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Review Article

AN INTRODUCTION TO THE ART OF MASSAGE

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ABSTRACT

Massage, or systematic rubbing and manipulation of the tissues of the body, is probably one of the oldest of all means used for the relief of bodily infirmities. There are various evidences for the practice of massage in different forms in medieval times also. Later on, Dr. Mezger and Kellogg developed the two types of massage viz, Swedish and Kellogg massage. The basic movements and procedures are the same in both. The four major procedures in Swedish massage are effleurage (stroking), frictions, petrissage (kneading) and tapotement (percussion). Swedish massage is not much popular in India but it is widely practiced in other countries. The practice of massage produces mechanical, reflex and metabolic effects in the body. Massage influences the circulation, respiratory activities, nervous coordination and digestive activities which are detailed in the paper. Massage helps in lymph and blood circulation and absorption of waste and effused products. Massage can be indicated in arthritic pain, paralysis etc. and contra indicated in skin diseases, fever, after surgery etc. Care should be taken to make all the movements from wrist otherwise it generates pain. Only few studies have been conducted on massage and its effects. Moreover not much authentic books are available on massage except Kellog's 'The Art of Massage'. More and more studies should be done in order to make the practice of massage popular.

INTRODUCTION

Massage is a manual soft tissue manipulation that includes holding, causing movement, and/or applying pressure to the body.It is a scientific treatment, by certain passive systematic manipulations, upon the nude skin of the human body. The word massage is a derivation from the Greek massein, or the French masser, which both mean: to knead. A male operator is called a masseur, and a female operator is called a masseuse.

History of Massage

Archaeological evidence of massage has been found in many ancient civilizations including China, India, Japan, Korea, Egypt, Rome, Greece, and Mesopotamia. In BC 460: Hippocrates wrote "The physician must be experienced in many things, but assuredly in rubbing". In BC 300, Caraka Samhita believed to be the oldest of the three ancient treatises of Ayurvedic medicine, including massage. An ancient Chinese book entitled, "The Cong-Fou of the Tao-Tse, was probably the foundation both our modern massage and of the manual Swedish movements. In Japan the massage used to be delivered by blind man. The masseur used to go to the street and shout Amma! Amma! (shampooing or massage).

Asclepiades, another eminent Greek physician, held the practice of this art in such esteem that he abandoned the use of medicines of all sorts, relying exclusively upon massage, which he claimed effects a cure by restoring to the nutritive fluids their natural, free movement. It was this physician who made the discovery that sleep might be induced by gentle stroking. Celsus, the most eminent of all Roman physicians, who lived at the beginning of the present era, was very familiar with massage, and used great discretion in its application. He recommended manipulations of the head for the relief of headache. A sort of percussion, called whipping, was employed by the ancient Roman physicians in various diseases, and is still used by the Laplanders and the Finns, who beat the body with bundles of birch twigs.

The natives of the Sandwich Islands have, from the most ancient times, employed massage, which they term *lomi-lomi*. They frequently administer *lomi-lomi* to an exhausted swimmer while in the water, supporting him with their hands until his forces are rallied by the manipulations. The Maoris of New Zealand practice massage under the name of *romi-romi*. The natives of Tonga Island employ massage under the name of *toogi-toogi*, the literal meaning of which is "to beat," for the relief of sleeplessness, fatigue, etc.

At present, different types of massage are in practice in all parts of the world. The most common among them are Swedish massage, Kellogg massage, spa massage, Ayurvedic massage etc. *Dr. Mezger,* of Amsterdam and his two pupils, the Swedish physicians *Berghman* and *Helleday*, were among the first to apply the massage treatment scientifically. Swedish massage also known as classical massage is widely practised in Europe[1].

Movements of Massage

The movements in massage includes touch, stroking, friction, kneading, vibration and percussion. The four major procedures in Swedish massage are effleurage (stroking), frictions, petrissage (kneading) and tapotement (percussion). The superficial movements in kellogg massage are touch, stroking and friction. The deep movements include kneading, vibration, percussion and joint movements. Each type of movements have subdivisions and its own therapeutic effects.

Touch

The touch of massage is not simply an ordinary touch or contact of the hand with the body, but is a skilled or professional touch. It is a touch applied with intelligence, with control, with a purpose; and simple as it is, is capable of producing decided physiological effects. This procedure has three different forms of application; viz., passive touch, pressure, and nerve compression. Passive touch is lightly touching the part operated upon with one or more fingers, with the whole hand, or with both hands. The physiological effects of simple touch are.

- Elevation of the temperature of a part by the communication of animal heat.
- Hypnotic effect- the reflex influence through the cutaneous nerves upon the centre of the brain and cord, of the gentle contact of a warm, soft hand with the skin.
- Certain electrical effects may result from simple contact of the hand of the masseur with the body of the patient.

Therapeutically, touch is often remarkably effective in relieving hyperaesthesias, especially in the region of the head and joints. Pain is lessened, and numbness, tingling, and other sensations are made to disappear. Sleeplessness may also be, relieved, and nervous irritability quieted, by simple contact of the hand with the head.

Pressure consists of making light or heavy pressure with the whole of one or both hands or with one or more fingers, upon the head, a joint, or some swollen or irritated part, or upon any portion of the body. Pressure relieves pain by emptying the blood vessels. It diminish swelling and congestion, and thus to relieve pain. Violent headache or pain in a joint may often be relieved.

Nerve compression is the procedure where strong pressure is made upon a nerve trunk at some point in its course. The points usually selected for pressure are the motor points which are located upon the surface where large nerve trunks are readily accessible, lying just beneath the skin. The physiological effect of light pressure upon a nerve trunk is that of stimulation. The slight irritation produced by the pressure is transmitted to the nerve centres which give rise to the nerve operated upon, and thus both the nerve trunk and its centres may be, by repetition of the pressure, excited to almost any degree desired. Firm, deep pressure, continued for some little time, produces numbness and may even paralyze the nerve trunk, thus giving rise to a sedative effect. Therapeutically, it helps in arousing the activity of the nerve centres. Pressure is extremely useful in connection with joint massage. In sciatica, pressure should be made at the points along the junction of the sacrum and ilium, as well as over the sciatic nerve in the hollow of the thigh.

Stroking

Stroking is touch combined with motion. The tips of two or three or of all the fingers, or the entire palmar surface of one or both hands, should be moved gently over the skin with light contact. There are several forms of stroking:

1. With the finger tips, digital stroking- It is used chiefly for the forehead and spine.
2. With the palm of one or both hands, palmar stroking-It is used for broad, fleshy parts, about the joints and for the soles of the feet.
3. With the knuckles, knuckle stroking-It is seldom used except in massage of the back.
4. Reflex stroking-Light stroking applied to these surfaces produces reflex effects in other organs as the result of the formation of a reflex arc through the spinal cord.

Digital and palmar stroking, when properly applied, have a decided sedative effects. Knuckle stroking is stimulating. Reflex stroking is certainly a most powerful means of stimulating the centres of the cord. Gentle stroking of the forehead in many cases affords relief from sleeplessness. Stroking may also be employed after other procedures in massage, for the purpose of lessening an excessive degree of cutaneous congestion or stimulation which may have been produced.

Friction

The whole or a part of the hand is moved over the surface with a considerable degree of pressure, the amount varying in different parts-heavy over thick, fleshy masses, light over bony surfaces and thin tissues. The principal effect of friction is upon the superficial veins, the large venous trunks, and the lymph spaces and vessels. Five different forms of friction may be described as follows:

1. Centripetal friction in which the movement is in the direction of the blood current in the veins, chiefly applicable to the extremities, the movement being from below upward, and from the hands and feet toward the body, the thumb or palmar surface of the hand being employed.
2. Centrifugal friction, in which the movement is opposite to that of the blood current.

3. Circular friction, applicable to the extremities. The limb is grasped by both hands, which make an alternate wringing or twisting movement, beginning at the hand or foot and extending upward.
4. Spiral friction, a sort of combination of the preceding, executed with one hand, which progresses from the lower, or distal, to the upper, or proximal, end of the part with a sort of spiral movement.
5. Rotatory friction, in which the hands are made to move over a broad surface in an elliptical, circular, or semicircular direction; especially applicable to such fleshy areas as the hip and that portion of the back lying above the spines of the scapulae. In applying rotatory friction, it is often necessary for one hand to support the tissues while the other hand is executing the movements.

Friction helps in the dilatation of the small vessels of the skin and increased activity of the peripheral circulation. It provides mechanical aid to the movement of fluid in the veins and lymph spaces and channels. Friction is of great value in the treatment of inflammatory exudates, such as usually occurring over joints. Friction is especially useful in general dropsy, and in all forms of local swelling, whether due to inflammation or to congestion resulting from a mechanical cause acting upon the circulation. Its efficiency in promoting absorption renders it of great value in sprains, chronic joint enlargements from various causes, sciatica, rheumatism, gout, and even in glandular enlargements.

Kneading

Kneading is the application to the tissues of alternate and intermittent compression, by grasping the tissues or by compressing them against underlying bony surfaces. The different forms of kneading may be divided into two classes; viz. superficial and deep. There is but one mode of applying superficial kneading, viz., pinching or fulling, but deep kneading may be applied in a variety of ways, the most important of which are petrissage, rolling, wringing, chucking, palmar kneading, fist kneading, and digital kneading.

- Petrissage- The muscular structures are grasped by the hand very much as a baker grasps a mass of dough.
- Rolling- The tissues are compressed against the deep-lying structures, and rolled by, a to-and-fro movement.
- Wringing- Grasping the limb with the two hands placed on opposite sides and close together.
- Chucking- Limb is supported by one hand while the other firmly grasps the fleshy portion and drags it first upward and then downward in the direction of the long axis of the limb.
- Palmar kneading- Executed either with the heel of the hand or the whole palmar surface.
- Fist kneading- Compression of the deep tissues by the knuckles of the closed fist.
- Digital kneading- The tissues being rubbed and pressed against the underlying bony surfaces.

Kneading stimulates all the vital activities of the part operated upon. It helps in dilatation and quickened activity of the blood vessels are also induced by reflex nervous action. Under the influence of massage, the parts operated upon become reddened through the increased blood supply, and acquire a higher temperature, both from the introduction of an increased supply of blood and from a stimulation of the heat-making process in the muscles. Kneading acts more powerfully than any other procedure in massage, in stimulating heat production. Weak muscles increase in size and firmness. There is no remedy more valuable in the treatment of muscular and joint rheumatism, sciatica, various forms of neuralgia, general defective development, neurasthenia, writer's cramp, convulsive tic, locomotor ataxia, various forms of chronic spinal disease, and in the opening up of closed lymph and blood channels. It is also of great value in the treatment of fractures and sprains. Superficial kneading is especially indicated in dropsy, oedema, jaundice, and all other forms of disease in which the skin is inactive, or in which the functions of the skin are defective.

Vibration

This procedure consists of fine vibratory, or shaking, movements communicated to the body through the hand of the masseur. One or both hands may be placed against the surface, or may grasp some part of the patient, as the hand, the foot, or the head. Sometimes one hand and sometimes both hands are employed. When applied with sufficient vigour, it is one of the most stimulating of all the procedures of massage. Under the influence of vibratory movements, the activity of the circulation increases, the blood vessels dilate, the temperature of the part rises, and a pleasurable glow and sensation of well-being pervades the part. It is also valuable in neuralgia and neurasthenia and in most functional nerve disorders accompanied by diminished activity.

Percussion

This procedure consists of blows administered in various ways and with varying degrees of force. The two hands are used in alternation. The movement is always from the wrist joint, which gives to the blow the quality of elasticity. The principal modes of applying percussion, or tapotement are:

1. Tapping- this is a form of beating in which, the tips of the fingers alone are employed.

Either one or all of the fingers of one or both hands may be employed. It is chiefly used for the head and the chest.

2. Spatting- This consists of percussion with the palmar surface of the extended fingers held rigid.
3. Clapping - In this procedure, the whole hand is employed, the palmar surface being so shaped as to entrap the air as it comes in contact with the skin, producing a sort of explosive effect and a loud sound.
4. Hacking- In this procedure the ulnar, or little finger, border of the hand alone comes in contact with the skin. The fingers are held slightly apart, but loosely, so that they are made to come successively in contact by the force of the blow, thus giving a peculiar vibratory

effect. It is chiefly employed in applications to the chest, spine, and head. It may also be employed upon any other part of the body.

5. Beating - The body is struck by the palmar surface of the half-closed fist, the dorsal surface of the terminal phalanges of the fingers and the heel of the hand alone coming in contact with the body. This mode of percussion is chiefly useful for applications to the lower part of the back and the fleshy portion of the thighs.

Percussion is a powerful excitant, acting -not only upon the skin, but upon the tissues beneath. A short, light application produces spasm of the superficial vessels, which may be easily demonstrated by tapping a point upon the back of the hand with the finger for a few seconds, and noting the decided pallor which results. Strong percussion, or a prolonged application of light blows, gives rise to dilatation of the surface vessels, as evidenced by marked redness of the skin. Strong percussion may even produce paralysis of the blood vessels.

In constipation, it may be applied over the abdomen as a means of stimulating general peristaltic activity, and over the sacrum to stimulate activity of the lower bowel. Beating the sacrum is valuable in atony of the bladder and in impotence or sterility from loss of sexual vigour. Hacking of the spine is especially useful in sclerosis; and hacking of the chest, in pneumonia, adhesions from chronic pleurisy, and in promoting absorption in cases of serous effusion into the pleural cavity.[2]

Physiological Effects of Massage

Each and every manipulation movements used in massage has their own physiological effects. These physiological effects can be classified under following headings.

1. Mechanical, in which the tissues are wholly passive, being simply acted upon in a mechanical way by the hand of the manipulator, as in the movement of the blood and lymph in the venous and lymph channels, or the restoration of a displaced viscera to its normal position.
2. Reflex, an impression made upon the nerve ends of the sensory or afferent fibres connected with the nerve centres of the cerebro-spinal and sympathetic systems being transmitted to the related centres, where new activities are set up, resulting in the sending out of nerve impulses by which vital changes are effected, not only in the parts directly acted upon, but in related parts.
3. Metabolic, in which important modifications occur in the tissue activities both of the parts directly operated upon and of the body as a whole, as the result in part of the direct mechanical effects of massage upon the tissues, and in part of the reflex activities set up by it.

Effects on nervous system

Direct stimulating effects

1. Vibration and nerve compression may be made to act directly upon nerve trunks, thereby causing powerful stimulation not only of the peripheral nerves but of all the nerve centers with which a nerve trunk is connected.
2. Friction is an effective means of exciting nerves.
3. Tapping, clapping, and hacking are the most effective means of exciting nerve trunks.

Sedative effects

1. Strong percussion relieves the pain by tiring out thus reducing the irritability
2. Gentle Stroking has the sedative effect.
3. Very marked sedative effects are produced by friction and kneading.
4. Centrifugal friction diminishes the blood supply of the brain, and hence lessens cerebral activity.

Restorative or Reconstructive Effects

1. Mental fatigue is relieved by massage, through its effect upon the circulation and the eliminative organs. The toxic substances produced by mental activity, are more rapidly oxidized and removed from the body, while the hastened blood current more thoroughly repairs and cleanses the exhausted nerve tissues.
2. General reconstructive effects are experienced by the entire nervous stem through the improved nutrition induced by massage.

Effect on muscular system

Massage encourages nutrition and development of the Muscles. The increased blood supply of the muscle induced by massage naturally improves its nutrition. The improvement in the nutrition of the muscle increase the size or firmness. It helps to excite muscular contraction. Massage increases the electro-excitability of the muscles.

Effects on circulation

Massage profoundly effects the general and local circulation, depending upon the mode and area of application. General massage increase the rate and force of heart beats. The vigor of circulatory activities increases. The reflex influence of massage acts as a tonic for the heart, while the dilatation of the vessels decreases the resistance so that the heart acts more freely and efficiently in performing its functions. Massage has chiefly to do with the circulation of fluid in the veins and the lymph channels, since these are more readily accessible from the surface than the arteries. Friction acts on superficial veins but petrissage acts on deeper veins.

Effect on respiration

1. Increase cellular respiration:

Massage increase the cellular metabolism thus increase oxygen consumption and increase production of carbondioxide.

2. Increase the respiratory activity

- Increase the depth of respiration
- Increase the diaphragmatic action thus helps in lung movements, heart activities and movements of lymph and circulation.

Effect on digestion

- Improves the Appetite
- Promotes secretion of digestive fluids.

- Promotes absorption of the products of digestion.
- Aids peristalsis

Local effects

- Increase of blood and lymph circulation.
- Increase in both constructive and destructive tissue change.
- Absorption of waste or effused products.
- Development of the muscles, ligaments, and other structures acted upon.
- Increased heat production and tissue respiration.
- Reflex or sympathetic effects upon the vasomotor centres, and through them upon the large internal organs-liver, spleen, stomach, intestines, kidneys, and the general glandular system of the whole body[3].

General Indications and Contra-Indications of Massage

Indications	Contra-indications
Arthritis	Fever
Back pain	Open wounds and cuts
bronchial asthma	Malignant tumors
Constipation	Fracture
Obesity	Thrombosis
Diabetes	Gangrene
Paralysis	Immediately after surgery

General Rules in Massage

- Good health and personal cleanliness of masseur necessary. Good hands are necessary for success in massage. The hands must be soft, warm, dry, strong, and elastic. Simplicity, neatness, and tidiness in dress are in the highest degree commendable.
- The room in which massage is given should be well ventilated, temperature about 75° to 80° F.
- As a rule, the patient should be undressed, or clad in a single loose gown. Care should be taken to keep the body well covered, with the exception of the part undergoing manipulation. The patient should be placed in an easy, comfortable position.
- The masseur should always keep in mind the anatomy of the body - the outline of the bones, the location of the large nerves, arteries, and veins, and of the principal muscular groups.
- At the beginning, movements should be slow and gentle, being gradually increased in rapidity and force to the maximum and then gradually diminished to the termination. As a rule, always employ the same rate of motion for the same movement.
- Lubricants should always be used when much pressure is required, and where prolonged manipulation is necessary, also in the treatment of parts where the skin is extremely sensitive. When it is desired to stimulate the skin to a high degree by friction, lubricants should be avoided.
- Order in General Massage - (1) Arms (2) Chest (3) Legs (4) Abdomen (6) Hips (6) Back (7) Head (8) Neck.
- All movements should be made from the wrist as movements from the elbow generates pain[4].

Studies on Massage

Study no: 1 -A preliminary study of the effects of a single session of Swedish massage on hypothalamic–pituitary–adrenal and immune function in normal individuals

The purpose of this study was to determine effects of a single session of Swedish massage on neuroendocrine and immune function. It was hypothesized that Swedish Massage Therapy would increase oxytocin (OT) levels, which would lead to a decrease in hypothalamic–pituitary–adrenal (HPA) activity and enhanced immune function. The study design was a head-to-head, single-session comparison of Swedish Massage Therapy with a light touch control condition. Serial measurements were performed to determine OT, arginine-vasopressin (AVP), adrenal corticotropin hormone (ACTH), cortisol (CORT), circulating phenotypic lymphocytes markers, and mitogen-stimulated cytokine production.

The study gave the final conclusions that one session of Swedish Massage Therapy was associated with small decreases in serum and salivary CORT, but produced rather larger decreases in AVP. The data do not support the hypothesis that OT mediates changes in HPA and immune function. The data do support the notion that a single session of Swedish Massage Therapy may have fairly profound acute effects on the immune system[5].

Study no: 2-Effect of slow-stroke back massage on symptom cluster in adult patients with acute leukemia-supportive care in nursing

Patient with acute leukemia experience pain, fatigue and sleep disorders which usually affect their quality of life. The aim of the study was to examine the effects of slow-stroke back massage on symptom cluster in acute leukemia adult patients undergoing chemotherapy. Results showed that SSBM intervention significantly reduced the progressive sleep disorder, pain, fatigue and improved sleep quality over time. Thus slow stroke back massage as a simple, non-invasive and cost effective approachalong with routine nursing care can be used to improve the symptom cluster of pain, fatigue and sleep disorders in leukemia patients[6].

Case report no: 3- Massage therapy treatment and outcomes for a patient with parkinson's disease

Parkinson's disease is a complex progressive neurological disorder and results in severe disability. The results of massage indicates that massage therapytreatment had a positive effect on reducing resting and postural tremor in a patient with long standing parkinson's disease. The treatment was also effective in temporarily reducing the rigidity during treatment, but did not produce a lasting effect[7].

CONCLUSION

The art of massage is gaining much popularity in the present era and well established massage and spa centres are present in various parts of the world. But it is not as much popular in India compared to other

countries may be due to the influence of ayurvedic massage such as abhyanga, udwartana etc. Studies to prove the efficacy of massage are also very limited and hence more and more research works should be carried out by Young Doctors to develop the art of massage.

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