



MASSOTHERAPY WITH BALLS: HISTORY AND APPLICATION TECHNIQUE

REVIEW ARTICLE

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SUMMARY

Massotherapy has been used at the logo of the existence of humanity for various purposes and there are different types of massage ranging from classical to transcendental. Among the various massage modalities there is massage with balls. It is a very efficient massage and little addressed in the current literature, so the present study was conducted and aimed to investigate the origin of this massage and describe the application techniques. To this end, a bibliographic research based on books and

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databases obtained at Scielo and Scholar Google *was conducted*. It was found that this type of massage was performed in the Ming dynasty and in addition to the massage could be performed exercises with the balls. There are basically four massage techniques like balls.

Keywords: massage, massage benefits, massage as balls.

1. INTRODUCTION

One of the oldest therapies that has been used to date is massotherapy and it has different ends such as decreased tensions, release of toxins, promote muscle relaxation, combat fatigue and stimulate blood circulation. (CANNECCHIA, 2019).

Massage is a common practice throughout the history of mankind and has been widely addressed in literature. Today, there are several videos of massotherapy that can be easily accessed over the internet, *on Facebook, Instagram, YouTube, WhatsApp*, etc. However, it is necessary to point out that not everything that is posted in digital media is correct and this creates a lot of confusion for lay people and beginners in the world of aesthetics. Therefore, it is important to develop studies that allow the proper disclosure of the various techniques of massotherapy and its real benefits.

It is known that there are different types of massotherapy, such as: Swedish, Thai, Hawaiian, Tantric, Indian, etc., but one of the least described techniques *is massage with balls*, or simply massage with balls. It is a massage technique that is applied to soft tissues and exerts three basic effects: mechanical, physiological and psychological. Its application follows principles similar to Swedish massotherapy, however, using balls to massage the body region.

It is known that there is a lack of scientific literature on the use of ball massage, so the present study was conducted and aimed to investigate the origin of this massage and describe the application techniques. To this end, a bibliographic research based on books and databases obtained at Scielo and Scholar Google *was carried out* and had as descriptors: massage, benefits of massage, massage as balls.



2. LITERATURE REVIEW

2.1 MASSAGE HISTORY

There are historical records that proves that even the first wild civilizations, in addition to civilized ones, already practiced some type of massage, especially friction (WOOD and BECKER, 2008). It was a common practice in ancient Indian, Chinese, Japanese, Greek and Roman civilizations. It is known that one of the oldest references appears in *Nei Ching* which is a Chinese medical text that was written in a period prior to 1500 BC. Later, writings were found about massage by hippocrates doctors in the 5th century BC. and Avicenna and Ambrose Stop, respectively, in the 10th and 16th centuries. (CASSAR, 2001).

However, egyptians already applied massage for therapeutic purpose to more than 4000 a. C. And in India, the massage sought a holistic vision to balance body, mind and spirit and being one of the recommendations and teachings. It is known that the description of the massage lies in the books *Ayur Veda* which were written to about 1800 BC. However, it is known that almost all the world's major cultures have proposed in detail the indications and benefits of massage that was commonly combined with other types of traditional treatment, especially bath treatments. (SILVA, 2016).

It is necessary to highlight that Hippocrates (480 BC) called the *massage* of anatripsis, whose meaning is "rubbing pressing the tissue", later the term was translated into the Latin word *frictio*, which means "friction" or "rubbing". It is known that this term predominated for a long time and was used in the United States until 1870. In India, the massage was called *shampooing*; in China, *Cong-Fou*; in Japan, *Ambouk* (CASSAR, 2001).

In turn, Hippocrates (460-370 BC) also used massage as a treatment, because he believed that the body is able to self-heal if properly stimulated. Asclepiades de Bitínia was another Greek doctor who used massages, diets and exercises to treat diseases. In addition, it is notorious to know that the primitive Australian, Egyptian, Russian, Ukrainian, Pacific And North and South American civilizations used massage through



frictional movements with oils and waters as a way to drive out demons and spirits that generated diseases in people and thus purified the body of the sick. Therefore, several people have used and recommended massage to benefit the health of humans. (BERTOJA e TOKARS, 2018).

However, massage has not always been well regarded, with the rise of Christianity in the Middle Ages (the historical period ranging from the 5th century to the 15th century), the cult of the body came to be considered a sin. Therefore, hygiene care is no longer taken and therefore massage was prohibited in crested civilizations. (BRAUN and SIMONSON, 2007). In Europe, the Catholic Church considered massage a sin and its association with medicinal herbs was regarded as an act of witchcraft. (RAMOS, 2017).

With the end of the Middle Ages and the emergence of the Renaissance, massage was discovered and applied again and several authors contributed to this fact. However, it was between 1776 and 1839 that Pehr Henrik Ling revolutionized the practice of exercises and massage. He created the terminologies and technique of Swedish massage which is also known as classical massage or healing by swedish movement. His technique was initially popularized in Europe and Russia and later globalized (WOOD and BECKER, 2008).

It was also Hippocrates who described the benefits of massage associated with the chemical properties of the oils used (FRITZ, 2002). Therefore, it can be seen that not only massage could bring benefits, but also the chemical property of certain vegetable and essential oils.

The word massage originates from the greek *mass* that means "kneading" which means touching, handling, tightening (FRITZ, 2002). However, the term *massotherapy* is currently preferable, since the word *therapy* indicates the therapeutic use of massage. Nowadays, there are several massage techniques among them: relaxing, sports, therapeutic, modeling, *Quick Massage*, reflexological, tantric, etc. Just as several types of equipment have emerged that help the therapist apply the massage, among them are the *baoding balls* (㊦㊦㊦㊦) or health balls.



The *baoding balls* (Figure 1) are of Chinese origin and their denomination comes from the *city of baoding*, located in Hebei province in the People's Republic of China. They are artifacts used to exercise hands and provide relaxation, decreasing stress. Traditionally, they are composed of a pair of small-sized iron balls, which are stored in a small rectangular box. These balls originate from the Ming dynasty (1368-1644 AD) and were made by a weapon craftsman guided by a heavenly dream. He created two iron balls based on the yin/yang concept: one representing the Dragon roar and the other the corner of the Phoenix.

At first, the Emperor of China was charmed by the therapeutic benefits provided by the balls and made them an instrument that could only be used by the royal family. Later, iron balls became popular and reached the world. Initially, they were used to improve physical condition and train temperament (decrease anxiety, calm down) purpose for which they are still used today. They are an apparatus to relax muscles and joints and for defense in martial arts practice.

Nowadays, *baoding balls* are made of multiple types of materials, but remain light to carry. They are most often hollow and made of chrome steel and contain guizos inside. The guizos provide sounds that can sound like relaxing bells that responds to the nature and influence of the five fingers, thus exercise muscles and activate blood circulation.



Figure 1: Balls *baoding*.



Fonte: Os autores

With the development of new materials and evolution of the technique, the balls began to be produced with magnetic materials, wood, silicone and metal, rubber, silicone etc. (Figure 2)

Figure 2: Different types of balls.



Fonte: Os autores

When the iron balls appeared, they were unique to massaging their hands. The person self-massaged by turning the balls between his fingers. This technique is still widely used, but it is possible to massage any parts of the body with the help of the therapist or even various parts of the body through self-massage. (Figure 3)

Figure 3: Self-massage with ball.



Fonte: Os autores

2.2 BALL MASSAGE: BENEFITS

Ball massage (ball massage) is applied to soft tissues and exerts three basic effects: mechanical, physiological and psychological. The main effects of massage are mechanical, but they generate physiological and psychological effects.

Massage is a technique that promotes manipulation on soft tissues and like any type of relaxing massage, it allows the decrease of muscle tensions, in addition to stimulating the production of serotonin and histamine that have vasodilator action, increasing blood and lymphatic input. Massage can activate the rmoreceptors and increase the permeability of the cell membrane, this allows nutrient absorption and consequent better cell nutrition, oxygenation and hydration (CLAY, 2008).



Psychologically, ball massage is capable of providing muscle and mental relaxation, causing a prone state to sleep. It is known that massage stimulates the release of endorphin hormones and serotonin that are responsible for the feeling of pleasure. (PEREIRA, 2013). Endorphin hormones and serotonin allow relaxation and at the same time are those responsible for deep sleep, which is designated with REM sleep. In addition, massage reduces cortisol that is one of the responsible for insomnia/stress, so a person who receives the massage will have less cortisol in the bloodstream, which will cause an improvement in their sleep quality and decreasing anxiety and stress.

The stretch, compression, traction and friction movements that are performed in ball massage exert evident mechanical forces on the tissues. These mechanical forces exert mobilizing effects of softening and stretching on the skin, subcutaneous tissue, viscera and muscles.

The mechanical effect refers to the direct influences that massage plays on soft tissues being massaged (CASSAR, 2001). It provides physiological effects on muscle, nervous, circulatory and digestive systems. Massage with balls when slowly removing muscles stimulates the tendon reflex that reduces muscle tension and results in muscle relaxation. With skeletal muscle relaxation and sliding maneuvers done with balls it is possible to exert enough pressure to displace the liquids in the direction of venous or lymphatic circulatory flow. If maneuvers are vigorous, they may result in significant increases in blood flow due to vasodilation and capillarization phenomena. These circulatory effects drive exchanges between cellular and blood media, improve oxygen and nutritional input, aid in the elimination of residues from metabolism and carbon dioxide. Maneuvers with more suave pressure, rhythmic and applied towards the paths of the superficial lymphatic vessels allow to accelerate the lymphatic return flow, being useful in cases of edema to aid in resorption.

The main mechanical effects produced by massage are: the mobilization of venous blood, lymph, edema and hematoma, intestinal content, mucus, muscle fibers and mass, tendons, skin and subcutaneous tissue, adhesions and scar tissue (State Government of the Ceará, 2010).



We also highlight the physiological effects of ball massage on the digestive system that improve intestinal transit. Massage stimulates peristalsis to promote the evacuation of flats and feces from the large intestine, facilitating excretory function in cases of intestinal constipation.

Undoubtedly the reduction of pain when applying massage is obtained by different mechanisms, among the decrease in muscle spasm and edema. Therefore, the improvement of the return circulation absorbs edema and with it the cellular metabolics. It also reduces by activating skin receptors that inhibit pain by the mechanism of the gate (STARKEY, 2017).

Muscle relaxation and improved circulation already contribute to decrease musculoskeletal algias. However, ball massage reduces pain because it obeys the phenomena of flood theory. This theory allows us to understand that there are different types of nerve fibers and each has a speed of conducting nervous impulse and a function. In this case, pain nerve fiber is slower than tact and pressure nerve fiber. Therefore, when a person is feeling a muscle pain and is massaged, nerve impulses of touch and pressure arrive first in the spinal cord and inhibit the nerve pathways of pain that would lead pain information to the thalamus (site of the brain that allows to feel that of the r).

The effect of massage on pain control is so important that it is used as palliative care in patients with advanced stage cancer. A fact that is found in florentine's statement (2012, n.p.) that reports that "massage is a technique used as complementary therapy in cancer patients, with the aim of providing pain relief."

It should be emphasized that for inhibitory effects to happen, it is necessary that massage maneuvers with balls are done constantly, slowly and smoothly, so that accommodation occurs by increasing the threshold of perception of the new stimulus.

Ball massage assists in the renewal of epidermal cells and allows the sebaceous glands to be clear ed and work better. And due to vasodilator phenomena and



capillarization, the skin becomes more nourished and oxygenated, besides facilitating the permeation of some cosmetic assets.

Massotherapy can exert an influence on the immune system, as it acts on the layers of the skin that responds positively. (CARVALHO e ALMEIDA, 2018).

2.3 BALL MASSAGE: ORIENTATIONS, INDICATION AND CONTRAINDICATION

Before applying the massage with balls it is necessary for the therapist to make an evaluation (anamnesis) of the client. The evaluation will provide useful information to choose whether or not the person to massage, and allows to select the priority maneuvers to be applied. During the evaluation, if the client presents any relative contraindication, he should be instructed to consult another health professional and can only be massaged if he has a written authorization from the doctor or physiotherapist.

The main data that should be present in the evaluation form are: identification data (full name, address, telephone number, date of birth, marital status and profession), data on health status (whether the person is healthy or has any disease: diabetes, hypertension or hypotension, heart disease, cancer, migraine, epilepsy, constipation, dysmenorrhoea, cystitis, allergies, insomnia, depression, etc.) and it is necessary to know if the person is pregnant or breastfeeding. Other information that may contain in the evaluation form is about the practice of physical exercise, feeding, consumption of alcoholic beverages, tobacco and medication in use.

The application of ball massotherapy pays attention to the same contraindications of any massage application and they can be absolute, that is, massage cannot be applied to the client; or relative, that is, it is possible to apply massage, but some care should be adopted or some areas cannot be massaged.

The main absolute contraindications are thrombosis or unstable vascular damage, febrile state, presence of infection, gangrene, kidney disease, advanced heart disease,



severe headache, uncontrolled blood pressure changes by medication, Intoxication. Relative contraindications are: fractures (before solidified), recent burns, open wounds. (VERSAGI, 2015). Other relative contraindications are: cancer, mental illness, decalcifications and pregnancy.

The main indications are: stress relief, constipation, migraine, recover ing the person in cases of traumatic injuries (sprain, bruises) after medical release, reduce muscle and tendinous tensions, myalgias by effort, prevention of STDs, drainage of venous and lymphatic edema, adjuvant in the treatment of stretch marks, localized lipodystrophy, fibrosclerotic eedema paniculopathy, insomnia, anxiety, etc.

2.4 BALL MASSAGE: TECHNIQUES

Some basic rules for applying massage should be followed, such as: both the massage therapist and the client should feel comfortable during the session; contact with the customer should not be suddenly removed; massage should be interrupted in regions where the patient feels pain; never press or massage directly to the spine. (ELLSWORTH, 2012).

Ball massage maneuvers must respect the principles of direction, pressure, speed, pace and duration according to the desired objectives.

The direction will depend on the desired effect, so it can be performed in the direction of circulation that is desired to boost or in the direction of muscle fibers to be massaged. As for arterial flow, maneuvers should be centrifuges or near-distal to massage limbs, trunk and neck and centripetal or proximal to massage the head. If the flow direction is venous, the maneuvers must be centripetal or this-proximal to massage limbs, trunk and neck and centrifuges or near-distal to massage the head. If aiming at lymphatic drainage it is necessary to follow the direction of flow of lymphatic vessels and maintain the drainage sequence proposed by José Maria Pereira de Godoy and Maria de Fátima Guerreiro Godoy.



As for the pressure to be exerted, it should be comfortable and pleasant when seeking muscle relaxation and pain reduction. It is noteworthy that there is a *need for* customer feedback for pressure to be adjusted. There are more muscular or obese people where pressure will tend to be slightly higher when compared to lean, elderly or children. If you aim for lymphatic drainage, the pressure should be between 30 and 40 mmHg.

Speed and pace also vary depending on the need. Relaxation and drainage maneuvers must be without slow, constant and well rhythmic. For arterial circulatory dynamization, striation treatment, localized lipodystrophy, fibroedemageloid should be faster. It is good to remember that movements performed slowly tend to be relaxing, while the reverse, more stimulating.

The massage lasts from 5 to 20 minutes when applied in only one region, except if the goal is lymphatic drainage, in this case it will last from 30 to 40 min. When applied in a systemic way, that is, in the whole body, aiming at muscle relaxation and decreased emotional tensions, it will last from 45 to 90 min.

It should be noted that time will depend heavily on the goal to be achieved, and on the size of the body area, since it takes less time to treat a relatively small person compared to a large person. In very young and very elderly people, the duration of massage should be reduced, because the reflex arch is more sensitive and the integral effect is achieved faster.

The ball massage applied by the therapist is divided into four basic maneuvers and each maneuver has its variations. The maneuver that initiates and finishes the service is that of sliding, which consists of sliding to or with the balls on the client's body surface always in response to the desired circulatory flow or the direction of muscle fibers or the sense of peristalsis (Figures 4 to 11).



Figure 4: Symmetrical longitudinal slip-through technique in Mmli.

Deslizamento longitudinal simétrico com as 2 bolas no membro inferior



Fonte: Os autores

Figure 5: Asymmetric longitudinal slip-up technique in trunk.

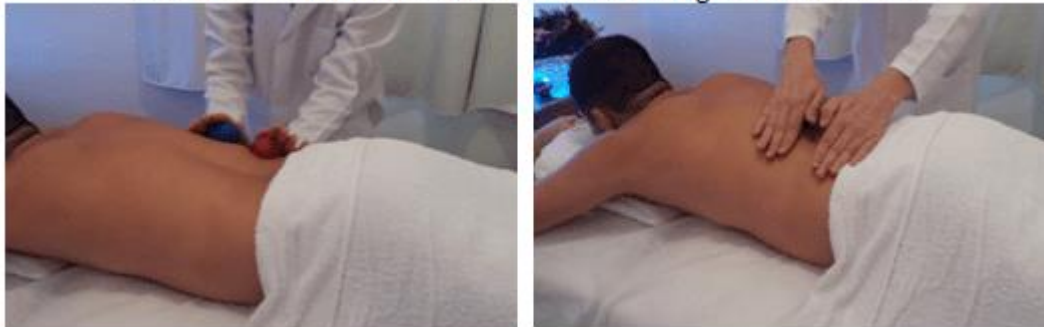
Deslizamento longitudinal assimétrico com as 2 bolas na região tóraco-lombar



Fonte: Os autores

Figure 6: Cross-slip technique.

Deslizamento transversal com as 2 bolas na região tóraco-lombar



Fonte: Os autores

Figure 7: Symmetrical longitudinal slip-up technique in trunk.

Deslizamento longitudinal simétrico com as 2 bolas na região tóraco-lombar



Fonte: Os autores

Figure 8: Circular sliding technique.

Deslizamento circular com uma bola na região abdominal no sentido do peristaltismo.
A manobra pode ser executada com uma ou duas mãos.



Fonte: Os autores

Figure 9: Symmetrical longitudinal slip-up technique on the forearm.

Deslizamento longitudinal simétrico com as 2 bolas na mão e no antebraço



Fonte: Os autores

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Figure 10: Symmetrical longitudinal slip technique on the arm.



Deslizamento longitudinal simétrico com as 2 bolas no braço. Observe que o terapeuta sustenta o membro superior fixando-o entre o tronco e o braço. É fundamental que o cliente não sustente o membro.

Fonte: Os autores

Figure 11: Diagonal sliding technique.

Deslizamento diagonal com as 2 bolas na região escapular



Fonte: Os autores

The second maneuver is fixed compression or compression and drag. The first is to keep the region being compressed by the ball for 10 to 15 seconds or throughout the session. The second, consists of compressing the ball against the body and dragging it into circular movements (Figures 12 and 13).

Figure 12: Compression technique in the foot.

Compressão fixa e compressão e arrasto com uma bola na região plantar



Fonte: Os autores

Figure 13: Compression technique in the spine.

Compressão fixa com as 2 bolas na região paravertebral cervical e lombar



Fonte: Os autores

The third maneuver is kneading and in this case two balls are always used. The therapist kneads the soft tissue between the balls with nice pressure or strong pressure, but not uncomfortable. The client may not report pain or bother in any hypothesis (Figure 14).

Figure 14: Kneading technique.

Amassamento de trapézio e da loja posterior de perna



Fonte: Os autores

The fourth basic maneuver is friction and in this case, it is usually used in small regions and with only one ball. This maneuver is a kind of deep slip, performed vigorously and quickly, in order to reduce muscle tension nodules, undo clots, increase local microcirculation. Causes great heating of the massaged region and is recommended in cases of striations and localized lipodystrophy. The maneuvers aim to heat the region and are done with the ball circulating between the palm and the client's body surface (Figure 15).

Figure 15: Friction technique.

Fricção da loja anterolateral de coxa



Fonte: Os autores

There are variations of each of the basic maneuvers, in addition to the *Technique of Self Massage with balls*, which the person applies the massage on it (Figure 16).



Figure 16: Self-massage technique.

Self Ball Massage



Fonte: Os autores

3. CONCLUSION

The first historical records of massotherapy date back to 1800 BC. and is found in the books *Ayur Veda*, but it is known that the Egyptians used massage for therapeutic purpose for more than 4000 a. C. E it was in the Ming dynasty (1368-1644 AD) that an arms craftsman created two iron balls based on the yin/yang concept. They began to be employed to provide therapeutic effects and to improve physical condition and train temperament (decrease anxiety, calm down).

Nowadays iron balls are still used, but other materials emerged with wood, silicone, rubber and several others. All these balls, regardless of the material, serve to massage and exercise and can provide organic and psychological benefits already recognized in massotherapy. It can be seen that the ball massage applied by the therapist is divided into 4 basic maneuvers, however each maneuver has its variations.

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