

Career Planning

FCPS

**Physical Medicine
& Rehabilitation**



SYNAPSE
MEDICAL ACADEMY

Introduction

Physical Medicine & Rehabilitation deals with

- **Pharmacological treatment**
- **Non-pharmacological treatment**
- **Diagnostic intervention**
- **Therapeutic intervention**
- **Rehabilitation**
- **Orthotics & prosthetics**

Pharmacological Treatment

Rational use of

- NSAIDS
- Steroid
- DMARDs
- Biologics

Non-Pharmacological MX

- **Therapeutic exercises**
- **Electrotherapy**

Diagnostic Intervention

- **Musculoskeletal ultrasound**
- **NCS**
- **EMG**

Therapeutic Intervention

Ultrasonoguided injection

- **Steroid**
- **Nerve bock**
- **Neurolysis**
- **Hydrodessection**
- **Botulinum toxin injection**
- **Phenol injection**

Regenerative Medicine

- **Platelet rich plasma**
- **Growth factor concentrate**
- **Stem cell**

C-arm Machine guided

- **Nerve block**
- **Ozon gas disectomy**
- **PRP, GFC, Stem cell**

Rehabilitation

- **Cardiac Rehabilitation**
- **Pulmonary Rehabilitation**
- **Stroke Rehabilitation**
- **Pediatric Rehabilitation**
- **ICU Rehabilitation**
- **Cancer Rehabilitation**
- **Hospice & Palliative Rehabilitation etc**

Why Physical Medicine & Rehabilitation is Unique?

Pain medicine deals in

- Internal medicine
- Rheumatology
- Orthopaedics
- Neuromedicine+surgery
- Physiotherapist (forget all quacks)

But, Physical medicine has rehabilitation guideline, diagnostic & therapeutic intervention with exercise & electrotherapy.

Specific Dx with Rx

"Frozen shoulder" is a layman term, but widely used. But, pain in shoulder, it may be

1. Tendinitis in any muscle of rotator cuff
2. Bicipital tendinitis
3. Partial or full tear of any muscle
4. Adhesive capsulitis
5. Calcification in supraspinatus tendon
6. Acromioclavicular joint arthritis
7. Cervical radiculopathy etc

Every disease has specific treatment option.

A trained Physiatrist can make a specific dx with mx.

Benifits of FCPS over MD

- **Same honorarium, new curriculum adds 2 years rotation in various branch of medicine with mid term examination, but no para of 3 months block posting.**
- **FCPS is more reknowned degree in BD.**
- **Examinee can apply after completing internship. No year loss.**
- **No limitation of seat. MD seats 7 for Govt. 7 for private.**
- **Easier question than MD.**
- **Part-2 pass rate is high. In January, 2022 session there are 7 examinee, all are passed.**

PMR IN GOVT JOB

- **More than 15 Medical College Hospitals & 7 National Institute have PMR Dept.**
- **All other Medical College Hospitals & Zilla Sadar Hospitals Will start PMR Dept. soon**
- **Our Seniors try to create Junior Consultant post in every Upzilla Health Complex**
- **Alhamdulillah, 100 Junior consultant post have already created remains vacant.**
- **National PMR Institute will be built in Karaniganj, Dhaka & about 100 posts will be created.**

PMR in Private Job

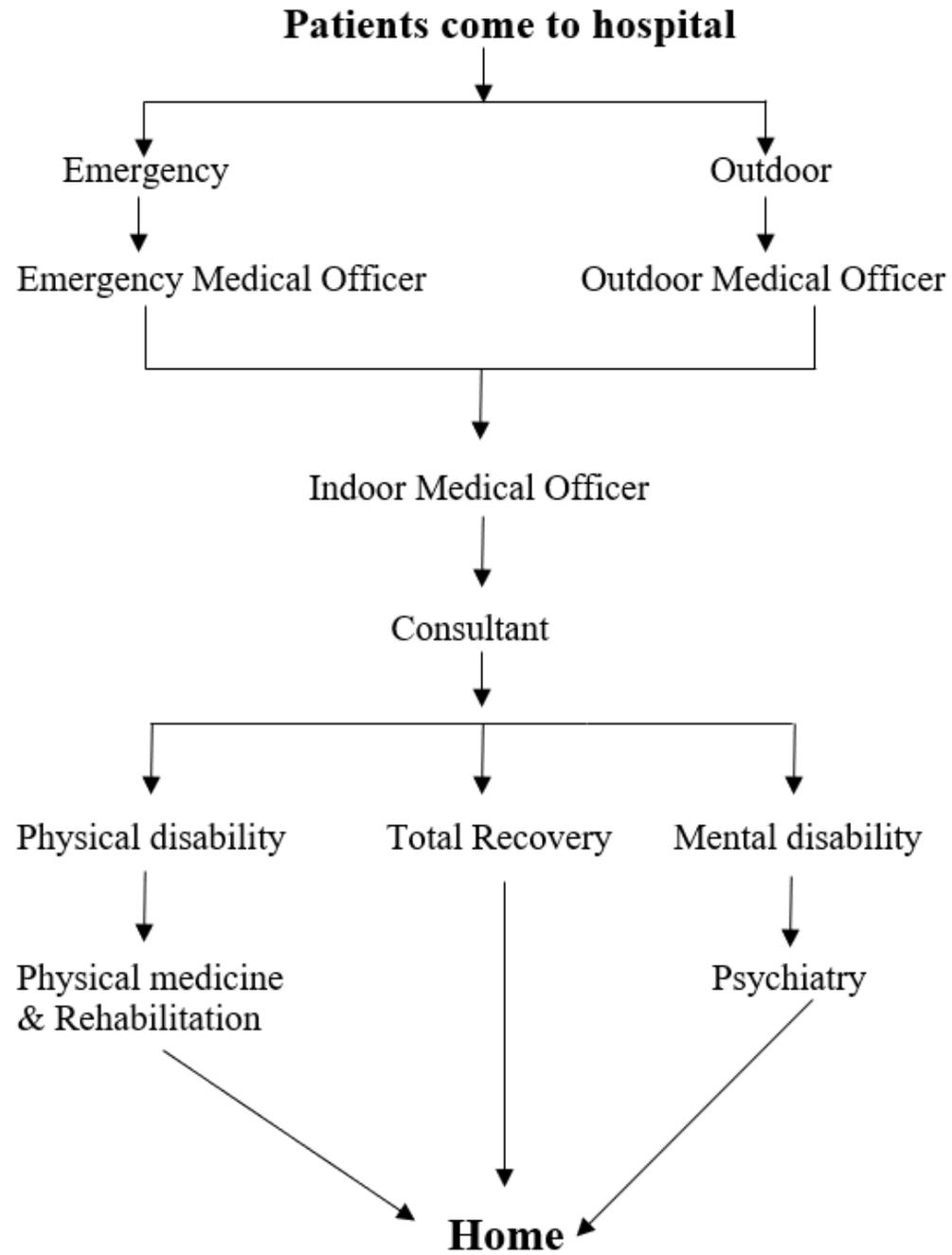
- All private medical college & hospitals start PMR Dept.
- Private chamber practice is good due to lack of specialist doctors.

Subspecialty will be opened in PMR

1. Brain Injury Medicine
2. Hospice & Palliative Medicine
3. Neuromuscular Medicine
4. Pain Medicine
5. Pediatric Rehabilitation Medicine
6. Spinal Cord Injury Medicine
7. Sports Medicine (Source: BCPS Curriculum)

I belief, INSHAALLAH

Each and every student who reads 6-8 hours everyday for 2 months according to guidelines of "Synapse Academic Class On FCPS Part-1 Physical Medicine Programs", will be pass in his/her first attempt.



LEARNING CONTENTS FOR FCPS PART-I PAPER I (ANATOMY)

1. Histology

- Basic histology (cells and different types of tissues, fascia, connective tissues, etc.)
- Histology of muscles, cartilage, bones, tendons, ligaments, nerves and their types.

2. Musculoskeletal System:

- Bones and their classification
- Joints and their classification

3. Upper limb and Lower limb

- Muscles
- Bones
- Joints of upper, lower limbs and their movements
- Vascular supply
- Nerve supply
- Applied anatomy

4. Spine

- **Muscles**
- **Bones**
- **Joints of vertebra and their movements**
- **Vascular supply**
- **Nerve supply**
- **Applied anatomy**

5. Nervous system

- **Organization of nervous system**
- **Neurobiology of neuron and neuroglia**
- **Spinal cord and ascending/ descending tracts**
- **Brainstem & cerebellum**
- **Cerebral cortex**
- **Basal ganglia, thalamus/ hypothalamus**
- **Cranial nerves, peripheral nerves**
- **Ventricular system, CSF, meninges of brain & spinal cord**
- **Blood supply of brain & spinal cord**

6. Thorax

- Thoracic wall and diaphragm
- Joints of ribs, sternum, vertebra
- Intercostal spaces and intercostals nerves
- Division of mediastinum
- Pericardium and heart (with their vascular & nerve supply)
- Pleura and lungs (with vascular & nerve supply)

7. Genito-urinary system

- Pelvic floor
- Urinary bladder & ureters (with vascular & verve supply)
- Control of micturition

8. Endocrine System

- Anatomy of pancreas, thyroid and parathyroid glands and their functions.

9. Embryology:

- Embryology of muscular system
- Embryology of skeletal system
- Congenital malformation

References:

1. Clinical Anatomy: Richard S Snell
2. Clinical Neuroanatomy: Richard S Snell
3. BD Chaurasia's Human Anatomy.
 - a. Volume 1 (upper limb & Thorax)
 - b. Volume 2 (Lower limb, Abdomen & Pelvis)
 - c. Volume 3 (Head-Neck, Brain)
4. Essentials of Human Anatomy: A. K Dutta
5. Grays Anatomy
6. Atlas of Human Anatomy-Nectar

PAPER II

(PHYSIOLOGY, PHYSICS & ELECTRONICS) GROUP-A: PHYSIOLOGY

1. General Physiology

- General & cellular basis of medical physiology including water & electrolyte balance/ extra & intra cellular fluid volume. Acid base balance.
- Physiology of rest, activity & fatigue.
- Physiology of muscle cells.
- Nervous system
- Basic concept of nerve tissues, Action potentials, resting & evoked potentials.
- Properties of mixed nerve.
- Nerve fiber types & function
- Motor unit, synapses & receptors including uptakes & release of transmitters.

2. Physiology of pain, thermal sensation, position senses, tactile sensation.

- Reflexes, cutaneous sensation
- Control of posture and movement
- Electrophysiology of nerve & muscles, EMG, ECG, NCV
- Function of nervous system: Mono & poly synaptic reflex, general properties of reflex.

a. Cardiorespiratory system

- Cardiovascular regulatory mechanism
- Pulmonary regulation
- Pulmonary ventilation: volumes & capacities
- Cardiac output, Cardiac reserve, coronary circulation
- Respiratory failure, Cardiac failure

b. Urinary system

- Physiology & nervous connection of bladder
- Mechanism of maturation.
- Uro-dynamics

c. Digestive system

- Physiology of gastric secretion.
- Digestion, absorption and metabolism of food, water electrolytes, vitamin & minerals

d. Joint kinesiology

- Biomechanics
- Range of motion of different joints
- Measurements
- Clinical applications

3. Sports physiology

- **Muscles in exercise**
- **Respiration in exercise**
- **Cardiovascular system, body heat, body fluid & salt in exercise**
- **Effect of athletic training on muscle & muscle performance**

4. Geriatric Medicine:

- **Normal aging process, Physiological changes with ages.**

References:

- 1. Ganong Review of Medical Physiology-KE Burrett, SM Barman**
- 2. Guyton & Hall Textbook of Medical Physiology-John E, Hall**
- 3. General Physiology-Walter & Israel**
- 4. CC Chatterjee's Human Physiology- CC Chatterjee**
- 5. BRS Physiology-Linda S. Costanzo**

GROUP-B: PHYSICS & ELECTRONICS

1. Basics of electrotherapy

- **Current:** Introduction, mode of action & diagnostic values. Types of current: Direct, alternative faradic, galvanic current.
- **Reaction of degeneration:** IT curve
- **Electric shock & its management**
- **Electromagnetic spectrum**

2. Therapeutic heat & cold

- **Physiological effects of therapeutic heat**
- **Superficial heating modalities**
- **Physiology & therapeutic effect of cold**
- **Indication & contraindication**
- **Hydrotherapy**
- **Contrast bath.**
- **Wax bath**

3. Lights

- **Infra-red rays & visible light.**
- **Ultraviolet ray: Source, uses, indication & contraindications.**

4. Deep heat modalities

- **Short wave diathermy**
- **Microwave diathermy**
- **Ultrasound diathermy**

5. LASER therapy

- **Sources, use in physiatry, mechanism of action, indication & contraindication.**

6. Electrotherapy

- **TENS & IFT**
- **Iontophoresis**
- **FES equipment, mode of action, indication & limitation**
- **Electrical stimulation of nerve & muscles**
- **Basic guide lines for the application of electrotherapy**
- **Biofeedback**
- **Vibration**

7. Therapeutic exercise

- **Definition & types of exercise**
- **Objective & principles of exercise**
- **Exercise abuse**
- **Therapeutic exercise to maintain mobility, develop strength & neuromuscular coordination**

8. Diagnostic Ultrasonogram in musculoskeletal system

- **General sonoanatomy**
- **Knobology**
- **Indications.**
- **Advantages**

References:

- 1. Krusen's Handbook of Physical Medicine & Rehabilitation- Kottke/Lehmann**
- 2. Electrotherapy explained: Principles and Practice-Val Robertson, Alexander, John and Ann reed.**

PAPER III
(PATHOLOGY, PHARMACOLOGY & BIostatISTICS)
GROUP-A: GENERAL PATHOLOGY

- 1. Inflammation and repair**
- 2. Haemorrhage, thrombosis, embolism and infarction**
- 3. Auto-Immune disease and immunology related to MSK & CNS**
- 4. Degenerative joint disease**
- 5. Metabolic joint disease**
- 6. Pathology of bronchitis, bronchiectasis, lung abscess and fibrosis of lung.**
- 7. Pathology of stroke, degenerative disease of the nervous system, peripheral neuropathy, nerve injuries, encephalitis.**
- 8. Pathology of diseases of muscle**
- 9. Pathology of thrombophlebitis, atherosclerosis, IHD**
- 10. Pathology of pelvic inflammatory disease**
- 11. Pathology of Diabetes cushing syndrome**
- 12. Pathology of scleroderma, psoriasis.**

References:

- 1. Robbin's Basic Pathology-Kumar, Abbas, Aster**
- 2. Pathophysiology of Disease: Gary D. Hammer, Stephen J. Mephee**
- 3. Lange Review of Medical Microbiology and Immunology- Ernest Jawetz and E. Levinson**
- 4. Kuby Immunology- Barbara Anne Osborne, Janis Kuby.**

GROUP-B: PHARMACOLOGY:

1. General Pharmacology

- Mode of action of drugs
- Drug receptor
- Drug reaction
- Risk of prolong continuation of drugs
- Drug Biotransformation

2. Different drugs and their uses

- NASIDS.
- DMARDS.
- Steroids-uses and complications
- Cerebral and peripheral vasodilators
- Drugs and athletes
- Skeletal muscle relaxants, local anaesthesia
- Drug use in Asthma
- Drugs used to treat disorder related to nervous system
- Drug used peptic ulcer, IBS
- Drug used in DM Hypothyroidism, Hyperthyroidism
- Drug used in Hypertension, coronary vasodilators, Anti-arrhythmic drugs
- Diuretics
- Antibiotics & Antimicrobial agent
- Anti-depressant
- Drugs use in Gout
- Drugs use in Parkinsons disease and other movement disorder

References:

1. **Basic and Clinical Pharmacology-Katzung**
2. **Lipincott Pharmacology-Michelle A. Clark, Richard Finkel**
3. **Goodman & Gilman's- The Pharmacological Basis of therapeutics-Laurance L. Bruton, Rander Hilal-Dandan.**

GROUP-C: BIostatISTICS:

- **Basic concept of biostatistics: Definition, importance, uses, scope and limitation**
- **Principle of research and research ethics**
- **Development of research questions**
- **Research design and ethical consideration**
- **Various types of research**
- **Select of subject and sampling**
- **Method of data collection.**
- **Data presentation and analysis**
- **Writing report for publication/ Dissertation**

References:

1. **Inroductory Biostatistics-Chap T. Le, Lynn E. Eberly**
2. **Principles of Biosatistics -Marcello Pagano, Kimberlee Gauvreau**
3. **Principles and Practice of Biosatistics - Belavendra Antonisamy, Prasanna S Premkumar**

FCPS P-1, Jan 24

Physical Medicine & Rehabilitation

Class Day: Thursday

Basic Class Schedule

Time: 03.00 / 07.00 PM

SL	Class Topic
	Physiology
01	GP & Respiratory Physiology
02	CVS Physiology
03	Neurophysiology
04	Endocrine Physiology
05	GIT Physiology
06	Renal Physiology
07	Blood Physiology
	Pathology & Biochemistry
08	Cell Injury, Inflammation
09	Neoplasm
10	Immunology
11	Genetics, Healing Hemodynamics & Tissue Repair
12	Biochemistry
	Microbiology
13	General & Autonomic Pharmacology
14	Systemic Pharmacology
15	Virology, Parasitology, Mycology
16	General & Systemic Bacteriology
	Anatomy
17	Neuroanatomy
18	Abdomen-1
19	Abdomen-2
20	Embryology
21	Head-Neck
22	Extremity
23	Thorax
24	Histology

N.B: Schedule can be changed due to unavoidable circumstances.



SYNAPSE
MEDICAL ACADEMY

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FCPS P-1, Jan 24

Physical Medicine & Rehabilitation

Class Day: Sunday

Clinical Class Schedule

Time: 03.00 / 07.00 PM

SL	Class Topic
01	Upper Limb
02	Lower Limb
03	Neuroanatomy
04	Head neck + Thorax+ Abdomen
05	Special physiology
06	Electrotherapy 1
07	Electrotherapy 2
08	Electrotherapy 3
09	Embryology + Histology
10	Special pharmacology
11	Rheumatology 1
12	Rheumatology 2
13	Rheumatology 3
14	Neurology 1
15	Neurology 2
16	Stroke + Geriatric medicine

N.B: Schedule can be changed due to unavoidable circumstances.

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Previous Questions

1. The Facial Nerve

- a) Passes medial to the styloid process (F)
- b) Lies medial to the external carotid artery (F)
- c) Carries secretomotor fibres to the parotid gland (F)
- d) Innervates the temporalis muscle (F)
- e) Leaves the skull through the stylomastoid foramen(T)

2. The Deltoid muscle

- a) Is a unipennate muscle (F)
- b) Overlies the subacromial bursa (T)
- c) Is proximally attached to the clavicle, acromion and scapular spine (T)
- d) Is distally attach to anterior upper third of the humerus (F)
- e) Is supplied by the radial nerve (F)

3. Pain

- a) Subjective feeling (T)
- b) Transmit through lateral spinothalamic tract(T)
- c) Cerebello spinal tract/lateral Corticospinal tract(F)
- d) Can't produce due to tissue injury (F)
- e) Partly related to nociceptor (T)

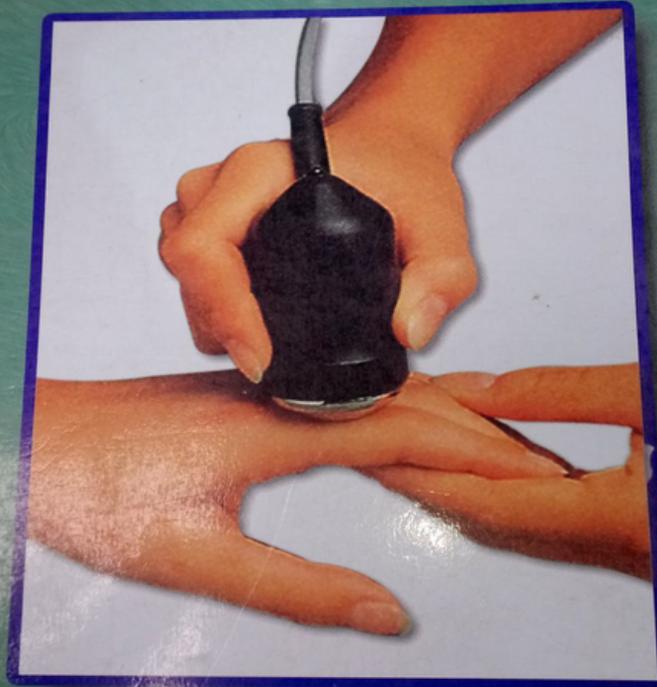
4. Therapeutic cold

- a) Long lasting cutaneous vasoconstriction (F)
- b) Contraindication in acute gouty arthritis (F)
- c) Slow healing process (T)
- d) Can be used rheumatoid hand joint (T)
- e) Reduced muscle spasm (T)

5. DMARDs safe in pregnancy

- a) Hydroxychloroquine(T)**
- b) Methotrexate(F)**
- c) Sulfasalazine(T)**
- d) Thalidomide(F)**
- e) TNF inhibitors (T)**

Basic ELECTROTHERAPY



DR. MOHD. TASLIM UDDIN, MBBS, FCPS

THANK
YOU