

Massage and Organism

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Introduction

As it is known, the main purpose of those working in the field of sport is to increase the sportive performance of individuals. With the developing technology, we see that intensive scientific studies are carried out in the fields of physiology, neurology and sports sciences in the modern sense. In this context, the subject we deal with in our study is sportive massage. We think that the effects of sportive massage on the human organism are undeniably important. Massage consists of many manipulation sequences with therapeutic, relaxing and soothing properties. The history of massage dates back to ancient times and has been used for many years. It has a number of anatomical and physiological effects on the individual as well as psychological effects (Sehlikoglu 1986).

In general, massage is considered as a method that can be applied by hand or with a set of tools and which primarily has effects on the skin and muscle structure (Sengir 1989). While massage is used for healing purposes in terms of health, it is expressed as a set of rhythmic movements performed for the purpose of preparing the organism for exercise, psychological motivation and rest in sports (Sökmén 1999). Massage is an application performed in order to use physical power more effectively. Massage is used to increase the efficiency of the athlete and to maintain this efficiency, to rest sufficiently after the exercises and to make it ready for the next exercise. In sports massage, all manipulations used in classical massage application can be used. However, it is important to choose the appropriate method for the structure of the massaged area as well as the time of the massage application (Turgut 1993). The main aim of this study is to reveal the physiological and psychological effects of sports massage on the human organism.

Aim of The Study

This study aims to explain the effects of massage on the organism.

Definition and History of Massage

It is quite difficult to find the theories about massage practices in the literature. Because in the studies conducted in the field, theories are presented without testing the objectives and hypotheses, and information is not given in detail. It is seen that the majority of the studies focus on the effects of massage. The scientific theoretical part and mechanism are not sufficiently explained (Brennan and DeBate, 2006). We can say that touching and being touched always have a deep effect on people, because the fact that people take their hand to the area where they feel discomfort in their body and rub it also indicates that massage has an instinctive origin (Kanbir 1998, Hazır 2001, Tuna 1997).

It is known that the human hand is one of the most developed limbs in terms of sensation and movement. Massage is a method that includes a series of movements such as touching, pressing, stroking, squeezing and kneading. Therefore, performing these movements by hand is considered to be an easier, smoother, faster, more economical and reliable method. It is a known fact that touching the human body with the hand stimulates the pressure receptors on the skin and under the skin, as well as changing the blood circulation there, and that bodily touches provide people to relax mentally (Basmajian 1985).

It is stated that massage is generally seen as a method of curing diseases, protecting health and ensuring that people are physically strong (Kanbir 2005). Massage has been accepted as the oldest therapy (treatment) method throughout its history, it was used as a basic treatment method until the pharmaceutical revolution in the 1940s, and it has gained great popularity by taking its place in alternative medicine (Field and Tiffany 1998).

Massage is defined as a set of movements performed on the organism in order to rehabilitate a painful and tired limb or to ensure its return to its former solid position, which has a certain systematics and creates functional, physiological and anatomical effects with mechanical energy (Turgut 1977, Lauber 1989, Pamuk 1976). It is seen that massage is used in almost all societies that have taken place on the stage of history. Basically, it is expressed as movements that fall within the scope of hand movements, touching, kneading, pressure, rubbing, shaking style methods are used. We see that this series of movements is collected under a single name in various societies. For example, mass in Arabic, massem in Greek, massage in French, mashesh in Hebrew and massagio in Italian (Licht 1963, Stamford 1985). In the light of written documents obtained from Chinese sources in 3000 BC, it can be said that touching and touching the human body as a source of healing is the oldest natural treatment method. In the relevant sources, it is also stated that the massage method is used not only for the treatment of diseases and injuries, but also as a primary method of protection from such situations. The historical origin of the massage method dates back centuries and has come to the present day as an important therapy method used to achieve happiness and health by touching with hands (Rowshan 2003).

Galen (130-200 A.D.), who lived during the Pergamon kingdom in Anatolia and is considered by some to be the first sports physician in history, was a physician who was assigned to treat wounded soldiers. He recommended that Roman nobles, who were fond of eating and drinking and had a lazy life during his time, should exercise for a healthy life and stated that regular massages along with these exercises would improve health. Again, we see that Ibni Sina, a Turkish medical scientist and thinker who lived between 980-1037 A.D., had opinions about the benefits of massage in his works. In his work titled "Külliyat", which is the first book among his series of books titled El Kanun Fit Tip, he emphasized the importance of preventive health services based on his views on physical education and healthy life and mentioned the applications of massage along with exercise for health (Kanbir 1998).

In the 16th century in Europe, where religious pressures were intense, Dr. Abroise Pare (1510-1590) is known to have applied methods similar to massage along with the prescribed treatment in the process of getting rid of diseases. By the 19th century, there was an increase in the number of physicians interested in massage in the world. It has become a matter of debate that massage should be seen as a sub-branch within the gymnastic movements that are widespread especially in Europe. In addition, whether the massage should be performed on the naked body or over the clothes was also an important subject of debate (Kanbir 1998, Tuna 1997).

Swedish Ling (1178-1839) argued that massage and gymnastics were intertwined, while Kleen (1847-1928) treated massage and gymnastics as two half subjects in his *Massage manual* written in 1895. In 1893, Hoffa, in his book *Massage*, discussed today's classical massage techniques in five groups: *efflörāj*, *petrisage*, *friction*, *tapotment* and *vibration*. After World War II, massage was started to be used for treatment purposes in medical clinics in England and massage schools were opened throughout the country (Kanbir 1998, Tuna 1997).

Effects of Massage on the Organism

When we look at the effects of massage on the organism, it is seen that it is considered as a component of physical, physiological and psychological factors. With mechanical stimuli in the form of rhythmic pressure movements and stretching applied to the tissues with the help of the hand, the receptors at the nerve endings in the structures of the soft tissues consisting of the said and subcutaneous tissues and muscles, which are stretched and compressed, are modulated. Compression and stretching also cause dilation in the diameters of blood and lymphatic vessels, which in turn stimulates flow and affects the capillary, venous, arterial and lymphatic circulation (Birk et al. 2000).

Nerve endings of the skin that can receive superficial and deep stimuli, proprioceptive receptors in muscles and tendons and internal receptors in the tissue are stimulated. The effects and changes that occur in the human organism as a result of the stimuli are related to the intensity, duration, tempo and quality of the force applied in the form of pressure and stretching (Tuna 1997).

It is appropriate to use materials such as oil, pomade and powder to ensure easy lubrication of the hands on the skin and to prevent possible irritation. However, it is not considered appropriate to massage immediately after meals, pregnant women, new open wounds, skin and heart diseases and infectious diseases (Scott 1990, Arnheim 1989, Beard and Wood 1989).

In summary, massage increases blood and lymph circulation, thus helping to maintain optimum nutrition of muscles and soft tissues (Tuna 1986, Başaran 1999). It reduces muscle stiffness and restriction, thus perfecting flexibility and relaxation as well as providing muscle balance. It provides faster healing of sports injuries and reduces the possibility of further injury (Grisogono 1995).

Reduces muscle fatigue, thus enabling more consistent, higher levels of training and performance. Reduces body pain and increases relaxation (Weerapong 2005). Increased circulation in the massaged muscles reduces injuries. It provides psychological support and builds self-confidence (Brian 2001).

Physiological effects of massage

The reflex effects seen as soon as the massage application begins reach the brain through the spinal cord with the stimulation of the peripheral nerves in the skin and a general state of relaxation occurs in the individual. In addition, there is relaxation in the muscles and dilation of small arteries. In addition, providing a state of sleep (sedation) is seen among the important effects of massage (Tuna 1986). Increased venous blood and lymph circulation and resolution of involuntary muscle contractions are also considered as mechanical effects of massage (Tuna 1986, Yao et al. 2007).

Effects on the Circulatory System

In the light of scientific results obtained in clinical settings, the most important effect of massage is the one on blood and lymph circulation. In addition, the removal of lactic acid and the acceleration of blood flow are important advantages of massage (Antonio 1997).

In classical massage applications, the circulation is activated by stimulating the lymph and venous system with patting and kneading processes applied on the skin in the direction of the heart. The mobility that occurs in the circulation accelerates the fluid exchange in the tissues, thus the nutrition of the tissues and the amount of oxygen reaching the cells increase and the excretion of waste substances in the organism is accelerated (Yao et al. 2007).

This acceleration of blood flow does not increase the amount of oxygen consumed by the metabolism. It is a temporary situation that occurs as a result of purely mechanical interaction. In the majority of the studies on massage, researches examining the effects on blood and some blood parameters are generally found. The effects on the circulatory system in the studies can be listed as follows. There is an expansion in vessel diameters. With the increase in sympathetic nerve activity and tissue temperature, vasodilating substances are secreted in the treated area. When an area is massaged, the pressure of the manipulation does not directly increase blood flow. There is a temporary drop in blood pressure for a short period of time as the blood in the small veins empties, the blood in the capillaries fills the venules and thus the arterial blood flow increases. Therefore, while massage increases the blood pressure in small veins, it also has an effect on the discharge of blood in capillaries (Gürel and Doğdu 2014).

Since the venous return is in the direction of the heart, it is strongly recommended to massage in the direction of the heart. By expelling the lymph fluid, it is ensured that it joins the venous circulation and in this way, it is ensured that metabolic wastes are easily removed from the area (Kanbir 2005). It is known that deep-acting manipulations have more therapeutic effect in a massage application. By increasing fluid exchange in tissues, excess nutrients are provided. In addition, the increased amount of oxygen in the blood facilitates faster regeneration of damaged muscle tissues and accelerated blood flow provides rapid excretion of residual substances in metabolism (Tuna 1986, Kanbir 2005).

Effects on Muscles

It should be noted that there will be no increase in muscle volume or strength of the individual with massage application. Because muscle strength can only be increased through regular exercises. Massage can help muscles regain their existing functional abilities (Gürel and Doğdu 2014, Goldberg et al. 1994). In particular, it contributes to reducing the time needed for tired muscle groups to rest. With massage application, circulation is revitalized and muscle groups are better nourished, resulting in a muscle structure that is more resistant to injuries and can adapt to strains more easily. In cases where there are movement restrictions in the joints and muscles for different reasons, it is stated that massage application before exercise will contribute to easy and comfortable exercise (Field and Tifanny 1998). The primary target of massage application is muscle tissues. Massage applications produce a number of physiological effects on muscle groups. As the blood circulation increases, there is an increase in the internal temperature of the muscle and in a way, a passive warming state can be achieved (Kanbir 2005).

Thanks to the acceleration in blood flow and the removal of residual substances such as lactic acid from the body, there will be no accumulation. It has been demonstrated by clinical studies that after a certain period of time (7-8 sessions), the hypertonic muscle relaxes under the hand (Gracies 2001).

Effects on the Nervous System

It is difficult to determine what effect massage has on the nervous system. First of all, it should be known that massage does not help to regenerate a severed nerve. However, the stimuli and heat in the form of pressure and stretching that occur during the contact of the hands on the skin are received by the receptors in the skin and transmitted to the central nervous system through nerve fibers, creating a general effect (Moyer et al. 2004) and contributing to the acceleration of regeneration (Gürel and Doğdu 2014). Studies have shown that massage applications accelerate the regeneration of nerves (Cambron et al. 2007). It is known that the touch stimulus creates certain effects that are perceived in different ways depending on the intensity and severity of the massage application and the size of the treated area. While a large surface and slow patting has the effect of relaxing, soothing the nervous system and relaxing the muscles, deep pressures and kneading applied point by point can have positive effects on muscle tone reflexively (Goldberg et al. 1994).

Effects on Internal Organs

As a result of stimulating some parts of the body structure with different methods, it can be effective on some internal organs. Especially in stomach, abdominal pain, gall bladder and gas pains, it is stated that certain areas can be relieved by rubbing with hands. In this context, acupuncture, acupressure and shiatsu methods are also considered as complementary medicine in order to have an effect on internal organs (Cambron et al. 2007, Mackereth 2007, MacDonald 2007).

Psychological Effects of Massage

Massage increases the willingness of individuals to do work and leads to an increase in productivity. The state of relaxation that occurs after massage causes the individual to radiate positive energy to his/her environment. In addition, while providing stimulation, it also creates relaxation, which reveals that it has an important effect on the autonomic nervous system. In addition to the physiological effects of massage in terms of hyperemia and mechanical effects, it also helps to calm down the athletes who are nervous before the competition and stimulates and activates the passive ones. In this context, the most important psychological effect can be considered as positive motivation and stress relief (Gürel and Doğdu 2014).

High levels of stress may occur in individuals due to various stimuli before the competition. At this point, massage application provides various benefits in reducing and preventing stress (Güney 2001). In a study conducted on individuals with high levels of aggression, it was stated that 20 minutes of massage application had an effect on the subjects to feel less anxiety (Diego et al. 2002).

The most important benefit of having a massage is that our body relaxes, rests and gives a feeling of vigor. Conscious massage practice removes the individual from the chaos of stress and provides a healthy rest (Güney 2001). On the contrary, unconscious and haphazard massage practice is likely to have adverse psychological consequences (Gürel and Doğdu 2014).

It is stated that anxiety, stress and depression levels are reduced with massage. In

addition, it is emphasized that massage applications have positive effects in the treatment of disorders such as post-traumatic stress, eating disorder, attention deficit hyperactivity disorder, depression migraine, back pain (Shulman and Jones 1996). Another Far Eastern massage method used for stress reduction and relaxation is Shiatsu. Seen as a safe and effective massage method to get rid of psychological traumas caused by injuries, Shiatsu, based on eastern philosophy and medicine, is an effective method used in the protection of health, reduction of stress and treatment of some diseases as a result of contact with certain points of the body with the help of hand fingers. It is important to establish and maintain a harmonious balance between the body and the outside world. Disturbance of the balance may cause various disorders in the body. With this method, the pressure applied to various points provides a regular flow of energy and blood circulation and helps to eliminate these disorders (Rowen 2008).

In a study conducted on working individuals, 18 participants were massaged regularly for 15 minutes each during rest breaks for 6 weeks by using the massage method in order to reduce the anxiety levels of the employees in the working environment. At the end of the study, it was revealed that there was a significant decrease in the anxiety levels of the massage group compared to the control group (Shulman and Jones 1996). In another study, 82 nurses working in a hospital and caring for inpatients were given 10 minutes of massage during coffee breaks and significant decreases were found in the stress levels of nurses compared to the control group (Brennan and DeBate 2006).

Conclusion

As a result, there are many studies on the psychological effects of massage. The results obtained in these studies show that there are positive decreases in the anxiety levels of athletes (Brennan and DeBate 2006, Moyer et al.2004, Elbir 2003, Cafferelli and Filint 1992, Field et al.1996, Sharper et al.2007, Arslan 2004) and that massage positively affects the motivation of athletes (Abakay 2017).

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