

4.1

STRUCTURE AND FUNCTION OF THE INTEGUMENTARY SYSTEM

The integumentary system is the largest organ system in the body. It is composed of the skin, hair, nails, and several types of glands. Think about what an amazing organ our skin is. It is waterproof and prevents us from drying out. When you pull on it, it stretches and when you let go it returns to its original position. When we move it moves with us without binding or impairing our mobility. It cools us when we are hot and helps keep us warm when it is cold. It is extremely strong and protects us from mechanical damage. In addition to these properties, the fact that it is the only organ system that we can actually see, many of us spend much time and money caring for it. Think of the money you spend on skin and hair products. Think of how much time you spend making sure that your skin is clean and nice smelling and that your hair is carefully combed before you go out in public. Think of how embarrassed you were when you got your first pimple. I think you will agree that this is an amazing system.

Owing to its superficial location, changes in the integumentary system are easily seen and can be used to detect physiological imbalances in the body. For example, pale or flushed skin may indicate a heart attack or heat stroke, yellowing skin can be a sign of liver disease, and dry, cracking skin may indicate thyroid dysfunction. Furthermore, certain viruses such as the measles or the chicken pox are characterized by skin abnormalities such as a rash or blemish.

Although it is only a few millimeters thick, the skin is the largest organ of the body. In total, the skin covers an estimated area of 1-2 square meters. To put this in context, if you laid your skin out flat it would nearly cover a twin-sized bed. Speaking of twin-sized beds, it is estimated that the skin sloughs off about 50,000 dead skin cells per minute as it replaces itself. In a lifetime this would total about 40 pounds. Think about that the next time you go to lie down on your college twin sized bed that has been around since the early 60s. Skin thickness varies depending on location. Areas of thick skin such as the bottom of the feet may be up to 4 or 5 mm deep. Alternatively, areas of thin skin such as the eyelids may be as thin as 0.5 mm. We will discuss the differences between thick and thin skin later.

Functions of the Integumentary System
Composition of the Skin
Skin Color
Skin Cancer



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