

**127 - BENEFITS OF MASSAGE ON TEMPORO MANDIBULAR JOINT MUSCULAR TENSION – TMJ**NANCY ISHIKAWA<sup>1</sup>JOSÉ BENEDITO LEMOS<sup>2</sup>RITA DE CÁSSIA ARAÚJO ROCHA<sup>3</sup>ANDRÉ LEONARDO DA SILVA NESSI<sup>4</sup><sup>1</sup>Graduanda da Universidade Anhembi Morumbi, São Paulo-SP, Brasil.<sup>2</sup>Professor da Universidade de São Paulo, São Paulo – SP, Brasil.<sup>3</sup>Especialista em Estomatologia, CEPE - Hospital Heliópolis e mestre em Diagnóstico Bucal, FOU SP, São Paulo – SP, Brasil.<sup>4</sup>Professor Especialista da Universidade Anhembi Morumbi, São Paulo – SP, Brasil[nancyishikawa@gmail.com](mailto:nancyishikawa@gmail.com)**INTRODUCTION**

Stress, present since the early days, at controlled levels, it is very important for evolution, solving a problem, to progress. On the other hand, if levels are not controlled, can be interpreted (consciously or unconsciously) in a very negative form (PUSTILNICK, 2010). No matter what kind of stress, if in excess, it causes a mental imbalance and functional changes such as muscle tension in an individual, altering the functioning of articulated structures, and other manifestations such as high blood pressure, stroke, arthritis, asthma and skin disease (Lipp et al, 1998).

One of the most affected areas by stress is the temporomandibular joint, which leads to muscle strains. In this context, the objective of this article was to investigate the benefits of Massage for the prevention of muscle strains in the TMJ.

This study is justified because the TMDs are very common in the population. Moreover, it is a disorder of multifactorial etiology, which involves interdisciplinary therapeutic treatment. Since multidisciplinary, it is expected that, through the course of aesthetics, we could contribute, with reduction of signs and symptoms of temporomandibular dysfunction through epicrânia massage.

The hypothesis raised here is that massage can promote reduced muscle pain caused by strains and stresses, which will lead to the improvement of mandibular opening, with benefits to promote emotional balance and improvement on quality of life.

**TEMPORO MANDIBULAR DYSFUNCTION AND MUSCLE TENSION**

Temporomandibular Disorder can be defined as a set of painful conditions involving the masticatory muscles and temporomandibular joint or jaw (WHITE, 2008). Its etiology is associated with several factors, such as occlusal disharmony, parafunctional postural habits imbalances, hormonal changes, and psychosocial and behavioral changes (JADB, 2007).

Skeletal changes, malocclusion, deviations in the components of the TMJ form, trauma, bruxism, parafunction muscle diseases, degenerative diseases of the articulations may be some of the factors that lead to chronic headaches, noise in the joints, limitation of mandibular movements, pain in the cervical muscles, and the muscles of the head (FERREIRA, 2004).

The temporo mandibular joint can be affected by the upper trapezius muscle tension when affected with trigger points that projects to the back of the neck, and anterior temporal region on the ATM (SAKATA and ISSY, 2008). Some of the factors which trigger and maintain voltage are postures, stress, twisting, or stretching. Some activities or movements cause an overload fault triggering the structures of the area in question, leading to tissue damage (micro trauma - or more serious trauma), inflammation, nerve irritation, and finally pain (CHAITOW, 2008). This pain can be intense for some while for others it is a softer threshold. (Chan, 1982)

Freitas et al (2013) point out in his research that applying to massage therapy, there is an improvement in symptoms and reduction in electromyographic activity, concluding that it was beneficial in cases of TMD in myogenic origin.

**EPICRÂNIA MASSAGE**

The epicrânia massage is an association of Eastern and Western massage, performed in the head, ear and neck area, providing immediate results and also medium-term benefits (NESSI, 2013). Despite massage is being performed and studied for a long time, epicrânia massage had recently started its practice.

The modern Western massage is based largely on the Swedish system developed by Per Henrik Ling (1776-1839) that incorporates influences of modern sports and medicine, with a focus on the body and its state, and the touch is entirely physical (KAVANAGH, 2010). Ling used massage to decrease pain, improve circulation, reduce muscle tension and restore range of motion (McGillicuddy, 2012).

Although many people identify the massage as smooth and superficial, the techniques vary according to need and the pain threshold of the customer and can be so mild to strong. It is usually combined with active and passive movements that soothe and relax the patient (WOOD and BECKER, 1990).

In massage epicrânia use some of these movements that are cited and ranked by Nessi (2010) as the basic maneuvers of massage:

- **Slip:** unclogs pores, improves skin circulation, increases the local temperature, and provides calming effect on the nervous filaments, aids in venous return and elimination of metabolites.

- **Kneading:** relaxes muscles and tendons retracted, energy increases muscle fiber slows adhesions, active local circulation and improves muscle nutrition.

- **Percussion:** Increases the activity of deep and superficial vessels, excites and stimulates muscle contractions muscles physiologically.

The physiological effects of massage are presented for Guirro and Guirro (2010), we have:

- **Circulatory effects:** the bloodstream is located intermittent displacement of liquid in vessels, increased flow velocity and exchange of substances with tissue cells. As a side effect, there is increased peripheral blood flow, concentration of erythrocytes and renal excretion of water.

- **Neuromuscular Effects:** increase circulation, eliminating waste products more quickly, improving nutrition of

myofibrils, eliminating extravascular fluid, allowing an increase in the excitability and contractility.

- **Metabolic Effects:** abdominal massage can cause diuresis.

- **Reflex Effects:** Can be understood as changes in the electrical threshold associated with the neurological system, obtaining various physiological effects. Increased sympathetic activity, increased systolic blood pressure, heart rate, sweat gland activity, peripheral skin temperature, body temperature and decreased respiratory rate, improving the conditions of ion exchange in tissues and nerve action, producing sedation.

The Eastern techniques follow different principles of western theories as energy flow (Chi in Japanese or Qi in Chinese). Encompass body, mind, and spirit that are around a person. No change is isolated, affecting the entire system, not just the physical (KAVANAGH, 2010).

This energy flows through channels or meridians that are related to the organs and functions of our body. Massaging those releases blocked energy, balancing the energy flow in the system related to the organ. Along the base of the skull, for example, sedation points exist that can be used to reduce heartrate, breathing become deeper, to reduce pressure and assist in draining lymph deep relaxation (Bentley, 2001).

The Shiatsu is an Anma originated technique (pressure techniques and kneading) (Mochizuki , 1999), applies only pressure techniques, manual and digital on the skin in order to prevent and cure disease by stimulating the natural recuperative powers of the body eliminating elements which produce fatigue ( Namikoshi , 1992).

Thus, we aimed to verify the benefits that massage can have on epicrania muscle tension in the region of the temporo mandibular joint.

#### METHODS

The sample was a group of 20 volunteers of both sexes, aged 19-39 years attending the University Anhembi Morumbi , with complaints of muscle tension in the TMJ region .

The screening was conducted using the DMF Index (FONSECA et al., 1994), and volunteers with scores between 20 and 100 points underwent to clinical examination based on Temporomandibular Index from Friction and Shiffman (2002) to check presence of muscle strain and cracking in the region of ATM .

Exclusion criteria were observed to people with scores below 20 points according to the DMF Index, undershot jaw, overshot jaw, people with infectious, inflammatory, feverish, and women with less than 3 months of conception.

#### CARE PROTOCOL

The group was granted a five-week period, each person received 03 epicrania massage sessions (one session per week and consecutive), each session lasting 30 minutes.

Before and after each massage session was held measuring mouth opening, sliding sideways left and right, and protrusion, assessing the maximum amplitude of the ATM through DIGIMESS Caliper, model number: 100.174BL.

Epicrânia massage was applied in a proper environment at Anhembi Morumbi University campus. With the massaged person lying supine on the massage table with adjustable on four legs, with support/cushion for the knees and ankles. With towel roll for neck. Low light. Sound of instrumental music. Previous cleaning and toning the face was made, and we used a product/vehicle (free of soothing active ingredients) to slip hands during the massage . The pressure of the massage was made according to the volunteer's pain threshold, but 95 % of the cases, the pressure was moderate to heavy.

#### EPICRÂNIA MASSAGE

- a) With sanitized hands, warming them with friction.
- b) Place the hands on the face of the customer holding thumbs together with the other fingers . The gap formed by the index fingers should stay right on the customer nose, helping to pull the nostrils.  
Heat the vehicle in your hands and apply throughout the region to be massaged.
- c) Massaging longitudinally with thumbs, alternately, on the forehead, passing through the eyebrows and in the early roots of hair. (10 movements)
- d ) With your thumbs on the eyebrows and the other fingers below them , slide from the center to the sides, remembering to return to the starting point, taking first one hand then the other, maintaining constant contact . (10 movements)
- e) Keep your thumbs between the eyebrows, while the other fingers strum and slide over the sinuses. (10 movements)
- f) Place your thumbs on the upper lip and the other fingers on the lower lip, slide to form a smiling expression. Return first with one hand, then the other. (10 movements)
- g) With the digits of the fingers, without the use of thumbs, massaging in circular form on the temporomandibular joint: left hand toward the right and left hand towards the right. (5 minutes).
- h) Slide smoothly on the whole structure of the jaw, until it touches very close to the lower lobes of the outer ear. (10 movements)
- i) Place the thumb on the lower lobe of the outer ear and the fingers behind, sliding towards the feet . (10 movements)
- j) With your thumbs over the cartilaginous structure (helix), slip on both external ears, in the lateral direction. (10 movements)
- k) With your thumbs on the area of tubers (upper lobes), sliding gently with your thumbs. (10 movements)
- l) Place hands flat on the whole concha of the outer ear and mobilize forward gently. (10 movements)
- m) Form a crown with the digit finger and put on the temporal region, massaging with fixed circular movements. (5 minutes)
- n) Hold the customer's head up with your hands moving it, drawing an eight. (5 movements)
- o) Hold the head with one hand and perform a rotation, placing the other hand on the area just behind the outer ear to hold a gentle vibration.
- p) Massaging with the digit finger along the sternocleidomastoid muscle and stretching it in the end of the movement. (the active hand pushes the shoulder toward the feet). (3 movements)
- q) Perform the above procedure on the other side.
- r) Centralize the head, keeping all the digits of the fingers behind the occipital area. Massaging alternately with the digits of the fingers. (10 movements)
- r ) Gently place your hands on the clients chest in a triangle shape, with your thumbs on the clavicles, following the client's breath. Pressing during expiration and decrease pressure on inspiration. (3 movements)
- s) Put your hands resting on the shoulders and mobilize alternately. (3 movement)
- t) Wake the customer softly up, signaling the end of the massage.

## RESULTS AND DISCUSSION

According to the literature (Cassar 2001; Nessi, 2010; Wood, 1990; Bentley, 2001), it is expected that massage can reduce muscle tension caused by stress. 70% of the volunteers declared that the stress level was reduced. 100% of volunteers said they have felt less stressed and had relief from pain intensity of facial muscle. Proof of this was that the appreciability test showed that the acceptance of epicrânia massage was positive, and all the volunteers says that it was a pleasant technique to receive.

Pierson (2011) study, measured pain perception using a scale of 0 to 10, demonstrating inicial results from 7 falling to 3, while in this research our result was an average of 6.8 falling to 2.52 confirming the thesis of pain relief through massage.

The headache, one of the most common signs associated to temporomandibular dysfunction (OKESON, 2008) was also observed in the appreciability test. In this study 70% of the subjects reported that the frequency of headache decreased.

The initial hypothesis of this research , that there would be a possible evolution with greater mouth opening , through epicrânia massage, was found by the average which in each session we noticed a telling improvement in opening range, right and left sliding laterality of the mouth, and protrusion of the mouth as shown in the graph below.

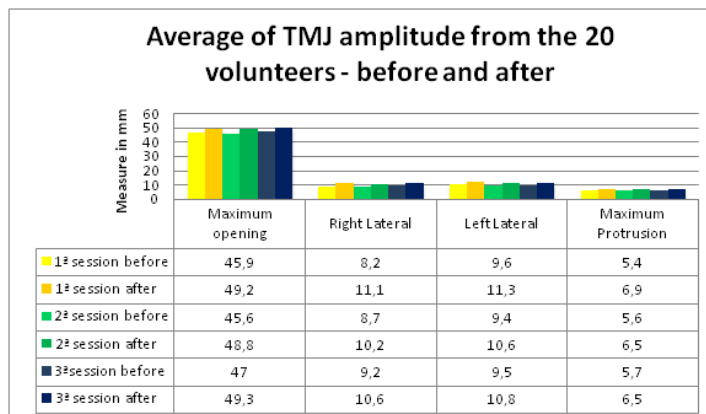


Figure 1: Average of TMJ amplitude from the 20 volunteers – before and after

Another researcher who has studied the effects of massage was Eisensmith (2007). Eisensmith also makes reference to the improvement of the range of mouth, beyond the relief of pain intensity, and decrease of fequency of pain related to tempo romandibular dysfunction, which was confirmed with the appreciability test in this study.

With this graph we can also realize that there was not a cumulative effect as the amplitude varied from one session to another, thus reducing a few, before massage session.

## CONCLUSION

With the final results of this research, we concluded that massage can benefit the massaged person, promoting relaxation of muscle and structures involving TMJ , promoting better quality of life for patients with TMD - Temporomandibular Disorders .

This research was a very rich experience , because it is not too exploited . The response of the surveyed after each service was positive, pushing the research advance with more motivation. The results as expected, showed us a noteworthy increasement in TMJ amplitude after applying epicrânia massage. Results like 45.9mm progressing to 49,2mm on the maximum opening amplitude of mouth between before and after evaluation of the massage. Already in the 3rd session, an increase from 47mm to 49.3mm. Thus, occurred in all other assessments such as the right lateral slip from 8.2mm to 11mm and in the left lateral slip from 9.6 to 11.3mm. Motivating results.

Certainly, in future studies, we recommend the use of the goniometer and electromyography, possible variables, such as subluxations. At long last, the massage Epicrânia is an ally to promote wellbeing and health.

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**BENEFITS OF MASSAGE ON TEMPORO MANDIBULAR JOINT MUSCULAR TENSION – TMJ**

**ABSTRACT**

The massage, as a manual resource, has been adopted by a growing number of professionals looking forward for wellness, stress reduction and pain relief. The aesthetician, with their ability to Epicrânia Massage, can help reducing muscle tension in the region of the face and head. This study investigated a group of 20 individuals of both sexes, carriers of temporomandibular dysfunction, aged 19 to 39 years. Underwent to 03 massage sessions (one per week and consecutive), each lasting 30 minutes. The screening was done with the DMF Anamnestic Index (Fonseca et al., 1994) and also clinical examination based on the Index of Temporomandibular Friction and Shiffman (2002) was applied to check presence of muscle strain and cracking in the region of ATM. Before and after every massage sessions was conducted an assessment of the degree of opening, sliding sideways left and right, and protrusion of the mouth, with the measuring precision digital device caliper DIGIMESS. The results were presented in a graph and explanatory percentage. Thus, through this work we raise the benefits of massage Epicrânia technique in people who had muscle strains in temporomandibular joint (TMJ) caused by stress.

**KEYWORDS** : epicrânia massage. muscle tension. tmj.

**LES BIENFAITS DU MASSAGE DANS LES TENSIONS MUSCULAIRES DU ARTICULATION TEMPORO-MANDIBULAIRE -ATM.**

**RESUME**

Le massage, comme une ressource manuelle, est adopté par un nombre croissant de professionnels dans la recherche du bien-être, de la diminution du stress e du soulagement des douleurs. L'esthétique, avec son habilité en Massage Epicrâne, peut aider à réduire les tensions musculaires sur la face et la tête. Cette étude a porté sur un groupe de 20 individus des deux sexes, portant l'articulation temporo mandibulaire dysfonctionnement - TMD (ATM) âgés de 19-39 ans. A subi 03 séances (une par semaine et consecutive) massage d'une durée de 30 minutes. La projection a été faite avec l'indice DMF anamnésique (Fonseca et al., 1994) et a été appliquée sur la base de l'examen clinique du temporo Index Friction et Shiffman (2002) pour vérifier la présence de la tension musculaire et la fissuration dans la région de l'ATM. Avant et après chaque séance de massage, il a été réalisé une évaluation du degré d'ouverture, du déplacement droit et gauche, e de la saillie de la bouche; avec un pied à coulisse digital à haute-précision DIGIMESS. Les résultats sont présentés sous forme de tableaux explicatifs et de graphiques.

**MOTS CLÉS**: massage epicrane. tension musculaire. atm.

**BENEFICIOS DEL MASAJE POR TENSIÓN MUSCULAR DE LA ARTICULACIÓN TEMPOROMANDIBULAR - ATM**

**RESUMEN**

El Masaje, como un recurso manual ha sido adoptado por un número creciente de profesionales que buscan el bienestar, la reducción del estrés y aliviar el dolor. La estética, con su capacidad de masaje epicraneal, puede ayudar a reducir la tensión muscular en la región de la cara y la cabeza. Este estudio, investigó un grupo de 20 personas de ambos sexos , portadores de disfunción de la ATM de edad entre 19-39 años . Se sometieron a 3 sesiones (una por semana y consecutivas ) con masajes de 30 minutos de duración. La muestra se realizó utilizando el índice anamnésico DMF (FONSECA et al., 1994) y fue realizado un análisis basado en el Índice Temporomandibular del Friction y Shiffman (2002 ) para comprobar la presencia de la tensión muscular y el agrietamiento en la región de la ATM . Antes y después de cada sesión de masaje se llevó a cabo una evaluación del grado de apertura, deslizando hacia los lados izquierdo y derecho, y la protrusión de la boca, con el dispositivo de medición de precisión digital ¿? caliper DIGIMESS . Los resultados fueron presentados en tablas y gráficos porcentuales explicativos. Por lo tanto, a través de este trabajo exponemos los beneficios de la técnica de masaje epicraneal en las personas que tenían tensiones musculares en la articulación temporomandibular ATM - causadas por el estrés.

**PALABRAS CLAVE**: masaje epicraneal. la tensión muscular. atm.

**BENEFÍCIOS DA MASSAGEM NAS TENSÕES MUSCULARES DA ARTICULAÇÃO TEMPOROMANDIBULAR – ATM**

**RESUMO**

A massagem, como um recurso manual, tem sido adotada por um crescente número de profissionais em busca de bem-estar, diminuição do estresse e alívio de dores. A estética com sua habilidade em Massagem Epicrânia, pode auxiliar na diminuição das tensões musculares da região da face e da cabeça. Este trabalho investigou um grupo de 20 indivíduos de ambos os sexos, portadores da disfunção da articulação temporo mandibular – DTM (ATM) com idade entre 19 a 39 anos. Foram submetidos à 03 sessões (uma por semana e consecutivas) de massagem com duração de 30 minutos. A triagem foi feita com o Índice Anamnésico DMF (FONSECA et al., 1994) e foi aplicado o exame clínico baseado no Índice Temporomandibular de Friction e Shiffman (2002) para verificação de presença de tensão muscular e estalidos na região de ATM. Antes e depois de todas as sessões de massagens foi realizado uma avaliação do grau de abertura, deslizamento lateral direita e esquerda, e protusão da boca, com o aparelho de medição de precisão paquímetro digital DIGIMESS. Os resultados foram apresentados através de tabelas explicativas e gráfico. Assim, através deste trabalho levantamos os benefícios da técnica da Massagem Epicrânia, em pessoas que apresentaram tensões musculares da articulação temporomandibular – ATM, causadas pelo estresse.

**PALAVRAS-CHAVES**: massagem epicrânia. tensão muscular. atm.