

SKELETAL, VISION, AND HEARING DISORDERS

Objectives:

1. Explain the mechanism of bone remodeling including the RANK/RANKL/OPG signaling pathway.
2. Describe how osteopenia and osteoporosis develop and how they differ. Discuss risk factors and treatment options.
3. Discuss how bone density is measured and why age is an important factor.
4. Describe the similarities and differences between Rickets and osteomalacia.
5. Describe Paget's disease and the symptoms of this condition.
6. Compare and contrast osteoarthritis and rheumatoid arthritis.
7. Describe gout and how it occurs, making sure to explain the role of uric acid.
8. Describe conditions of inflammation that affect the structures of the external eye.
9. Explain the pathogenesis of retinopathy and how it is treated.
10. Explain the different types of retinal detachment.
11. Explain the pathogenesis of age-related macular degeneration.
12. Describe how glaucoma occurs, its indications, and treatment options.
13. Explain some types of disorders of the lens and of visual neural pathways.
14. Describe the different types of otitis.
15. Describe otosclerosis, tinnitus, and the different types of hearing loss.

Vocabulary:

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| • Age-related macular degeneration (AMD) | • Fovea centralis | • Osteomalacia |
| • Anopsia | • Fibrillations | • Osteopenia |
| • Astigmatism | • Glaucoma (types) | • Osteophyte |
| • Blepharitis | • Gout | • Osteoporosis |
| • Bone mineral density | • Heberden's nodes | • Otitis |
| • Bouchard's nodes | • Hemianopsia | • Otosclerosis |
| • Cataracts | • Hordeolum (stye) | • Paget's disease |
| • Chalazion | • Hyperopia | • Pannus |
| • Conjunctivitis | • Intraocular pressure | • Pericytes |
| • Cotton wool spots | • Keratitis | • Presbyopia |
| • Diabetic retinopathy | • Macula lutea | • RANK/RANKL |
| • Drusen | • Myopia | • Rheumatoid arthritis |
| • Dry and wet macular degeneration | • Neovascularization | • Rickets |
| • Eburnation | • OPG | • Sjogren's syndrome |
| | • Optic disc | • Tinnitus (types) |
| | • Osteoarthritis | • Tophi |

Disorders of the Skeletal System
Mechanisms of Bone Remodeling
Osteopenia and Osteoporosis
Osteomalacia, Rickets, and Paget's Disease
Osteoarthritis (OA)
Rheumatoid Arthritis (RA)
Gout
Vision and Hearing Disorders
Conjunctivitis
The Retina, Retinopathies, and Retinal Detachment
Macular Degeneration
Glaucoma
Disorders of the Lens
Disorders of Neural Pathways
Disorders of the Ear - Otitis
Disorders of the Ear - Otosclerosis, Tinnitus, and Hearing Loss



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