

1. Mention Determinants of Resistance Exercise and Discuss One of Them

- o Alignment of segments of the body during exercise
- o Stabilization of proximal or distal joints to prevent substitution
- o Intensity: the exercise load (level of resistance)
- o Volume: the total number of repetitions and sets in an exercise session multiplied by the resistance used
- o Exercise order: the sequence in which muscle groups are exercised during an exercise session
- o Frequency: the number of exercise sessions per day or per week
- o Rest interval: time allotted for recuperation between sets and sessions of exercise
- o Duration: total time frame of a resistance training program
- o Mode of exercise: type of muscle contraction, position of the patient, form (source) of resistance, arc of movement, or the primary energy system utilized
- o Velocity of exercise
- o Periodization: variation of intensity and volume during specific periods of resistance training
- o Integration of exercises into functional activities: use of resistance exercises that approximate or replicate functional demands

Benefits of Continuous Passive Movement (CPM)

- o Enhance nutrition and metabolic activity of articular cartilage
- o Stimulate tissue remodeling and regrowth of articular cartilage
- o Accelerate healing of articular cartilage, tendons, and ligaments

4. o Contracture: Restricted motion can range from mild muscle shortening to irreversible contractures

adaptive shortening of the muscle tendon and other soft tissues surrounding joint that results in resistance to passive or active stretch and limitation of ROM.

Define Relaxed Passive Movement & Explain Its Principles

Definition: Relaxed Passive Movement is a movement performed accurately, rhythmically, and smoothly by the physiotherapist through the available range of motion while the patient's muscles are inactive and fully relaxed.

Define Active Free ROM Exercise & Discuss Its Types

Definition: Active Free ROM exercises involve voluntary movement by the patient through the full range of motion, against gravity or gravity eliminated and it's consist of simple everyday movements and gymnastics exercises.

Contraindications for Active Assisted ROM Exercises

- o After myocardial infarction or coronary artery bypass surgery (only with careful monitoring).

Define Active Assisted ROM Exercise & Explain Types of Assistance

Definition: Active Assisted ROM exercises are movements where the patient voluntarily contracts muscles but cannot complete full range of motion without help.

Define Stretching Exercise & Explain Terms Related to Mobility

A. Definition : therapeutic maneuver designed to lengthen shortened soft tissue structures to increase ROM.

- o Passive flexibility: type of flexibility, referred to passive mobility , degree to a joint can be passively moved through available ROM , it is dependent on extensibility of muscles and connective tissues that cross and surround a joint. results from muscle hypertonicity (spasticity or rigidity) due to CNS lesions (e.g., stroke, spinal cord injury, traumatic brain injury, cerebral vascular accident), Or muscle guarding/spasms Or pain. longer a fibrotic contracture persists or greater normal tissue replacement with nonextensible adhesions and scar tissue or bone, the harder to restore optimal mobility and the more likely it is that contracture will become irreversible.

Define CPM : Is a treatment modality , joint motion is provided by a machine, without causing active contraction of muscles, CPM is direct opposite of immobilization, It's a common post- surgical technique used to prevent unwanted effects of immobilization. Fibrous changes in connective tissue of muscle and periarticular structures can cause adherence of these tissues and development of a fibrotic contracture.

Compare Different Types of CPM

Parameter	Free Linkage	Anatomical	Non-Anatomical	Joint Stability
Very Poor				
Good				
Fair ROM Control				
Very Poor				
Excellent				
Fair				
Total ROM				
Poor				
Excellent				
Good				
Multi-axis Motion				

Good Poor Fair Adjustable Excellent Poor Fair 21. Contraindications for Active ROM Exercise o Cardiopulmonary dysfunction (e.g., heart failure, angina, myocarditis, pericarditis). Explain Clinical Application of Continuous Passive Movement (CPM) o CPM is applied immediately after surgery, even with braces or bandages. Explain Indications of Active Assisted ROM Exercises o Muscle weakness preventing full independent movement. o Dynamic flexibility: type of flexibility, referred to active mobility, is degree to an active muscle contraction moves a body segment through available ROM of a joint. muscles remain in a constant state of contraction, giving rise to excessive resistance to passive stretch o Fibrotic Contracture and Irreversible Contracture: ? Mention Types of CPM & Discuss One of Them Types: o Free linkage CPM o Anatomical CPM o Non-anatomical CPM Anatomical CPM: Mimics natural joint motion, especially suitable for knees; provides excellent control of ROM and joint stability. o Fixation: Stabilize proximal and distal joints to isolate movement to the specific joint. o Traction: Thought to facilitate movement by reducing intra-articular friction. o Speed & Duration: Movements should be slow, rhythmic, and repeated at a suitable pace to promote relaxation. o Contracture Versus Contraction: The terms contracture and contraction (the process of tension developing in a muscle during shortening or lengthening) are not synonymous. Define Fundamental Positions & Describe Standing Position o Definition: position we adopt for exercise or movement, it is the position, which altered from the five fundamental positions. Explain Procedures of Continuous Passive Movement o Set initial small ROM (e.g., 0–60°), gradually increase. Enumerate Indications of Relaxed Passive Movement o Cases of paralysis (complete bed rest). o Myostatic (myogenic) Contracture: ? 2. 3. 5. 6. 7. 8. 9. 10. ?????? 1. 12. 13. 15. 16. 17. 18. 19. 20. 22. 23. 24. 25.