



Your Guide To Temporomandibular Disorders

TMJA
The TMJ Association, Ltd.

Welcome

The TMJ Association provides this information to help you, the patient, make informed health care decisions. Our sources include some of the leading authorities on the diagnosis and treatment of Temporomandibular Disorders. This information will help you understand the nature and complexity of the Temporomandibular Joint (TMJ), Temporomandibular Disorders (TMD), and what we have learned from the latest research. Always consult your health care provider for specific treatment options.

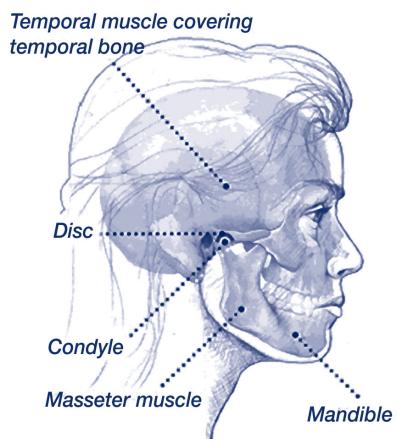
Contents

What Is The Temporomandibular Joint?	3
What Are Temporomandibular Disorders?	4
Who Is Affected?	5
What Causes TMD?	5–6
Symptoms	6
Whom Should You See?	7–8
Diagnosis	8
Treatments	9–12
Disease Prevention	12
Nutritional Health	12
Insurance Coverage	12–13
Research For Solutions	13–14
References	14–17
About The TMJ Association	17
How You Can Help	18
Disclaimer	19

The TMJ Association, Ltd. is a nonprofit 501(c)(3) tax-exempt organization.
© 2013 by The TMJ Association, Ltd.

What Is The Temporomandibular Joint?

The Temporomandibular (TM) Joint is the jaw joint. You have two TM joints which work together as a pair, one in front of each ear. The joints connect the lower jaw bone (the mandible) to the temporal bones of the skull on each side of the head. The muscles controlling the joints are attached to the mandible and allow the jaw to move in three directions: up and down, side to side, and forward and back.



When you open your mouth, the rounded upper ends of the mandible on each side of the jaw (the condyles) glide along the joint socket at the base of the skull. They slide back to their original position when you close your mouth. To keep this motion working smoothly, a soft tissue disc lies between the condyle and the socket. The disc absorbs the shock to the joint from chewing and other movements. The combination of synchronized as well as three-dimensional movements of the paired joints distinguishes them as the most complicated joints in the body. They also differ in biological composition from other weight-bearing joints, like the hip or knee.

What Are Temporomandibular Disorders?

Temporomandibular Disorders (TMD) are a complex and poorly understood set of conditions characterized by pain in the jaw joint and surrounding tissues and limitation in jaw movements. Injuries and other conditions that routinely affect other joints in the body, such as arthritis, also affect the Temporomandibular Joint. One or both joints may be involved and, depending on the severity, can affect a person's ability to speak, chew, swallow, make facial expressions, and even breathe. Also included under the heading of TMD are disorders involving the jaw muscles. These may accompany the jaw joint problems or occur independently.

Scientists have found that most patients with TMD also experience painful conditions in other parts of the body. These comorbid conditions include chronic fatigue syndrome, chronic headache, endometriosis, fibromyalgia, interstitial cystitis, irritable bowel syndrome, low back pain, sleep disorders, and vulvodynia. They are considered comorbid because they occur together more often than chance can explain. In addition, the conditions share other features. These findings are stimulating research into common mechanisms underlying all of these comorbid conditions.

Indeed, other research indicates that TMD is a complex disease like hypertension or diabetes involving genetic, environmental, behavioral, and sex-related factors. Note

that many of the comorbidities mentioned are more prevalent or occur exclusively in women.

Who Is Affected?

Approximately 12% of the population or 35 million people in the United States are affected by TMD at any given time. While both men and women experience these disorders, the majority of those seeking treatment are women in their childbearing years. The ratio of women to men increases with the severity of symptoms, approaching nine women for every one man with major limitations in jaw movements and chronic, unrelenting pain.

What Causes TMD?

Adding to the complexity of TMD is that there can be multiple causes – as well as cases where no obvious cause can be found. Some known causes are the following:

- autoimmune diseases (in which the body's immune cells attack healthy tissue)
- infections
- injuries in the jaw area
- dental procedures (even prolonged mouth opening)
- insertion of a breathing tube before surgery
- various forms of arthritis

Additionally, there are genetic, hormonal, and environmental factors that can increase the risk for TMD. Studies have shown that a particular gene variant increases sensitivity to pain, and this variant has been found to be more prevalent among TMD patients than among the population at large. The observation that jaw problems are commonly found in women in the childbearing years has also led to research to determine the role of female sex hormones, particularly estrogen, in TMD. Environmental factors such as habitual gum chewing or sustained jaw

positions, such as resting a phone on your shoulder, may also contribute to TMD. Singers and musicians, such as violinists, may also be susceptible to TMD due to jaw stretching or positioning the head and neck to hold the instrument.

Symptoms

The pain of TM disorders is often described as a dull, aching pain, which comes and goes in the jaw joint and nearby areas. However, some people report no pain but still have problems moving their jaws. Symptoms may include the following:

- pain in the jaw muscles
- pain in the neck and shoulders
- chronic headaches
- jaw muscle stiffness
- limited movement or locking of the jaw
- ear pain, pressure, fullness, ringing in the ears (tinnitus)
- painful clicking, popping or grating in the jaw joint when opening or closing the mouth
- a bite that feels “off”
- dizziness
- vision problems

Keep in mind that occasional clicking or discomfort in the jaw joint or chewing muscles is common and is not always a cause for concern. Often, the problem goes away on its own in several weeks to months. However, if the pain is severe and lasts more than a few weeks, consult with your health care provider.

Whom Should You See?

If you think you have TMD, see a medical doctor to rule out some of the conditions that may mimic TMD. For example, facial pain can be a symptom of many conditions, such as sinus or ear infections, decayed or abscessed teeth, various types of headache, facial neuralgia (nerve-related facial pain), and even tumors. Certain other diseases such as Ehlers-Danlos syndrome, dystonia, Lyme disease, and scleroderma may also affect the function of the TMJ.

There is no medical or dental specialty of qualified experts trained in the care and treatment of TMD. As a result, there are no established standards of care in clinical practice. Although a variety of health care providers advertise themselves as “TMJ specialists,” many of the more than 50 different treatments available today are not based on scientific evidence. These doctors practice according to one of many different schools of thought on how to best treat TMD. This means that you, the patient, may have difficulty finding the right care. However, first and foremost, educate yourself. Informed patients are better able to communicate with health care providers, ask questions, and make knowledgeable decisions. For information and guidance regarding treatment, visit <http://www.tmj.org>.

The National Institutes of Health (NIH) advises patients to look for a health care provider who understands musculoskeletal disorders (affecting muscle, bone and joints) and who is trained in treating pain conditions. Pain clinics in hospitals and universities are often a good source of advice, particularly when pain becomes chronic and interferes with daily life.

Complex cases, often marked by chronic and severe pain, jaw dysfunction, comorbid conditions, and diminished quality of life, will likely require a team of doctors from fields such as neurology, rheumatology, pain management, and other specialties for diagnosis and treatment.

Diagnosis

To aid health care providers, the American Association for Dental Research recommends that a diagnosis of TMD or related orofacial pain conditions should be based primarily on information obtained from the patient's history and a clinical examination of the head and neck. They may note, for example, whether patients experience pain when mild pressure is applied to the joint itself or to the chewing muscles. The patient's medical history should not be restricted to the dentition (the teeth and their arrangement) or to the head and neck, but instead should be a complete medical record, which may reveal that the patient is also experiencing one or more of the comorbid conditions found to occur frequently in TMD patients. Blood tests are sometimes recommended to rule out possible medical conditions as a cause of the problem. Before undergoing any costly diagnostic test, it is always wise to get an independent opinion from another health care provider of your choice (one who is not associated with your current provider).

As a patient, you should discuss your concerns with your primary care physician or internist to help rule out any other conditions which could be causing symptoms as well as to help get your pain under control.

Treatments

Most people with TMD have relatively mild or periodic symptoms which may improve on their own within weeks or months with simple home therapy. Self-care practices, such as eating soft foods, applying ice or moist heat, and avoiding extreme jaw movements (such as wide yawning, loud singing, and gum chewing) are helpful in easing symptoms.

According to the NIH, because more studies are needed on the safety and effectiveness of most treatments for jaw joint and muscle disorders, experts strongly recommend using the most conservative, reversible treatments possible. Conservative treatments do not invade the tissues of the face, jaw, or joint, or involve surgery. Reversible treatments do not cause permanent changes in the structure or position of the jaw or teeth. Even when TM disorders have become persistent, most patients still do not need aggressive types of treatment. The NIH brochure on TMJ Disorders is available at: <http://www.nidcr.nih.gov/OralHealth/Topics/TMJ/TMJDisorders.htm>.

Pain Medications

For many people, short-term use of over-the-counter pain medications or nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, may provide temporary relief from jaw and muscle discomfort. If pain persists, your medical provider can prescribe stronger pain or anti-inflammatory medications, muscle relaxants, or antidepressants that can help ease pain and other symptoms. It's also important to work

closely with your primary care physician so that they can monitor the systemic effects of these medications and advise on side effects and drug interactions.

Splints

A dentist may recommend an oral appliance, also called a stabilization splint or bite guard, which is made of hard acrylic resin and fits over the upper or lower teeth. If a stabilization splint is recommended, it should be used only for a short time and should not cause permanent changes in the bite. Studies of their effectiveness in providing pain relief, however, have been inconclusive. In some patients, it may encourage clenching and grinding, and therefore, increase the symptoms. If a splint causes or increases pain, stop using it immediately and contact your dentist.

Another type of splint, called a mandibular repositioning splint (MORA), is one that is used to move the lower jaw either forward or backward. It is intended to put the jaw into a new position, and therefore, it can cause permanent changes in the bite. It is a more invasive form of splint treatment. This is a concept that has long been refuted and has no scientific validity.

Other Treatments

Beware of some procedures that are irreversible, have not been proven effective for treating TMD, and may make your problem worse. These include the following:

- orthodontics treatment to change the bite
- crown and bridge work

- grinding down teeth (occlusal adjustment)
- mandibular repositioning splint (*MORA*)
- injections such as Botox, hyaluronan, steroid injections

TMJ Surgery

Surgical treatments are controversial and should be avoided if possible. There have been no long-term clinical trials to study the safety and effectiveness of surgical treatments for TMD, nor are there criteria to identify people who would most likely benefit from surgery. Failure to respond to conservative treatments, for example, does not automatically mean that more aggressive treatments, such as surgery are necessary. If you have had prior joint surgery, remember that another surgical procedure is not always the answer to the problem.

TMJ Implants

Replacement of the temporomandibular joint with an artificial implant should only be considered as a last resort. When used in patients who have had multiple prior jaw surgeries, it may improve function, but studies have shown that it generally does not significantly reduce pain. Before undergoing such surgery on the jaw joint, it is extremely important to get other independent opinions and to fully understand the potential benefits and significant risks. Information on TMJ implants can be found at: <http://www.tmj.org/site/content/tmjimplants>.

Questions you should ask your health care professional before agreeing to any procedure for TMD are available on our website at: http://www.tmj.org/site/pdf/Questions_You_Should_Ask.pdf

The United States Food and Drug Administration (FDA) monitors the safety and effectiveness of medical devices implanted in the body, including splints and jaw joint implants. Patients should not assume their dentist reports device problems directly to the FDA even if issues are discussed. Regardless, patients should protect themselves by filing an FDA MedWatch report at: <http://www.fda.gov/medwatch> or 1-800-332-1088.

Disease Prevention

There are no treatments that can prevent TMD. If you have been told that you should undergo a particular treatment to prevent the development of a TMD problem, you should know that there is currently no evidence to support such treatments.

Nutritional Health

TMD alone can lead to poor nutrition if jaw pain and oral disability seriously affect your diet. In addition, TMD patients may experience dry mouth as a side effect of chronic pain medications and other drugs. The lack of saliva to bathe the oral tissues increases the risk for dental cavities, yeast infections, and broken teeth and adds to the difficulties in chewing and swallowing. The mouth may also become more sensitive to pain and temperature, and taste may be affected. Speak to your health care provider, or enlist the support of a registered dietitian to help you with your nutritional health.

Insurance Coverage

Many medical and dental insurance plans do not cover TMD treatments or only pay for

some procedures. Until there are scientifically validated, safe and effective treatments, insurance companies will not pay for treatments that have questionable outcomes. Contact your insurance company to see if they will cover the cost of a treatment being recommended to you.

Research For Solutions

As research advances to understand more about TMD, many in the health care community are reassessing past treatments and ways in which they were developed. As noted earlier, there is a growing consensus of health professionals who consider TMD a complex family of conditions like hypertension or diabetes. In that regard, the TMD patient should not be seen as someone with an isolated dental or jaw condition but rather viewed as a whole individual subject to genetic, hormonal, environmental and behavioral factors that may be contributing not only to jaw pain and dysfunction, but to a range of other serious comorbid conditions.

In some cases, the patient may experience one condition initially and then go on to develop one or more comorbidities. In other cases, two conditions may occur together at the outset. Such a perspective can direct and inspire scientists to discover commonalities that can advance understanding and ultimately lead to beneficial therapies.

Research to understand why these conditions coexist is in its early stages, but it is already prompting leading investigators to propose a name change. "TMD" is not an

apt term to describe the complex multi-system pains and dysfunctions that many patients experience. The thinking now is that these debilitating problems experienced in various parts of the body have their origin in pathology at the highest levels of the brain and central nervous system.

The TMJ Association (TMJA) continues to advocate for research for solutions to TMD and the medical conditions that frequently co-occur it, as well as for the development of safe and effective diagnostics and treatments. We will keep you updated on the latest scientific research findings through our website, <http://www.tmj.org>. We invite you to visit often.

References

- Agency for Healthcare Research and Quality. *Study of the per-patient cost and efficacy of treatment for temporomandibular joint disorders*. (AHRQ Publication No. 290-96-0009). Washington, D.C.: The Lewin Group, 2001.
- Hoffman R.G., Kotchen J.M., Kotchen T.A., Cowley, T., Dasgupta, M., Cowley, A.W., Jr. Temporomandibular joint disorders and associated clinical comorbidities. *Clin J of Pain*. 27: 268–274, 2011.
- Lim, P.F., Smith, S., Bhalang, K., Slade, G.D., Maixner, W. Development of temporomandibular disorders is associated with greater bodily pain experience. *Clin J of Pain*. 26(2): 116–20, 2010.
- Mercuri, L. (1991). Fixation on the Disc. Practical Reviews in Oral and Maxillofacial Surgery [cassette]. Birmingham: Oakstone Medical Publishing.
- National Institute of Dental and Craniofacial Research. *Biological mechanisms linking comorbid conditions associated with temporomandibular joint and muscle disorders*. Retrieved May 5, 2004 from www.nidcr.nih.gov.
- National Institutes of Health. TMJ Disorders. [Brochure]. Bethesda, MD., March 2010.
- National Institutes of Health: National Institute of Dental and Craniofacial Research. (1993). Estimated prevalence and distribution of reported orofacial pain in the United States. *Journal of the American Dental Association*, 5 (10), 115–121.
- National Institutes of Health Technology Assessment Conference Statement. *Management of temporomandibular disorders*. Washington, D.C.: Government Printing Office, 1996.
- Overlapping Conditions Alliance. Chronic Pain in Women: Neglect, Dismissal and Discrimination. May 2010, pp. 1–37, 2010. Available online at: <http://endwomenspain.org>.
- Reid, K.I., Greene, C.S., Diagnosis and treatment of temporomandibular disorders: an ethical analysis of current practices. *J. of Oral Rehabilitation*, 2013 Jul;40(7):546–61.
- Sanders, A., Slade, G., Bair, E., Fillingim, R., Knott, C., Dubner, R., Greenspan, J., Maixner, W., Ohrbach, R. General Health Status and Incidence of First-Onset Temporomandibular Disorders: The OPPERA Prospective Cohort Study. *Pain*. Vol 14(12): T51–T62, Suppl. 2, 2013.

Slade, G., Fillingim, R., Sanders, A., Bair, E., Greenspan, J., Ohrbach, R., Dubner, R., Diatchenko, L., Smith, S., Knott, C., Maixner, W. Summary of Findings from the OPPERA Prospective Cohort Study of Incidence of First-onset Temporomandibular Disorders: Implications and Future Directions. *Pain*. Vol 14(12): T116–T124, Suppl. 2, 2013.

Stohler C.S., Zarb, G.A. On the management of temporomandibular disorders: a plea for a low-tech, high-prudence therapeutic approach. *J. Orofac. Pain*. 1999;13:255–261.

Temporomandibular Disorders (TMD). Policy Statement. American Association for Dental Research. Adopted 1996, Revised 2010. Available online at: <http://www.aadronline.org/i4a/pages/index.cfm?pageid=3465#TMD>.

The TMJ Association. Moving Temporomandibular Joint research into the 21st century, *TMJ Science*. 1(1): 9–18, 2001.

The TMJ Association. Joint and muscle dysfunction of the Temporomandibular Joint, *TMJ Science*. 2(1): 5–15, 2003.

The TMJ Association. Advancing diagnostic approaches for Tmj Diseases and Disorders, *TMJ Science*. 3(1): 7–18, 2005.

The TMJ Association. A systems approach to the understanding of TMJ as a complex disease, *TMJ Science*. 4(1): 9–24, 2007.

The TMJ Association. Can studies of comorbidities with TMJDs Reveal Common Mechanisms of Disease? *TMJ Science*. 5(1): 11–28, 2009.

The TMJ Association. Comorbid Chronic Pain Conditions – Mechanisms, Diagnosis and Treatments, *TMJ Science*. 6(1): 11–37, 2011.

About The TMJ Association

The TMJ Association, Ltd. is a national, nonprofit organization whose mission is to improve the quality of health care and lives of everyone affected by Temporomandibular Disorders. We achieve our mission by:

- Advocating for the needs of patients.
- Promoting awareness of TMD among the public, policymakers, basic and clinical research and health care communities.
- Encouraging basic and clinical research on TMD to provide greater understanding and safer and more effective methods of diagnosis and treatment, based on scientific evidence.
- Periodically convening international scientific meetings to explore new findings and recommend promising lines of research to further the understanding of TMD.
- Serving as a resource for the collection and dissemination of information on advances in research, treatment, insurance practices, patients' rights, and legal and ethical issues.
- Communicating with elected officials, government agencies, professional organizations, community leaders and other policymakers concerning TMD issues.
- Benefiting from a prestigious Scientific Advisory Board for collaboration and consultation.
- Collaborating with other patient advocacy organizations whose members experience conditions that overlap with TMD.

How You Can Help

As a nonprofit organization, we rely upon the contributions of those who support our efforts in advocating for patients and searching for effective treatments for TMD and comorbid conditions. Please consider being part of the solution to TMD problems by contributing to The TMJ Association through a tax-deductible contribution.

You can also help by contacting your elected officials in Congress at <http://www.senate.gov> and <http://www.house.gov> and the National Institutes of Health at <http://www.nih.gov>. Tell them how these conditions have affected your life. Urge them to fund quality, multidisciplinary scientific research, develop safe and effective treatments, and ultimately find ways to prevent TMD and the comorbid conditions. Learn more about The TMJ Association and TMD at the following:

The TMJ Association, Ltd.
P.O. Box 26770
Milwaukee, WI 53226-0770
Phone: 262-432-0350
Fax: 262-432-0375
Email: info@tmj.org
Website: <http://www.tmj.org>

Disclaimer

This brochure was funded through a restricted grant from Purdue Pharma L.P. Additional support provided by Award Number R13DE0022238-01 from the National Institute of Dental and Craniofacial Research.

The content is solely the responsibility of The TMJ Association, Ltd., and does not necessarily represent the official views of Purdue Pharma L.P., the National Institute of Dental and Craniofacial Research, or the National Institutes of Health.

**The TMJ Association, Ltd.
P.O. Box 26770
Milwaukee, WI 53226-0770**

**Phone: 262-432-0350
Fax: 262-432-0375
Website: <http://www.tmj.org>**

Email: info@tmj.org