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 SUBJECT : THERAPEUTIC EXERCISE
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Question no 1

1. FLEXIBILITY:
Flexibility is a personality trait that describes the extent to which a person can cope with changes in circumstances and think about problems and tasks in novel, creative ways. This trait is used when stressors or unexpected events occur, requiring a person to change their stance, outlook, or commitment.

Flexibility exercises stretch your muscles and may improve your range of motion at your joints. There are two types of flexibility exercises: static stretching, in which you stretch a muscle without moving, and dynamic stretch in

Examples of flexibility activities include**:**

* stretching.
* yoga.

1. **mobility**. : the ability or tendency to move from one position or situation to another usually better one. : ability to move quickly and easily.
2. **Indication**: 1. In medicine, a condition which makes a particular treatment or procedure advisable. CML (chronic myeloid leukemia) is an indication for the use of Gleevec (imatinib mesylate). 2. A sign or a circumstance which points to or shows the cause, pathology, treatment, or outcome of an attack of disease.

In medical terminology, an indication" for a drug refers to the use of that drug for treating a particular disease. For example, diabetes is an indication for insulin. Another way of stating this relationship is that insulin is indicated for the treatment of diabetes.

and.

A contraindication is a specific situation in which a drug, procedure, or surgery should not be used because it may be harmful to the person. There are two types of contraindications: Relative contraindication means that caution should be used when two drugs or procedures are used together

In medicine, a contraindication is a condition or factor that serves as a reason to withhold a certain medical treatment due to the harm that it would cause the patient. Contraindication is the opposite of indication, which is a reason to use a certain treatment.

* Joint Instability. Joint instability can be the result of a prior dislocation, fracture, or sprain. ...
* Diseases Affecting the Tissues Being Stretched. ...
* Acute Injury. ...
* Vascular injury. ...
* Infection. ...
* Excessive Pain When Stretching. ...
* Inflammation or Joint Effusion.

**Contraindicated** exercises are those that carry higher risks to joint structure, soft tissue, or other risks. Because the risks typically outweigh the benefits, these exercises are inappropriate for most individuals

A third type of muscle contraction, isometric contraction, is one in which the muscle is activated, but instead of being allowed to lengthen or shorten, it is held at a constant length. An example of an isometric contraction would be carrying an object in front of you

1. Isometric exercise is also known as static strength training. Examples include the plank and side bridge as well as the wall sit and many yoga poses such as chair and tree poses. Notice that these are all exercises that involve holding a position rather than moving as is the case with isotonic exercise

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For example, a voluntary eccentric contraction would be the controlled lowering of the heavy weight raised during the above concentric contraction. ... Types of Muscle Contraction: An isotonic concentric contraction results in the muscle shortening, an isotonic eccentric contraction results in the muscle lengthening.

1. Isotonic contractions generate force by changing the length of the muscle and can be concentric contractions or eccentric contractions. A concentric contraction causes muscles to shorten, thereby generating force. ... Isometric contractions generate force without changing the length of the muscle.

QUESTION NUMBER : 2

 Definition:

Contracture A permanent tightening of the muscles, tendons, skin, and nearby tissues that causes the joints to shorten and become very stiff. This prevents normal movement of a joint or other body part. Contractures may be caused by injury, scarring, and nerve damage, or by not using the muscles.

OR
a condition of shortening and hardening of muscles, tendons, or other tissue, often leading to deformity and rigidity of joints.

TYPES OF CONTRACTURES

* Arthrogryposis.
* Burn scar contracture.
* Capsular contracture.
* Clubfoot.
* Dupuytren's contracture.
* Freeman–Sheldon syndrome.
* Marden–Walker syndrome.
* Muscle contracture.
1. Arthrogryposis:

Is a multiplex congenita (AMC), or simply arthrogryposis, describes congenital joint contracture in two or more areas of the body. It derives its name from Greek, literally meaning "curving of joints"

**Symptoms of Arthrogryposis**

* Thin, weak (atrophied), stiff or missing muscles.
* Stiff joints due to extra tissue (fibrosis or fibrous ankylosis)
* Differences in the skin around their joints, such as webbing.

What causes arthrogryposis?

* The major cause of arthrogryposis is fatal akinesia due to fetal abnormalities
* or maternal disorders eg, infection, drugs, trauma, other maternal illnesses
1. **contracute**

Burn scar contracture is the tightening of the skin after a second or third degree burn. When skin is burned, the surrounding skin begins to pull together, resulting in a contracture. It needs to be treated as soon as possible because the scar can result in restriction of movement around the injured area.

CAUSES

* Contractures occur when the burn scar matures,
* thickens, and tightens. This can prevent movement.
* It usually occurs when a burn occurs over a joint. A contracture is a serious complication of a burn.
1. Capsular contracture:

it occurs when the collagen-fiber capsule shrinks, tightens and compresses the breast implant, much like the collapse of a bubble gum bubble. It is a medical complication that can be painful and discomforting, and might distort the aesthetics of the breast implant and the breast.

Symptoms

Symptoms of capsular contracture usually emerge slowly and may first be noticed as a high-riding or misshapen breast. As firmness increases, the breasts may feel tight or even painful, especially when you are lying on them. The breasts can appear very round, almost “ball-like,” and visible rippling may also occur.

**.4Clubfoot**

refers to a condition in which a newborn's foot or feet appear to be rotated internally at the ankle. The foot points down and inwards, and the soles of the feet face each other. It is known as talipes equinovarus (TEV) or congenital talipes equinovarus (CTEV). In 50 percent of cases, both feet are affected.

The well-treated **clubfoot** is no handicap and is fully compatible with a normal, active life. The majority of **clubfeet can** be **corrected** in infancy in about six to eight weeks with the proper gentle manipulations and plaster casts.

1. **Dupuytren's contracture** is a condition in which one or more fingers become permanently bent in a flexed position. It usually begins as small, hard nodules just under the skin of the palm, then worsens over time until the fingers can no longer be straightened.

**Symptoms:**One or more fingers permanently b...

**Other names:**Dupuytren's disease,

1. Freeman Sheldon syndrome is a disorder present from birth ( congenital ) characterized by joint deformities ( contractures ) that restrict movement in the hands and feet and abnormalities of the head and face.
2. Marden-Walker syndrome. Disease definition. A rare developmental defect during embryogenesis characterized by multiple joint contractures (arthrogryposis), a mask-like face with blepharophimosis, micrognathia, high-arched or cleft palate, low-set ears, decreased muscular bulk, kyphoscoliosis and arachnodactyly.
3. muscle contracture is a tightening or shortening of muscles. It causes joint stiffness and can happen in any joint. You may get contractures from having to stay in bed for a long time. For example, it might happen when you have a chronic illness, a serious injury, or surgery with a long recovery time.

QUESTION NUMBER : 3

Stretching is a form of physical exercise in which a specific muscle or tendon (or muscle group) is deliberately flexed or stretched in order to improve the muscle's felt elasticity and achieve comfortable muscle tone. The result is a feeling of increased muscle control, flexibility, and range of motion.

The different types of stretching are:

* ballistic stretching.
* dynamic stretching.
* active stretching.
* passive (or relaxed) stretching.
* static stretching.
* isometric stretching.
* PNF stretching
	1. Ballistic stretching:Ballistic stretching uses the momentum of a moving body or a limb in an attempt to force it beyond its normal range of motion. This is stretching, or "warming up", by bouncing into (or out of) a stretched position, using the stretched muscles as a spring which pulls you out of the stretched position.

For example, the ballistic method of touching your toes would be to bounce and jerk toward your feet.

* 1. **Dynamic stretches** are active movements where joints and muscles go through a full range of motion. They can be used to help warm up your body before exercising. **Dynamic stretches** can be functional and mimic the movement of the activity or sport you're about to perform.

**Dynamic stretching examples**

* Lunge with a Twist.
* Knee to Chest.
* High Kicks.



* 1. Active stretching is the practice of holding a position using only the muscles in the group that pose is designed to target. For instance, if a pose is supposed to stretch your abs, you'll only use muscles in that area to hold that pose.

For example, bringing your leg up high and then holding it there without anything (other than your leg muscles themselves) to keep the leg in that extended position.

* 1. Passive stretching is also referred to as relaxed stretching , and as static-passive stretching . A passive stretch is one where you assume a position and hold it with some other part of your body, or with the assistance of a partner or some other apparatus.

Examples include using a towel, band, gravity or another person to help you stretch

* 1. Static stretching involves placing the joint or joints in a position so that the muscles and connective tissues are stretched while held in a static position with the tissues at their greatest length. Stretches should be held for 15 to 30 seconds.

Examples of static stretches

* Overhead triceps stretch. Share on Pinterest. This stretch targets your triceps and the muscles in your shoulders. ...
* Biceps stretch. Share on Pinterest. ...
* Cobra Pose. Share on Pinterest. ...
	1. Isometric stretching is a type of static stretching (meaning it does not use motion) which involves the resistance of muscle groups through isometric contractions (tensing) of the stretched muscles (see section Types of Muscle Contractions).

Examples

* Hold this position for 15 seconds.
* Perform 5 rounds of a 15-second hold.
	1. PNF stretching is an advanced form of flexibility training. It involves the contraction and stretching of muscles. The technique was first used in clinical rehabilitation. It spread into mainstream gyms because of its perceived effectiveness

Examples

Another common PNF technique is the contract-relax stretch . ... This is sometimes called isotonic stretching. For example, in a hamstring stretch, this could mean a trainer provides resistance as an athlete contracts the muscle and pushes the leg down to the floor.

QUESTION NUMBER : 4

Nagi used the term, pathology, pathophysiology, impairment, functional limitation and disability to describe health status. These term can be used to categorize clinical observations systematically.

Disablement models have been adopted to better describe the impacts of disease on function. This shift from focusing on the disease to the individual and their respective losses in function is a progressive shift toward a patient-centered versus pathology-centered health care.

Physical therapy plays an integral role in customizing a plan of care to meet the needs and goals of the individual based on the multiple impacts of the disease and/or medical condition. Terminology used in the Nagi model is commonly used in physical therapy and health care to describe and track the affects of disease on movement and life roles.

Nagi Model

Key terms:

* Pathology
	+ External modifiers
		- Impairment
			* Functional limitation
				+ Disability

The Nagi Disablement model was adopted early as a means to describe how a disease or a pathology results in impairments, functional limitations, and disability and how this may vary across individuals. More recently, the Nagi Disablement model has been replaced with the World Health Organization (WHO) International Classification of Functioning (ICF) as a means to track how a health condition affects *activity.*

**WHO ICF Model**

Key terms:

* Body functions & structures
* Activity
* Participation
* Contextual factors
	+ personal
	+ environmental

The International Functional Classification of Disability and Health (ICF) model takes Nagi's patient-centered concept a bit further by expanding on how contextual factors impact activity. This shift in thinking represents an increased focus on how one disease or condition can affect different people in different ways based on the person's unique situation. There is also a focus on improving health vs. disease. In particular the WHO ICF model includes what the person can do (positive impacts) as well as what remains limited (negative impacts).

Impairment in a person's body structure or function, or mental functioning; examples of impairments include loss of a limb, loss of vision or memory loss. Activity limitation, such as difficulty seeing, hearing, walking, or problem solving

QUESTION NUMBER : 5

Aerobic exercise

Aerobic exercise is physical exercise of low to high intensity that depends primarily on the aerobic energy-generating process. "Aerobic" means "relating to, involving, or requiring free oxygen", and refers to the use of oxygen to adequately meet energy demands during exercise via aerobic metabolism.

EXAMPLES

* Swimming
* Cycling.
* Using an elliptical trainer.
* Walking.
* Rowing.
* Using an upper body ergometer (a piece of equipment that provides a cardiovascular workout that targets the upper body only).

Principles of aerobic exercise:

Principles of Training. In order to get the most out of your training, you must follow some basic simple training principles which are overload, specificity, reversibility, and variance. Overload means we must put our bodies under more stress than normal in order for adaptive changes to be made.

Aerobic exercise facts

Examples of aerobic exercises include cardio machines, spinning, running, swimming, walking, hiking, aerobics classes, dancing, cross country skiing, and kickboxing. There are many other types. Aerobic exercises can become anaerobic exercises if performed at a level of intensity that is too high.

The Four Principles Of Training. In order to get the maximum out of your training you need to apply the four key principles of training – specificity, progression, overload and individualisation – to what you do.

5 Components of Physical Fitness

* Cardiovascular Endurance.
* Muscular Strength.
* Muscular endurance.
* Flexibility.
* Body Composition.

**Basic components of physical fitness**

**They include:**

* The Overload Principle.
* The FITT Principle.
* The Specificity Principle.
* The Rest and Recovery Principle.
* The Use or Lose Principle.

There are five components of physical fitness:

 (1) body composition,

 (2) flexibility,

(3) muscular strength,

(4) muscular endurance, and

(5) cardiorespiratory endurance. A well-balanced exercise program should include activities that address all of the health-related components of fitness.