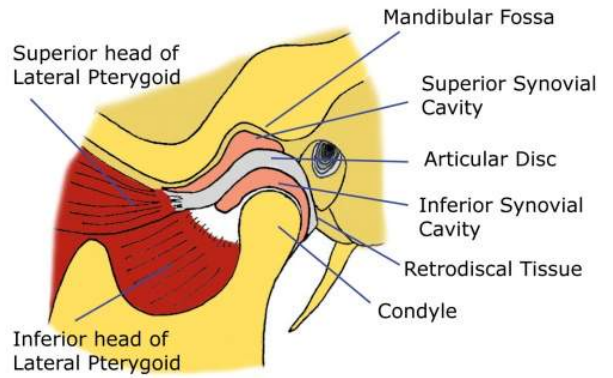


Temporomandibular Joint Anatomy, Function and Self-Care

Information compiled by Leslie Russek, PT, PhD, OCS
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 This information does not replace advice from an appropriate
 health care provider.



The Temporomandibular Joint

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 disc (sandwiched in the middle of the joint) should lie between the condyle and fossa. People who have hypermobile joints are particularly vulnerable to TMJ problems.

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.



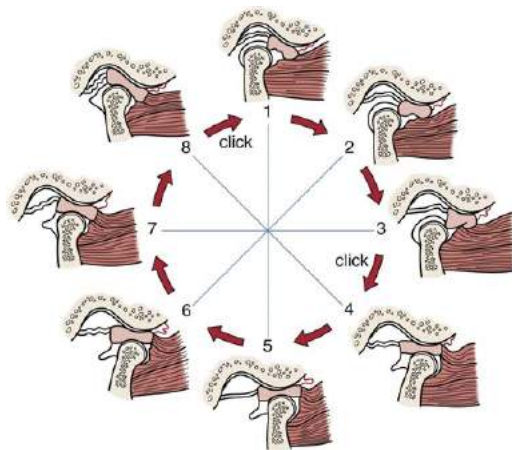
Inflamed Joints

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.

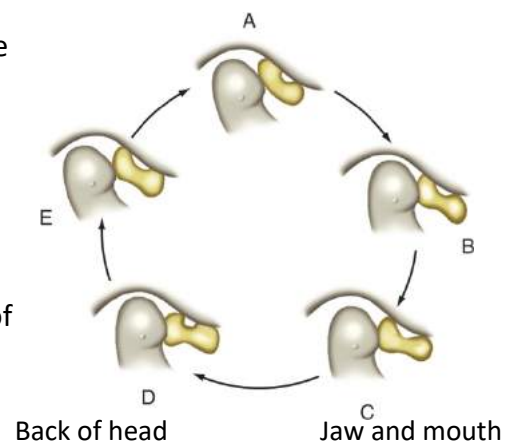


Back of head

Jaw and mouth

Reciprocal Click. If the disc 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 disc 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 disc 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 disc again. Tight jaw muscles and general hypermobility increase the chance of having a reciprocal click.

Anterior disc dislocation. (Picture right) The more time the disc spends displaced (i.e., clicking), the looser the ligaments become and the more likely the problem is to become permanent. If the disc 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.



Back of head

Jaw and mouth

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 avoid chewy foods (for example, taffy); don't chew ice or gum or fingernails
- Make sure your jaw is relaxed: teeth apart, tongue on the roof of your mouth.
- Don't open your mouth wide (e.g., during yawning or singing). This is especially important if you are hypermobile. Limit to a thumb's thickness, or keep your tongue fully on the top of your mouth.
- For dental work, only open as much as necessary (not as much as you are able), and pull the jaw back as you open, rather than thrusting the jaw down and forward. Take jaw rest breaks. 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. (see next page)
- 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 won't 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 RTPB - Objectives:

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

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

- **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.)

Make sure you are always breathing through your nose

Mouth breathing will perpetuate TMD, because the muscle that holds your mouth open (which normally activates for only a few minutes per day) will pull your disc and jaw forward. This video is good: <https://youtu.be/CBYwxndys2E>

Dental appliances: <https://tmj.org/living-with-tmj/treatments/splints/>

Dental appliances are devices that position the jaw in a way that decreases stress on the TMJ or discourages clenching and grinding. There are a variety of appliances available. Drug-store mouthguards typically make TMD worse, so see a dentist who specializes in TMD or orofacial pain specialist.

Additional Self-Care Strategies for TMJ Pain

Self-massage can be helpful. Here are some video suggestions. Don't do any technique that is uncomfortable or painful.

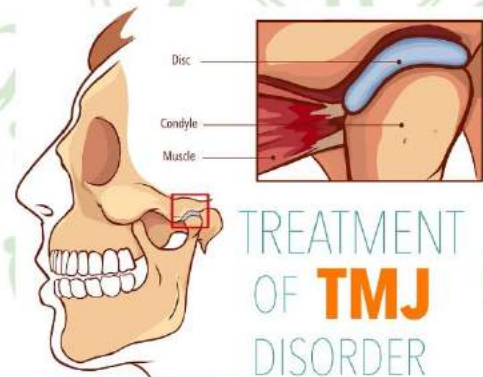
- This video is specifically designed for TMJ discomfort to relax the jaw muscles
 - Racheal Richards Jaw Relaxation (<https://youtu.be/ABDaeO1Z6Ds>)
- This video helps relax the face and jaw.
 - Racheal Richards Jaw Relaxation, Headache Relief and General Anxiety Relief (<https://youtu.be/bNVu4-SpQp8>)
- Quick 2-minute video to help relax your jaw.
 - Rachel Richards 2 minute quick jaw relaxation Technique (<https://youtu.be/oQsFSqDafOA>)
- A guided meditation specifically designed for TMJ relaxation and pain relief.
 - Guided TMJ Meditation (<https://youtu.be/AeNACyNDvFY>)

TMJ Exercises: ONLY DO EXERCISES YOU HAVE BEEN INSTRUCTED TO DO BY A HEALTH CARE PROVIDER. The Rocabado 6x6, shown below, are often prescribed. All movements should be done slowly and gently. People who are hypermobile or have acute pain should do no more than 6 total repetitions per day and may need to begin with smaller movements and pressures, or may need to avoid the stabilization exercise or chin tuck. These exercises should never be painful; if it hurts to do any of these exercises, stop doing them and talk to a physical therapist knowledgeable about TMJ problems. The exercises are also demonstrated on the video at <https://youtu.be/5cTAFh74muo>.

ROCABADO'S 6x6 exercise program for TMJ

- 1. Tongue clucks:** Find normal resting position = holding one third of tongue gently against the roof of the mouth just behind the front teeth
and Diaphragmatically breathe through nose while tongue is in resting position x 6 breaths.
- 2. Controlled TMJ rotation on opening:** tongue on roof of mouth. Open and close your mouth x6 reps.
- 3. Mandibular rhythmic stabilization:** apply light resistance to opening, closing, and lateral deviation with the jaw in a resting position holding for 6 seconds x6 times in each directions.
- 4. Stabilized head flexion:** Upper cervical flexion (nodding) - facilitate upper cervical flexion as most of these patients have forward head posture resulting in upper cervical extension deviation. Nod head x6 reps
- 5. Lower cervical retraction:** chin tucks x6 reps.
- 6. Shoulder girdle retraction:** Patients perform retraction and depression of the scapulae x6 reps.

DON'T DO THESE EXERCISES UNLESS INSTRUCTED TO BY A HEALTH CARE PROVIDER. THEY MIGHT NOT BE APPROPRIATE FOR YOU.



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Relocating a subluxed disc (reciprocal click)

Open your mouth until you hear the first click, then slowly close your mouth bringing your front teeth tip-to-tip (your jaw will be jugged forward slightly: picture R). If you can touch tip-to-tip without hearing the closing click, you have 'relocated' the disc. Gently pull your jaw backwards to draw the disc back, so it is properly positioned when your mouth is closed.



There should be no reciprocal click (a reciprocal click means the disc slipped out again). To keep the disc in place, don't open your mouth further than you can with your relaxed tongue still touching the top of your mouth. Learn to relax your jaw muscles to decrease recurrence.

If you have HSD/hypermobility Ehlers-Danlos Syndrome

Take this to your dental visit

My name: _____ Birthdate: _____ Type of EDS: _____

Please read this about me (I have checked issues most relevant to me)

- I have hypermobile Ehlers Danlos Syndrome (EDS). This condition affects the way collagen and connective tissue behave in my body.
- I have widespread joint hypermobility including the jaw and neck.
- Because I have a connective tissue disorder, ligaments in my jaw and neck are weak.
- I have a lot of jaw pain due to either the joint or the muscles.
- My jaw: pops clicks locks open locks closed
- I have neck instability and neck movement or positioning can aggravate my instability. I should not tip my head back far.
- I have postural orthostatic tachycardia syndrome (POTS) and should NOT be tipped head down. Sometimes Novocaine can increase heart rate in people with POTS, so I might have a flare.
- I often have jaw and/or neck pain for several days even after routine dental procedures.
- My gums tend to bleed a lot. This is a common problem in people with HSD/hEDS.
- I have difficulty healing after dental work.
- I get frequent headaches.
- Lidocaine and Novocaine don't always work well for people with joint hypermobility; this is a documented problem with EDS. I don't always get numb with local anesthetic.
- I have had experience with previous dentists who don't understand my condition.
- I have experienced prior trauma associated with my jaw, and dental work is very stressful to me.

Here are suggestions for how to optimize my experience today (I've checked most relevant)

- Please consider using a different anesthetic other than lidocaine/Novocain to get me numb as I have had great difficulty getting numb in the past. Articaine may work better.
- I may need more than one injection to become fully numb, so check me for numbness before you proceed. Let me use a hand signal to tell you if I still feel pain during your procedure.
- Please allow me to only open my mouth as much as necessary rather than as much as possible.
- I may open my lower jaw and pull it backward rather than poke it forward, as pulling the jaw back protects my TMJ disc.
- Please give me "jaw breaks" so I can rest during the procedure. Can we agree on a hand signal?
- Could we use a "bite block" to help me rest my jaw opening muscles? Holding my jaw open, myself, overworks my jaw opening muscles and may cause my TMJ disc to slip out of place.
- Please don't ask me to turn my head/neck very far, or tip my neck backward
- I would be more comfortable if my neck were supported with a pillow if one is available.
- Please let me wear sunglasses during the procedure as my eyes are sensitive to light.
- Please don't tip the chair all the way back as this may aggravate my POTS and make me dizzy.
- At the end of the procedure, raise the head of the table up slowly, and give me extra time to sit upright and stand so I don't get dizzy because of POTS.
- Please communicate with my doctor before any surgical or difficult procedures.

(Thanks to Wendy Wagner, PT, and Rebecca Shaffer, DDS, for contributing to this list)

Myofascial Trigger Points

From Travell & Simons, compiled by Leslie Russek, PT, PhD, Clarkson University and Canton Potsdam Hospital

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

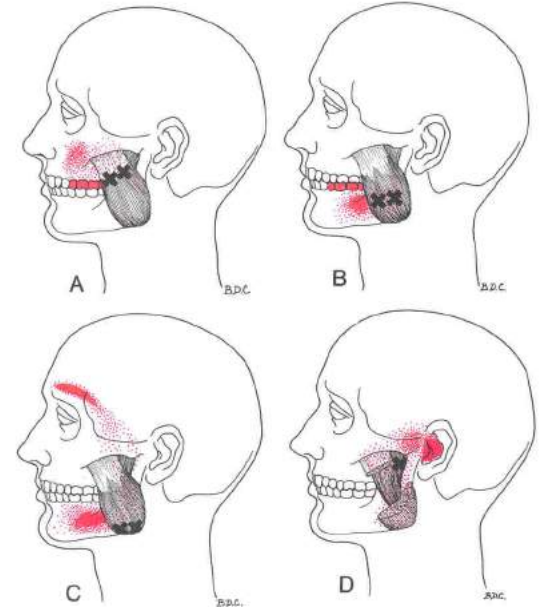
Correct forward head posture

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

Decrease muscle tension due to stress

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

Correct dental problems that prevent proper closing of teeth



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.

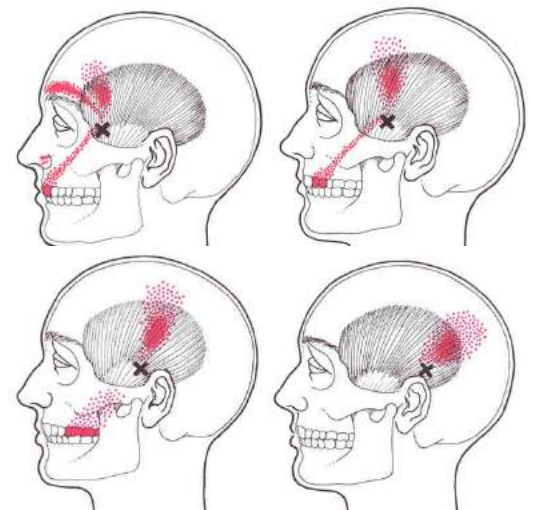
❖ Other symptoms:

- 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
- Posture with head forward
- Exposure to cold draft when muscle fatigued
- Neck traction using a chin strap
- Trigger points in other muscles, such as sternocleidomastoid or upper trapezius

Prevention: Same as for masseter muscle, above

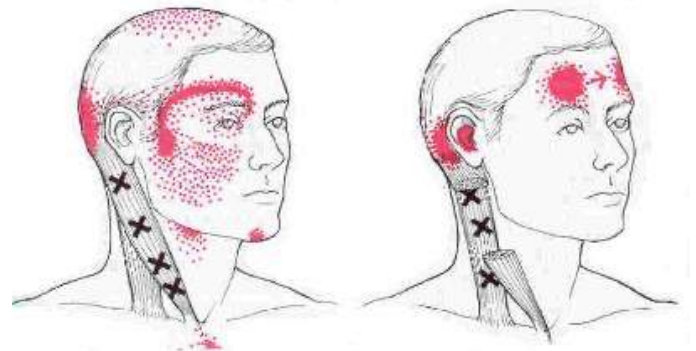


Sternocleidomastoid (SCM) Muscle (STIR-noh-KLY-doh-MASS-toid)

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)

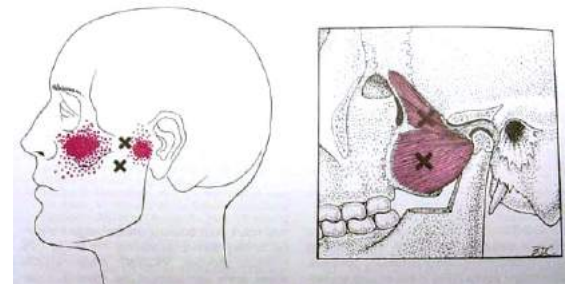
This muscle is used to open the mouth and to push the jaw forward (protrude). It can be overused while pushing the jaw forward playing a wind instrument, if you use a musical instrument held down with your chin and you hold your teeth apart, or if your teeth clenching muscles (masseter and temporalis)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