telescopic instrument) is inserted into your joint, and the disc and socket are examined. Through an opening in the scope, scar tissue can be removed, the disc repositioned, and the joint space debrided (flushed out). Arthroscopy is most useful to treat the less severe forms of TMJ disease and to unlock the “closed lock” jaw. A less involved but similar surgical procedure, known as arthrocentesis, utilizes a small tube instead of an arthroscope to rinse chemical irritants that cause inflammation from the joints. A steroid is also placed inside the joint to reduce pain and swelling.

Arthroplasty is a more involved surgical procedure that is used to treat serious disease. If you suffer from severe soft tissue damage, you may need this procedure to tighten up stretched connective tissue and ligaments. It is also used to put the disc back into position, releasing a “closed lock.” It is also the procedure of choice for arthritis patients with badly deteriorating joints, such as severed discs or discs with holes in them. With this type procedure, the ball and socket can be smoothed, the disc can be repaired and/or removed, and your TM joint can be restructured. If joint replacement is indicated, it can also be done by a modified arthroplasty technique.

Many times, following splint therapy, you will notice that your teeth no longer fit together as they did before wearing the appliance. You may feel as though your teeth have “moved”. However, what really happens is that your lower jaw has moved or repositioned. Splint therapy helps overtightened jaw muscles to relax. As the muscles relax, the lower jaw “settles” or moves to its natural position in the socket because it is no longer being forced out of position by an improper bite.
Splint therapy typically takes approximately 4-6 months to complete. Once completed, your bite must be corrected and coordinated with the newly “stabilized” jaw position or the misaligned teeth will, once again, force your lower jaw out of its optimal position and re-injure your TM joints.

Bite correction is an essential part of TMJ therapy as many patients will experience even worse symptoms than before if they re-injure their TM joints. The goal of Phase II (bite correction) is to obtain a comfortable bite and relaxed jaw muscles with the TM joints in their proper and stabilized position. Bite correction may be accomplished in several ways, including bite adjustment (reshaping the biting surfaces of the teeth), restorative dentistry, orthodontics, orthognathic (jaw) surgery, or a combination of any or all of the above. Once your symptoms have been resolved and the jaw position stabilized, a final diagnosis will be made to determine the most appropriate treatment to stabilize the bite. Following bite correction, you may need to wear a bite guard while sleeping to prevent bruxism (grinding) from injuring your TM joint.

While all this information may seem overwhelming, the important thing to understand is that most people do not need to suffer.

While all this information may seem overwhelming, the important thing to understand is that most people do not need to suffer. As we’ve discussed, there are a variety of treatment options to help eliminate the symptoms we’ve discussed and to restore your mouth and jaw joints back to health!
Selecting a Healthcare Provider

When selecting someone to help you with your TMJ disorder, you should find a practitioner with extensive training and experience in the treatment of TMD. Most qualified doctors can provide you with testimonials from satisfied patients that they have successfully treated. The diagnosis and treatment of temporomandibular disorders is not without some controversy and confusion. There are a few doctors who treat the disorder with a technique known as neuromuscular dentistry. Through this approach, the lower jaw is positioned with electric stimulation and computer tracking. While these modalities may seem impressive to an uninformed consumer, unfortunately, the lower jaw is forced out of its natural location. As a result, the teeth are made to fit within this unstable jaw position. While patients may experience temporary relief, the lack of long-term stability may result in the TMJ symptoms returning in the future.

Even though the diagnosis and treatment of TMD is part of the curriculum at most medical and dental schools, the course is typically a theoretical overview and usually does not involve the actual clinical treatment of the disease. Typically, doctors who treat patients with TMD have had post-graduate training. The best educational programs provide actual clinical experience in addition to the classroom. Most of these practitioners routinely screen all of their patients for the early signs and symptoms of the disorder. Early detection usually leads to less extensive treatments.

Dr. Paul White received his Doctor of Dental Surgery (DDS) degree from the Medical College of Virginia in 1984. In 1991, he completed his post-graduate orthodontic residency at Emory University in Atlanta, Georgia. Dr. White received specialized training in the diagnosis and treatment of TMJ disorders and malocclusion at the prestigious Roth-Williams Center for Functional Occlusion in San Francisco. Since then, he has maintained a specialty orthodontic practice in Richmond's west end. Dr. White also served as a clinical professor and consultant to the Department of Orthodontics at the National Children's Hospital in Washington, DC.

Dr. White may be reached at his office in Glen Allen, VA:

White Orthodontics
5237 Hickory Park Dr.
Glen Allen, VA 23059
804.747.7447 office