10.1: Lab 10: The Muscular and Integumentary Systems

Measurable Outcomes

- Name the anatomical structures of integumentary and muscular systems on available models.
- Distinguish between the types of muscular tissue from histology slides.
- Determine the layers of the integument from histology slides.
- Demonstrate an adequate understand of the material in this section.

Background

The body's first line of defense against pathogens and other microbes is the skin. The skin is multi-layered and it functions to maintain homeostasis, retain water, synthesize vitamin D and regulate body temperature (thermoregulation). It is made of two chief layers: the **epidermis**, made of closely packed epithelial cells, and the **dermis**, made of dense, irregular connective tissue which houses blood vessels, **hair follicles**, **sweat glands**, and other structures. Beneath the **dermis** lies the **hypodermis**, which is composed mainly of loose connective and fatty tissues. One of skin's accessory structures, **nails**, are considered to be specialized structures of the epidermis found at the tips of fingers and toes. Other accessory structures, **sudoriferous glands**, produce sweat which cools the body by evaporation. Skin is the largest continuous organ of the body, encompassing approximately 16 percent of our body weight.

The muscular system is an intricate network of contractile tissue which works antagonistically in order to move the body. The action of walking requires roughly 200 different muscles alone. Besides skeletal muscles, there are also cardiac muscle and smooth muscle. Cardiac muscle is found uniquely in the heart and is responsible for pumping blood through the circulatory system. Smooth muscle is the type of muscle involved in involuntary movements such as peristalsis.
which propel boluses through the GI tract. Skeletal muscle is also known as striated muscle, as is cardiac muscle. As you approach the muscles in this lab, make note of which muscles may be named after their shape and which ones may be named after their location or their attachments to the skeleton. Individually, all cells, with the exception of sperm, are unable to move on their own. Nevertheless, with bones as their scaffold, muscles are able to produce movement through a complex series of metabolic reactions.

**Vocabulary for Muscles and Integumentary systems can be found on page(s) 166-167 and 166.**