

# Dysfunctional temporomandibular joint and posture

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## Introduction

Nowadays it results easier to reveal dental malocclusions and pathologies of the temporomandibular joint than it was some years ago. It is also clearer that those problems are strictly connected, both as a cause and as an effect, to any kind of muscular and articular pathologies, due to a communication given by the fascial and connective muscular chains.

Odontology and posturology agree on treating the matter from an holistic and so global point of view.

The most common problems connected to dental malocclusions and temporomandibular joint are:

- cranium-facial pain, tonsils, nape, neck, and shoulder pain;
- rachis pain, particularly in cervical and lumbar region;
- knee pain;
- postural alterations on sagittal and frontal plane, etc.

But how can these symptoms verify?

Let's examine the temporomandibular joint.

## Temporomandibular joint

The temporomandibular joint is a "hanging" joint, inside of which the condyle and the meniscus allow a high mobility that works as a pivot between the stomatognathic apparatus (mouth), with all its functions, and the rest of the body (figure A).

This means that any postural variation can easily compensate at mandible level in order to allow the cranium to maintain the bipupillar line horizontal and the function of the oto-vestibular apparatus symmetrical. It follows a deep connection between the hewing muscles and the supra- and infrahyoid muscles and the other muscular groups. Interferences can be both ascending and

descending. Abnormal attitudes due to work, sports, bad habits, traumas and scars develop alterations of the mandibular posture that evolve in dental adjustments, which in turn interfere with the normal functions of the stomatognathic apparatus (phonation, swallowing, breathing).

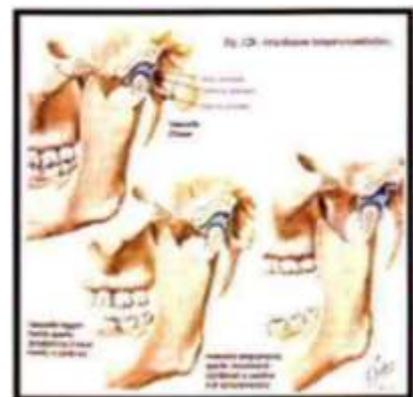


Figure A: Temporomandibular joint

- a) semi-closed mandible;
- b) semi-opened mandible
- c) mandible at maximum opening

Absence of the teeth or malocclusion, bad fillings or prosthesis, presence of electric currents (created by bimetallicism and interfering also with the tongue), and dysfunctional swallowing alter the normal dynamics of the mandible, which through the temporomandibular joint and its muscles will produce adjustments in other parts of the body.

A deviation of the mandible, generated by a dental premature contact, is compensated by a counter-lateral inclination of the cranium due to the synergic contraction of the pterygoid and trapezius muscles on the other side, whereas they will result relaxed on the side of the premature contact. The necessity to keep the bipupillar line horizontal causes an s-shaped disposition of the vertebral column, which bends with a concavity that is counter-lateral to the mandibular deviation at cervical level and on the same side of the deviation at lumbar level. On the sagittal plane, it is possible to notice that a retruded mandible (dysfunctional swallowing, posterior premature contacts) gets compensated by an advance of the forehead resulting in a downward sight caused by an initial rectification of the cervical region. It is when the cervical column intervenes, which, in order to restore the original position of the sight, will exaggerate its physiological lordosis and the same will happen with its lumbar lordosis. In this way we will have a subject with a short posterior muscular chain, which will get fixed in that position due to the action of the connective tissue on the sarcomeres. In patients with a complex postural history it is not easy to identify the primary cause of their problem. It is anyway necessary to do a careful analysis of their mouth and of the temporomandibular joint in order to have a global approach diagnosis and treatment.

### **Muscles of mastication**

The muscles of mastication are classified according to the movements they permit the mandible to do:

- elevator and lowering muscles;
- protrusor and retrusors muscles;
- abductory and adductory muscles

This article will deal with just the first two typologies.

#### ***1 - Elevator muscles***

The interested muscles are the masseter, the temporalis, and the internal pterygoid muscles, acting on the closure of the mandible. The masseter fixes itself high on the zygomatic arch and low on the inferior margin of the mandibular branch. Its function is to raise the mandible and to create tension in the occlusion of the dental arches. The temporalis is situated in the temporal fossa and has the shape of an upside down triangle. Its original fasciae interpose in the ones of the masseter. The fasciae of the temporalis muscle converge on a robust tendon which inserts on the processus coronoideus of the mandible; posterior fasciae of the temporalis muscle exert a backward traction, helping the condyle to

go back to the articular cavity, whereas the anterior ones exert an upward traction. The temporalis muscle also helps the movement of retroaction and adduction of the mandible. The internal pterygoid muscle represents, on the mandible face, the functional continuation of the masseter muscle, whose function is to cooperate with the external pterygoid muscles in order to move the mandible forwards and backwards.

## **2 - Lowering muscles**

They are considered as physiological flexor muscles: digastric muscles, external pterygoid muscles, mylohyoid muscle and geniohyoid muscle. The digastric muscle is formed by two “bellies”, an anterior and a posterior one, which are united by a tendon. The digastric muscle, together with the external pterygoid (divided into an anterior and a posterior fascia), participates in the forward translation movement of the mandible. The mylohyoid and the geniohyoid muscles, instead, lower the mandible and allow her rotating around the intercondylar axis”.

### **Signs and symptoms of temporomandibular joint disorders**

Among the causes of temporomandibular joint disorders there can be: prolonged micro traumas (dental premature contacts), malocclusions, a severe trauma to the mandible or directly on the joint, a whiplash, postural alterations, wrong habits entailing an overload of the temporomandibular joint. However, other causes such as mental and psychological factors, anxiety, stress, cannot be excluded. As a matter of fact, they have a part in creating a condylomeniscal “incoordination” (sometimes through bruxism), causing painful conditions with or without articular click, and blocks, i.e. the so called mandible lock.

### **TEST: How we treat the patient in our studio**

When a patient comes to our studio, for any postural-based problem (and muscular and articular pain) our investigation will be done according to these elements:

- Barré line (mid line);
- evaluation of the general lines (bipupillar line, shoulders, pelvis, etc.);
- evaluation of the chin and of the mandible axis, both static and dynamic with the maximum openings and closures;
- kinesiology test to discover allergies to amalgams, prosthesis, or of a missing tooth;
- step test (eyes opened, eyes closed and teeth beating) to decide whether the patient needs to be treated by the dentist or by the posturologist first;



Figure 1

- evaluation of the temporomandibular condyles through the external palpation of temporomandibular joint movements, detecting clicks or blocks.

After this first phase of investigation, the postural treatment can begin with actions based on what has been detected.

*How is it possible to treat a temporomandibular dysfunction in case of a subdislocation, a dislocation, a click, or a lock?*

## **THERAPEUTIC ACTION**

Here is what we call “the magic” of the method!

Any kind of problem or postural alteration will be transmitted to every part of the body through an intermuscular communication (muscular, fascial and connective chains), proprioceptive information and information of the nervous system. Knowing that and the fact that once the body is affected by pain (traumas, prolonged stress, dental extractions, malocclusions, etc.), it has to adapt, to compensate (causing pain, loss or reduction of its functions or performances), any part of the body gets involved.

Therefore, no matter which problem affects a patient, it is not logical nor resolving to act only where the pain is. Generally, in fact, the cause of the problem is not where the problem expresses itself. That is why it is necessary to investigate and act following a global approach and the mechanics of the muscular, fascial and connective chains.

What do we mean by relationship of cause-effect? Going back to Mézières concepts, any action has an impact on a part of the body, which transfers due to an antalgic mechanism along the chains, to any other part. If the cause of a dislocation of the temporomandibular joint came from an old sprain (for instance at the ankle), the only way to connect them and then to act on the old “hidden” cause is to put in tension all the chains at the same time. When we will treat the temporomandibular joint, this will determine the appearance of a symptom, of a memory or something else related to the primary cause.



Figure 2

Going into the details, in this first phase we act on the masseter muscle, since the muscles of the closure are more solicited and are often responsible for sprains, clicks and locks. Those muscles need to be decontracted, also using fibrolysis in case they are fibrotized. Here is a way to treat that muscle in posture (Figure 2).



Figure 3

In the second phase we act on the external pterygoid muscle, which can be easily treated through fibrolysis, like the masseter muscle, always in posture (Figure 3).

Here is a very interesting action (Figure 4) aiming to reduce a sprain, a click, or a lock, through combined maneuvers of slow and progressive opening of the patient's mouth. There is a compression of the condyle which tends to dislocate in order to let it stay in its right position while the mouth opens and light compression but decisive pressure in decoaptation from the opposite condyle, which is often the responsible of the dislocating side due to its forced closure.



Figure 4

Such maneuver is highly efficient: in few sessions it can restore the temporomandibular joint functionality and decisively improve the postural condition of our patient.

## CONCLUSIONS

The described work is really efficient and gives extremely satisfying results. If a specific treatment on the primary cause is added, than the problem will be really solved.

*For more information on the Raggi Method®- Pancafit® please address to Posturalmed S.A.*

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