



Temporomandibular disorder or **TMD** is a broad term referring to problems with the jaws and their functioning. It is commonly referred to as "TMJ". This system is very complex and problems are caused by a variety of factors. This web page will attempt to give you a general overview of TMD so you can better understand the problems you may have been having.

The Temporomandibular System

The temporomandibular system consists of three basic components; the *temporomandibular joint* or TMJ, the teeth, and the *neuromuscular* system.

TMJ- This is the term often used to describe TMD, but it specifically refers to the joints that work your lower jaw, or *mandible*. These two joints are found just in front of the ears. Their close proximity to the ear is why some patients experience ear symptoms and can often hear the joint pop or crack. These two joints never act alone, that is, when your jaw functions, both joints will be working. There is a small cartilage disc between your lower jaw and skull in the joint. Some TMD problems are caused by dysfunction of this disk. When healthy it acts as a sort of "shock absorber" for the joint.

Teeth- The teeth are like the third leg of a tripod, the TMJ's being the other two legs. The alignment of your bite and the functioning of the TMJ's are intimately connected. Problems in any of the three areas may affect the other two.

Neuromuscular- This system is the nerves and muscles which work the temporomandibular system. It is important to realize that *only the lower jaw, or mandible, moves during jaw function*. The upper jaw, or maxilla, does not move; it is firmly attached to the skull. Therefore, the nerves and muscles are involved in moving the lower jaw only. The nerves transmit the messages for the muscles to move the jaw. They also transmit pain signals to the brain causing you to feel discomfort. The muscles are fairly large and are found from the side of your head down to your neck. Other related muscles that do not specifically work the jaw, but are sometimes symptomatic are found in the neck, face, and upper back.

What Defines TMD

Symptoms and signs of TMD can include some or all of the following....

- Jaw pain and/or stiffness
- Headaches, usually at the temples and side of head
- Vague tooth soreness or [toothaches](#) which often move around the mouth
- Sensitive teeth
- Painful or tender jaw joint
- Difficulty opening jaw
- Pain and fatigue when eating hard or chewy foods
- Clicks, pops, or grinding sound in jaw joint
- Ear pain
- Cervical neck tension and pain
- Tooth wear
- Awareness of grinding/clenching teeth while sleeping or awake ([Bruxism](#))
- A pattern of breaking or cracking teeth with no other cause, i.e. tooth decay or trauma
- History of medically diagnosed migraine headaches (common incidence of concurrent TMD)

Temporomandibular disorders come in many forms and varying degrees of severity. Basically TMD is a problem when you either experience pain and/or a loss of jaw function. The pain can range from a mild ache in the morning to a chronic debilitating pain. Loss of function can be mild jaw stiffness to being unable to open the jaw barely at all.

The symptoms of TMD can be an obvious jaw pain in the muscles near the mouth, but can also often exhibit as headache at the temples ("temporal headache"). This is due to inflammation in the large jaw closing temporalis muscle which is on either side of your head. To find this muscle place your hands on your temples and clench your teeth hard and you will feel this powerful muscle contract. Patients often feel this symptom is a tension headache or sinus headache but it can be easily differentiated during a TMD exam. Patients understandably (and many doctors) fail to make this connection between TMD and headaches.

The pain of TMD can come from either the muscles or the TM joint itself; often it comes from a combination of the two. The muscles can ache due to causes discussed below. Pain in the joint is usually due to inflammation within the structure itself. Sometimes the symptoms are found in other facial structures; such as dull ear pain, toothache, neck pain, etc. This *referred pain* is fairly common but it is important to rule out medical and/or dental causes of these pains prior to TMD treatment.

Loss of jaw function can be due to muscular and/or joint problems as well, just as pain can. The degree to which each is involved is determined through thorough history and exam.

Causes of TMD

Temporomandibular disorders rarely have a single cause. Any one of the following factors may contribute to TMD. Each patient presents with an individual combination of factors that are determined during history taking and clinical exam.

Trauma - Acute trauma to the jaws such as a car accident, a fall, a punch, etc. can cause damage to the muscles and/or joint. The acute pain and loss of function is usually responsive to conservative treatment. Sometimes trauma to the joint can cause chronic damage which may eventually contribute to a TMD problem at a later time.

Bruxism - **Bruxism** refers to a non functional grinding and clenching of the teeth. Some do this while awake but more often it is done while sleeping. Most people grind their teeth while sleeping to some degree. For whatever reason some people do this very hard to the point where they wear the enamel from their teeth. This bruxing is done by the jaw muscles and by the morning they can be painful due to fatigue. This constant pressure also can damage the TMJs over time. Bruxism is the most common factor found in TMD.

Malocclusion - This term means "bad bite". Sometimes when the teeth do not bite together in harmony with the shape and position of the joints it can place pressure on the joints. Missing teeth can sometimes contribute to this as well. The misalignment can also put strain on the jaw muscles. This factor can be mild to severe. Though the bite is an important part of the whole system it is only altered after conservative measures and only if it is felt improvement will result. In some patients discrepancies (known as interferences) become apparent after wearing the NTI device for a few months and a bite adjustment is recommended. Treatment of the bite for TMD is usually not needed but its contribution to the whole must be examined.

Emotion - Emotional stress often plays an integral role in the development of TMD. This occurs due to two basic reasons. Stress increases both the severity and duration of bruxism while asleep. Also, many will subconsciously clench and/or grind their teeth more while awake during times of stress. The other way stress contributes to TMD is that during times of stress your adaptability and pain threshold will go down. As a result you are more likely to experience symptoms of TMD if other factors already exist (bruxing, joint damage, etc.).

Emotional conditions beyond daily life stress can contribute to TMD as well. Depression, anxiety disorders, and the like can often have TMD problems arise. These conditions are quite stressful and it is not hard to imagine why TMD would develop.

Ergonomic - Your job and how you do it can contribute to TMD and related problems. If you work at a computer all day, for example, you may be holding your head in such a way that places strain on your TM system.

TMD Treatment

Treatment plans for TMD are as varied as the patients that present with it. Each patient must be treated differently depending on the uniqueness of their problems and the contributing factors. [Pain Relief Info](#).

It is very important to realize that the goal of TMD treatment is to minimize pain and establish a return to function. TMD conditions are not "cured" but are *managed* instead. The basic goal is to allow the muscles and joints to heal through rest and care. Often damage to the joint itself can not be reversed, but the body can often heal it enough to return to function without pain. We also want to teach you to recognize the symptoms early and manage them yourself once we give you the tools to do so. This condition can often recur later on but early care can minimize the severity.

The basic philosophy of treatment is to do the *conservative and reversible* treatments first. Irreversible treatments, such as surgery or orthodontics, are only considered if conservative steps have failed to bring lasting relief. These more radical treatments are rarely used. Most patients respond well to simpler care.

The following treatment modalities may be used in each case..

Occlusal Splint - Also called a night guard is designed to protect the teeth from further wear. These also will reduce the severity of grinding at night and allow the muscles to rest. In more severe cases it needs to be worn all day as well to allow the TMJ and muscles to rest.