

TMD: Temporomandibular Disorders

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Introduction

You may have read articles in newspapers and magazines about "TMD" -- temporomandibular (jaw) disorders, also called "TMJ syndrome." Perhaps you have even felt pain sometimes in your jaw area, or maybe your dentist or physician has told you that you have TMD.

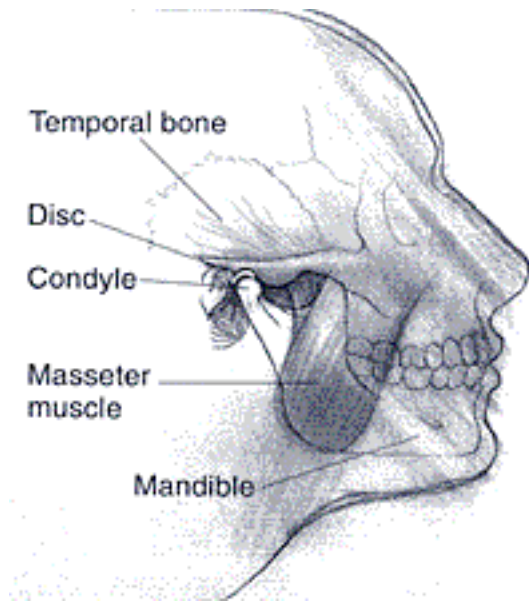
If you have questions about TMD, you are not alone. Researchers, too, are looking for answers to what causes TMD, what are the best treatments, and how can we prevent these disorders. The National Institute of Dental and Craniofacial Research has written this pamphlet to share with you what we have learned about TMD.

TMD is not just one disorder, but a group of conditions, often painful, that affect the jaw joint (temporomandibular joint, or TMJ) and the muscles that control chewing. Although we don't know how many people actually have TMD, the disorders appear to affect about twice as many women as men.

The good news is that for most people, pain in the area of the jaw joint or muscles is not a signal that a serious problem is developing. Generally, discomfort from TMD is occasional and temporary, often occurring in cycles. The pain eventually goes away with little or no treatment. Only a small percentage of people with TMD pain develop significant, long-term symptoms.

What Is the Temporomandibular Joint?

The temporomandibular joint connects the lower jaw, called the mandible, to the temporal bone at the side of the head. If you place your fingers just in front of your ears and open your mouth, you can feel the joint on each side of your head. Because these joints are flexible, the jaw can move smoothly up and down and side to side, enabling us to talk, chew and yawn. Muscles attached to and surrounding the jaw joint control its position and movement.



When we open our mouths, the rounded ends of the lower jaw, called condyles, glide along the joint socket of the temporal bone. The condyles slide back to their original position when we close our mouths. To keep this motion smooth, a soft disc lies between the condyle and the temporal bone. This disc absorbs shocks to the TMJ from chewing and other movements.



What Are Temporomandibular Disorders?

Today, researchers generally agree that temporomandibular disorders fall into three main categories:

- **myofascial pain**, the most common form of TMD, which is discomfort or pain in the muscles that control jaw function and the neck and shoulder muscles;
- **internal derangement of the joint**, meaning a dislocated jaw or displaced disc, or injury to the condyle;
- **degenerative joint disease**, such as osteoarthritis or rheumatoid arthritis in the jaw joint.

A person may have one or more of these conditions at the same time.

What Causes TMD?

We know that severe injury to the jaw or temporomandibular joint can cause TMD. A heavy blow, for example, can fracture the bones of the joint or damage the disc, disrupting the smooth motion of the jaw and causing pain or locking. Arthritis in the jaw joint may also result from injury. Other causes of TMD are less clear. Some suggest, for example, that a bad bite (malocclusion) can trigger TMD, but recent research disputes that view. Orthodontic treatment, such as braces and the use of headgear, has also been blamed for some forms of TMD, but studies now show that this is unlikely.

And there is no scientific proof that gum chewing causes clicking sounds in the jaw joint, or that jaw clicking leads to serious TMJ problems. In fact, jaw clicking is fairly common in the general population. If there are no other symptoms, such as pain or locking, jaw clicking usually does not need treatment.

Researchers believe that most people with clicking or popping in the jaw joint likely have a displaced disc -- the soft, shock-absorbing disc is not in a normal position. As long as the displaced disc causes no pain or problems with jaw movement, no treatment is needed.

Some experts suggest that stress, either mental or physical, may cause or aggravate TMD. People with TMD often clench or grind their teeth at night, which can tire the jaw muscles and lead to pain. It is not clear, however, whether stress is the cause of the clenching/grinding and subsequent jaw pain, or the result of dealing with chronic jaw pain or dysfunction. Scientists are exploring how behavioral, psychological and physical factors may combine to cause TMD.

TMD Signs and Symptoms

A variety of symptoms may be linked to TMD. Pain, particularly in the chewing muscles and/or jaw joint, is the most common symptom. Other likely symptoms include:

- limited movement or locking of the jaw,
- radiating pain in the face, neck or shoulders,
- painful clicking, popping or grating sounds in the jaw joint when opening or closing the mouth.
- a sudden, major change in the way the upper and lower teeth fit together.

Symptoms such as headaches, earaches, dizziness and hearing problems may sometimes be related to TMD. It is important to keep in mind, however, that occasional discomfort in the jaw joint or chewing muscles is quite common and is generally not a cause for concern. Researchers are working to clarify TMD symptoms, with the goal of developing easier and better methods of diagnosis and improved treatment.

Diagnosis

Because the exact causes and symptoms of TMD are not clear, diagnosing these disorders can be confusing. At present, there is no widely accepted, standard test to correctly identify TMD. In about 90 percent of cases, however, the patient's description of symptoms, combined with a simple physical examination of the face

and jaw, provides information useful for diagnosing these disorders.

The examination includes feeling the jaw joints and chewing muscles for pain or tenderness; listening for clicking, popping or grating sounds during jaw movement; and examining for limited motion or locking of the jaw while opening or closing the mouth. Checking the patient's dental and medical history is very important. In most cases, this evaluation provides enough information to locate the pain or jaw problem, to make a diagnosis, and to start treatment to relieve pain or jaw locking.

Regular dental X-rays and TMJ x-rays (transcranial radiographs) are not generally useful in diagnosing TMD. Other x-ray techniques, such as arthrography (joint x-rays using dye); magnetic resonance imaging (MRI), which pictures the soft tissues; and tomography (a special type of x-ray), are usually needed only when the practitioner strongly suspects a condition such as arthritis or when significant pain persists over time and symptoms do not improve with treatment. Before undergoing any expensive diagnostic test, it is always wise to get another independent opinion.

One of the most important areas of TMD research is developing clear guidelines for diagnosing these disorders. Once scientists agree on what these guidelines should be, it will be easier for practitioners to correctly identify temporomandibular disorders and to decide what treatment, if any, is needed.

Treatment

The key words to keep in mind about TMD treatment are "conservative" and "reversible." Conservative treatments are as simple as possible and are used most often because most patients do not have severe, degenerative TMD. Conservative treatments do not invade the tissues of the face, jaw or joint. Reversible treatments do not cause permanent, or irreversible, changes in the structure or position of the jaw or teeth.

Because most TMD problems are temporary and do not get worse, simple treatment is all that is usually needed to relieve discomfort. Self-care practices, for example, eating soft foods, applying heat or ice packs, and avoiding extreme jaw movements (such as wide yawning, loud singing and gum chewing) are useful in easing TMD symptoms. Learning special techniques for relaxing and reducing stress may also help patients deal with pain that often comes with TMD problems.

Other conservative, reversible treatments include physical therapy you can do at home, which focuses on gentle muscle stretching and relaxing exercises, and short-term use of muscle-relaxing and anti-inflammatory drugs.

The health care provider may recommend an oral appliance, also called a splint or bite plate, which is a plastic guard that fits over the upper or lower teeth. The splint can help reduce clenching or grinding, which eases muscle tension. An oral splint should be used only for a short time and should not cause permanent changes in the bite. If a splint causes or increases pain, stop using it and see your practitioner.

The conservative, reversible treatments described are useful for temporary relief of pain and muscle spasm -- they are not "cures" for TMD. If symptoms continue over time or come back often, check with your doctor.

There are other types of TMD treatment, such as surgery or injections, that invade

the tissues. Some involve injecting pain relieving medications into painful muscle sites, often called "trigger points." Researchers are studying this type of treatment to see if these injections are helpful over time.

Surgical treatments are often irreversible and should be avoided where possible. When such treatment is necessary, be sure to have the doctor explain to you, in words you can understand, the reason for the treatment, the risks involved, and other types of treatment that may be available.

Scientists have learned that certain irreversible treatments, such as surgical replacement of jaw joints with artificial implants, may cause severe pain and permanent jaw damage. Some of these devices may fail to function properly or may break apart in the jaw over time. *Before undergoing any surgery on the jaw joint, it is very important to get other independent opinions.*

The Food and Drug Administration has recalled artificial jaw joint implants made by Vitek, Inc., which may break down and damage surrounding bone. If you have these implants, see your oral surgeon or dentist. If there are problems with your implants, the devices may need to be removed.

Other irreversible treatments that are of little value -- and may make the problem worse -- include orthodontics to change the bite; restorative dentistry, which uses crown and bridge work to balance the bite; and occlusal adjustment, grinding down teeth to bring the bite into balance.

Although more studies are needed on the safety and effectiveness of most TMD treatments, scientists strongly recommend using the most conservative, reversible treatments possible before considering invasive treatments. Even when the TMD problem has become chronic, most patients still do not need aggressive types of treatment.

If You Think You Have TMD...

Keep in mind that for most people, discomfort from TMD will eventually go away whether treated or not. Simple self-care practices are often effective in easing TMD symptoms. If more treatment is needed, it should be conservative and reversible. Avoid, if at all possible, treatments that cause permanent changes in the bite or jaw. If irreversible treatments are recommended, be sure to get a reliable second opinion.

Many practitioners, especially dentists, are familiar with the conservative treatment of TMD. Because TMD is usually painful, pain clinics in hospitals and universities are also a good source of advice and second opinions for these disorders. Specially trained facial pain experts can often be helpful in diagnosing and treating TMD.

Research

The National Institute of Dental Research supports an active research program on TMD. Developing reliable guidelines for diagnosing these disorders is a top priority. Studies are also under way on the causes, treatments, and prevention of TMD. Through continued research, pieces of the TMD puzzle are falling slowly but steadily into place.

A Technology Assessment Conference on Management of Temporomandibular Disorders was held at the National Institutes of Health in spring 1996. Free copies of the summary statement from the TMD conference are available from:

NIH Consensus Program Information Center

P.O. Box 2577

Kensington, MD 20891

Toll free: 1-888-644-2667

web site: <http://consensus.nih.gov/>