Fundamentals of Massage and Therapeutic Exercise

Course Code -SpSc3102

Jimma University, 2020

Course Objectives

At the end of this course the student will be able to:

- Understand the Historical background of massage
- Familiarize with basic concepts of Fundamental Massage and Therapeutic exercise
- Acquire the basic knowledge of Fundamental Massage and Therapeutic Exercise
- Develop the skill of Massage and Therapeutic Exercise in practice.

Unit 1: Introduction

- At some point in our lives every one suffers from minor injuries, pain, or discomfort.
- Our instinctive reaction is to rub or hold the affected area to ease pain.
- Early man probably soon learnt that, whilst rubbing painful areas of his body, certain plants could applied which would help to ease the pain and promote healing.
- This basic technique has been developed through the millennia into the system of massage we know today.

What is Massage?

- Massage is the systematic (scientific art) and passive manipulation of the body's soft tissues, primarily the muscles, to benefit the nervous, muscular and circulatory systems
- Massage signifies a group of procedures, which are usually done with hand on the external tissue of the body in a variety of ways either with a curative, palliative or hygienic point of view.

What is Therapeutic exercises?

- **Therapeutic exercises** refers to a wide range of physical activities that focuses on restoring and maintaining strength, endurance, flexibility, stability and balance. The goal of **therapeutic exercises** is to return an injured patient to a fully functioning, pain-free state.

➢ What is the purpose of Therapeutic exercises?

- **Therapeutic exercise** is the systematic performance or execution of planned physical movements or activities intended to enable the patient or client to remediate or prevent impairments of body functions and structures, enhance activities and participation, reduce risk, optimize overall health, and enhance fitness and

Aims of Therapeutic Exercise

The ultimate goal of a therapeutic exercise program is the achievement of an optimal level of symptoms free movement during basic to complex physical activities.

- To improve and restore physical function.
- To prevent loss of function.
- To enhance a patient’s functional capabilities.
- To prevent and decrease impairment and disability
- To improve overall health status, fitness and sense of well-being

Types of Therapeutic Exercises

- Therapeutic exercises are classified according to the aim and purpose of the exercises into many types:

1. Range of motion exercises which aim to maintain and increase range of motion as traditional ROM exercises (passive, active and active assisted ROM exercises) and techniques of joint mobilization and soft tissue stretching.

2. Muscle performance exercises to increase muscle strength, power and endurance as resisted exercises and endurance exercises.

3. Postural exercises to improve posture and correct faulty posture.

4. Balance and coordination exercises to improve balance and coordination.

5. Relaxation exercises to induce relaxation.

6. Area specific exercises as breathing exercises and circulatory exercises.

1.1. Historical Development of Massage

- The word massage is derived from Greek Word “Massein” that means kneading.
- Other says it is related to the Latin Word “Manus” meaning hand. Massage is one of the oldest techniques used for heating parts of the body.
- Hippocrates, the father of medicine used to manipulate his patients for treatment.
- Massage used primarily to promote the return of flow of venous blood and lymph to the heart, thus relieving local swelling.
- Deep massage can break up adhesions, restoring a more complete range of motion.

- Massage may be the oldest method of treating human ills.
- Massage probably originated from our natural impulse to rub an ache or a bump to relive pain, over time this rubbing.
- Most forms of massage involve combinations of these movements; with include stroking, kneading, wringing, pulling, vibrating, percussing (tapping or striking) and pressing.
- There are different evidences that indicate in ancient China, Egypt, Greece Rome and also the South African ancient ethnic groups were practiced massage as therapeutic process.

1.2. Schools of massage

- Massage has become an umbrella term for many methods of body manipulation most of these can be grouped into two basic schools.
- **The western school (Swedish Russian)** the so-called structure based system, arises from a European trade in that focuses on the body musculoskeletal system.
- the most widely used western method is Swedish massage, originally design to duplicate the muscle movements of Swedish gymnastics through body manipulation.

- **The eastern school of massage** are energy-based systems derived from the theory that a vital force circulates throughout the body when this force is blocked by tension or injury, illness or pain results.
- The aim of eastern techniques is to unblock areas where this force has become trapped, thus restoring the flow of energy.
- The best known Eastern school is shiatsu, which uses pressure on various vital points called Stubs to free blocked energy.
- Acupressure and reflexology, which also involve applying pressure at vital points.

UNIT 2
Physiological Effects and benefits of Massage

2.1. The effect of massage on the body.

- **Effect on the circulatory system:** massage aids in the mechanical emptying of the veins and the lymphatic.

- It facilitates the forward movement of the venous blood and the lymph.

- reduces the chances of stagnation of the blood and the lymph in the tissue space.

- On the arterial flow massage improves the blood supply of the area being massaged.

- **Effects on blood:** massage is found to increase RBC and haemoglobin count and may increase the oxygen carrying capacity of blood.

- **Effects on the exchange of metabolites:** massage speeds up the lymphatic and venous flow, which promotes rapid disposal of the waste products of metabolism.

- These changes make the exchange of waste products between the blood and the tissue at cellular level more efficiently.

- **Effects on the nervous system:** the nervous system consists of sensory, motor and autonomic component.

- Different technique of massage produces effects on all these components.

- **Effects on the soft tissue:** Massage has significant effect on certain properties of the soft tissues like elasticity, plasticity and mobility.

- The adhesions present between fibers are broken and maximum mobility between fibers and adjacent structures is ensured.

- **Effects on the respiratory system:** percussion and vibration techniques of massage assist the removal of secretions from the larger airways.

- **Effects on the skin:** massage in general improves the nutritive status of skin, rises the skin temperature.

- Massage facilitates the movement of skin over the subcutaneous structures.

- As a result skin becomes soften, more agile and better.

2.2. Benefits of massage

- Enhance immunity by stimulating lymph flow the body's natural defense system.
- Lessen depression and anxiety
- Increase joint flexibility
- Pumps oxygen and nutrients in to tissues and vital organs improving circulation.
- Ease medication dependence
- Relive migraine pain
- Enhance the health and nourishment of skin
- Alleviate low back pain and improve range of motion

- Exercise and stretch wet, tight or atrophied muscles.
- Helps sportsmen of any level prepare for, and recover from, strenuous workouts.
- Improve the condition of the body’s largest organ the skin
- Enhanced sleep quality
- Improved concentration
- Promote tissue regeneration, reducing scar tissue and stretch marks
- Reduce post-surgery adhesions and swelling
- Reduce spasms and cramping
- Relax and soften injured, tired and overused muscles.
- Release endorphins-amino acids that work as the body’s natural painkiller

Physical benefits of massage

- **Pumping** – The stroking movements in massage suck fluid through blood vessels and lymph vessels. By increasing the pressure in front of the stroke, a vacuum is created behind.

- **Increased tissue permeability** – Deep massage causes the pores in tissue membranes to open, enabling fluids and nutrients to pass through.

- **Stretching** – Massage can stretch tissues that could not be stretched in the usual methods. Bundles of muscle fibres are stretched lengthwise as well as sideways.

- **Break down scar tissue** – Scar tissue is the result of previous injuries or trauma and can affect muscle, tendons, and ligaments.

Benefits of massage…cont

- **Improve tissue elasticity** – Hard training can make tissues hard and inelastic. This is one reason why hard training may not result in improvements.
- **Opens micro-circulation** – Massage does increase blood flow to tissues, but so does exercise. What massage also does is open or dilate the blood vessels and by stretching them this enables nutrients to pass through more easily.

2.3. Contraindication of massage

- **Contraindication** – **means** you are not able to receive **massage** or the **massage** may be limited to certain areas of your body. **Contraindications** are there for your health and safety along with that of your therapist.
- Total **Contraindication** – A situation where **massage** is avoided completely. There two common contraindications during massage

1. **General contraindications of massage**

- In an undiagnosed injury
- High fever /high range of body temperature
- Renal diseases /kidney problem
- Cardiac diseases /heart problem
- Deep x-ray therapy Osteoporosis
- Sever debilitating illnesses such as cancer, tuberculosis

2. **Local contraindications of massage**

- Acute inflammation / is a short-term process occurring in response to tissue injury, usually appearing within minutes or hours. It is characterized by five cardinal signs: pain, redness, immobility (loss of function), swelling and heat.
- Skin diseases /
- Unhealed Recent fractures
- Varicose veins
- Atherosclerosis / a narrowing of the arteries caused by a buildup of plaque. Arteries are the blood vessels that carry oxygen and nutrients from your heart to the rest of your body.

- Thrombosis / The formation or presence of a blood clot in a blood vessel. The vessel may be any vein or artery as, for example, in a deep vein **thrombosis** or a coronary (artery) **thrombosis**.

UNIT 3: PREPARATION FOR MASSAGE

3.1. Massage room

- The room should be warm, cool or chilly air may not only feel unpleasant.
- An optimal at room temperature is 22-25oc.
- The windows should be closed during massage.
- Lighting should be soft; avoid overhead or fluorescent lights.
- Slow music or classical music will contribute to the soothing, relaxing mood of the massage.
- Ventilating the room advisable before start massage.

4 Ways to Be Prepared for Your Massage

- Muscle tension and life‘s stressors may be the reason for your visit, there‘s no need to stress about your massage too.
- If you know how to prepare for a massage appropriately, you can walk into your appointment ready to take in the full benefit of your session.

1. Hydrate Before and After an Appointment

Make sure you are hydrated before you go to your massage appointment and prepared to drink plenty of water following your appointment.

Ultimately, stressed muscles lead to inflammation and toxin build up that can block essential nutrients and oxygen from getting to where they need to go and thus contributing to pain and stress.

2. Wear Loose Comfortable Clothing

- When you prepare for a massage, plan to wear or at least bring loose comfortable clothing with you. Plan to wear loose comfortable clothing to your massage to begin your relaxation process.

3. Breath Normally

- The relaxation of your body and mind is key to getting the most out of your massage session. Your therapist will be working to loosen your muscles. Normal breathing helps expedite relaxation.

4. Don’t Be Afraid to Communicate

- Your massage therapist is there to help you feel better. If you have a specific problem area or purely just want to relax on the table – let your therapist know.

What you expect from your massage?

1. You Will Be Asked to Undress

- Your massage therapist will leave the room to give you the privacy you need to remove your clothing; it‘s up to you if you choose to undress completely or to leave your underwear on before you slip under the top sheet of the massage table.

2. You Might Fall Asleep

- One of the biggest compliments for a massage therapist is the sound of snoring during a massage session. A massage session can offer you such relief and relaxation that you might find yourself nodding-off for a bit. Don‘t worry! Snooze away.

3. You’ll want to Come Back

- The release of the feel good‘ endorphins will have you feeling a natural high. Those endorphins leave you feeling relaxed and energized at the same time. It‘s a wonderful feeling!

3.2. Tools and Equipment of massage

- **Massage table:** massage can be conducted on a massage table or on the floor.
- Massage tables are available in wood or metal and measure about 60-80 Cm height, 65-68cm width and 200-210 Cm length.
- **Bolsters:** use ready-made bolsters and/or pillows and/or rolled up towels. Have a mixture of sizes to accommodate your clients‘ requirements.
- **Purchasing linen**: top of the range quality is not essential. Linen needs to be of varying sizes, not translucent or see-through, and of the colour that best suits the clinic and company branding.

- **Washing linen with oil**: be careful! Oil is a combustible substance.

1. Linen and massage table accessories

• A set of linen consists of:

- **Dressing the table**

1. A fitted table cover

2. A fitted sheet or bath sheet (spa size towel) to cover the table cover

3. A fitted cover, hand towel or disposable cover for the face cradle (be careful of allergy to latex)

4. Pillow cases to cover any pillows

5. Hand towel to cover bolsters for the client

6. A bath sheet (spa size towel)

7. A bath towel

8. A hand towel

- **Bolsters:** use ready-made bolsters and/or pillows and/or rolled up towels. Have a mixture of sizes to accommodate your clients‘ requirements.
- **Purchasing linen**: top of the range quality is not essential. Linen needs to be of varying sizes, not translucent or see-through, and of the colour that best suits the clinic and company branding.
- **Washing linen with oil**: be careful! Oil is a combustible substance. Use a clothes dryer on a low heat for a short period of time – and check on it. The best and safest method of drying linen is on a clothes line to dry naturally.

2. Create the clinic environment

- **Safety and security**: a clinic should be, and feel, safe, secure, private and dry.
- **Room Temperature:** a clinic room should be warm – appropriate to the seasons. Keep the room smelling fresh. Remember some people are allergic to sprays and flowers. **Bathroom** facilities: should be close by for the clients to use and for hand washing immediately before and after each massage.
- **Music ... Or not?** Ask your client. If —yes, provide some options.

3 .The client/athlete

1. Treat every client with respect, with dignity, and with inclusiveness – they have a right to be included in their treatment plan discussion.

2. Gain their written consent to that plan before the massage session begins.

3. If the plan is modified during the massage, verbal consent is necessary and should be included in the clinical notes for the session.

4. Apply the Code of Ethics and Standards of Practice – ALWAYS.

5. Drape men and women exactly the same way – breasts and genitalia should be covered at all times.

6. Only ever uncover the area you are working on unless modality specific in context with the treatment, the pathology and within your scope of practice.

4. Communication

1. Engage in active listening – listen, hear, paraphrase.

2. Use professional language – and use lay terms as they are not health professionals.

3. Ask open-ended questions.

4. Include your clients in their treatment plan.

5. Take extensive clinical notes.

6. Set up a pressure feedback system -check in with your clients during the massage to ensure applied pressure is adequate and comfortable.

Massage powder, oils, and creams:

- **Talcum powder,** allows a free gliding movement.
- Use in excess is harmful to the function of the skin, it can close skin follicles and impede sebaceous secretion causing local inflammatory reaction.
- **Olive-oils, sunflower, paraffin, wintergreen,** the sensitivity of the therapist finger is good when oil is used to sense resistant areas.
- But whatever medium is used it should be as minimum as possible to insure gliding movements of the fingers.

3.3. Positioning and draping the client during treatment

- The issues surrounding the practice of draping and positioning are numerous. They include legal, moral, therapist training and practice and protection of the consumer.

- The Draping and Positioning Policy is designed to facilitate best practice for client draping during treatment and to provide optimal client comfort and safety.
-
- Massage Therapists must recognise, accept and respect the right of every individual client to choose whether he or she wishes to decline treatment based on the draping and positioning methods used.

Principles of Draping

1. Introduction and explanation to the client athlete

2. Create an environment of safety and security

3. Ensure comfort and temperature control

4. Setting and maintaining boundaries

5. Draping materials, transport, storage and laundry / if necessary/

6. Therapist Occupational Health and Safety.

Draping Guidelines

Bolstering (pillows, bolsters, rolled towels)

In prone

Always ask clients if they want support bolsters under the ankles.

Small pillow under the hips/ abdomen – especially if the client suffers with low back pain (LBP).

In supine – in side-lying

Bolster under the knees.

Pillow between the knees ... and pillow under the head ... and some clients like a pillow to "cuddle".

Draping for the back

With client approval, bolster under the ankles and/or the hips/abdomen.

Grasp the outer edges of the draping at the shoulders.

Fold draping back over itself to lie at PSIS level. Tuck draping into outer edges of the undergarment. Begin the back massage.

Cover the entire back when you have completed the back massage.

Offer to place a bolster under the ankles and hips/abdomen.

Fold draping back to lie in line with the PSIS.

Tuck the draping into the outer edges of the undergarment.

If concentrating on low back massage, place a towel across the shoulders.

Cover the entire back when the back massage has been completed.

Draping for the legs (prone)

Fold draping back to lie over the leg not being massaged. Allow the draping to fall in the midline between the legs.

Support the knee with one hand and pull the draping through from the midline under the knee – to anchor the draping.

Tuck the draping into the outer edge of the undergarment at the hip.

Draping for a prone leg massage should look like this.

Offer to place a bolster under the ankles.

Only uncover the leg you are working on.

Tuck the draping under the (same) knee to anchor the draping.

Cover the entire leg (and foot) when leg massage completed.

Draping for the turn over

Grasp the draping at the mid neck and at the feet. Lift draping directly upwards to make a tent shape.

Ask clients to slowly turn away from you onto their sides ... then onto their backs.

Ask clients if they would like pillows under their heads. Gain consent from clients to use eye-coverings.

Ask if they would like a bolster under their knees.

Remove all bolsters before turning.

Form a tent shape with draping so the clients can move easily and comfortably.

Clients should turn with their backs to you – this is a safety measure.

Clients with a shoulder or hip issue should not turn onto that side.

Ask elderly clients to turn slowly – onto their side – then onto their back ...
or the other way if turning from supine to prone.

Draping for the legs
(supine)

Fold draping back to lie over the leg not being massaged. Allow the edges of the draping to fall to the midline (between the legs).

Lift the undraped leg with the inside arm (supporting under the knee). With the outside hand, pull the edge of the draping through from the midline under the knee – to anchor the draping.

Offer to place a bolster under the knees.

Only uncover the leg you are working on.

Tuck the draping under the (same) knee to anchor the draping.

Only massage to the edge of the draping.

Cover the entire leg (and foot) when leg massage completed.

Draping for the abdominals

Place a bath towel across the chest on top of the existing draping.

Hold the bath towel firmly while pulling the underneath draping slowly out.

Tuck the top edge of the draping into the sides of the undergarment and in line with the ASIS.

Re-cover shoulders on completion of the abdominal massage. Hold the edge of the top draping and gently pull the bath towel out from across the shoulders.

First – cover the chest with a second towel over the existing draping.

The underneath draping should be folded down to lay in line with the ASIS.

Tuck draping into sides of undergarment at the hip.

Re-cover to shoulders on completion of abdominal massage.

Position statement

- During massage positioning depends up on the aim of treatment, the parts to be assessed or treated.
- **Prone position-** Recommended position for treating

–Posterior neck muscles

–Upper and lower basic muscles

–Gluteal region

–Back of thigh and leg

Supine position- Recommended for all muscles of

- head and neck
- pictorials
- abdominal
- quadriceps and
- anterior compartment of leg

Seated upright- upper trapezius

- **Seated inclined-** Muscles of the posterior aspect of the head and neck
- Muscles of the upper back
- Muscles of the posterior aspect of the upper arm
- **Draping: -** should place the client in safe warm and comfortable position to receive the desired massage.

Undraping Rules

- One part should be undraped at a time
- Undrape only those areas which have to be treated.
- Gluteal cleft, perineum, genital and female breast should not be undraped.
- Infant under the age of two years may be treated undraped.
- Necessary equipment‘s includes sheets, towels, pillows and blankets should be available for draping the massage partner.

- **Massage powder, oils, and creams:**
- **Talcum powder,** allows a free gliding movement.
- Use in excess is harmful to the function of the skin,
- it can close skin follicles and impede sebaceous secretion causing local inflammatory reaction.
- **Olive-oils, sunflower, paraffin, wintergreen,** the sensitivity of the therapist finger is good when oil is used to sense resistant areas.
- But whatever medium is used it should be as minimum as possible to insure gliding movements of the fingers.

Draping: - should place the client in safe warm and comfortable position to receive the desired massage.

Undraping Rules

- One part should be undraped at a time
- Undrape only those areas which have to be treated.
- Gluteal cleft, perineum, genital and female breast should not be undraped.
- Infant under the age of two years may be treated undraped.
- Necessary equipments includes, sheets, towels, pillows and blankets should be available for draping the massage partner.

UNIT 4: BASIC TYPES AND TECHNIQUES OF MASSAGE

4.1. Types of massage

- There are more than 250 variations of massage, body work and somatic therapies and many practitioners utilize multiple techniques.

- Massage can be divided by system, method, form, purpose, type, application and technique (classification).

- By **methods** of application massage can be divided in to: -

–Hand massage

–Apparatus massage

–Combine (Hand and apparatus)

- By **form** massage can be classified:

–Full massage

–Regional massage

By **purpose** massage can be classified:

Health massage: - Incorporating the most familiar Swedish and Russian based techniques, full body massage relaxes the entire body.

- It benefits the nervous, circulatory and musculoskeletal systems, and promotes a general sense of psychological well-being.

- It may be conducted with lubricants or dry massage and required from 45 minutes to an hour.

Therapeutic medical massage (TM):- It is a type of massage relating to the treatment of disease and curative process.

- It served or performed to maintain health.

Sport massage: - Sport massage works specific muscle groups used in exercise to increase muscle tone flexibility and reduce the likelihood of injury.

- Sport massage is designed to enhance athletic performance and recovery.

Cosmetic massage: - it treats the face, head and neck to increase circulation to the skin and

- enhance muscular flexibility; this improves skin tone and appearance.
- The main purpose is to achieve deep relaxation. honey partial body **massage**.
- This is a combination of beauty and therapeutic **massage** with herbal honey.

Application massage for sport can also divided into

- Massage applied to injury
- Sport massage to prepare the players for the competition
- Massage after training: also classified as anti-fatigue sports massage. No stimulatory
- Massage prior to the game: To stimulate the muscle and assist to passive warm up
- Massage the day after the game: It will reduce soreness in muscle and stiffness in joint addition to lactating minor injury such as minor contusion, strain, sprain, etc

4.2. Basic Technique of Massage

On the basis of character of technique:

- Stroking manipulation or Effleurage: the uninterrupted linear movement of hand along the whole length of body.
- i. Superficial stroking: the rhythmic movement of hand or parts there over the skin with the lightest amount of pressure in order to obtain sensory stimulation.
- ii. Deep stroking: the movement of the palmar aspect of hand over the external surface of the body with constant moderate pressure, in the direction of the venous and lymphatic drainage.

Pressure manipulation: the hand of the therapist and the skin of the patient move together (kneading, Petrissage and Friction).

- Kneading: the tissues are pressed down on to the underlying firm structure and intermittent pressure is applied in circular direction, parallel to the long axis of bone.
- Palmar kneading: pressure is applied with the palm.
- Digital kneading: pressure is applied with the fingers (finger kneading) or thumbs (thumb kneading).
- Reinforced: both the hands, placed over one another, are used to apply pressure.

Cont..

- In general kneading has 7 classifications

1. Whole hand kneading
2. Palmar kneading
3. Finger kneading
   a. flat finger kneading
   b. finger pad kneading
   c. finger tip kneading
4. Thumb kneading- a. thumb pad kneading
   b. thumb tip kneading
5. Superimposed /reinforced kneading
6. Elbow kneading
7. Heel of hand kneading

- Kneading can help on many circumstances. Kneading is used to:
- Treat high Muscle Tone
- Treat tight muscles
- Produce relaxation
- **Palmar kneading**: pressure is applied with the palm.
- **Digital kneading**: pressure is applied with the fingers (finger kneading) or thumbs (thumb kneading).
- **Reinforced:** both the hands, placed over one another, are used to apply pressure.
- Kneading treats high muscle tone. Increased tone is tension in the muscle when at rest.

What are the benefits of kneading?

Kneading has many benefits. The benefits of kneading include:

- Decreased tension
- Increased flexibility
- Decreased muscle pain
- Reduced stress
- Kneading treats areas of tension and can be beneficial in reducing tightness. It relieves tension in the muscle by applying alternate pressures to stretch and mobilise the muscle fibres.

- There are many common body parts that can be treated with kneading. Common body parts treated by kneading are:
- Neck, Shoulder, Upper back, Lower back, Thigh, Calf

Petrissage: the tissues are grasped and lifted away from the underlying structures and intermittent pressure is applied to the tissues. Petrissage massage technique can include stretching, kneading and squeezing soft tissues and underlying muscles. Petrissage lifts tissues away from structures to relieve tension and stretches and loosens muscles fibres. Petrissage is also stimulates the skin including vascular and lymphatic responses.

- **What is petrissage used for?** Petrissage is an effective massage technique used to:
- Increase blood circulation
- Stretch and loosen muscle fibres
- Increase range of movement
- Petrissage is used to improve blood circulation, increase recovery, stretch and loosen muscle fibres and increase range of movement. Petrissage is used to increase blood circulation. Increase blood circulation increases temperature of the muscles allowing them to relax.

- **What are the benefits of petrissage?**

Petrissage has many benefits. The benefits of petrissage include:

- Decreased tension
- Reduced delayed muscle onset soreness

Improved recovery

- . Petrissage has many benefits. The benefits of petrissage are decreased tension, reduced DOMS and improved recovery.
- A benefit of petrissage is decreased tension. Petrissage uses various techniques and strokes to increase circulation and promote relaxation.
- Petrissage allows muscle fibers to move move freely and tension to be released.

Some examples of petrissage massge are:-

- Picking up: tissues are lifted away from underlying structures, squeezed and then released using one or both the hands.
- Wringing: using both the hands, tissues are lifted away from the underlying structures, squeezed, twisted and then released.
- Skin rolling: the skin and fascia are lifted up with both the hands and moved over the subcutaneous tissues by keeping a roll of lifted tissue continuously ahead of the moving thumb.

How does petrissage help?

- Petrissage helps by increasing blood circulation, increasing tissue elasticity and removing waste products from the muscles.
- Petrissage helps by increase fresh blood to the muscles and soft tissues. When petrissage massage is performed it stimulates the skin surface and encourages a vascular and lymphatic response.
- The vascular response allows the blood cells to widen and multiple to aid the body's healing process. Petrissage also helps by increasing tissue elasticity.
- It is able to lift up tissues away from others relieving tension.

- **Friction**: in this technique the tissues are subjected to small range of to and fro movement performed with constant deep pressure of the finger or thumb.
- Friction is a massage technique used to increase circulation and release areas that are tight; particularly around joints and where there are adhesions within the muscles or tendons.
- It is defined as —an accurately delivered penetrating pressure applied through fingertips.

Purpose

- The goal of friction massage is to influence cell behavior in all soft tissues. Friction massage is supposed to induce:
- Traumatic hyperemia, which helps to evacuate pain triggering metabolites.
- Movement of the affected structure which prevents or destroys adhesions and helps optimize the quality of scar tissue and mechanoreceptor stimulation.
- Stimulation of mechanoreceptors, producing a quantity of afferent impulses that stimulate a temporary analgesia.
- Fibroblastic proliferation, responsible for the repair en regeneration of collagen.
- Realignment of collagen fibers, determined by the magnitude of applied pressure.

✓ Circular friction: direction of movement is circular.

✓ Transverse friction: to and fro move

When are frictions used?

- Frictions can be used to help in many circumstances. These circumstances include:
- Post Injury
- Scarring
- Acute pain

-Friction massage can be used after injury. Massage can play an important role as part of rehabilitation for injury.

-Frictions are a specific massage technique used to help relieve tight tissues after injury.

-Frictions are an effective massage technique to help treat scar tissue. Scar tissue is formed in the body as part of the healing process.

-Frictions can also be used to increase acute pain.

-When friction is performed over ligaments and around joints, the circulation to the area is increased.

What are the physiological effects of frictions?

- Massage can produce many important physiological effects on the body. The physiological effects of frictions include:

- ❑ Increased vasodilation
- ❑ Improved recovery
- ❑ Breakdown / realignment of collagen fibres
- ❑ Breakdown of scar tissue
- ❑ Increased range of movement
- ❑ Increased tissue elasticity

What are the benefits of frictions?

- Frictions have many benefits. The benefits of frictions include:

✓ Increased range of movement

✓ Improved healing

✓ Decreased pain

- One benefit of the friction technique is increasing range of movement. Frictions are used to treat tight and restricted tissues.
- Frictions are a beneficial massage treatment to assist in improving healing. Frictions improve healing by treating scar tissue/adhesions.
- Frictions help to decrease pain. When tissues are tight and restricted, pain increases due to the lack of movement available around an area. Frictions performed onto an affected area can treat the tissue and help relieve pain.

Common body parts treated by frictions

- There are many common body parts that can be treated with friction massage.
- Common body parts treated by frictions are:

❖ Jaw

❖ Shoulder

❖ Arm

❖ Hand

❖ Foot

-Frictions can also be performed on other areas of the body and be effective to reduce scar tissue, and pain.

Percussion manipulations massage

it is a series of soft and gentle blows are applied over the body. It Strikes the body part at regular interval. It has 6 classifications.

1. **Clapping:** Administered with Cupped palm. Cupping is performed with cupped hands to create a slight vacuum. It is applied in an alternating fashion as a succession of brisk claps on the thoracic region of the back.

2. **Hacking:** Administered with Ulnar border of the 5th, 4th and 3rd digits. It consists of a succession of short, sharp strikes performed with alternate hands. It is applied using the ulna borders of fingers and hands with the fingers extended and together.

3. **Tapping:** Administered with Anterior aspect of the clenched fist. Flicking is the lightest tapotement technique applied with loosely held fingers in a gentle rhythmic alternating fashion. It can be applied to areas such as the face, chest and arms.

4**. Beating**: Administered with pulp of the fingers

5. **Pounding:** Administered with Medial aspect of the clenched fist. Pummelling is performed with loosely closed fists, working alternately with the ulnar aspects of the hand striking the body.

It is applied over areas of large muscle mass.

6. Vibratory manipulations: the mechanical energy is transmitted to the body by the vibrations of the distal part of upper and lower limbs,

- This technique is mainly directed towards the lung and other hollow cavities.
- Vibrations: which tend to produce fine movement of limbs in upwards and downward direction.
- Shaking: which tend to produce fine movement of limbs in sideway direction.
- It may in 2 ways 1. for long muscle 2. for small or short muscle

What are vibrations?

- Vibrations are a massage technique in which tissues are pressed and released in an up and down movement.
- A vibration massage creates a vibrating and shaking motion onto the muscles that can be performed in a soothing or stimulating way.
- Vibration massage technique is a fine, gentle, trembling movement performed with hands or fingers. Vibrations can be used to stimulate soft tissues in the body.
- Vibration movements can help stimulate nerves, relieve muscular tension and decrease stress.
- Vibrations at a slower pace are an effective treatment to produce a feeling of relaxation.

When are vibrations used?

Vibrations are a massage technique which can be used:

- Pre Event
- For tight muscles
- Vibrations are an effective massage technique used pre event to promote stimulation.
- The aim of pre event massage is to increase blood circulation, flexibility and mentally prepare people for activity and enhance performance.
- Specific massage techniques such as vibrations are used to create a short but specific massage treatment.

What are the physiological effects of vibrations?

- Massage can produce many important physiological effects on the body. The physiological effects of vibrations include:

 Increased Temperature

 Increased cellular exchange

 Increased venous return

- Vibrations increase the temperature of soft tissues. Vibrations stimulate an increase of temperature by friction against the skin.
- Vibrations can also increase cellular exchange in the tissues. Cellular exchange is the transportation of oxygen and nutrients. The increase of cellular activity within the tissues can also begin to remove waste products out.

What are the benefits of vibrations

- There are many benefits of vibrations. The benefits of vibrations are:

❑ Relieved tight muscles

❑ Reduced stress

❑ Improved blood circulation

- Vibrations are a beneficial massage technique to help relieve tight muscles. Vibrations can reduce tightness by increasing blood circulation and temperature of the muscles.
- Vibrations can be used to reduce stress. Stress can be related to emotional or physical events in life, such as work life, health or sporting performances.
- Vibration technique is an effective massage technique to improve circulation in the muscles.
- Vibrations are part of the percussion techniques which are performed quickly onto larger muscle areas.

Common body parts treated by vibrations

- There are many common body parts that can be treated with vibrations. Common body parts treated by vibrations are:
- Shoulder, arm, upper back, lower back, buttock, thigh and calf.
- Vibrations can also be performed on other areas of the body and be effective to stimulate muscles and relieve tightness.

Other classification of massage

- On the basis of depth of tissue:

Light massage: The force applied during the maneuver is light,

- so that the effect of massage is confined to the superficial tissue only, e.g. stroking, tapping, etc.

Deep massage: The forces applied during the massage are moderate to deep

- so that the effect of massage reaches to the deeper tissues like muscle, e.g. friction, kneading, etc.

- On the basis of part of body massaged:
- General massage: Massage applied to the entire body is usually termed as general massage.
- Local massage: When massage is administered in a particular area of the body segment.

- On the Basis of Means of Administration of Technique:
- Manual Massage: The massage administered with the hand or other body part of the therapist is called manual massage.
- Mechanical Massage: When the mechanical devices based on the principles of massage, administer the mechanical energy to the patient’s body, in order to manipulate soft tissue.

Unit 5: Classification of massage and their application

"This chapter will be practical"

Read the given manual and ready for the lab practice on massage techniques and their applications

CHAPTER 6- SPORT MASSAGE

6.1 Definition

What is a Sports Massage?

- A sports massage is typically a combination of several massage techniques that are tailored to your affected muscle groups based on the activities that you do.
- A properly administered sports massage can help flush the lactic acid out of your body.
- There are two types of sports massages that can benefit triathletes depending on when you schedule your appointment and your race schedule.
- If you have a race coming up you will want to receive a lighter massage. But, if you are in between events and have specific issues, your sessions can focus on deep-tissue massages in problem areas.

Why sport massage?

What exactly is a sports massage and what will it do for a triathlete?

Athletic Performance

- Continual improvement is the reason you train in the dead of winter, hammer up the hills on the bike, do track work, and train in the pouring rain. Well, that is the same reason you should get a good sports massage.
- After a massage you'll feel lighter, more powerful and more flexible, and all those nagging aches and pains can be addressed, helping to reduce the likelihood of injury.

Injury Prevention

- One of the best reasons to get a sports massage is to help your muscles, tendons and joints move through their proper range of motion and stay in optimum shape. It's just like that pre-workout warm-up you're supposed to do.

- Many injuries are brought about by overusing certain muscles. This can result in soreness, pain and inflammation.

- Regularly scheduled sports massages can help reduce the likelihood of the muscles becoming overused in the first place and can also help reduce the initial inflammation that leads to injury.

- It can also help reduce the chance of injury recurrence. Massage is most effective at treating soft-tissues injuries such as strains, sprains and stress injuries.

Pain Reduction

- Massage has been known to reduce pain from recovering injuries or tight muscle areas. Massage promotes proper healing of scar tissues and can provide a soothing effect on injured areas.

Relaxation and Focus

- Sports Massage can help decrease stress and increase focus, putting you in a good psychological state before your next race. The brisk movements of the massage can also leave you feeling invigorated

Post-Race Recovery

- Massage can help hasten the healing and recovery process after an intense race by dissolving waste fluids such as lactic acid.

How often should you get a sports massage?

- On average, a triathlete should get one massage per week or a minimum of one per month. That may seem extreme, particularly if a trip to the spa is more of an indulgence for you. But, massages go a long way to help prevent injury.

When should I get a sports massage?

- People respond in different ways to a massage so if you have the luxury to try one at different times in your training then determine what is right for you.
- However, the majority of people will tend to favor the post-race/post-long workout time more. Both are beneficial but the pre-race massage will stimulate your muscles whereas the post-race massage is more of a cool-down/recovery massage.

Four reasons why sports massage can benefit every body-

1. Release muscle tension

- During periods of stress on the body your muscles can create trigger points and tension. Having regular massages can optimize your tissue pliability, which in turn can reduce injuries and improve mobility.

2. Support good posture

- We can all spend long times at our desks however this posture can cause muscles to shorten and pull your joints into positions which over time can reduce function and increase chances of over-use and repetitive strain injuries.

- Sports massage can help to release these muscles and is a great way to counteract the negative affect working at a desk has your posture.

3. Reduce pain

- Massage and soft tissue can be used alongside physiotherapy intervention to help reduce pain produced by injury. There has been a variety of research demonstrating the positive impact of massage on pain levels in lower back and shoulder pain when combined with exercises and manual therapy techniques.

4. Assist with recovery

- If you have trained a muscle group to help reduce Delayed Onset Muscle Soreness (DOMS), massage may help recovery by increasing circulation to the area massaged and helping to flush out the toxins that build up during exercises. This can help improve your recovery and leave you better able to optimize your training in the following days.

6.2. Effect of massage on sport/ exercise activities

- The physical effect of massage on muscle recovery and repeated sports performance is controversial.
- Massage appears to have a positive effect on athletes' perceptions about muscle recovery.
- Massage is most likely to reduce delayed muscle soreness when administered two to six hours after intense exercise.
- Massage may effect on sport in 3 ways. Physical effect, psychological effect and physiological effect.

1. Physical effects

- A physical effect can be defined as a mechanical change that happens to a structure being massaged.
- Physical effects are likely to occur to more external structures of the body where massage is directly applied.

Examples of physical effects include:

❖ Improved flow of fluids (e.g. blood and lymph) due to the mechanical pumping and squeezing action of massage techniques.

❖ Stretching of soft tissues in a longitudinal or transverse direction which can assist in tissue mobility and the linear formation of tissue during healing.

❖ Separation of muscles or connective tissue fibres that have become stuck to one another (reduced adhesions).

2. Psychological effects

- A psychological effect is a change of state of mind, perception or mood. These effects may be less tangible than other effects, but no less important.
- The psychological effects of sports massage can depend on the initial mood or mental state of the client, their expectations, the type of massage given and the physiological and neurological effects.
- For example, an invigorating massage can increase mental alertness and prepare a client for upcoming activity.

3. Physiological and neurological effects

- A physiological effect is a change that occurs to internal body processes as a result of the massage.
- Neurological effects are changes which occur in the nervous system and as such are very closely linked with any physiological effects.
- Physiological or neurological effects depend on the type of massage experienced.
- A slow relaxing massage would initiate a parasympathetic response, whereas a quick, invigorating massage may initiate a sympathetic response.

- In most instances, a parasympathetic response would be beneficial, but during a pre-event massage, the therapist would be looking to elicit a sympathetic response to prepare the client for the upcoming activity.
- Examples of parasympathetic effects include:

– Vasodilation of blood and lymphatic vessels as smooth muscle relaxes.

– Reduced neural stimulation (contraction) of muscles as skeletal muscles relaxes.

– Reduced production of sympathetic (stress‘) hormones.

– Reduced heart rate and blood pressure.

4. Effects of sports massage on the skin

- As soft tissues are physically mobilised, skin elasticity will improve and exfoliation of superficial cells will occur.
- Vasodilation of surface capillaries will provide an increased supply of nutrients and oxygen to the reproductive layers of the skin.
- This will present as erythema (reddening of the skin). Sebaceous glands are also stimulated, increasing oil production and lessening the risk of dry cracked skin.

5. Effects of massage on the lymphatic systems

- Superficial and deep massage strokes which physically manipulate the skin, fascia and muscle will help to improve lymphatic circulation and drainage.
- This will increase the removal of metabolic waste from tissues.
- The increased speed of lymph flow through the vessels and the lymph nodes will stimulate lymphocyte production, therefore improving the ability of the body to prevent and fight infection.

6. Effects of massage on the neuroendocrine system

- Sympathetic or parasympathetic responses will be stimulated by a particular type of massage (relaxing or invigorating).
- The nervous system will then pass on the appropriate stimulations to other systems to elicit either a parasympathetic or sympathetic response, including the endocrine glands which will produce hormones to rebalance the autonomic nervous system.
- The reduction of tension in soft tissues and removal of metabolic wastes will reduce the potential causes of irritation to nerve endings.
- This may lead to reduced perception of pain or discomfort, particularly in tight or recovering tissues.

- During exercise, glucose and oxygen are delivered to the muscles and converted in to glycogen, a source of energy for them.

- When exercise is long or strenuous, this process becomes less efficient and allows the build-up of lactic acid, a by-product of energy production that tires the muscles and may cause soreness.

- By “ milking “ the muscles, massage speeds the removal of lactic acid, which is carried through the bloodstreams to the liver and resynthesized in to glycogen in the liver and muscles.

6.3. Massage before, during and after sport competition

- Sport massage is a four-part regimen designed to aid the athlete in training, both before and after a competition or workout, and in rehabilitation from injury.
- Pre event sport massage, which demonstrated is in training to help keep the exerciser injury-free, and so allow him or her to work to maximum capacity.
- The pre-event massage stimulates circulation promotes muscle flexibility; both help prepare the muscles for the upcoming activity and reduce the risk of injury.

- Pre-event massage is delivered at the performance site, usually with the athlete fully clothed.
- It may fact-phased and stimulating, it helps to establish blood flow and to warm up muscles.
- During the massage, the athlete generally focuses on visualizing the upcoming event.
- After exercise, the task of massage is not to stimulate and prepare muscles, but to relax them and aid in their recovery.
- Post-event massage can reduce recovery time, enabling an athlete to resume training much sooner than rest alone would allow.

Key Principles of Sports Massage

- Three specific principles are vital to understanding what type of sports massage to apply to an athlete at any given time. We call these principles the "when, what and why" of sports massage: Timing, Technique and Intent.

1. Timing- refers to when the massage is given: pre-event or post-event; during recovery; during a maintenance period;

2. Technique - refers to what application you utilize, and can include a number of different techniques: (effleurage; friction; pettrisage; vibration; shaking; compression;)

3. Intent- refers to your reason(s) for treatment: (as warm-up; to increase blood flow; stimulate neurological pathways; aid recovery from exertion; increase flexibility; improve strength; or improve posture).

Activity

1. Write the effects of sport massage in pre-event, during event and after event.

2. Discuss on the difference between sport massage and massage.

UNIT -7 EXERCISE THERAPY

7.1. Introduction

- Rehabilitation services are often necessary after injury or illness to build strength and improve function. Rehab therapists use many different interventions to address functional limitations.
- Therapeutic exercise and therapeutic activities are two common interventions that are used to address dysfunction caused by disease and injury. Although both interventions aim to improve function, they are distinctly different.

- **The Difference between Therapeutic Exercise & Therapeutic Activities**
- Therapeutic exercise -- involves instructing a patient in specific exercises to address weakness or loss of joint mobility due to disease or injury.
- These exercises are not typically functional tasks. For example, overhead shoulder presses using dumbbells is a therapeutic exercise.
- **Therapeutic Activities**
- Therapeutic activities -- involves the use of functional, dynamic tasks from everyday living to improve range of motion and strength. For example, overhead shoulder movement can be strengthened by reaching up to place a weighted object on a shelf.. Therapeutic activities cover a broad range of functional tasks. Movements including pushing, pulling, squatting, bending, lifting, carrying, catching and throwing qualify as therapeutic activities.

Activity

- What the similarities of therapeutic activity and therapeutic exercise? List down and on them.

7.2. Types of muscular contraction

- **What are the 3 types of muscles contractions?**
- So, the term tension, rather than contraction, is better suited to define the actions (dare I say, contractions!) of a muscle.
- Therefore, muscles, under tension, may:

1. Shorten,
2. Lengthen, or
3. Remain the same length.

- It is these three different types of muscular tensions that are used to define the three different types of muscular contractions.

The three different types of muscular contractions, therefore, are:

1. Concentric contractions (shorten)
2. Eccentric contractions (lengthen)
3. Isometric contractions (remain the same)

1. Concentric Contractions

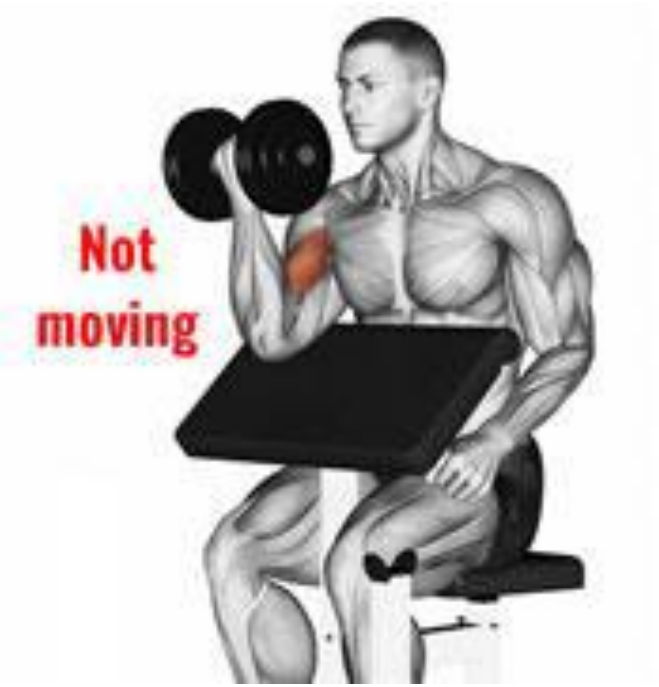
- Concentric contractions are those which cause the muscle to shorten as it contracts.
- An example is bending the elbow from straight to fully flexed, causing a concentric contraction of the Biceps Brachii. Concentric contractions are the most common type of and occur frequently in daily and sporting activities.
- A concentric contraction is a type of muscle contraction in which the muscles shorten while generating force.

2. Eccentric Contractions

- Eccentric contractions are the opposite of concentric and occur when the muscle lengthens as it contracts.
- This occurs when lowering the dumbbell down in a bicep curl exercise.
- The muscle is still contracting to hold the weight all the way down but the bicep muscle is lengthening.

3. Isometric Contractions

- In contrast to isotonic contractions, isometric contractions generate force without changing the length of the muscle.
- This is typical of muscles found in the hands and forearm: the muscles do not change length, and joints are not moved, so force for grip is sufficient.
- An example is when the muscles of the hand and forearm grip an object



7.3. Active and passive movements

- Definition-
- **Active exercises** require exertion to move the muscles. This includes stretching to improve range of motion, resistance training to build muscle mass and aerobic exercises in which the muscles move the body to increase the heart rate.

- Active exercises are also useful in rehabilitation to develop nerve pathways and make it easier to control action.
- Active exercises provide more benefits than passive exercises and are preferred in the rehabilitation process when not contraindicated by health conditions or ability.

- **Passive motion-** A therapeutic exercise technique used to move a patient's joint through a range of motion without the patient's use of the involved extremity. The motion is accomplished by a therapist, an assistant, the use of a machine, or by the patient's use of the non-involved extremity.
- Active range of motion exercises help to increase and reach your full range of motion for a joint by actively using the muscles to move your joint through its full range of motion.

Classification of free exercise or active movement –according to extent to era it classified into two.

- **1. Localized** – produced some specific or local effect. Eg. For particular joint or muscle, flexion of elbow joint.
- **2. General** active movement- use of many joints. Eg. Walking, running.

Other types of active movements are:-

A. Active Assisted Exercise - Voluntary contraction of a muscle, which is able to produce little movement but is not sufficient enough to produce the movement in full range of motion.

Indications of active assisted exercise are:

–Strengthening of the weak muscle

–Coordination of movement

- No pain, no gain? Not necessarily. If you're recovering from injury or surgery, active assistive exercises can help you increase your strength without increasing your pain. Active assistive exercises are a traditional part of rehabilitation programs. Active assistive means that you perform as much of the task as you can, with help to complete the movements.

B. Active Resisted Movement - A movement or exercise is carried out against the resistance in available range of motion.

- • The intra-muscular tension is increased as the resistance is appalled against isometric or isotonic of contraction of muscle. Resistance can be applied by: Therapist, Patient, Weight, Spring, Therabands, Weighted Medical ball and Water or others.

The passive movement has three types

1. **Relaxed passive movement -** These are movements performed accurately, rhythmically and smoothly by the physiotherapist through available range of motion (according to anatomy of joints)

2. Forced passive movement -An exercise performed on a subject by a partner who exerts an external force not only to produce a passive movements of a joint.

• The partner presses the joint into its end-position (i.e. end of range), while the subject‘s muscles that normally carry out the movements are completely relaxed.

•There is a danger of overextension beyond the range of movement and damage to the joint if the exercise is not carried out carefully.

5. Continues passive motion - devices are used during the first phase of rehabilitation following a soft tissue surgical procedure or trauma.

The goals of phase 1 rehabilitation are: control post-operative pain, reduce inflammation, provide passive motion in a specific plane of movement, and protect the healing repair or tissue.

Activity

Discuss on the characteristics of muscle contractions with their examples

1. Concentric contractions
2. Eccentric contractions
3. Isometric contractions

UNIT -8 THERAPEUTIC APPROACH

8.1. Mobilization of peripheral joint

- Joint restriction can be a daunting task to improve in patient/ injured athlete care.
- Understanding when to mobilize the joint or provide soft tissue mobilization is imperative to successful patient/athlete outcomes.

- This one-day Peripheral Joint Mobilization course focuses on mobilization techniques for the shoulder, hip, knee, ankle, elbow and wrist joints.

- This one-day Peripheral Joint Mobilization course focuses on mobilization techniques for the shoulder, hip, knee, ankle, elbow and wrist joints.

8.2. Breathing exercise

- Breathing exercises are exercises that enhance the respiratory system by improving ventilation, strengthening respiratory muscles, and increasing endurance.

Why Breathing Exercises Help

- When you have healthy lungs, breathing is natural and easy.
- You breathe in and out with your diaphragm doing about 80 % of the work to fill your lungs with a mixture of oxygen and other gases, and then to send the waste gas out.

- Lung Helpline respiratory therapist Mark Courtney compares the process to a screen door with a spring, opening and shutting on its own. "Our lungs are springy, like the door.

8.3. Relaxation

- It is the act of relaxing or state of being relaxed.
- **Relaxation** is the emotional state of a living being, of low tension, in which there is an absence of arousal that could come from sources such as anger, anxiety, or fear.
- It is when the body and mind are free from tension and anxiety.
- Again it is a form of mild ecstasy coming from the frontal lobe of the brain in which the backward cortex sends signals to the frontal cortex via a mild sedative

Relaxation techniques

- Although stress levels vary across society, the fact remains that stress can be detrimental to one's health.
- In order to combat this stress, there have been a variety of methods developed that have been proven to reduce stress and its consequences in everyday life.
- The majority of techniques can be classified in to either **Physical**, **Mental** or **Therapeutic techniques.**

1. Physical relaxation technique

- Breathing techniques are one of the easiest ways to reduce stress. They require little effort and can be done anywhere at any time.
- Proper breathing techniques that incorporate deep abdominal breathing have been shown to reduce the physical symptoms of depression, anxiety and hypertension as well as everyday emotional symptoms of anger and nervousness.
- Progressive muscle relaxation is a relaxation technique that requires an individual to focus on flexing and holding a certain set of muscles and then slowly relaxing those same muscles.

2. Mental technique

- Meditation has long been practiced in other regions around the world. However, it is a practice that is fairly new to North America and it is gaining attention quickly for the physical and psychological benefits it provides to your body.
- Studies have shown that in addition to reducing physiological and psychological stresses placed on your body, individuals who practice meditation have much fewer doctor visits for both physical and psychological illnesses.

3. Therapeutic relaxation

- Relaxation techniques used in therapy by a certified counsellor or therapist could include any of the previous techniques discussed.
- Professionals in the fields of psychology or counselling will have the ability to administer a variety of these techniques.
- If they feel it is appropriate they may prescribe medication to assist the patient with relaxation.

Mediation

- The relaxation response reduces the body‘s metabolism, heart and breathing rate, blood pressure, muscle tension, and calms brain activity. It increases the immune response, helps attention and decision making, and changes gene activities that are the opposite of those associated stress. The relaxation response is achieved through meditation. Benson's meditation technique involves these four steps:

1. A quiet environment to help focus

2. A mental device to help keep attention constant (a sound or word said repeatedly)

3. A positive attitude to avoid getting upset over failed attempts

4. A comfortable position

Autogenics

- The process of autogenics is by relaxing muscles deeply, and by doing so, the mind follows through and relaxes as well. There as six parts to autogenics training:
- 1. Heaviness in parts of the body (arms and legs feel heavy)
- 2. Warmth in parts of the body (arms and legs feel warm)
- 3. Heartbeat (heart is calm)
- 4. Breathing (breathing is calm)
- 5. Warmth in the abdominal area
- 6. Forehead is cool

Benefits of relaxation

- The benefits of relaxation can be found in three main areas of an individual‘s health, including; mental, physical and physiological health.

mental

- Mental health is very important and needs to be worked on every day. Relaxation can help with much impairment that can occur in one's mental health.

Physical

- Physical health is also something that needs to be worked on daily, whether it is exercise, healthy eating, or relaxation, States that blood pressure, heart rate, and respiration rate will all decrease when one is relaxed.

Physiological

- In regards to the nervous system, relaxation can also play a big role.
- An individual will go from active and alert, which is the sympathetic, to parasympathetic which is rest and digest, when they are relaxing, it gives the body time to catch up.

8.4. Stretching techniques of soft tissue

Soft tissue stretching in sports massage

- Therapeutic muscle stretching can be described as a voluntary lengthening of muscle and connective tissue with the overall goal of increasing general flexibility and/or range of motion (ROM) about the affected joint(s).

- Each type of sport has its own demands, and every athlete has their own personal flexibility requirements as one of the components for optimal athletic performance.

- Even though stretching is often viewed as the means to increase mobility, flexibility can be achieved in a variety of ways where muscle stretching is one common method.

Types of Stretching Technique Exercises

- There are a number of different types of stretching exercises which can be done to improve flexibility. Here we explain static stretching, dynamic stretching, PNF and ballistic stretching.
- 1. **static stretching-** Static, or isometric stretching is a type of stretching where the muscle is stretched until your feel a gentle ‗pull', or stretch on the muscle. The stretch is then held for a period of time, usually upwards of 10 seconds before relaxing the muscle.

2. Dynamic stretching

- This type of stretching is very much in fashion these days, particularly in sport for warming up.
- It involves stretching your muscles whilst moving, either by leg swings, or by performing sports specific drills.

 It works with‘ sensors in the muscle called muscle spindles.

 Muscle spindles are sensors within the muscle which sense the speed a muscle is being stretched.

- *A muscle can be statically flexible but then if suddenly asked to move at speed then muscle spindles may kick in to prevent your muscles lengthening.*

3. PNF Stretching

- PNF stands for Proprioceptive Neuromuscular Facilitation and can take on several forms including hold-relax; contract-relax; and rhythmic initiation.

 PNF started to become popular in the 1960s and has since become a common treatment for many physiotherapists and other sports injury professionals.

 PNF can be either completely passive (meaning the therapist moves the limb through its ranges of motion) or active assisted, in which the athlete plays a role in the treatment.

 In this case, it requires an isometric contraction before the stretch.

4. Ballistic type stretching exercises

- This type of stretching is where you stretch the muscle as far as it is comfortable to do so. Then, at the end range of movement you bounce or force the joint that little bit further.
- This is generally frowned on these days, because the act of forcing a muscle beyond its comfortable range can damage it.
- However, Martial artists and Ballet dancers (extreme joint range of movement is required) often include it in their stretching routines.
- It may also be used in rehabilitation to increase joint range of movement. But be careful!

5. Neural Stretching

- Neural stretching refers to stretching the structures of the nervous system. This is necessary for injuries where there is excess neural tension, for example muscle related sciatic pain.
- Examples also are commonly found in the neck, shoulder, or pelvis area.
- Neural stretches are adaptations of neural tension tests, such as the slump test and the upper limb tension test.

- The limb is taken to the point of stretch and held for a maximum of 10 seconds, although initially, this may be as little as 3-4 seconds to avoid causing damage to the nerves.

- Types of stretching like this should only be performed under the supervision of a qualified therapist.

8.5. Balance and coordination exercise

Definition-

- Coordination is what happens when you use two or more body parts at the same time to complete a task.
- Motor coordination can generally be broken down into three separate skills:

 Fine motor skills: the coordinated movement of small muscles, like in the hands when writing or drawing.

 Gross motor skills: the coordinated movement of large muscles like the legs or arms, including walking, running, and lifting weights.

 Hand-eye skills: the ability of the eyes to coordinate visual information and direct the hands to perform a task, like when you use a computer mouse or catching a ball.

The benefits of coordination

- Often the unsung hero of physical exercise, the benefits of coordination are many. The development of better coordination helps with many aspects of physical wellbeing, but increasingly, studies are showing that developing better coordination can help to combat the risk of injury later in life and help improve mental health, too.
- By incorporating some coordination exercises into your daily routine, you can begin to improve multiple aspects of your wellbeing.
- Not only can coordination training help you improve your technique and form during exercise, but it could also positively affect your mood and mental health.

- **Balance** is the ability to control your body in space while performing static movements, and it‘s an integral component of coordination.
- It's the cornerstone of performing the most basic of functions, from walking up a flight of stairs to effectively completing high-intensity workouts.
- Effective movement requires a stable core, which we can enhance through specific exercises to improve balance. Additionally, balance training plays a role in promoting general fitness and quality of life and lessens the risk of injury, this is especially important as we grow older.

- Activity

1. List down the types of stretching and activities/exercises that used to improve those stretches.

2. Write some easy exercises that may improve balance and coordination

3. List the techniques of relaxation with their characteristics.

THE END

Jimma University, 2020