



STUDY GUIDE

Alteration in Musculoskeletal Coordination

Our skeletal and muscular systems coordinate with each other to create one of the most important functions of human beings – mobility or ambulation. Imagine yourself incapable of moving because of pain, inflammation, weakness, or broken bones. You know from your basic anatomy and physiology course that the skeletal system provides the framework or structure which gives shape and support, while the muscular system contributes by stabilizing body position and producing movements. Being able to move, walk, or run around can be equated feeling well, while immobility equated to feeling ill – a deviation from the normal functions of daily living.

In this study guide, you will find out and learn about the five common alterations or conditions of the musculoskeletal system, and their different risk factors, pathophysiologic events, and clinical manifestations.

Learning Outcomes

1. Identifies etiologic and predisposing/risk factors related to the common alterations in musculoskeletal coordination
2. Derives sequence of pathophysiologic events
3. Describes common manifestations as they relate to specific alterations.
4. Recognizes the universality of the pathophysiologic mechanism of specific altered regulatory functions

Learning Activities

Topic/Content	Methodology	Assessment
Review of the Musculoskeletal System	Lecture Video	Pre-Topic Quiz
Alterations in Musculoskeletal Coordination <ul style="list-style-type: none">● Metabolic (osteoporosis)● Degenerative (osteoarthritis)● Inflammatory (rheumatoid arthritis)● Infectious (osteomyelitis)● Trauma (sprains, strains, fractures and dislocations)	Lecture Videos	Self-Check Form

Self-Check: Alterations in Musculoskeletal Coordination (Musculoskeletal System)

Fill out this form as or after you view the lecture slides. Make use of this in our discussion forum.

Summary/Description	
New/useful concepts I learned: 1. 2. 3.	
Least useful concepts: 1. 2. 3.	
What have you learned about your learning strategies?	1. 2.
Insights: <i>I used to think _____ but after reading articles and watching videos, I _____</i>	

Resource Person

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Supplemental materials

Price, S. and Wilson, L.M. (1992) (4th ed.). Pathophysiology: clinical concepts of disease problems. St. Louis: Mosby Year Book

Disorders of the Muscular and Skeletal System - <https://youtu.be/0qksc4kqSjM?t=32>

Bone Fractures - <https://youtu.be/sIcAUxy5X64?t=33>

Introduction to Metabolic Bone Diseases - <https://youtu.be/3MwLWv30SZk?t=11>

A Review of Bone Infections - https://youtu.be/Ed2ss4034_0?t=6

Pre-Topic Quiz on Alterations in Function and Coordination of the Musculoskeletal System:

1. Which disorder occurs more commonly in children than adults?
A. Osteoarthritis B. Osteomyelitis C. Osteomalacia D. Osteoporosis

2. An athlete is most likely to experience injury in which type of joint?
A. Synarthrosis B. Amphiarthrosis C. Diarthrosis D. Synovial

3. An elderly woman complains of progressively worsening pain in one knee that's more severe in the morning when she arises. This pain is most likely caused by which disorder?
A. Rheumatoid arthritis (RA)
B. Systemic Lupus Erythematosus (SLE)
C. Gouty arthritis
D. Osteoarthritis

4. Fractures, especially in the pelvic area and other parts of the body cavity may cause:
A. Hyperesthesia of the affected skin C. Full function of the part
B. Hemorrhage into the tissues D. Petechiae

5. This test, if positive, gives a specificity of 89% and a sensitivity of 85% that a person is suffering from Carpal Tunnel Syndrome:
A. Maxwell's sign B. Trousseau's sign C. Phalen's sign D. Rovsing's sign

6. Which types of muscles make up most of the musculoskeletal system?
A. Striated and involuntary C. Striated and voluntary
B. Smooth and voluntary D. Smooth and involuntary

7. Osteoporosis is characterized by:
A. porosity and brittleness C. crystal deposition and brittleness
B. brittleness and swelling of the joints D. progressive inflammatory destruction

8. Attempting to push an object that is too heavy to move is an example of what kind of muscle contraction?
A. isotonic B. concentric C. flaccid D. tetanic

9. While playing football, a young athlete had a spontaneous fracture on the tibia. Upon biopsy, the attending found a benign bone tumor with:
A. a uniform and well-defined lytic
B. a moth-eaten pattern of bone destruction
C. a bone merging abnormally with surrounding normal bone tissue

- D. an area of partially destroyed bone next to completely lytic areas
10. In patients with gout:
- A. There is a chronic inflammation characterized by stiffening of joints
 - B. Recurrent fractures occur
 - C. There is a high level of uric acid in the synovial fluid
 - D. Persistent pain that worsens at night is felt without observable swelling

Post-Topic Quiz:

To be uploaded in VLE