RehabQuest 2027

IAPMR Kerala Undergraduate PMR Quiz

PMR PRIMER

A student friendly guide to Rehabilitation and Disability

October 2026

This primer follows the approved REHAB QUEST 2027 syllabus. It gives students a practical rehabilitation perspective that is often less detailed in conventional MBBS textbooks. Around fifty percent of the questions for the preliminary rounds of RehabQuest will be from undergraduate textbooks (approximately 30% from first-year subjects, 15% second-year subjects and 5% from final-year subjects), thirty five percent from this primer and fifteen percent on the current affairs, developments, and observances related to health, disability and rehabilitation. The questions will be designed at an undergraduate level, with emphasis on core concepts rather than highly specialised knowledge.

How to use this primer

Section 1 : prepare from standard textbooks.
Section 2 : prepare the basics from standard textbooks and learn the functional consequences and rehabilitation principles from this primer.
Sections 3 & 4 : learn the concepts from the primer.
Section 5 : learn the concepts from this primer and be familiar with current developments as suggested in the primer.

CONTENTS

No.	Topic	Focus
1	Basic Sciences	Standard textbook preparation
2	Clinical Conditions	Clinical essentials + function + rehabilitation
3	Understanding Rehabilitation & PM&R;	Core concepts, team, ADL, CBR and exercise
4	Disability, Rights & Inclusion	Functioning, certification, UDID and entitlements
5	Medicine, Rehabilitation & the World Around Us	Emerging technologies, organisations, health days and current affairs

1. BASIC SCIENCES

Prepare this section primarily from standard undergraduate textbooks. The official syllabus includes:

Anatomy

- Nervous system: brain and spinal cord; motor and sensory pathways; cerebellum and basal ganglia; plexus and peripheral nerves; motor, sensory and mixed nerves; basic nerve-fibre types.
- Musculoskeletal system: bones, joints, muscles, tendons, ligaments and connective tissue.

Physiology

- Nervous system: generation and transmission of nerve signals.
- Musculoskeletal system: basic function of bones, joints, muscles, tendons, ligaments and connective tissue; basic biomechanics.

Clinical examination protocols

- Neurological examination: higher functions; cranial nerves; motor examination—bulk, tone, power, reflexes and involuntary movements; sensory examination; coordination; gait and balance.
- Musculoskeletal examination: inspection, palpation, range of motion, muscle strength, functional assessment and, where relevant, gait assessment.

Community medicine

- Health and disease concepts; health indicators and disability rates; event/person type; ADL; HALE, QALY, DFLE, DALY, YLL and YLD.
- Levels of prevention and modes of intervention; disability; disability limitation versus disability prevention.
- Medical, vocational, social and psychological rehabilitation; community-based rehabilitation.
- Developmental milestones; ICIDH versus ICF; ICF model and components; Rights of Persons with Disabilities Act.
- Ageing, lifestyle and healthy ageing.

Preparation tip

The primer deliberately does not reproduce textbook anatomy, physiology or community medicine material.

2. CLINICAL CONDITIONS

For every condition, revise etiology/risk factors, pathogenesis, classification where relevant, basic pharmacology, common complications and basic principles of management. The rehabilitation content below is deliberately explanatory and case-oriented so that it can serve as the complete rehabilitation preparation source for the preliminary round.

> **How to think like a rehabilitation professional**
>
> What is impaired? → What activity is difficult? → How does this affect participation? → What can rehabilitation do to improve function and independence?

2.1 STROKE

Impairments

- Motor and tone: Hemiparesis or hemiplegia, spasticity or hypotonia, abnormal movement patterns.
- Sensory and perceptual: Altered sensation or proprioception, visual field loss, neglect and impaired spatial awareness.
- Speech, swallowing and cranial nerves: Aphasia, dysarthria, dysphagia, facial weakness or impaired eye movements.
- Balance : Poor postural control, ataxia,
- Cognition : impaired attention, memory, executive function or problem-solving.
- Other: Altered consciousness, fatigue, central pain and musculoskeletal pain.

Activity limitations and participation restrictions

- Difficulty with bed mobility, sitting/standing balance, transfers, walking, stairs and upper-limb use.
- Reduced independence in Activities of Daily Living (ADL) - eating, dressing etc
- Reduced participation in family and social life, education, employment, leisure and community mobility.

Complications Following Stroke

- Joint stiffness, contractures and deformities.
- Shoulder pain or subluxation, musculoskeletal pain, pressure injuries and falls.
- Deep vein thrombosis, pulmonary embolism and complications of immobility.
- Aspiration pneumonia, malnutrition and dehydration.
- Urinary/bowel dysfunction,
- Depression, anxiety, cognitive changes and post-stroke fatigue.

- Deconditioning, reduced cardiopulmonary endurance, recurrent vascular events.
- Prevention, early recognition and appropriate management are essential throughout rehabilitation.

Rehabilitation Approach

Stroke rehabilitation begins as soon as medically appropriate. Goals are to maximize functional independence, safety, participation and quality of life.

Early Rehabilitation and Prevention of Complications

Individualize the timing and intensity of mobilization. Use appropriate positioning,, range-of-motion (ROM) exercises and pressure-injury and contracture prevention. Protect the affected shoulder during handling and transfers. provide respiratory care as indicated. Assess swallowing, nutrition, hydration and continence. Teach patients and caregivers safe handling and daily care.

Movement, Balance and Gait Training

Rehabilitation progresses from bed mobility and trunk control to sitting and standing balance, weight shifting, sit-to-stand practice, transfers and task-specific activities. ROM, progressive strengthening and endurance exercises and functional electrical stimulation may be used. Gait training is advanced from supported standing and stepping to walking, treadmill or body-weight-supported training, stair negotiation and community mobility. Canes, walkers and ankle-foot orthoses (AFOs) are prescribed when appropriate.

Upper-Limb Function and Activities of Daily Living

Reaching, grasping, releasing, object manipulation and meaningful repetitive tasks are practised to improve hand function. Bilateral arm training, strengthening, constraint-induced movement therapy and functional electrical stimulation may be used in appropriately selected patients. Training in ADL is provided, with adaptive equipment and environmental modifications as needed.

Speech and Swallowing Rehabilitation

Speech and language therapy is provided for aphasia, dysarthria and communication difficulties, with augmentative or alternative communication methods as necessary. When dysphagia is suspected, swallowing is assessed before oral intake. Swallowing strategies, exercises and food or fluid consistency are individualized.

Cognitive Rehabilitation

Attention, memory, executive function, problem-solving, neglect and perceptual difficulties are assessed and managed using appropriate rehabilitation strategies, compensatory techniques, memory aids and caregiver education.

Spasticity, Pain and Contractures

Positioning, stretching, ROM exercises and individualised splinting or orthotic support are used to prevent contractures. Factors aggravating spasticity are identified and treated. Medications, botulinum toxin injections or specialist interventions may be considered. Shoulder protection and appropriate pain management are provided.

Psychological, Social and Vocational Support

Depression, anxiety and other emotional difficulties are screened for, and appropriate treatment is provided when indicated. Patients and caregivers are supported in adjusting to the condition, and community reintegration is encouraged. Readiness for a graded return to education or employment is assessed. Home modifications, assistive technology and education on secondary stroke prevention are considered.

Outcome Assessment and Goal Setting

Specific, measurable, achievable, relevant and time-bound (SMART) goals are established according to the patient's functional limitations and priorities. Appropriate outcome measures are selected and repeated to monitor progress. These may include the Modified Rankin Scale (mRS) for global disability; Barthel Index for independence in basic activities of daily living; Functional Independence Measure (FIM), for functional independence; Fugl-Meyer Assessment for motor and sensorimotor impairment; Berg Balance Scale for balance; 10-Metre Walk Test and 6-Minute Walk Test for walking speed and endurance; Functional Ambulation Category (FAC) for the level of assistance required during walking; and Modified Ashworth Scale for spasticity.

Discharge Planning and Long-Term Follow-Up

Before discharge, safe mobility, transfers and daily activities are assessed, and the level of caregiver support required is determined. Home accessibility is evaluated, and necessary modifications, assistive devices and orthoses are arranged. An individualised home exercise programme is provided, with follow-up planned for spasticity, pain, mood, cognition and other complications. Community rehabilitation, social participation and return to education or work are supported as appropriate. Secondary stroke prevention is continued through appropriate management of vascular risk factors and regular medical follow-up.

2.2 TRAUMATIC BRAIN INJURY (TBI)

Impairments : Traumatic brain injury may result in motor weakness, abnormal muscle tone, impaired coordination, balance or vestibular dysfunction, cognitive and communication deficits, fatigue, sleep disturbance, pain, and difficulties with emotional or behavioural regulation.

Activity and participation limitations : Functional limitations may include difficulty with mobility, transfers, walking, self-care, household tasks and safe decision-making. Independence in activities of daily living (ADLs), education, employment, relationships, leisure and community participation may be reduced.

Common Complications : Post-traumatic seizures, hydrocephalus, spasticity, contractures, heterotopic ossification, central pain and musculoskeletal problems; and pressure injuries, falls, venous thromboembolism and deconditioning associated with immobility. Sleep disturbance, fatigue and behavioural difficulties may also occur. Dysphagia may lead to aspiration, malnutrition or dehydration.

Rehabilitation Approach

TBI rehabilitation is individualised and multidisciplinary, based on injury severity, medical stability, functional impairments, prior function, personal goals and family circumstances. Rehabilitation may continue from acute care through inpatient, outpatient, community and home-based services.

Early Rehabilitation and Prevention

Activity progression is initiated when the patient is medically stable. Appropriate positioning, ROM exercises, skin care and preventive measures against pressure injuries and contractures are provided. Mobilisation and tolerance of upright positions are progressed according to consciousness, physiological stability and safety. Pain, sleep, nutrition, hydration, bowel and bladder function, agitation and potential complications are monitored. Family members are educated about safe handling, supervision, communication and recovery expectations.

Physical Rehabilitation

Physical rehabilitation includes ROM exercises, strengthening, trunk control, balance and coordination training, as indicated. Training is progressed from bed mobility and transfers to standing, walking, stair negotiation and community mobility according to the patient's abilities and safety. Endurance, vestibular symptoms and fall risk are addressed, and walking aids or orthoses are prescribed when appropriate.

Cognitive Rehabilitation

Attention, memory, processing speed, executive function, judgement and problem-

solving are assessed. Cognitive rehabilitation may include structured practice, predictable routines, written cues, calendars, reminders and other compensatory strategies. Tasks and environments are adapted to minimise distractions and support safe completion of daily activities. Caregivers are trained in consistent cueing and strategies to address impaired insight or reduced initiation.

Communication and Swallowing

Speech and language therapy is provided to address speech, language, cognitive-communication and social communication difficulties. Alternative communication methods are introduced when necessary. Swallowing is assessed when dysphagia is suspected, and appropriate strategies and food or fluid consistency are determined.

Behavioural and Psychological Rehabilitation

Triggers for agitation are identified, and calm communication, predictable routines and a structured environment are used to support behavioural regulation. Emotional support, psychological assessment and appropriate treatment are provided for anxiety, depression and adjustment difficulties. Sleep disturbance, fatigue, impulsivity and caregiver stress are addressed, with specialist referral when required.

Activities of Daily Living (ADLs)

Training is provided with graded assistance and adaptive equipment as required. Compensatory strategies and safety awareness are taught, and the home environment and daily routines are adapted to the individual's needs.

Education, Work and Community Reintegration

A gradual, goal-directed return to education, employment, leisure and community activities is planned. Cognitive endurance, behavioural difficulties, transport, environmental demands and reasonable accommodations are considered.

Family and Caregiver Education

Families are informed that cognitive, emotional and behavioural problems may remain significant even when physical disability appears mild. Education is given on supervision, communication, fatigue management, safety, predictable routines, warning signs and available support services.

Outcome Assessment

Common Outcome Assessment tools are Glasgow Coma Scale (GCS) used to assess the level of consciousness, Disability Rating Scale (DRS) and Glasgow Outcome Scale–Extended (GOSE) to assess overall disability or outcome. The FIM, and the Barthel Index may be used to assess functional independence and ADLs.

2.3 SPINAL CORD INJURY (SCI)

Clinical picture: Weakness or paralysis and sensory impairment below the injury, with possible impaired trunk control, balance, bed mobility, transfers and walking. Depending on neurological level and completeness, bladder/bowel dysfunction, respiratory compromise, autonomic problems, pain and sexual dysfunction may occur.

Functional consequences: Reduced mobility and independence; wheelchair dependence in some individuals; pressure-injury risk due to reduced sensation and prolonged pressure; spasticity, contractures, neuropathic or musculoskeletal pain; bladder/bowel difficulties; respiratory impairment in higher lesions; and reduced participation in education, work, recreation and community life.

Neurological assessment: ISNCSCI / ASIA examination : The International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI) assesses key sensory points (light touch and pin prick), key muscle functions, and sacral sparing (sparing of S4–S5 spinal segments in spite of a spinal cord lesion - preserved sensation, deep anal pressure and/or voluntary anal contraction). It establishes sensory and motor levels and the neurological level of injury (NLI), and supports classification of completeness.

ASIA Impairment Scale (AIS)

A - Complete: No sensory or motor function preserved in sacral segments S4–S5.
B - Sensory incomplete: Sensory function preserved but motor function absent
C - Motor incomplete: more than half of key muscles have less than grade 3 power.
D - Motor incomplete: at least half of key muscles have grade 3 power or greater.
E - Normal: Sensory and motor function are normal.

Rehabilitation approach

Prevent secondary complications

Pressure relief, daily skin inspection, appropriate wheelchair/cushion, positioning, ROM and contracture prevention, joint/bone protection, and education about reduced sensation. Monitor for pressure injuries, urinary complications and medical risks.

Mobility and transfers

Progress from bed mobility to sitting balance, transfers and wheelchair skills; add standing or gait training when appropriate. Practise safe transfer methods, fall prevention and caregiver-assisted mobility if needed.

Strength, fitness and gait

Strengthen muscles with preserved innervation; maintain flexibility and cardiovascular fitness. Orthoses, standing and gait training are for selected individuals, based on injury level, completeness, medical stability, bone health and goals.

Bladder and bowel

Develop an individualised programme with the medical team to promote safe management, continence, regularity, skin care and independence.

Respiratory rehabilitation

Higher-level injuries may require breathing assessment, breathing/cough techniques, secretion management, assisted coughing or ventilatory support.

Spasticity, pain and autonomic concerns

Assess and manage spasticity, neuropathic and musculoskeletal pain. At-risk patients and caregivers should recognise autonomic dysreflexia; sudden severe headache, flushing/sweating or raised blood pressure may indicate an emergency.

Assistive technology and participation

Prescribe suitable wheelchairs, cushions, orthoses and other devices. Address ADLs, sexual health, psychological wellbeing, education, employment, recreation, accessibility and community mobility.

Family education

Train caregivers in safe assistance, skin checks, equipment use, bladder/bowel routines and warning signs. Set meaningful, measurable goals with the patient and review progress regularly.

2.4 PERIPHERAL NERVE INJURY & NEUROPATHY

Clinical situation: A patient may have weakness of specific muscles, sensory loss and difficulty using the affected limb. Neuropathy may cause distal sensory loss and increased risk of injury because protective sensation is impaired. Electrophysiological studies (EMG and NCV) are done to diagnose nerve injury and neuropathy.

Common functional consequences: Weakness; wasting; sensory loss; neuropathic pain; dexterity loss; foot drop/other motor deficits; gait difficulty; deformity/contracture; burns/wounds or other injury due to sensory loss.

Rehabilitation approach

Protection

Protect the recovering nerve, joints and skin and avoid unnecessary stress or injury.

ROM exercises

Maintain ROM to prevent stiffness, contractures and deformity.

Strengthening

Strengthen appropriately according to nerve recovery. Reinnervated muscles can be progressively strengthened.

Splints/orthoses

May maintain joint position, prevent deformity, compensate for weakness and improve function; an orthosis may improve foot clearance in foot drop.

Sensory rehabilitation

Sensory re-education and desensitisation may help with altered sensation and hypersensitivity.

Protection of affected limbs

Teach skin inspection and protection from temperature/injury. Practise hand function, gait and ADL.

2.5 LOW BACK PAIN

Clinical situation: A person with uncomplicated mechanical low back pain may experience pain during sitting, lifting or bending and may avoid normal activities due to fear of worsening symptoms.

Common functional consequences: Pain-related movement restriction, difficulty sitting, standing, walking and lifting, reduced work and recreational capacity, deconditioning and fear-avoidance.

Rehabilitation approach

Education and activity

Explain the condition, encourage normal activities as tolerated and avoid prolonged bed rest.

Exercise

Use flexibility, trunk and core strengthening, general strengthening, aerobic and functional exercises as appropriate.

Ergonomics

Teach safer lifting, bending, sitting and occupational techniques.

Spinal procedures

Spinal traction or distraction is not recommended routinely for uncomplicated low back pain. Injections are reserved for selected conditions with specific indications and refractory cases.

Braces

Lumbar belts or braces may give short term pain relief, but are not recommended for routine long-term management; prolonged use may encourage dependence and reduced activity.

Graded return

Progress activities according to tolerance, with gradual return to work, sport and other meaningful activities.

Red flags

Significant trauma, fever or systemic illness, suspected malignancy, progressive neurological deficit, or bladder/bowel dysfunction with saddle sensory disturbance require prompt medical assessment.

2.6 FROZEN SHOULDER / ADHESIVE CAPSULITIS

Clinical situation: A patient develops shoulder pain followed by progressive stiffness, making combing hair, dressing, reaching overhead and reaching behind the back difficult.

Common functional consequences: Shoulder pain and restricted range of motion, particularly external rotation; difficulty with dressing, grooming and reaching; sleep disturbance; and reduced arm use.

Rehabilitation approach

Education and pain control: Explain the condition, set realistic goals and control pain sufficiently to allow movement and exercise.

Gradual mobilisation: Use active and active-assisted range-of-motion exercises and gentle stretching, adjusted to pain and irritability. Avoid forceful stretching that significantly aggravates pain.

Infiltration and hydrodilatation: Intra-articular corticosteroid injection may provide short-term pain relief and improve function, particularly during the early painful stage. Hydrodilatation (hydrodistension) involves injecting fluid into the shoulder joint to distend the contracted capsule and may be considered in selected patients with persistent stiffness. These procedures should be combined with appropriate rehabilitation techniques.

Strengthening: Introduce progressive strengthening of shoulder muscles (especially the rotator cuff muscles which are the dynamic stabilizers of the joint) as pain decreases and shoulder movement improves.

Functional use and home programme: Encourage appropriate use of the affected arm and regular, individually tailored home exercises to improve mobility and daily function.

2.7 TENNIS ELBOW & GOLFER'S ELBOW

Clinical situation: Repetitive gripping or wrist activity causes pain around the elbow, affecting lifting, work or sporting activities. Tennis elbow involves the lateral side, while golfer's elbow involves the medial side.

Common functional consequences: Pain during gripping and lifting, reduced lifting capacity, difficulty with repetitive hand activities and limitations in work or sport.

Rehabilitation approach

Activity modification

Reduce or modify repetitive overload while maintaining tolerable daily activity.

Progressive loading

Use progressive wrist and forearm strengthening, graded tendon-loading exercises and stretching when appropriate.

Braces and supports

A counterforce elbow brace or wrist splint may provide short-term symptom relief in selected patients, particularly during aggravating activities.

Infiltration:

Corticosteroid injection provide short-term pain relief in selected cases. Injection options require individual assessment of evidence, risks and benefits.

Ergonomics and return to activity:

Review work techniques, equipment, repetitive loads and sporting technique. Gradually restore normal activity rather than abruptly returning to the previous workload.

2.8 AMPUTATION

Clinical situation: After limb amputation, a person may initially have difficulty with bed mobility, transfers, standing and walking. Rehabilitation aims to optimise healing, prevent complications, restore independence and prepare for prosthetic use when appropriate.

Common consequences: Loss of limb function; reduced mobility, balance and independence in ADLs; residual-limb pain or skin problems; phantom sensation or phantom limb pain; muscle weakness and joint contractures; changes in body image, mood and social roles; and reduced participation in work, education and community

Rehabilitation approach

Residual-limb and wound care

Monitor wound healing, skin colour, temperature, swelling, pressure areas and signs of infection. Teach hygiene, safe wrapping or shaping when prescribed, positioning and gradual desensitisation. Seek review for persistent redness, breakdown, drainage or increasing pain.

ROM and contracture prevention

Maintain joint range with regular positioning, stretching and active movement. Avoid prolonged positions that encourage contracture—for example, prolonged hip flexion after transfemoral amputation or knee flexion after transtibial amputation. Use prone lying only when clinically suitable and safe.

Strength, endurance and balance

Strengthen the remaining limb, trunk, upper limbs and relevant proximal muscles. Train postural control, balance, cardiovascular fitness and safe movement strategies; protect the remaining foot, especially in people with diabetes or vascular disease.

Functional mobility and ADLs

Practise bed mobility, sit-to-stand, transfers, wheelchair skills, falls prevention and self-care. Select walking aids according to balance, strength, cardiopulmonary status and safety. Train caregivers when assistance is needed.

Prosthetic assessment and training

Assess medical status, wound healing, residual-limb shape, strength, balance, cognition, goals and home environment. The prosthetist selects and fits the prosthesis; the socket fits around the residual limb. Train donning/doffing, wear schedule, skin checks, weight shifting, standing, gait, stairs and community mobility as appropriate. Prosthetic candidacy and timing are individualised.

Pain and other complications : Assess residual-limb pain, neuroma, phantom sensation and phantom limb pain; use an individualised multidisciplinary plan. Monitor for oedema, skin breakdown, contractures, falls, deconditioning and psychological distress.

Psychological and social rehabilitation : Support adjustment, body image and coping; screen for depression or anxiety when indicated. Involve family/caregivers and address return to work or education, recreation, sport, accessibility and community participation.

2.9 CEREBRAL PALSY

Clinical situation: A child may have abnormal tone/movement, delayed motor skills, difficulty walking and hand dysfunction. Communication, swallowing, vision, hearing, cognition or learning may also be affected.

Common functional consequences: Delayed motor development; abnormal tone/movement; weakness; poor balance; gait abnormalities; upper-limb dysfunction; contractures/deformities; communication/swallowing difficulties; cognitive/learning difficulties in some; ADL/participation limits.

Rehabilitation approach

Developmental and Task-Specific Training

Physiotherapy and occupational therapy use goal-directed practice to improve functional skills such as sitting, standing, transfers, walking, hand use and age-appropriate play. Repeated practice of meaningful activities promotes motor learning and independence.

Positioning and Prevention of Contractures

Appropriate positioning, range-of-motion exercises, stretching when indicated and strengthening help maintain joint mobility and function. Regular monitoring is important to identify muscle shortening, contractures, hip displacement and spinal deformities. Positioning devices and standing frames may benefit selected children.

Strength, Balance and Gait Training

Strengthening, balance and coordination exercises improve functional performance. Gait training may include standing, walking, turning and stair climbing. Mobility aids and orthoses can improve safety and independence when required.

Orthoses and Assistive Devices

Ankle-foot orthoses (AFOs), hand splints, walkers, crutches, wheelchairs and adapted seating may support posture, mobility and daily activities. Devices should be individually selected and reviewed as the child grows.

Management of Spasticity and Dystonia

Management may include positioning, stretching, strengthening, orthoses and task-specific therapy. Baclofen may be used for selected children with generalised spasticity, while botulinum toxin injections may help manage focal muscle overactivity. Intrathecal baclofen and orthopaedic procedures may be considered in severe cases. Treatment should focus on functional goals rather than reducing muscle tone alone.

Upper-Limb and Hand Rehabilitation

Occupational therapy improves reaching, grasping, hand use and daily activities.

Constraint-induced movement therapy or bimanual training may benefit selected children with unilateral cerebral palsy. Adaptive utensils and modified writing tools can support independence.

Communication, Feeding and Swallowing

Speech and language therapy addresses communication difficulties, while picture boards and communication devices may help children with limited speech. Feeding and swallowing problems require assessment to reduce the risk of aspiration and nutritional difficulties. Feeding techniques and food consistency should be adapted to individual needs.

Management of Associated Conditions

Associated problems such as epilepsy, visual or hearing impairment, nutritional difficulties, constipation, sleep disturbances, pain and behavioural concerns require appropriate management. Regular monitoring for hip displacement and other musculoskeletal complications is essential.

Activities of Daily Living, Education and Participation

Rehabilitation promotes independence in feeding, dressing, grooming, bathing and toileting through task practice, adaptive equipment and environmental modifications. Inclusive education, accessible facilities and assistive technology support participation in school, play and community activities. Children should be encouraged to communicate their preferences and develop age-appropriate social skills.

Family Education and Home Programme

Parents and caregivers should be guided on positioning, transfers, home exercises, use of orthoses and assistive devices, feeding precautions and recognition of complications. Home programmes should be practical and integrated into daily routines, encouraging independence without unnecessary overprotection. Families may also need information on educational support, disability certification, welfare benefits and community-based rehabilitation.

Outcome Assessment and Follow-Up

Rehabilitation goals should reflect the child's functional priorities, such as improved sitting, walking, hand use, self-care or school participation. The Gross Motor Function Classification System (GMFCS) classifies gross motor function, while the Gross Motor Function Measure (GMFM) assesses changes in gross motor abilities. Regular follow-up helps monitor progress, pain, joint range, muscle tone, orthoses and assistive devices, while identifying complications such as contractures, hip displacement and spinal deformity. The overall aim is to maximise independence, participation and quality of life.

2.10 CONGENITAL LIMB DEFICIENCY

Clinical situation: A child is born with absence or underdevelopment of part of a limb. Rehabilitation aims to enable age-appropriate development and maximise independence.

Common functional consequences: Difficulty reaching/grasping; bimanual difficulty; standing/walking difficulty; delayed functional skills; ADL, school and recreation challenges.

Rehabilitation approach

Early/repeated assessment

Needs change with growth, so reassess over time.

Promote development

Encourage age-appropriate play, motor development, positioning, ROM, strength and functional exploration.

Prosthetic/orthotic needs

Some children benefit from devices depending on the deficiency and functional goals.

Adaptive strategies

Teach alternative methods for dressing, feeding, writing, playing and other ADL.

Mobility

Lower-limb deficiency: standing, balance and efficient mobility/gait.

Upper-limb deficiency: maximise functional use and adaptive strategies.

Participation/psychosocial

Support school participation, recreation, body image and social interaction

2.11 CONGENITAL TALIPES EQUINOVARUS (CTEV / CLUBFOOT)

Clinical situation: An infant has characteristic inward/downward positioning of the foot. Without correction and maintenance, the deformity can affect standing and walking.

Common functional consequences: Abnormal foot position may affect standing, gait, footwear and long-term mobility if correction is not maintained.

Rehabilitation approach

Ponseti method

Know: manipulation → serial casting → Achilles tenotomy when indicated → foot-abduction bracing. Serial casting is a non-invasive technique that uses a sequence of custom, well-padded casts to gradually stretch tight muscles and increase the range of motion in a joint. DB splint (Denis Browne splint) is a commonly used foot abduction orthosis.

Parent education

Explain brace use, adherence and skin care. Continued bracing after correction is important because recurrence can occur.

Functional follow-up

Monitor foot position, ROM, motor development and gait.

2.12 SARCOPENIA & FRAILTY

Sarcopenia: An age-related muscle disease characterised by low muscle mass, low muscle strength, and poor physical performance.

Frailty: A multidimensional clinical syndrome marked by a reduced physiological reserve across multiple organ systems. It encompasses physical, cognitive, psychological and social domains.

Clinical situation: An older adult has difficulty rising from a chair, walking outdoors and carrying groceries. Reduced strength and slow gait may be present; frailty reflects reduced physiological reserve and vulnerability to stressors.

Common functional consequences: Reduced strength; slow walking; difficulty stairs/chair rise; reduced endurance; falls; ADL loss; low activity; increased vulnerability to illness/hospitalisation.

Rehabilitation approach

Progressive resistance exercise

Central to improving muscle strength and function. Sit-to-stand is an example of a functional strengthening task.

Aerobic exercise

Appropriately prescribed aerobic activity improves endurance and physical capacity.

Balance/functional training

Include balance, gait, sit-to-stand, stairs and other meaningful tasks.

Nutrition

Adequate nutrition, particularly adequate protein intake, is important.

Falls prevention

Assess previous falls, balance/gait, vision, medications and environmental hazards.

Contributing factors

Identify/manage medical conditions, medications, inactivity and nutritional problems.

Independence

Aim to maintain or restore mobility, ADL, community participation and independence

3. UNDERSTANDING REHABILITATION

Rehabilitation is a set of interventions designed to optimise functioning and reduce disability in interaction with the person's environment. It can begin early and is relevant across acute, subacute and chronic illness.

Four broad rehabilitation aims

- **Prevention:** prevent complications, secondary disability and avoidable loss of function.
- **Restoration:** recover impaired body functions and skills where possible.
- **Adaptation:** compensate for persistent limitations through strategies, assistive technology or environmental modification.
- **Reintegration:** support return to family, education, work, community, recreation and social participation.

Physical Medicine and Rehabilitation (PMR)

PMR is a specialty of evidence based modern medicine, concerned with prevention, diagnosis, treatment and rehabilitation of disorders affecting physical function. A Physiatrist contributes to medical and functional management, sets goals, coordinates the rehabilitation team and addresses medical complications influencing function.

Rehabilitation Team

A rehabilitation team is a group of trained experts who work together in a coordinated way to provide support and address the medical, physical, mental, social, and vocational needs of individuals with chronic diseases or disability. The physiatrist leads the team, diagnoses disabilities, and builds the overall treatment plan, sets functional goals, coordinates the team and manages complications affecting function. Other members of the team includes rehabilitation nurse, physiotherapist, occupational therapist, speech-language therapist, psychologist, orthotist, prosthetist, social worker, rehabilitation engineer/technician, dietitian and other specialists. The person with chronic diseases or disability and their family/caregivers are central members of the team.

The **rehabilitation nurse** provides nursing care, patient and caregiver education, skin care, medication support and prevention of complications. The **physiotherapist** works on mobility, muscle strength, balance, transfers, gait, endurance, posture and physical function. The **occupational therapist** addresses upper-limb function, self-care and daily activities, functional cognition, adaptive techniques and environmental modifications.

The **speech and language pathologist** assesses and treats communication, speech, language and swallowing difficulties. The **psychologist** assesses and supports cognitive, behavioural and emotional difficulties, including adjustment to disability. The **orthotist and prosthetist** assess, design and provide orthoses and prostheses to support alignment, mobility, safety and function. The **social worker** supports patients and families, facilitates access to community resources, assists with discharge planning and promotes social participation. The **rehabilitation engineer or technician** helps select, adapt, fit and maintain rehabilitation equipment and assistive technology. The **dietitian** provides nutritional assessment and dietary recommendations to support recovery and general health. The **vocational rehabilitation professional** supports return to education or employment through work assessment, planning, accommodations and graded return-to-work strategies. **Other medical specialists**, such as neurologists, orthopaedic surgeons and urologists, may be involved according to the patient's needs.

Functional independence & Activities of Daily Living (ADL)

Functional independence means performing needed activities safely with as little assistance as possible. ADL includes eating, dressing, bathing, toileting and mobility. Instrumental ADL includes more complex activities like shopping, cooking, medication management, finances and community activities.

FIM (Functional Independence Measure) Score

The Functional Independence Measure (FIM) is a standardized scale used in rehabilitation to measure how independently a person can perform activities of daily living (ADLs) . It is useful for assessing disability, monitoring progress during rehabilitation, and documenting functional outcomes.

FIM has 18 items, divided into 2 domains:

Motor (13) - Eating, grooming, bathing, dressing upper body, dressing lower body, toileting, bladder management, bowel management, bed/chair/wheelchair transfer, toilet transfer, tub/shower transfer, walking/wheelchair, stairs

Cognitive (5) - Comprehension, expression, social interaction, problem solving, memory

Scoring

Each item is scored from 1 to 7 according to the amount of assistance required:

7 - Complete independence

6 - Modified independence: uses an aid, takes extra time, or has safety considerations

5 - Supervision/setup without physical assistance

4 - Minimal assistance — patient performs ≥75% of the task

3 - Moderate assistance — patient performs 50–74%

2 - Maximal assistance — patient performs 25–49%

1 - Total assistance — patient performs <25% or requires two-person assistance

Total score: Minimum: 18; Maximum: 126

Higher score = greater independence; Lower score = greater dependence

For example, a patient can dress their upper body but needs someone to help with about 20% of the task.

→ Patient performs \~80%\ → FIM score = 4 (minimal assistance).

Uses

- Establish a functional baseline
- Monitor improvement or deterioration
- Plan rehabilitation and discharge needs
- Communicate functional status between healthcare professionals

Community-Based Rehabilitation (CBR)

CBR is a community-oriented approach using local resources and cross-sector collaboration to promote rehabilitation, equal opportunity and social inclusion.

Exercise in health and disease

Exercise is planned, structured and repetitive physical activity performed to improve or maintain physical fitness and health. In rehabilitation, exercise is selected and progressed according to diagnosis, goals, safety, baseline capacity and response.

Types of exercise

Aerobic: rhythmic activity using large muscle groups to improve cardiovascular/endurance capacity.

Strengthening: resistance exercise used to improve muscle strength and power.

Flexibility: stretching or mobility exercise to maintain or improve range of motion.

Balance: activities that improve control of body position during static & dynamic tasks.

Endurance: training that improves the ability to sustain activity and delay fatigue.

FITT VP

An exercise framework used to design, structure, and track safe and effective exercises.

F – Frequency	How often the exercise is performed.
I – Intensity	How hard it is performed.
T – Time	Duration of each session/activity.
T – Type	The mode or kind of exercise.
V – Volume	The overall amount of exercise, considering frequency, duration and intensity.
P – Progression	Gradual increase in exercise demand as fitness, function and tolerance improve.

4. DISABILITY, RIGHTS & INCLUSION

Disability is not simply a diagnosis. Rehabilitation considers how a health condition interacts with functioning and the environment.

Functioning, impairment, activity limitation & participation restriction

- **Functioning:** umbrella term covering body functions/structures, activities and participation.
- **Impairment:** problem in body function or structure - for example weakness or loss of joint movement.
- **Activity limitation:** difficulty executing a task—for example difficulty dressing.
- **Participation restriction:** problem with involvement in a life situation—for example inability to return to work or school.
- **Disability:** umbrella term for impairment, activity limitation and participation restriction arising from interaction between health condition and contextual factors.

Disability certification

- Certification is by competent medical authorities/Medical Boards notified by the State/UT according to applicable rules and procedures.
- The type and extent/percentage of specified disability are assessed using the latest Central Government notified assessment guidelines; current notified guidelines are dated 14 March 2024.
- Benchmark disability generally means not less than 40% of a specified disability, certified by the competent authority. Benchmark status is important for several statutory entitlements such as reservation.
- A disability certificate is not restricted only to ≥40%; Government guidance also addresses certification/UDID for persons assessed below 40% in appropriate cases.
- Simplified pathway: application → assessment/specialist evaluation → competent authority/Medical Board review where applicable → determination of type and extent → disability certificate/UDID.

UDID – Unique Disability ID

- National system for disability certificates and a Unique Disability ID, that creates a national database and supports digital application/certification, renewal/updating and access to benefits/services.
- Designed to reduce duplication and make disability documentation more portable and accessible.

Accessibility, inclusivity, barrier-free approach & universal design

Accessibility: The quality of physical environments including transportation,

information, communication, education, employment, healthcare and public services by virtue of which people with diverse physical, sensory, cognitive, and intellectual abilities can use them fully, equally, and independently.

Barrier-free: a physical or digital space designed in such a way that people with diverse abilities can access, and use its facilities safely and independently without any physical, psychological, communication, attitudinal or technological barriers.

Universal design: design products, environments and services for the widest range of users without special adaptation wherever possible.

Inclusion: meaningful participation in mainstream education, employment, healthcare, recreation and community life.

Social security, welfare schemes & disability benefits

Monthly disability pension: welfare pension for persons with benchmark disability

Transport concessions in public transport buses and railway

Education: scholarships, educational assistance and tuition/examination-fee concessions may be available according to scheme/institution rules.

Examinations: eligible candidates may receive a scribe/assistance and compensatory or extra time according to applicable guidelines.

Higher education reservation: government and government-aided higher education institutions reserve not less than 5% of seats for persons with benchmark disabilities

Government employment reservation: the RPwD Act provides for not less than 4% reservation in government establishments for persons with benchmark disabilities

Other supports: assistive devices, rehabilitation, skill development, self-employment, caregiver support, healthcare and accessibility programmes by local bodies.

State Commissioner: the RPwD framework provides for a State Commissioner to monitor implementation of disability rights.

BUDS Schools: no-cost local-government-supported educational institutions for children with intellectual disabilities, with emphasis on education and life skills

BUDS Rehabilitation Centres: CBR and skill/livelihood-oriented support.

DEIC: District Early Intervention Centres provide early identification, assessment, intervention and referral for children with developmental problems/disabilities

5. MEDICINE, REHABILITATION & THE WORLD AROUND US

Know the concepts below and recognise their relevance to rehabilitation. For current affairs, revise recent developments close to the examination.

1. Regenerative medicine

Approaches such as cell-based therapies, tissue engineering, biomaterials and biologic signals aim to restore or replace damaged tissue/function. Know the concept, possible rehabilitation applications and the difference between established, emerging and experimental therapies.

2. Robotics and robotic rehabilitation

Robotic systems can provide repeated, measurable and task-specific practice. Examples include robotic gait trainers, exoskeletons and robotic upper-limb systems. Understand repetition, dose, feedback, task specificity, patient selection and integration with conventional therapy.

3. Virtual reality (VR)

Computer-generated interactive environments can be used for motor, balance, upper-limb, pain and cognitive rehabilitation. Know immersion, feedback, motivation and safety.

4. Telerehabilitation

Telecommunication technology can support assessment, education, exercise supervision and follow-up remotely. Know benefits such as reach and continuity, and limitations such as connectivity, privacy, digital literacy and need for hands-on assessment.

5. Artificial intelligence and digital rehabilitation

AI/ML are being explored for movement analysis, outcome prediction, personalised exercise, clinical decision support, speech/cognitive applications, documentation and remote monitoring. Know benefits and limitations including data quality, bias, explainability, privacy, validation and clinical oversight.

6. Advanced assistive technology

Includes powered mobility, advanced prostheses, orthotic technologies, communication devices, smart-home systems, wearable sensors and adaptive interfaces. The goal is improved function, independence, participation and quality of life.

7. Rehabilitation across the health system

Modern rehabilitation spans acute care, subacute care, community and long-term care. Key ideas include early rehabilitation, continuity, prevention of secondary disability, person-centred care, participation and rehabilitation in health-system planning.

Important national & international health days

Know dates and themes of major health, disability and rehabilitation observances, including World Health Day, International Day of Persons with Disabilities, World Physiotherapy Day, World Mental Health Day, World Stroke Day, World Osteoporosis Day and other major disease-specific observances. Revise the current year's officially announced themes where relevant.

WHO, UNICEF, UN and other major organisations

WHO: global public health agency of the UN system; develops guidance, classifications, standards and programmes.

UN: international organisation coordinating cooperation in health, development, human rights and humanitarian priorities.

UNICEF: focuses on children, including health, nutrition, development, education and protection.

Know the broad roles of major national and international health/disability organisations relevant to rehabilitation.

Current affairs

Revise recent developments in medicine, rehabilitation, disability policy, assistive technology, public health, major clinical innovations, national health programmes, important guidelines and landmark international health/disability initiatives. Focus on what changed, why it matters and where it applies.

For further details visit : https://iapmrkerala.com/rehabquest/

For Registration, fill the Google Form

https://docs.google.com/forms/d/e/1FAIpQLSd8h-NJFNLyt4rEKlAZdVZ-CAzmESBksjg9zfnKlxEdWjQz-g/viewform?usp=sharing&ouid=101489919540313375340

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KERALA CHAPTER

REHABQUEST

REHABQUEST 2027

IAPMR Kerala Undergraduate PM&R Quiz

WHO CAN PARTICIPATE?

- MBBS students from medical colleges across Kerala
- Teams of TWO students from the same institution

ROUND 1

Preliminary Round

- 7th January 2027 (Thursday)
- 2:30 PM – 3:30 PM
- Your Institution

From the top team of each college, **six best teams statewide qualify for the Grand Finale.**

ROUND 2

Grand Finale

- April/May 2027
- Venue will be announced later

GRAND PRIZES

First Prize
₹ 40,000
(cash prize)

Second Prize
₹ 30,000
(cash prize)

- Certificates & medals for the institution-level preliminary round winners
- Special prizes for all Grand Finale participants

SYLLABUS HIGHLIGHTS

- **Basic Sciences** Nervous and Musculoskeletal System
- **Selected Diseases** Nervous and Musculoskeletal System
- **Basic Concepts of** Rehabilitation, Disability and Health
- **Current Affairs** in Disability, Rehabilitation and Health

REGISTER NOW

Scan the QR code to Register
(through Google Form)

Registration Deadline
15th November 2026

For details please visit : https://iapmrkerala.com/rehabquest/ or
Contact the Department of Physical Medicine and Rehabilitation of your institution