

# Understanding Organ Systems

## Study Guide for your Quiz

Cooperation, on an incredible scale and from the most unlikely of sources – cells. Think for a moment, not only about what each of these organ systems accomplish, but also realize that they are able to accomplish these tasks because microscopic cells, with no ability to reason or plan, work together to accomplish these incredible tasks. Each cell no longer has the ability to survive on its own; it is part of a community of cells that in their entirety constitute “you”. A collection of 50 to 75 trillion microscopic cells, living and dying on their own – but from their cooperative efforts, a living human being emerges from the mass of cells – truly incredible.

### The Organ Systems and Their “Jobs”

<b>Skeletal System</b>	The skeletal system supports and protects, makes movement easier (with joints), stores minerals, and makes blood cells.
<b>Muscular System</b>	The muscular system allows you to move, maintains posture, and produces heat.
<b>Circulatory System</b>	The circulatory system transports substances (such as hormones, oxygen, white blood cells, etc.) from one part of the body to another part of the body.
<b>Nervous System</b>	The nervous system allows the body to sense and react to the outside environment (touch, taste, smell, etc) as well as the internal environment rapidly through electrical impulses.
<b>Respiratory System</b>	The respiratory system captures oxygen from the air and moves it to the circulatory system as well as taking carbon dioxide (waste) from the circulatory system and expelling it from the body.
<b>Digestive System</b>	The digestive system breaks down food into small useful molecules (sugar, amino acids, etc), it absorbs the nutrients (good stuff) from the food, and allows the by-product to pass from the body (poop).
<b>Excretory System</b>	The excretory system removes the wastes the body produces from the blood stream and releases the waste in the form of urine. This system does not include the waste by-product of non-digested food (poop/digestive system) that is not produced by the body.

<b>Endocrine System</b>	The endocrine system secretes hormones into the blood. These hormones serve to communicate with, integrate, and control many functions of the body (i.e. puberty, growth, emotion, etc). They produce changes in the physical appearance, reproductive behavior, and emotions.
<b>Reproductive System</b>	The reproductive system produces sex cells (egg and sperm), allows the transfer of sex cells and fertilization to occur, permits development and birth of offspring, nourishes offspring, and produces sex hormones.
<b>Lymphatic/Immune System</b>	The immune system works to protect our body from disease. It is also a “smart” system – able to develop “immunity” to some harmful invaders after an initial infection. <b>*See note below.</b>
<b>Integumentary System</b>	The integumentary system (skin) supports and protects, regulates body temperature, and acts as a sensory organ.

***\*Mechanisms of Immune System (not on quiz)***

The immune system has been broken down into a number of different "lines of defenses", starting simply with mechanical barriers and then becoming more and more complex, they include:

- Mechanical barriers - are the first line of defense against harmful agents. Mechanical barriers include the skin, mucus membranes that line passageways that enter the body.
- Chemical Barriers - tears, perspiration and saliva work to wash away harmful invaders while digestive juices and enzymes destroy bacteria and other toxins from ingested substances.
- Phagocytosis - is the ability of certain white blood cells to take in and destroy waste and foreign materials.
- Natural Killer Cells - are able to distinguish cells with an abnormal cellular membrane such as tumor cells or cells infected with a virus and kill them on contact.
- Inflammation - is the body's effort to get rid of anything that irritates it. If the inflammation is due to pathogens, the inflammation is referred to as an infection.
- Fever - boosts the immune system by stimulating phagocytes, increasing metabolism and decreasing the ability of certain organisms to multiply.