

Exam topics in the subject Dynamic Anatomy-1 for the 2nd year students of the Department of Physical Medicine and Rehabilitation. The 3rd Semester, Academic Year 2022-2023

1. Human body as a biomechanical system. Morpho-functional features of the human body.
2. Human body coordinate system: axes and planes.
3. A general concept of the center of gravity in the human body.
4. Human movement apparatus: passive component – bones and skeletal tree. Their role in various types of movement.
5. Morpho-functional characteristics of bones and joints.
6. Human locomotor apparatus: active component – muscles.
7. Morpho-functional characteristics of muscles. Biokinetic pairs and chains.
8. Muscle tone. Types of muscle action.
9. Antagonism and synergism. Age-related changes in muscle tone, weight and strength. Registration of muscle bioelectrical activity and its state-related changes.
10. Factors determining muscle strength. Dynamometry.
11. Morpho-functional changes in bones and muscles during ontogenesis. Age- and sex-related changes in bone and muscle biodynamics.
12. Osteoporosis and osteopenia. Densitometry.
13. Muscle strength and its gradient, velocity and speed in action.
14. Factors affecting it; training. Flexibility of movement.
15. Range of movement in joints and methods of its recording. Pedagogical aspects of formation and development of flexibility of movement.
16. Vertebral column. Spinal cord. Its role in regulation of somatic and conducting functions.
17. Role of nervous system in movement control.
18. Static and statokinetic reflexes in medulla and midbrain.
19. Major CNS pathways. Their classification and role in physical activity.
20. Role of human sensory systems and their importance in physical overworking.

21. Role of vegetative nervous system in metabolic supply to muscles.
22. Biodynamics of skeleton and trunk – mechanism of movement of trunk and head.
23. Movement of vertebral column and head.
24. Biodynamics of the thoracic cage.
25. Mechanisms of upper limb movement: movement of shoulder girdle.
26. Articulations and movement of the free part of upper limbs: articulations and movements of arm.
27. Articulations and movements of forearm.