**Final-Term Assignment/Paper (spring -2020)**

**Therapeutic exercises**

**DPT 4th semester**

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Time: 6-hours **(9am-3pm)**  Max Marks: 50

**Q1. Define following.(10)**

1. **Flexibility:**

Ability to move a single joint or series of the joint smoothly and easily through an unrestricted , pain-free ROM.

Flexibility exercises helps stretch muscles , protect against injury and allow the maximum range of motion of joints.

1. **Mobility :**

This is defined as the “ ability of structiures or segments of the body to move and allow the pesernce of the range of motion for functional activity.”

It is also can be defined as :

“The ability of an individual to initiate , control , or sustain active movements of the body to perform simple and complex motor skills”

1. **Indications and contraindications of stretching.**

**Indications:**

* Limited ROM
* Structural deformities
* Muscles weakness
* Muscles shortening
* Part of the total fitness program designed to prevent musculoskeletal injuries.
* Prior to and after vigorous exercises potentially to minimize post exercises muscles soreness.

**Contradictions of stretching :**

* Bony block
* Recent
* Evidence of acute inflammatory or infectious process.
* Sharp pain (Acute stage of bum)
* Evidence of tissue trauma
* Exposed joints
* Exposed tendon
* Thrombophlebitis
* D.V.T
* Compartment syndrome
* Fresh skin graft ( kottke , 1971)

1. **Isometric contraction:**

An increased in intramuscular tension with or without any change is length of muscle

1. **Isotonic contraction:**

An increase in intramuscular tension with the change in the length of muscle..

**Q2. Define contracture? Discuss types of contractures? (10)**

**Contracture:**

* Adaptive shortening of the muscle , tendon and other soft tissues that can cross or surround a joint resulting in sufficient resistance to stretch and lamination of ROM.
* Can be reversible or irreversible.

**Types:**

* **Myostatic contracture:**
* **Pseudomyostatic**
* **Arthragenic Contracture**
* **Fibrotic contracture.**

**Myostatic contracture:**

* No specific muscle pathology
* A reduction in the number of sarcomere units in the series, there is no decrease in the individual sarcomere length.
* Resolved in the relatively short time with stretching

**Pseudomyostatic:**

* Muscles in a constant state of contraction
* Hypertonicity associated with a CNS lesion such as CVA a spinal cord injury.
* Muscle spam and pain
* Can be resolved with stretching

**Arthrogenic contractures:**

* It is intra- articular pathology
* These changes may be include :
  + **Adhesions** ( band of scar like tissue . adhesions cause tissue and organs to stick together )
  + **Synovial proliferation** ( is the enlargement of the fibrocartilaginous pad
  + Joint effusion
  + Irregularities in articular cartilage
  + Osteophyte formation
  + Restricted arthrokinematics

**Fibrotic Contracture:**

* It may occur when normal muscle tissue and connective tissue are replaced with the large amount of nenextensible , fibrotic adhesions and scar tissue or even heterotrophic bone.
* Permanent loss of extensibility of soft tissues occur that can not be reversed by nonsurgical intervention.
* Healed by stretching and surgical intervention.

**Q.3. what is stretching? What are types of stretching? (10)**

**Answer:** Stretching is a form of physical exercise in which a specific muscles or tendon ( or muscle group) is deliberately flexed or stretched in order to improve the muscle’s felt elasticity and achieved comfortable muscle tone. The result is feeling of increaded muscle control , flexibility , and range of motion.

**The different type of stretching are :**

* Ballistic stretching
* Dynamic stretching
* Active stretching
* Passive stretching
* Static stretching
* Isometric stretching
* PNF stretching

**Q.4. what is Nagi Model? Discuss disablement and impairment? (10)**

* A conceptual explanation of the process and underlying mechanisms by which disease , injury or birth defect impact a person’s ability to function ( performed their expected role in society)
* Nagi experimental hypothesis

Disease Causes Impairment

Impairment Causes Functional Limitation

Functional Limitation Causes Disability

**Nagi Model**

**Primary Pathology**

**Functional Limitation**

**Primary Impairment**

**Disability**

**Disablement** is a term that refers to the impact(s) and functional consequence of acute or chronic condition ,such as

disease injury and congenital or development abnormalities

on specific body system that comprises basic human performance and an individual’s ability to meet necessary , expected and desired societal functions and roles.

**Impairment**  are the consequence of pathological conditions ; that reflect abnormalities at the body system , organ , or tissue level.

**Q.5.What is Aerobic exercises? Write down Principles of aerobic exercise. (10)**

**Aerobic Exercises**:

• Aerobic exercise is sometimes know as “cardio” exercise that requires pumping of oxygenated blood by the heart to deliver oxygen to working muscles.

• Aerobic exercise stimulate the heart rate and breathing rate to increase in a way that can be sustained for the exercise session.

**Examples:**

• The examples of aerobic exercise include;

- cardio machines

- spinning

- running

- swimming

- walking

- hiking

- dancing

- skiing

**Principles Of Aerobic Exercises:**

• Intensity

• Duration

• Frequency

• Modes

**Intensity:**

- How hard your body is working

- Moderate intensity aerobic

- Vigorous intensity aerobics (high intensity exercise)

**Example;**

- An example of intensity is how quickly a treadmill is moving.

**Duration:**

-  How long the performance is

- 20 to 30 minutes is optimal

- The greater intensity of exercise the shorter the duration needed to adapt.

**Frequency:**

-  How often the exercise should be

- 3 to 4 times a week depends on goals.

**Modes:**

-  Selecting type of aerobic exercise

- Depends on goal, physical condition, injury history

- For Example;

- high load few repetitions is equal to the muscle strength.

- Light load, many repetitions is equal to the muscle endurance