

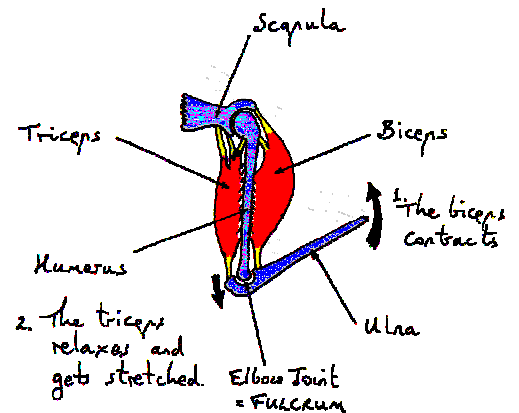
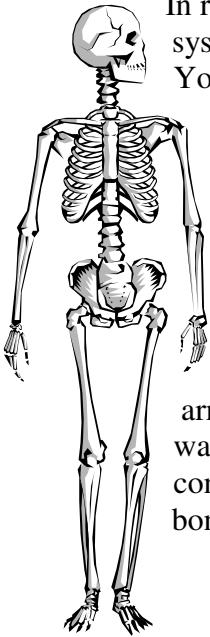
ANIMAL SYSTEMS- DEFENSE

Various organ systems function to defend and protect your body from injury and disease.

In response to danger, many organisms rely on the actions of the skeletal and muscular systems.

Your **skeletal system** provides a framework for the tissues inside your body. Your skeleton protects your internal organs, including your heart, lungs, and brain. Your bones also provide firm points of attachment for your muscles. Bones are alive, and are made of connective tissue.

Your skeletal system functions with your **muscular system** to allow you to move. Your limbs move because muscles contract (shorten). For example, in the diagram below, you are able to bend your arm because your biceps muscle shortens. If you wanted to straighten your arm back out, you could contract your triceps muscle. Muscles are connected to bones with tendons.



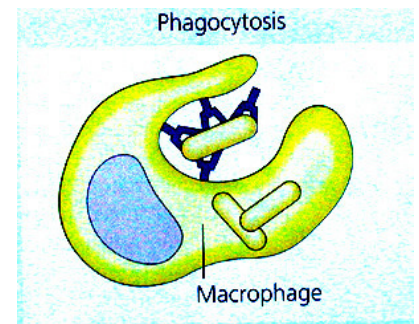
The largest organ in your body is skin. Skin is a covering, which makes it part of your **integumentary system**. Skin helps your body maintain homeostasis (an ideal internal condition). Skin helps maintain homeostasis by:

- regulating body temperature (sweating helps cool you down)
- protecting against physical and chemical damage
- serving as a sensory organ (receives information about pressure, pain, and temperature)

The **immune system** is responsible for fighting disease in our bodies.

Pathogens (microscopic organisms that can cause disease) sometimes invade our bodies, but the immune system can detect and destroy invaders. The immune system consists of three types of cells:

- macrophages- surround, ingest, and destroys invaders
- T cells- coordinate attacks on invaders
- B cells- produce **antibodies**- proteins that recognize pathogens



PRACTICE

1. What body system represents your first line of defense against disease?
2. What is the primary function of the integumentary system?
 - A. To break down nutrients
 - B. To aid in movement
 - C. To deliver nutrients to the body's cells
 - D. To protect the body by maintaining homeostasis
3. The place where two bones meet is called a joint. To what body system do joint belong?
 - A. Circulatory system
 - B. Skeletal system
 - C. Muscular system
 - D. Digestive system
4. Which of these systems would best protect you from getting a cold?
 - A. Immune system
 - B. Digestive system
 - C. Excretory system
 - D. Circulatory system
5. Which of the following is directly caused by actions of the muscular system?
 - A. Regeneration of nerves
 - B. Healing of wounds
 - C. Extension of limbs
 - D. Release of hormones
6. HIV, the virus that causes AIDS, attacks Helper-T cells. These cells are part of which system?
 - A. immune system
 - B. integumentary system
 - C. excretory system
 - D. respiratory system