DEPARTMENT OF PHYSIOTHERAPY

COURSE NAME : BPT

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PUZZLES QUESTION BANK - Exercise Therapy I

UNIT II - Principles of ROM and Stretching

Case 1: The Reluctant Shoulder You are a physiotherapy intern observing a 55-year-old office worker, Mr. Patel, who presents with a stiff right shoulder following a minor rotator cuff strain from repetitive overhead filing tasks. He reports mild pain (3/10) during elevation but can actively lift his arm to 90 degrees without assistance. The senior therapist has instructed you to initiate basic ROM exercises to improve flexibility, emphasizing the need to respect pain thresholds and avoid compensatory movements like shrugging. As you prepare to guide him through the session, Mr. Patel hesitates, expressing fear of worsening the pain. You notice he guards the shoulder during trial movements, limiting his active range. The clinic is busy, and you must decide on the starting approach to build confidence while adhering to principles of gradual stretching and ROM progression. Key considerations include patient motivation, tissue tolerance, and preventing secondary stiffness from immobility.

Options: A. Begin with passive ROM using a pulley system to gently assist elevation, monitoring for pain. B. Start with active-assisted ROM via wand exercises, encouraging Mr. Patel to control the movement. C. Opt for isometric holds at end-range to build tolerance before dynamic ROM. D. Use prolonged static stretching with therapist-applied overpressure for immediate gains.

Structured Reasoning : B. Active-assisted ROM via wand exercises promotes patient autonomy and confidence-building, aligning with evidence for early active involvement in shoulder rehab to prevent dependency. Option A risks passive over-reliance; C focuses on strength prematurely; D may over-stretch sensitive tissues, violating safety in acute phases.

Case 2: Post-Immobilization Elbow As a junior clinician in an outpatient rehab center, you encounter Ms. Lee, a 42-year-old teacher recovering from a 4-week elbow immobilization after a fracture. Her passive flexion is limited to 110 degrees due to stiffness, with no acute pain but discomfort at end-range. The goal is to restore functional ROM through stretching, focusing on principles like creep and stress relaxation to elongate tissues safely. During the initial assessment, she winces slightly during gentle passive stretches, and you observe minor swelling. You must select an entry-level exercise that balances progression with protection, considering her return to writing on a board. Time is limited, and you ponder how to grade the intensity without causing inflammation.

Options: A. Implement high-intensity, short-duration dynamic stretches to quickly improve range. B. Choose low-load, prolonged passive stretching in supine position for tissue adaptation. C. Start with active ROM within comfort zone, progressing to assisted holds. D. Use ballistic stretching to mimic daily activities and overcome stiffness rapidly.

Structured Reasoning : B. Low-load, prolonged passive stretching leverages viscoelastic properties for safe tissue elongation post-immobilization, minimizing inflammation. A is too aggressive; C delays passive benefits; D risks rebound via elastic recoil.

Case 3: Hip Flexor Tightness in a Runner You are a student physiotherapist shadowing in a sports clinic, where you meet Alex, a 28-year-old recreational runner complaining of anterior hip tightness after increasing mileage. Passive hip extension is restricted to 5 degrees, contributing to altered gait. The focus is on stretching principles to address muscle imbalances, emphasizing specificity and hold times for optimal plasticity. Alex is eager to resume training but reports mild pulling during trials. You need to guide a basic stretching routine, considering dynamic warm-up integration and avoiding aggravation of potential underlying issues like labral strain. The session is in a group setting, requiring efficient choices.

Options: A. Prescribe static standing hip flexor stretches with 30-second holds, repeated multiple times. B. Introduce dynamic leg swings to promote active ROM before static holds. C. Use PNF contract-relax technique for enhanced stretch reflex inhibition. D. Opt for foam rolling combined with passive therapist-assisted stretches.

Structured Reasoning : A. Static holds are evidence-based for muscle lengthening in runners, with 30 seconds optimal for plasticity without overload. B suits warm-up but not primary stretching; C adds complexity early; D may irritate via pressure.

Case 4: Elderly Knee Stiffness In a community health center, as an intern, you assist Mrs. Gomez, a 72-year-old retiree with bilateral knee osteoarthritis causing flexion limited to 100 degrees. She experiences stiffness after sitting, and the aim is to apply ROM principles to improve daily mobility like rising from chairs. Stretching must consider joint integrity, pain modulation, and balance risks. During demonstration, she shows unsteadiness, prompting you to adapt positioning. You debate starting methods that prioritize safety over aggressive gains.

Options: A. Begin with seated active heel slides for controlled ROM progression. B. Use supine passive knee flexion with belt assistance for gravity-reduced load. C. Incorporate standing quadriceps stretches, holding onto support for stability. D. Apply manual overpressure in prone position to target end-range quickly.

Structured Reasoning : B. Supine positioning reduces joint load and fall risk in elderly, allowing gravity-assisted safe progression. A is functional but unstable; C increases balance demands; D prone position strains neck/shoulders.

Case 5: Cervical ROM After Whiplash You are a junior clinician in a motor vehicle accident rehab program, evaluating Tom, a 35-year-old driver with whiplash-associated stiffness limiting cervical rotation to 60 degrees bilaterally. Pain is 4/10 at extremes, and the emphasis is on gentle stretching to restore ROM without exacerbating muscle guarding. Principles include multi-planar movements and avoiding sudden jerks. Tom mentions headaches during turns, and you must plan an initial exercise, factoring in his desk job demands.

Options: A. Start with active ROM in sitting, using visual cues for smooth gliding. B. Employ passive towel-assisted stretches for lateral flexion and rotation. C. Introduce isometric neck exercises before progressing to dynamic ROM. D. Use oscillatory mobilizations at end-range for immediate relief.

Structured Reasoning : A. Active ROM encourages gentle self-control post-whiplash, reducing guarding per guidelines on avoiding passive in sensitive necks. B may provoke; C builds stability first but skips ROM; D too advanced.

Case 6: Ankle Dorsiflexion Limitation As a student in an orthopedic clinic, you observe Sarah, a 19-year-old soccer player with chronic ankle stiffness post-sprain, restricting dorsiflexion to 10 degrees. The goal is stretching to enhance gait and prevent re-injury, applying principles of specificity and overload. She tolerates weight-bearing but fatigues quickly. You need to select a foundational exercise, considering field-based adaptations.

Options: A. Prescribe wall-leaning static stretches with knee bent for gastrocnemius focus. B. Begin with non-weight-bearing towel pulls for isolated soleus stretching. C. Use step-ups with emphasis on controlled eccentric lowering. D. Incorporate PNF hold-relax for reciprocal inhibition.

Structured Reasoning : A. Weight-bearing wall stretches target gastrocnemius functionally for athletes, supported by evidence on closed-chain efficacy. B isolates but lacks carryover; C is strengthening-focused; D requires supervision.

Case 7: Hamstring Tightness in a Desk Worker In a corporate wellness program, as an intern, you guide Emily, a 40-year-old executive with hamstring tightness reducing forward bend to 70 degrees. Stretching principles stress workplace integration and sustained holds for collagen remodeling. She reports low back twinges during stretches, requiring careful grading. You ponder options for a quick session that promotes self-management.

Options: A. Teach seated forward bends with strap assistance for progressive ROM. B. Opt for standing toe touches with dynamic warm-up swings. C. Use supine active-assisted leg raises to isolate hamstrings. D. Apply ballistic stretches to simulate daily reaches.

Structured Reasoning : A. Seated stretches with assistance promote compliance in desk workers, isolating hamstrings safely without low back strain. B risks momentum; C better for dynamic; D inappropriate for tightness.

Case 8: Wrist Extension Post-Cast You are a junior clinician in hand therapy, assessing Raj, a 25-year-old mechanic after 6-week wrist cast removal for a fracture. Extension is limited to 40 degrees with end-range discomfort. Focus on ROM restoration via stretching, considering principles of joint play and scar tissue management. He needs quick return to tool handling, but guards movements.

Options: A. Start with passive prayer stretches in neutral forearm position. B. Introduce active wrist glides against a table for self-mobilization. C. Use weighted holds at end-range for creep effect. D. Employ rapid oscillatory stretches to break adhesions.

Structured Reasoning : B. Active glides foster independence post-cast, gently addressing adhesions per ROM progression principles. A passive may create dependency; C adds load early; D risks irritation.

Case 9: Thoracic Extension in a Swimmer As a student in a sports rehab facility, you evaluate Lisa, a 22-year-old competitive swimmer with thoracic stiffness limiting extension to 15 degrees, affecting stroke efficiency. Stretching must align with aquatic demands, using principles of chain mobility and breath synchronization. She notes fatigue during overhead reaches.

Options: A. Prescribe foam roller extensions in supine for segmental release. B. Begin with seated cat-cow movements for active ROM flow. C. Use partner-assisted passive stretches in prone position. D. Incorporate yoga-inspired dynamic twists for multi-plane gains.

Structured Reasoning : B. Active cat-cow enhances thoracic mobility with breath, suiting swimmers' needs for flow without over-pressure. A effective but static; C passive limits self-efficacy; D broadens unnecessarily.

Case 10: Lumbar Flexion After Strain In a community clinic, as an intern, you assist Mr. Khan, a 50-year-old laborer with lumbar strain recovery, showing flexion limited to 50 degrees due to guarding. Principles of ROM emphasize neutral spine protection and gradual bending. He lifts moderately at work, requiring safe stretching guidance.

Options: A. Start with supine knee-to-chest pulls for controlled flexion. B. Opt for standing forward bends with knee flexion to reduce load. C. Use seated pelvic tilts transitioning to partial bends. D. Apply manual traction before passive stretches.

Structured Reasoning : A. Supine pulls protect the spine in strained lumbars, allowing controlled ROM per directional preference evidence. B standing loads excessively; C good start but limited; D distracts from core focus.

Answers for Unit II

Case 1: B

Case 2: B

Case 3: A

Case 4: B

Case 5: A

Case 6: A

Case 7: A

Case 8: B

Case 9: B

Case 10: A