

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

## Therapeutic exercises

DPT 4<sup>th</sup> semester

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Time: 6-hours (9am-3pm)

Max Marks: 50

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### Q1. Define following.(10)

#### **ANSWER 1:**

##### **a) Flexibility:**

**Definition:** The ability to move a single joint or series of joints smoothly and easily through an unrestricted, pain free range of motion.

##### **Importance:**

Flexibility exercises help stretch muscle, protect against injury and allow the maximum range of motion for joints.

Regular flexibility training helps maintain Range of motion, and prevent injury. flexibility is important and helps overall athletic performance.

##### **b) Mobility:**

**Definition:** The ability to move a limb through its full range of motion is called mobility. It is the ability to move freely.

**OR** it can also be define as;

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

##### **Importance:**

Mobility is essential because it prepares our body for the stress of training.

##### **c) Indications and contraindications of stretching:**

##### **Indications Of Stretching:**

- Limited ROM
- Structural deformities

- Muscle weakness
- Muscle shortening
- Part of a total fitness program designed to prevent musculoskeletal injuries.
- Prior to and after vigorous exercise potentially to minimize post exercise muscle soreness.

#### **Contraindications Of Stretching:**

- Bony block
- Recent
- Evidence of acute inflammatory or infections process.
- Sharp pain (acute stage of bum)
- Evidence of tissue trauma
- When contracture is needed to develop stability.
- Exposed joints
- Exposed tendon
- Thrombophlebitis
- D.V.T
- Compartment syndrome

#### **d) Isometric contraction:**

**Definition:** An increase in intramuscular tension without any change in length of the muscle is called isometric contraction.

#### **e) Isotonic contraction:**

**Definition:** “ An increase in Intramuscular tension with change in the length of the muscle”

Isotonic contraction is similar to the isometric contraction but the difference is that it occurs with change in the length of the muscle.

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

#### **ANSWER 2 :**

#### **Contracture:**

**Definition:** Adaptation shortening of the muscle, tendon and other soft tissue that cross surround a joint resulting in significant resistance to stretch and limitation of range of motion.

- It can be reversible or irreversible.

#### **Types Of Contractures:**

1. Myostatic Contracture
2. Pseudomyostatic contracture
3. Arthrogenic contracture
4. Fibrotic contracture

### **Myostatic Contracture:**

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

### **Pseudomyostatic Contracture:**

- Muscle in a constant state of contraction, hypertonicity associated with a CNS lesion such as a CVA a spinal cord injury.
- Muscle spasm and pain.
- It can be resolved with Stretching.

### **Arthrogenic Contracture:**

- An arthrogenic contractures is intra articular pathology.
- These changes may include;
  - **Adhesions;** (band of scar like tissues, 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 a large amount of nonextensible, fibrotic adhesions and scar tissue or even heterotrophic bone.
- Permanent loss of extensibility of soft tissue occur that cannot be reversed by non surgical intervention.
- Healed by stretching and surgical intervention.

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

#### **ANSWER 3 :**

#### **Stretching:**

**Definition:** stretching is a form of physical exercise in which a specific muscle or tendon is deliberate flexed or stretched in order to improve the muscles felt elasticity and achieve comfortable muscle tone. The result is a feeling of increased muscle control, flexibility, and range of motion.

There are situation in which stretching interventions are appropriate and safe. However there are also instance when stretching should not be implemented.

#### **Types Of Stretching:**

1. Static stretching
2. Cyclic or intermittent stretching

3. Ballistic stretching
4. Proprioceptive neuromuscular facilitation stretching procedures (PNF stretching)
5. Manual stretching
6. Mechanical stretching
7. Self stretching
8. Passive stretching
9. Active stretching

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

##### **ANSWER 4:**

##### **Nagi Model:**

##### **Definition:**

- Nagi's definition stipulates that a disability may or may not result from the interaction of an individual's physical or mental limitations with the social and physical factors in the individual's environment.
- In Nagi's terms, for an individual with arthritis, his or her physical and mental limitations would not invariably lead to a disability.
- Furthermore, similar patterns of disability may result from different types of health conditions, and identical arthritic disease patterns may result in different patterns of disability.
- Nagi's Disablement Model has its origins in the early 1960s. As part of a study for the US Social Security Administration, Nagi constructed a framework that differentiated disability from 3 other distinct, yet interrelated concepts.

##### **Three concepts:**

- Active pathology
- Impairment
- Functional limitation.
- This conceptual framework has come to be referred to as Nagi's Disablement Model.

##### **Disablement:**

- Disability is a term that refers to the impact and functional consequences of acute or chronic conditions, such as;
  - Disease
  - Injury
  - And congenital or developmental abnormalities, on specific body systems that compromise basic human performance and an individual's ability to meet necessary, expected and desired societal functions and roles.

##### **Impairment:**

- Impairment are the consequences of pathological conditions; that is, they are the signs and symptoms that reflect abnormalities at the body system, organ and tissue level.

### **Types Of Impairment:**

- Musculoskeletal
- Neuromuscular
- Cardiovascular or pulmonary
- Integumentary

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

#### **ANSWER 5:**

#### **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.