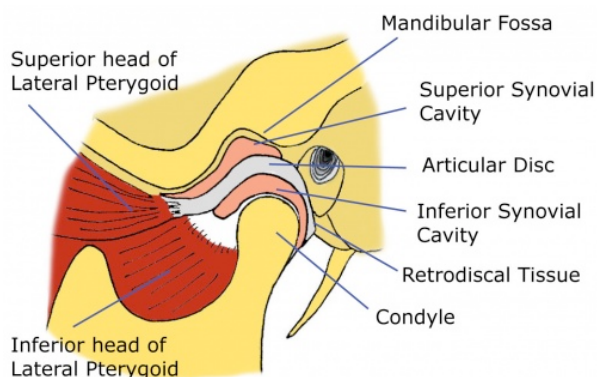


Performing Arts Injury Prevention

Temporomandibular Joint Anatomy, Function and Self-Care

What is the TMJ?

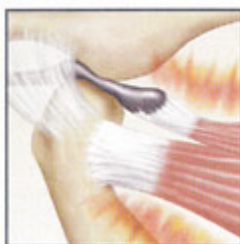
The temporomandibular (tem-PUH-ro-man-DIB-yoo-ler) joint, or the TMJ, connects the upper and lower jawbones. This joint allows the jaw to open wide and move back and forth when you chew, talk, or yawn. The disk (sandwiched in the middle of the joint) should lie between the condyle and fossa.



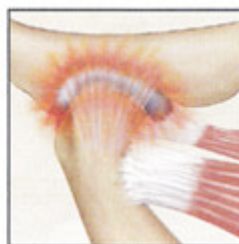
The Temporomandibular Joint

Common TMJ problems

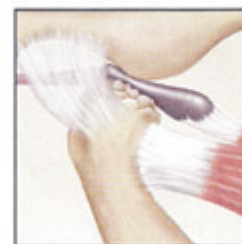
Muscle spasm can lead to trigger points (discussed later in this handout)



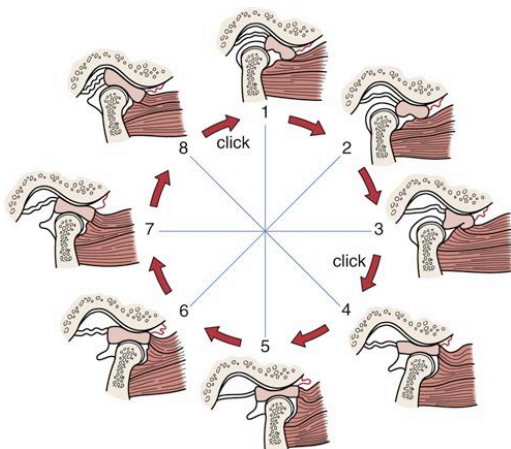
Tight Muscles
The muscles surrounding the TMJ can go into **spasm** (tighten) and cause pain.



Inflamed Joints
Inflammation may include pain, redness, heat, swelling, or loss of function.

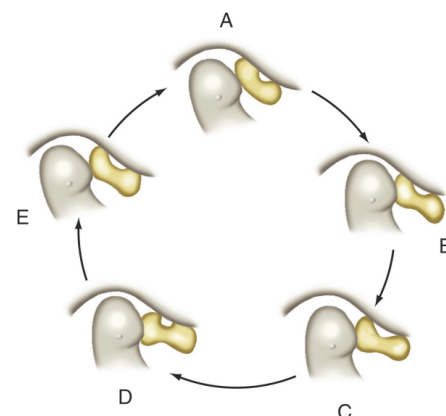


Damaged Joints
Many people hear clicking when their jaw moves. If you feel pain along with the noise, the joint may be damaged.



Reciprocal Click. If the disk is displaced forward when the jaw is closed (#1 in picture left), it may relocate back to its proper location when you open your jaw (3-4), causing a click during opening; if the disk displaces again when you close your jaw (8-1), it will cause another click called a ‘reciprocal click’. You may be able to keep the disk in its proper location by closing your mouth with the tips of your front teeth touching, then drawing your jaw straight backwards. Try to avoid opening your jaw widely, as this may displace the disk again. Tight jaw muscles and general hypermobility increase the chance of having a reciprocal click.

Anterior disk displacement. (Picture right) The more time the disk spends displaced (i.e., clicking), the looser the ligaments become and the more likely the problem is to become permanent. If the disk gets stuck in front of the joint, it may prevent you from opening your jaw fully or make your jaw deviate to one side when you open.



Instructions for Patients with Temporomandibular Disorders (TMJ)

Success in treating your temporomandibular joint (TMJ) or associated muscular symptoms depend largely upon the way you treat the involved areas. Following the instructions below will help you to manage your symptoms and aid the healing process.

Do's

- **Do** breathe through your nose if able, not through your mouth.
- **Do** rest your tongue against the roof of your mouth for greatest relaxation of your jaw muscles.
- **Do** maintain good posture at all times (keep your head in the midline over your shoulders).
- If it is painful to open your mouth to brush your teeth, **do** try using a child's toothbrush.
- **Do** sleep on your back with a thin pillow under your head and a small towel roll under your neck.
- Do try to limit opening your mouth to a thumb's thickness when yawning, laughing, coughing, sneezing or singing.
- **Do** cut your food into small, bite-size pieces to prevent opening your mouth too wide.
- When in stressful situations, **do** utilize stress management techniques to prevent unproductive tensing of your jaw, face and neck muscles.

Don'ts

- **Do not** eat any foods that require prolonged chewing (hard crusts of bread, bagels, tough meats or popcorn).
- **Do not** eat hard "crunchy" foods (peanuts, corn nuts and raw vegetables) or chew on ice cubes.
- **Do not** chew gum, even occasionally!
- **Do not** bite into any foods with your front teeth.
- **Do not** move your jaw in such a way that it causes the joint to make a clicking, popping or grinding sound.
- **Do not** bite your fingernails, chew on pencils or pens, bite your cheeks or lips, etc.
- **Do not** protrude your lower jaw forward when applying lipstick, eating or talking.
- **Do not** rest your jaw on your hand.
- If you wear a dental splint, **do not** play with it with your tongue.
- **Do not** clench or grind your teeth. Keep your lips together but your teeth apart!

For more information: www.nidcr.nih.gov
National Institute of Dental and Craniofacial Research
National Institutes of Health
Bethesda, MD 20892-2190

Check our website: www.uhs.berkeley.edu to learn more about this medical concern or others.

Temporomandibular Joint (TMJ) Pain

Modified from a patient information handout at: *Am Fam Physician*. 2007 Nov 15;76(10):1483-1484.
<http://www.aafp.org/afp/2007/1115/p1483.html>

What can I do to ease the pain?

There are many things you can do to help your pain get better. When you have pain:

- Eat soft foods and stay away from chewy foods (for example, taffy); don't chew ice. Don't chew gum, bite your cheeks or fingernails
- Make sure your jaw is relaxed: teeth apart, tongue on the roof of your mouth.
- Don't open your mouth wide (for example, during yawning or singing). This is especially important if you are hypermobile (have room for more than 2 knuckles between your front teeth). When pain is severe, limit opening to the range you can do while keeping the tongue on the roof of your mouth.
- Lower your levels of stress and worry or practice relaxation activities to relieve unavoidable stress.
- Apply a warm, damp washcloth to the joint may help. If heat does not work, ice may work better.
- Massage or stretch muscles with trigger points.
- Relax before you go to sleep at night can decrease the chance that you will grind or clench.
- Consider using an appliance (mouth guard specifically designed for TMJ pain) to help you stop clenching and grinding your teeth at night. The mouth guards you buy at the drug store will probably not work; see your dentist.
- Over-the-counter pain medicines such as ibuprofen, naproxen or acetaminophen might also help. Do not use these medicines if you are allergic to them or if your doctor told you not to use them.

How can I stop the pain from coming back?

To prevent pain from coming back, you need to identify what activities aggravated the TMJ in the first place; try to change habits or posture to avoid these activities.

Realigning the Head, Neck and Jaw through RTTPB:

Objectives:

- To promote total body relaxation.
- To decrease pressure with in the TMJs.
- To provide for good head, neck, and back posture.
- To decrease muscular tension in the jaw, neck, and shoulders

The mnemonic RTTPB can help you remember the proper resting position for your TMJ.

Directions:

- **R** – Relax: Stop what you are doing. Allow the tension in your body to be released.
- **T** – Teeth apart: Say the word "Emma." Maintain your jaw in this slightly opened position.
- **T** – Tongue on the roof of your mouth, just behind your upper two front teeth. Hold your tongue in this "clucking" position.
- **P** – Posture: Imagine two strings. One string pulls straight up from the crown of your head to the ceiling; the second string pulls up and out from your breastbone.
- **B** – Breathing: Diaphragmatic (from your abdomen). Place one hand on upper chest and the other hand on your belly. When you breathe in (inhale), the hand on your belly should rise more than the hand on your chest. (Imagine inflating a balloon in your belly as you inhale.)

Additional exercises for people with TMJ hypermobility are available on line at:

<http://www.students.vcu.edu/health/docs/TMJ%20Exercises.pdf>

These exercises should not be painful. If it hurts to do these exercises, stop doing them and talk to a physical therapist knowledgeable about TMJ problems.

Masseter Muscles (MASS-uh-ter)

This muscle clenches the teeth. Pain located: over eyebrow, deep in the ear, over cheek and jaws. The masseter can cause tension-type headaches.

❖ Other symptoms:

- Limited range of mouth-opening
- Pain in the upper and lower molar teeth
- Teeth hypersensitive to pressure and temperature
- Ringing in one ear (tinnitus), earache
- Temporomandibular (jaw) pain

❖ Aggravating factors:

- Clenching or grinding the teeth, or teeth not meeting properly
- Chewing: constant gum chewing, forceful biting, chewing pens
- Forward head posture
- Mouth breathing (as with sinus congestion)
- Emotional tension
- Overstretch during dental procedure; excessive jaw mobility

Prevention

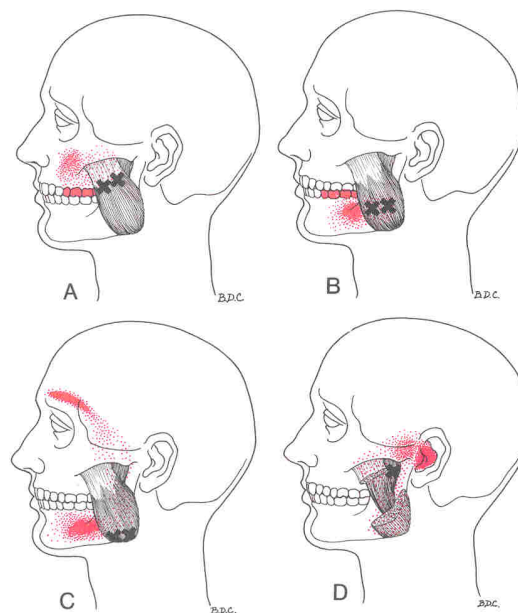
Correct forward head posture

Correct mouth position, with tongue on roof of mouth, teeth slightly apart

Avoid excessive chewing, clenching teeth, using a mouth guard to prevent grinding teeth at night

Correct dental problems that prevent proper closing of teeth

Decrease muscle tension due to stress



Temporalis Muscles (tem-por-AL-iss)

This muscle also clenches the teeth. Pain located: over the temple, over eyebrow, behind ear. The temporalis can cause tension-type headaches on one or both sides of the head.

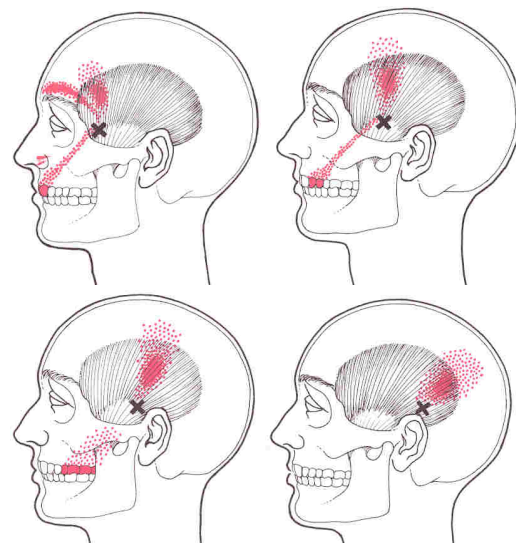
❖ Other symptoms:

- Pain in upper teeth; sensitivity to hot/cold
- Temporomandibular (jaw) joint pain
- Inability to open jaw far enough to fit 2 knuckles in
- Teeth do not seem to meet correctly

❖ Aggravating factors

- Long periods of holding jaw in one position, either open or closed, as during dental work
- Clenching jaw (bruxism), grinding teeth at night, chewing gum, or temporomandibular problems
- Muscle tension from stress
- Exposure to cold draft when muscle fatigued
- Posture with head forward
- Trigger points in other muscles, such as sternocleidomastoid or upper trapezius
- Neck traction using a chin strap

Prevention: Same as for masseter muscle, above



Sternocleidomastoid (SCM) Muscle (STIR-noh-KLY-doh-MASS-toid)

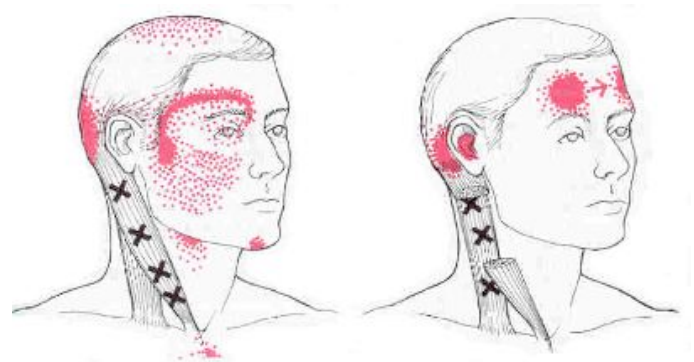
In addition to TMJ pain, the SCM can cause migraine, tension or cluster headache type pain that may be on one or both sides of the head. Pain located: around or behind the eye, forehead over the eye, back or top of skull, across the cheek and within the jaw. TrP in the SCM can cause TrP in other TMJ muscles.

❖ Other symptoms:

- Ear ache, ear fullness, ringing in the ear
- Dizziness and balance problems
- Blurred vision, tearing or redness of one eye or drooping of one eyelid
- Sinus pain or congestion on one or both sides.
- Sore throat or dry cough
- Nausea

❖ Aggravating factors

- Posture with head forward (chin poking forward)
- Holding an instrument or phone between the shoulder and chin or ear
- Prolonged sitting with head turned to the side (e.g., watching TV or at a computer workstation)
- Sleeping on the back with extra pillows that tilt head forward
- Prolonged tilting head backward (e.g., with overhead work or front-row theater seats)
- Whiplash-type injury
- Rounded shoulders or tight chest muscles
- Using neck muscles for breathing, especially after a chronic cough or asthma



Prevention

Good posture, with shoulders and head back so that the ear is over the shoulder, which is over the hip

Avoid prolonged rotation of your neck and prolonged overhead work

Avoid tilting head when talking on the phone; use speakerphone or headset if you use the phone a lot

Lateral Pterygoid (TEHR-uh-goid)

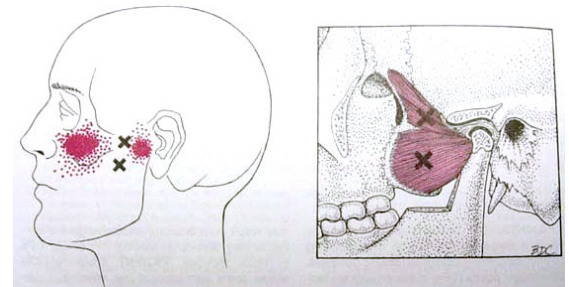
This muscle is used to open the mouth and to push the jaw forward (protrude). It can be overused while pushing the jaw forward playing a wind instrument, if you use a musical instrument held down with your chin and you hold your teeth apart, or if your teeth clenching muscles (masseter and temporalis) are overactive. Part of this muscle attaches to the disk inside the joint and, when this muscle is in spasm, it pulls the disk out of place causing clicking or locking.

❖ Other symptoms:

- Sinus pain or congestion
- Popping, clicking or locking in the TMJ
- Ringing in the ear

❖ Aggravating factors

- Tension held in the jaw, clenching, grinding
- Mouth breathing
- TrP in the masseter or temporalis
- Holding the jaw open for prolonged periods, such as dental work or playing a wind instrument
- Opening against resistance, such as holding a violin or viola under the chin
- Protruding the jaw (poking it out) playing a wind instrument



Prevention

- Correct forward head posture
- Correct mouth position, with tongue on roof of mouth, teeth slightly apart, jaw relaxed
- Avoid excessive chewing, clenching teeth, using a mouth guard to prevent grinding teeth at night
- Decrease muscle tension due to stress