# 74 - THE INFLUENCE OF ANTI-STRESS MASSAGE IN KEEPING CAPACITY APNEA

M. M. O. GOMES[1];
J. F. S. OLIVEIRA[1];
P. E. L. SOUZA[1];
A. A. O. NESSI[2];
A. L. S. NESSI[3]
1 - Graduandas da UAM - Universidade Anhembi Morumbi – SP
2 - UNIP - Universidade Paulista – SP
3 - UAM - Universidade Anhembi Morumbi – SP.
prof.andrenessi@gmail.com

doi: 10.16887/85.a2.74

## INTRODUCTION

The stress today is present in all the media; is a subject that interests mainly people living in large urban centers. Living in the big city is living with stress all the time. It may be a manifestation both positive and negative for humans, when subjected to new situations that do have physical and mental reactions (NESSI; 2010).

The stress mechanisms of action in human functioning have received attention from researchers at the international level (Wright & Cropazano; 2000) that identified a negative impact on physical functioning (Di Martino;. 1992 et al) and mental (Schiffer & Gelbard, 1996 et. al), to the extent that stress may contribute to the ontogeny of various physical and psychiatric diseases. There is also indication that the prolonged state of stress can interfere with the psychological well-being and quality of life (Kaplan, 1995; LIPP, 1997; VERBRUGGE, 1989; IBRD & RIEKER, 1999).

A sedentary lifestyle is undoubtedly one of the most important points in the study of the evils that afflict men in today's society. The lack of activity is identified as the cause of numerous health damage and its direct and indirect consequence of the onset of diseases such as hypertension, obesity, coronary artery disease, anxiety, depression and musculoskeletal discomfort (Ouriques & FERNANDES, 1997 ).

According Figueira quoted by Nessi (2010), massage is the term used to indicate a set of systematic, scientific and body manipulations and can be manual or mechanical, with effects on the nervous system, muscular and circulatory.

Massage is a noninvasive manual feature that acts providing improved blood and lymph circulation, improving metabolism, relieving stress and providing physical and mental well-being (SEUBERK & VERONESE, 2008).

Check the influence of anti-stress massage in the respiratory system of men aged 24 to 49 years, sedentary and stressed through a test that will measure the time that volunteers have to keep apnea before and after anti-stress massage. To determine the frequency of time benchmarking amendments where volunteers maintain apnea, and a comparative analysis of degrees of oxygen levels in the blood before and after applying the anti-stress massage, aiming to compare possible changes and demonstrate the benefits of massage in respiratory system.

According Dangello & Fattini (2011), the respiratory system, it is a set of organs responsible for ventilation. It is understood as breathing a process that goes on inside of every cell in the body. The system belong to the respiratory tract (conductor pipes of oxygen and carbon dioxide), and lungs occurs in which gas exchange between blood and air. (Moore, et.al., 2012)

In adults, the lungs weigh about 1 kg, lung tissue corresponding to 60% by weight and the remaining blood. It has two blood supplies: the pulmonary circulation, which brings deoxygenated blood from the right ventricle to the gas exchange units for removal of CO2 and oxygen before it is returned to the left atrium and distributed to the rest of the body; and the bronchial circulation, which originates in the aorta and provides nutrition to the lung parenchyma. Breathing is an automatic process, rhythmic and centrally regulated by voluntary control. The CNS and, in particular, the brainstem act as the main respiratory control center. (BERNE & Levy, 2009; GUYTON & HALL, 2002).

Apnea is a temporary suspension of the respiratory activity, and may be voluntary (the case of immersion underwater equipment without air) or involuntary (pathologic), or the interruption of the atmospheric air communication with the lower airways and lungs. (Torres, 2004).

According BROOKSPAN (2000), mentioned by LITJEANS (2002), holding the breath (apnea) decreases the heart rate. The breath holding immersion in water produces a higher degree of bradycardia, apnea than observed in the air.

For McArdle, KATCH & KATCH (1998), mentioned by TORRES (2004), many people can stay in apnea for a while, but in general, at some point during the attempt occurs desire of inspiration, it becomes so intense that not there is the possibility of prolongation of apnea (apnea break point). This demand is indicated by the respiratory center (bulb), responding to rising carbon dioxide levels (hypercapnia) and acids in the blood, caused by the corresponding drop in oxygen content due to the consumption by the tissues.

The anti-stress massage is a manual technique methodical touches in order to reduce musculoskeletal stresses, providing physical and mental well-being. Therefore, you have therapeutic effect due to the elimination of catabolic formed in muscles, produce better electrical conductivity in the peripheral nervous system, facilitate venous return circulation and provide better blood blood supply (NESSI, 2010).

According cited by Nessi Domenico (2013), movement of the friction causes a lasting deep capillary dilation and thereby the exchange of gases inside the muscles are performed with ease, allowing arterial blood to flow better and more oxygen . The increased blood supply within the muscle and the skin surface causes an increase in temperature and a consequent vasodilatation. In addition, massage plays an important role in nutritional and gaseous exchanges between the blood stream into tissues, improving the body's metabolism.

The major physiological effects of massage, according Galán (cited Lacoma & SALVAT, 2006) are decreased and pain management; improved blood flow and blood pressure; stimulation of muscle activity; improved psycho-emotional activity. The mechanical effect appears in the blood circulation in both the arterial and the venous return circulation and lymphatic circulation, since the motion with increased force during the handling, obeys the centripetal direction (from the edge to the heart).

## METHODOLOGY

The methodology was through a questionnaire on Quality of Life and IC (Terms of Consent) implemented in 15 male volunteers, aged between 24 and 49 years, sedentary and stressed.

A test was carried out, where we connect the pulse oximeter device MORIYA- MD300C1 And MD300C2 in volunteers who had to submerge his head in a container (bowl) with water, while the researcher has measured with the aid of a timer, the time

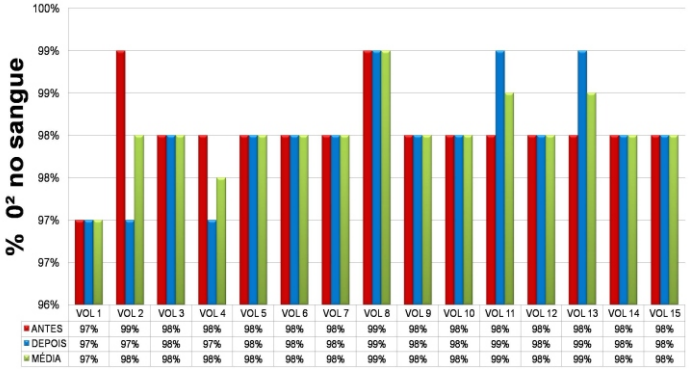
that the volunteers are able to maintain apnea and the record of the parameters of the oximeter device. After this, the volunteers received a massage relieving session lasting about 30 minutes. Five minutes after the massage session, the volunteers again remade keep apnea capacity test.

**RESULTS AND DISCUSSION**

According NESSI (2010), after the massage, the level of care increases, the sensation of muscle fatigue decreases, respiration and circulção flow better, having an invigorating effect which cause the sensation of lightness massaged.

Since one of the physiological effects of massage is to increase the oxygen supply in the blood circulção, proved its effectiveness in the respiratory system of 15 volunteers, male, sedentary and stressed sex.

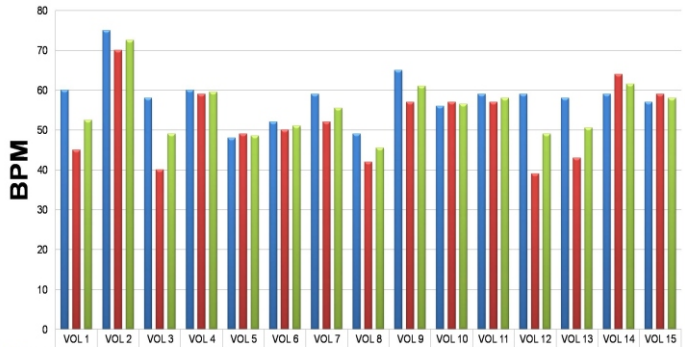
Figure 1 shows the level of oxygen saturation of the volunteers before and after receiving the anti-stress massage, 86.6% of the volunteers maintained and / or increased level of O² after receiving the masssagem and 13.3% decreased the level of O² after receiving the masssagem, the average saturation O² of the volunteers was 98%, there was no significant improvement in the levels of O² after massage.




| | VOL 1 | VOL 2 | VOL 3 | VOL 4 | VOL 5 | VOL 6 | VOL 7 | VOL 8 | VOL 9 | VOL 10 | VOL 11 | VOL 12 | VOL 13 | VOL 14 | VOL 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTES | 97% | 99% | 98% | 98% | 98% | 98% | 98% | 99% | 98% | 98% | 98% | 98% | 98% | 98% | 98% |
| DEPOIS | 97% | 97% | 98% | 97% | 98% | 98% | 98% | 99% | 98% | 98% | 99% | 98% | 99% | 98% | 98% |
| MÉDIA | 97% | 98% | 98% | 98% | 98% | 98% | 98% | 99% | 98% | 98% | 99% | 98% | 99% | 98% | 98% |

Figura1 – Level Saturation O² blood

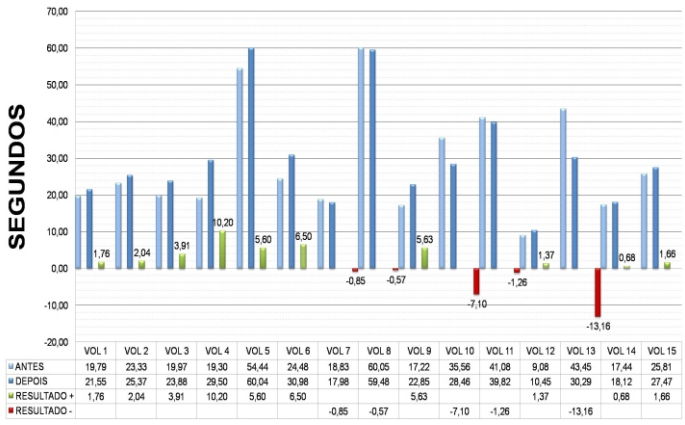
Figure 2 shows the level of Heart Rate (BPM) of the volunteers before and after receiving the anti-stress massage, 80% of volunteers decreased heartbeat (BPM) after receiving the massage and 20% increased heart rate (BPM) after receiving the massage, the graph also displays the average of the before and after each volunteer, and the overall average of all is 55 bpm, ie there was a significant improvement, as volunteers after massage actually decreased relaxed and heart rate.




| | VOL 1 | VOL 2 | VOL 3 | VOL 4 | VOL 5 | VOL 6 | VOL 7 | VOL 8 | VOL 9 | VOL 10 | VOL 11 | VOL 12 | VOL 13 | VOL 14 | VOL 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTES | 60 | 75 | 58 | 60 | 48 | 52 | 59 | 49 | 65 | 56 | 59 | 59 | 58 | 59 | 57 |
| DEPOIS | 45 | 70 | 40 | 59 | 49 | 50 | 52 | 42 | 57 | 57 | 57 | 39 | 43 | 64 | 59 |
| MÉDIA | 53 | 73 | 49 | 60 | 49 | 51 | 56 | 46 | 61 | 57 | 58 | 49 | 51 | 62 | 58 |

Figura 2 – Level of Heart Rate (BPM)

Figure 3 shows the level of the time the volunteers kept apnea before and after relieving massage, 66.7% of the volunteers increased apnea time after receiving the massage and 33.3% of the subjects decreased the time of apnea after receiving the massage, in other words, there was a significant improvement in increasing the time that the volunteers kept apnea after massage.




| | VOL 1 | VOL 2 | VOL 3 | VOL 4 | VOL 5 | VOL 6 | VOL 7 | VOL 8 | VOL 9 | VOL 10 | VOL 11 | VOL 12 | VOL 13 | VOL 14 | VOL 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANTES | 19,79 | 23,33 | 19,97 | 19,30 | 54,44 | 24,48 | 18,83 | 60,05 | 17,22 | 35,56 | 41,08 | 9,08 | 43,45 | 17,44 | 25,81 |
| DEPOIS | 21,55 | 25,37 | 23,88 | 29,50 | 60,04 | 30,98 | 17,98 | 59,48 | 22,85 | 28,46 | 39,82 | 10,45 | 30,29 | 18,12 | 27,47 |
| RESULTADO + | 1,76 | 2,04 | 3,91 | 10,20 | 5,60 | 6,50 | | | 5,63 | | | 1,37 | | 0,68 | 1,66 |
| RESULTADO - | | | | | | | -0,85 | -0,57 | | -7,10 | -1,26 | | -13,16 | | |

Figura 3 – Level of apnea time.

During the apnea test 12.14 and 15 volunteers developed a certain hydrophobicity, having a shorter apnea in relation to other volunteers, the same after the massage increased heart beats per minute and increased the time of apnea.

All volunteers testified that after the massage felt more relaxed, and to remake the test was less uncomfortable feeling.

With graphics realized after relieving massage volunteers generally had positive results in the respiratory system, improving Nives of Heartbeats per Minute (BPM) and increasing the time of apnea.

**CONCLUSION**

With this search, we conclude that the anti-stress massage can benefit the massaged person, promoting relaxation, improves the delivery of oxygen in the blood, decreasing the heartbeat and longer apnea.

The survey was a great experience, since the apnea test to prove the physiological effects of stress-relieving massage had not been explored so, volunteers contribiram enough to research, assisting in its vindication.

The results as expected, proved improvement in oxygen supply some volunteers, approximately 86.6% maintained or increased the level of oxygen in the blood. The heart rates decreased after massage, ie, they actually relaxed after relieving massage, about 80% of the volunteers decreased heart rate per minute. The level of apnea time increased after the massage, about 66.7% of the volunteers increased apnea time after the massage, ie, the massage relieving had a positive effect on the respiratory system of the volunteers left the rich search and driving conduct further research on the topic.

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Rua João Caetano, 62 – Mooca
São Paulo – SP – Cep. 03162-050 – Brasil

**THE INFLUENCE OF ANTI-STRESS MASSAGE IN KEEPING CAPACITY APNEA**

**ABSTRACT**

This work was mainly aimed at checking on the influence of anti-stress massage in the improvement of the respiratory system through the ability of volunteers to maintain apnea. Implementing the proposed objective was held, initially, a literature that provided the necessary theoretical basis. The research was based on a test administered in 15 male volunteers aged 24 to 49 years, sedentary and stressed. They had to submerge his head in a container of water before and after receiving the anti-stress massage, while one of the researchers has measured with the help of pulse oximeter device (Moriya- MD300C1 and MD300C2) and a stopwatch time that volunteers kept apnea. Data collection was performed by applying the Informed Consent and Informed and by means of a questionnaire adapted EVA. Approximately 86.6% retained and / or increased $O^2$ level in the

blood, decreased by 80% the level of heart rate per minute (bpm), or relaxed after the massage and 66.7% increased the time after apnea massage. It is concluded that the anti-stress massage had a positive effect on the respiratory system of volunteers.

**KEYWORDS:** Massage, anti-stress, apnea.

**L'INFLUENCE DE MASSAGE ANTI-STRESS POUR GARDE CAPACITÉ APNÉE**

**RÉSUMÉ**

Ce travail a été principalement destiné à vérifier sur l'influence de massage anti-stress dans l'amélioration du système respiratoire par la capacité des bénévoles pour maintenir l'apnée. Mise en œuvre de l'objectif proposé a eu lieu, d'abord, une littérature qui a fourni la base théorique nécessaire. La recherche a été basée sur un test administré dans 15 volontaires de sexe masculin âgés de 24 à 49 ans, et a souligné sédentaire. Ils ont dû plonger sa tête dans un récipient d'eau avant et après avoir reçu le massage anti-stress, tandis que l'un des chercheurs a mesuré à l'aide d'un dispositif d'oxymètre de pouls (Moriya- MD300C1 et MD300C2) et un temps de chronomètre qui fait du bénévolat gardé l'apnée. La collecte des données a été effectuée en appliquant le consentement éclairé et informé et au moyen d'un questionnaire adapté EVA. Environ 86,6% retenu et / ou l'augmentation du niveau de $O^2$ dans le sang, a diminué de 80% le niveau de la fréquence cardiaque par minute (bpm), ou détendu après le massage et 66,7% ont augmenté le temps après l'apnée massage. Il est conclu que le massage anti-stress a eu un effet positif sur le système respiratoire des volontaires.

**MOTS-CLÉS:** Massage, anti-stress, l'apnée.

**LA INFLUENCIA DE MASAJE ANTI-STRESS EN MANTENIMIENTO DE LA CAPACIDAD DE APNEA**

**RESUMEN**

Este trabajo fue dirigido principalmente a la comprobación de la influencia de masaje anti-estrés en la mejora del sistema respiratorio a través de la capacidad de los voluntarios para mantener la apnea. Implementar el objetivo propuesto se celebró, en un principio, una literatura que proporcionó la base teórica necesaria. La investigación se basó en una prueba administrada en 15 voluntarios varones de 24 a 49 años, sedentarias y recalcó. Ellos tenían que sumergir la cabeza en un recipiente de agua antes y después de recibir el masaje anti-estrés, mientras que uno de los investigadores se ha medido con la ayuda del dispositivo de oxímetro de pulso (Moriya- MD300C1 y MD300C2) y un tiempo de cronómetro que los voluntarios mantiene apnea. La recolección de datos se realizó mediante la aplicación del consentimiento informado y bien informado y por medio de un cuestionario adaptado EVA. Aproximadamente el 86,6% retenido y / o aumentar el nivel $O^2$ en la sangre, se redujo en 80% el nivel de la frecuencia cardiaca por minuto (bpm), o relajado después del masaje y 66,7% aumentó el tiempo después de la apnea masaje. Se concluye que el masaje anti-estrés tiene un efecto positivo sobre el sistema respiratorio de los voluntarios.

**PALABRAS CLAVE:** masaje, antiestrés, apnea.

**A INFLUÊNCIA DE A MASSAGEM ANTIESTRESSE NA CAPACIDADE DE MANTER A APNEIA**

**RESUMO**

Este trabalho teve como principal proposta verificar sobre a influência da massagem antiestresse na melhora do sistema respiratório através da capacidade dos voluntários em manter a apneia. Para execução do objetivo proposto realizou-se, inicialmente, uma pesquisa bibliográfica que forneceu o embasamento teórico necessário. A pesquisa baseou-se em um teste aplicado em 15 voluntários do sexo masculino com idades entre 24 a 49 anos, sedentários e estressados. Os mesmos tiveram que submergir a cabeça em um recipiente com água antes e após receberem a massagem antiestresse, enquanto que um dos Pesquisadores aferiu com a ajuda do aparelho Oxímetro de pulso (Moriya- MD300C1 e MD300C2) e um cronômetro o tempo que os voluntários mantiveram a apneia. A coleta de dados foi realizada mediante a aplicação do Termo de Consentimento Livre e Esclarecido e por meio de um questionário EVA adaptado. Cerca de 86,6% mantiveram e/ou aumentaram o nível de $O^2$ no sangue, 80% diminuiram o nível de batimento cardíaco por minuto (bpm), ou seja, relaxaram após a massagem e 66,7% aumentaram o tempo de apneia após a massagem. Conclui-se que a massagem antiestresse teve efeito positivo no sistema respiratório dos voluntários.

**PALAVRAS-CHAVE:** Massagem, Antiestresse, Apneia.