**HISTOLOGY**

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| **Topic from****HAPS Guidelines** | **Learning Outcome** | **Tortora** | **HTHS 1110 Objectives** |
| Overview of histology & tissue types | 1. Define the term histology.
 | 4.1 |  |
| 1. List the four major tissue types.
 | 4.1 | Module 7 Objective 2. Name the four types of tissue found in the human body.  |
| 1. Contrast the general features of the four major tissue types.
 | 4.1 | Module 7 Objective 2. Name the four types of tissue found in the human body. |
| Microscopic anatomy, location, & functional roles of epithelial tissue | 1. Classify the different types of epithelial tissues based on distinguishing structural characteristics.
 | 4.3 | Module 7 Objective 3. Describe, for epithelial tissue, basic structural features and naming conventions. |
| 1. Identify locations in the body where each type of epithelial tissue can be found.
 | 4.3 | Module 7 Objective 4. For each of the eight epithelial types, describe its unique structural features and name at least one location where it may be found. |
| 1. Describe the functions of each type of epithelial tissue in the human body and correlate function with structure for each tissue type.
 | 4.3 | Module 7 Objective 4. For each of the eight epithelial types, describe its unique structural features and name at least one location where it may be found. |
| 1. Identify the different types of epithelial tissue using proper microscope technique.
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| 1. Describe how injuries and aging affect epithelial tissue.
 | 4.10 |  |
| Microscopic anatomy, location, & functional roles of connective tissue | 1. Classify the different types of connective tissues based on distinguishing structural characteristics.
 | 4.4 | Module 7 Objective 7. Describe the basic features and cell types of connective tissue. |
| 1. Identify locations in the body where each type of connective tissue can be found.
 | 4.4 | Module 7 Objective 9. Be able to define, and give examples of, the following connective tissue types: loose connective tissue; dense connective tissue; cartilage; bone; liquid.  |
| 1. Describe functions of each type of connective tissue in the human body and correlate function with structure for each tissue type.
 | 4.4 | Module 7 Objective 9. Be able to define, and give examples of, the following connective tissue types: loose connective tissue; dense connective tissue; cartilage; bone; liquid.  |
| 1. Compare and contrast the roles of individual cell types and fiber types within connective tissue.
 | 4.4 | Module 7 Objective 7. Describe the basic features and cell types of connective tissue. |
| 1. Identify the different types of connective tissue using proper microscope technique.
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| 1. Describe how injuries and aging affect connective tissue.
 | 4.10 | Module 7 Objective 8. Compare and contrast embryonic and mature connective tissues. |
| Microscopic anatomy, location, & functional roles of muscular tissue | 1. Classify the different types of muscle tissues based on distinguishing structural characteristics and location in the body.
 | 4.6 | Module 7 Objective 11. Define, and identify key features of, muscular tissue.  |
| 1. Describe functions of each type of muscle tissue in the human body and correlate function with structure for each tissue type.
 | 4.6 |
| 1. Identify the different types of muscle tissue using proper microscope technique.
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| 1. Describe how injuries and aging affect muscular tissue.
 | 4.10 |
| Microscopic anatomy, location, & functional roles of nervous tissue | 1. Identify locations in the body where nervous tissue can be found.
 | 4.7 | Module 7 Objective 12. Define, and identify key features of, nervous tissue.  |
| 1. Describe the structure and function of neurons and neuroglial cells in nervous tissue and correlate function with structure for the different types of neuroglial cells.
 | 4.712.2 |
| 1. Identify neurons and neuroglial cells using proper microscope technique.
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| 1. Describe how injuries and aging affect nervous tissue.
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| Membranes (mucous, serous, cutaneous & synovial) | 1. Describe the structure and function of mucous, serous, cutaneous & synovial membranes.
 | 4.5 | Module 7 Objective 10. Define, and name key features of, the different types of epithelial membrane: mucous, serous, and cutaneous. Compare and contrast epithelial and synovial membranes.  |
| 1. Identify locations in the body where each type of membrane can be found.
 | 4.5 |
| Glands (exocrine vs. endocrine) | 1. Distinguish between exocrine and endocrine glands, structurally and functionally.
 | 4.3 | Module 7 Objective 5. Recognize each of the eight types of epithelial gland. |
| 1. Identify example locations in the body of exocrine and endocrine glands.
 | 4.3 | Module 7 Objective 6. Define merocrine, apocrine and holocrine secretion, and give examples of each. |
| 1. Classify the different kinds of exocrine glands based on structure and function.
 | 4.3 | Module 7 Objective 6. Define merocrine, apocrine and holocrine secretion, and give examples of each. |
| Tissue repair | 1. Describe the stages in tissue repair following an injury.
 | 4.9 | Module 7 Objective 22. Describe the process of tissue and wound repair. |

**INTEGUMENTARY SYSTEM**

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| **Topic from****HAPS Guidelines** | **Learning Outcome** | **Tortora** | **HTHS 1110 Objectives** |
| General functions of the skin & the subcutaneous layer | 1. Describe the general functions of the skin.
 | 5.4 | Module 7 Objective 13. Describe general functions of the skin and the subcutaneous layer. |
| 1. Describe the general functions of the subcutaneous layer (also known as the hypodermis or superficial fascia).
 | 5.4 |
| Gross & microscopic anatomy of skin  | 1. With respect to the epidermis:
 |  | Module 7 Objective 14. Identify and describe the tissue type making up the epidermis. Identify and describe layers of the epidermis. Compare and contrast thick and thin skin, giving examples of where each may be found. Describe the processes of growth and keratinization of the epidermis. |
| * 1. Identify and describe the tissue type making up the epidermis.
 | 5.1 |
| * 1. Identify and describe the layers of the epidermis, indicating which are found in thin skin and which are found in thick skin.
 | 5.1 |
| * 1. Correlate the structure of thick and thin skin with the locations in the body where each are found.
 | 5.3 |
| * 1. Describe the processes of growth and keratinization of the epidermis.
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| 1. Identify and describe the dermis and its layers, including the tissue types making up each dermal layer.
 | 5.1 | Module 7 Objective 15. Identify and describe the dermis and its layers. Know the tissue types that make up each layer. |
| 1. Identify and describe the subcutaneous tissue, including the tissue types making up subcutaneous tissue.
 | 5.1 | Module 7 Objective 16. Identify and describe the subcutaneous tissue. Know the tissue types that make up the subcutaneous tissue. |
| 1. With respect to skin color:
 |  | Module 7 Objective 17. Identify and describe the three main skin pigments. Know which layer of the skin contains each pigment. |
| * 1. Identify and describe the three pigments most responsible for producing the various skin colors.
 | 5.1 |
| * 1. Identify which layers of the skin contain each of these pigments.
 | 5.1 |
| Roles of specific tissue layers of skin & the subcutaneous layer | 1. With respect to the epidermis:
 |  | Module 7 Objective 18. Epidermis.a. Describe the functions of the epidermis.b. Explain how each of the layers and their cell types (stem cells, keratinocytes, melanocytes, Langerhans cells, Merkel cells and discs) and substances (keratin, extracellular lipids) contribute to the function of the epidermis.c. Explain the relationship between structure and function of the epidermis.  |
| 1. Describe the functions of the epidermis.
 | 5.15.4 |
| 1. Explain how each of the five layers, as well as each of the following cell types and substances, contributes to the functions of the epidermis: stem cells of stratum basale, keratinocytes, melanocytes, Langerhans cells, Merkel cells and discs, keratin, and extracellular lipids.
 | 5.1 |
| 1. Explain why the histology of the epidermis is well suited for its functions.
 | 5.1 |
| 1. With respect to the dermis:
 |  | Module 7 Objective 19. Dermis.a. Describe the functions of the dermis.b. Explain how each of the layers contribute to the function of the dermis.c. Be able to evaluate advantages and disadvantages of papillary and reticular layers and regions. |
| 1. Describe the overall functions of the dermis.
 | 5.1 |
| 1. Describe the specific function of each dermal layer and relate that function to the skin’s overall functions.
 | 5.1 |
| 1. Evaluate the advantages and disadvantages of the structure of the papillary and the reticular layers/regions.
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| 1. With respect to the subcutaneous layer:
 |  | Module 7 Objective 20. Subcutaneous layer.a. Describe the functions of the subcutaneous layer.b. Understand the importance of areolar connective tissue in the subcutaneous layer. |
| 1. Describe the functions of the subcutaneous layer.
 | 5.4 |
| 1. Evaluate the advantages and disadvantages of having areolar connective tissue in this layer.
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| 1. Analyze the benefits of skin being a multilayered organ.
 |  | Module 7 Objective 21. Analyze the benefits of multiple layers in the skin. |
| 1. Describe the process of tissue or wound repair.
 | 5.5 | Module 7 Objective 22. Describe the process of tissue and wound repair. |
| 1. Describe the thermoregulatory role played by adipose tissue in the subcutaneous layer.
 |  | Module 7 Objective 23. Understand and describe the thermoregulatory role of subcutaneous adipose tissue. |
| 1. Analyze the changes in skin structure and function that occur with aging.
 | 5.7 | Module 7 Objective 24. Identify and describe the changes in skin structure and function that occur with aging. |
| Anatomy & functional roles of accessory structures | 1. With respect to the following - sweat glands (eccrine and apocrine), sebaceous glands, nails, hair (follicle and arrector pili muscle), and sensory receptors (Merkel cell, Meissner’s & Pacinian corpuscles, hair follicle receptor, and temperature receptors):
 |  | Module 7 Objective 25. For each of the following structures, give the location of each structure, describe its anatomy, and demonstrate knowledge of its function.a. Sweat glands (eccrine and apocrine)b. Nailsc. Hair (follicle and piloerection)d. Sensory receptors  |
| 1. Identify each structure.
 | 5.2 |
| 1. Give the location of each structure in the body.
 | 5.2 |
| 1. Describe the anatomy of each structure.
 | 5.2 |
| 1. Describe the function of each structure.
 | 5.2 |
| 1. Describe the growth cycles of hair follicles and the growth of hairs.
 | 5.2 | Module 7 Objective 26. Describe the growth cycles of hair follicles and the growth of hairs. |
| 1. Explain the physiological importance of the presence or absence of sebaceous glands, sweat glands, and hair in the skin of the palms and fingers.
 | 5.2 | Module 7 Objective 27. Describe the presence or absence of sebaceous glands, sweat glands, and hair in the skin of the palms and fingers. Explain the physiological significance of this arrangement. |
| Application of homeostatic mechanisms | 1. Provide specific examples to demonstrate how the integumentary system responds to maintain homeostasis in the body.
 |  | Module 7 Objective 28. Provide examples of homeostatic mechanisms controlled in whole or in part by the integumentary system.  |
| 1. Explain how the integumentary system relates to other body systems to maintain homeostasis.
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| Predictions related to homeostatic imbalance, including disease states & disorders | 1. Predict factors or situations affecting the integumentary system that could disrupt homeostasis.
 |  | Module 7 Objective 29. Predict which normal circumstances or disease states could disrupt homeostasis in the integument. Predict the outcome(s) from these disruptions in homeostasis. [burns, abnormal flora, decubitus ulcers] |
| 1. Predict the types of problems that would occur in the body if the integumentary system could not maintain homeostasis.
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