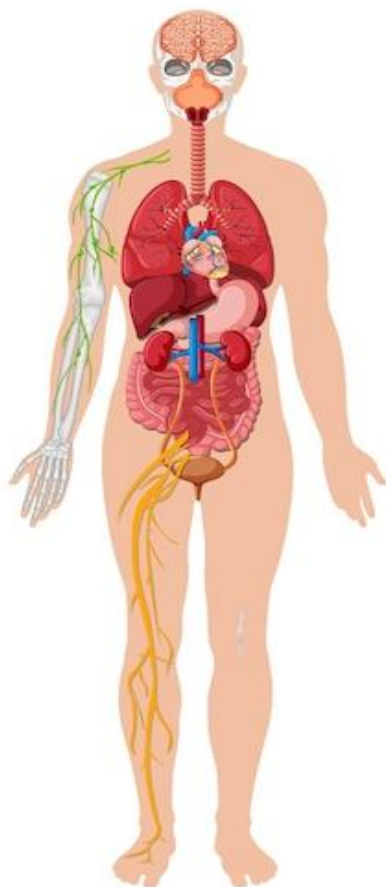


Anatomy

FOR 3RD YEAR MEDICAL PHYSICS
STUDENTS

LEC. NEEAN F. MAJEED

ANATOMY OF THE HUMAN BODY



• Brain



• Lymph
• Lymph nodes



• Skull



• Blood vessels



• Oesophagus



• Small intestine



• Lung



• Large intestine



• Stomach



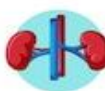
• Muscle



• Liver



• Bone
• Joint



• Kidneys



• Nerve



• Heart



• Bladder

Introduction

System of organs	A group of organs that work together to perform one or more functions in the body.
Musculoskeletal system	Mechanical support, posture and locomotion
Cardiovascular system	Transportation of oxygen, nutrients and hormones throughout the body and elimination of cellular metabolic waste
Respiratory system	Exchange of oxygen and carbon-dioxide between the body and air, acid-base balance regulation, phonation.
Nervous system	Initiation and regulation of vital body functions, sensation and body movements.
Digestive system	Mechanical and chemical degradation of food with purpose of absorbing into the body and using as energy.
Urinary system	Filtration of blood and eliminating unnecessary compounds and waste by producing and excreting urine.
Endocrine system	Production of hormones in order to regulate a wide variety of bodily functions (e.g. menstrual cycle, sugar levels, etc)
Lymphatic system	Draining of excess tissue fluid, immune defense of the body.
Reproductive system	Production of reproductive cells and contribution towards the reproduction process.
Integumentary system	Physical protection of the body surface, sensory reception, vitamin synthesis

An organ system is a group of organs that work together in the body to perform a complex function, such as pumping blood or processing and utilizing nutrients.

Organ systems work together to keep the body in good health. For example, the circulatory and digestive systems work jointly to deliver nutrients throughout the body. Except for the reproductive system, each system is necessary for survival.

The Circulatory System

The circulatory system transports oxygen and nutrients to all corners of the body. It also carries away carbon dioxide and other waste products.

When people talk about this organ system, they're usually talking about the cardiovascular system at large, which includes:

- The heart, Blood, Blood vessels (arteries and veins)

The Lymphatic System

The lymphatic system is the discharge system of the body. It plays an important role in your immunity, blood pressure regulation, digestion, and other functions.

This organ system carries excess fluid, proteins, fats, bacteria, and other substances away from the cells and spaces between cells. It does this using:

- Lymph vessels, Lymph nodes, Lymph ducts, Various glands

The Respiratory System

The respiratory system is responsible for breathing, which is the controlled movement of air in and out of the body (ventilation). It also moves oxygen and carbon dioxide into and out of the bloodstream (respiration).

This organ system contains the following:

- Lungs, Trachea, Airways of the respiratory tree

The Integumentary System

The integumentary system is unique because it is the largest and only single-organ system in the body. It protects the body from the external environment and helps regulate body temperature.

The integumentary system is the skin and all the structures in it, including:

- Sweat glands, Hair follicles, Nails, Nerves

The Endocrine System

The endocrine system mostly regulates metabolism and uses the products of digestion. Along with the nervous system and immune system, it's generally considered one of the most complicated systems in the body.

This organ system includes all the glands that secrete hormones into the bloodstream, including:

- Adrenal, Gonads (ovaries and testicles), Hypothalamus, Pancreas, Parathyroid, Pineal, Pituitary, Thymus, Thyroid

The Digestive System

The gastrointestinal (GI) system is sometimes referred to as the gut or the digestive system. It is responsible for breaking down foods into nutrients, which the body needs for energy, growth, and cell repair.

This system includes all the organs that carry food from where it enters the body to where it exits, including the following:

- Mouth, Esophagus, Stomach, Small intestine, Large intestine, Rectum, Anus

The Urinary (Excretory) System

The urinary system includes:

- Kidneys, Ureters, Bladder, Urethra

These organs work together to filter blood and remove toxins and waste from body tissues. The removal of excess fluid through this organ system also helps regulate blood pressure.

The Musculoskeletal System

The musculoskeletal system provides the framework and the engine for our movement, posture, and physical abilities.

This organ system includes:

- The skeleton
- All the muscles, tendons, and ligaments attached to the skeleton

Muscles in the Body

There are three types of muscles in the body:

- Skeletal (voluntary)
- Smooth (visceral or involuntary), which are inside walls of organs like the intestines
- Cardiac (heart muscle)

Only skeletal muscle is considered part of the musculoskeletal system.

Skeletal System

Your body's skeletal system contains 206 bones:

- The 80 bones of the axial skeleton (your spine and the core of your body)
- The 126 bones in the appendicular skeleton (your arms, legs, and bones away from the core)

In addition to providing your body's structure and facilitating its mobility, the skeletal system contains bone marrow to produce blood and lymph cells. It stores fat in the body, as well as key minerals like calcium.

The Nervous System

The nervous system is a network that makes it possible for different parts of the body to communicate with one another. Think of it as your body's command station. All body processes, reactions, thoughts, and movements stem from this organ system.

The nervous system is incredibly detailed and includes:

The Central Nervous System

- The brain
- The spinal cord

The Peripheral Nervous System

- All the nerves connected to both of these organs

The nervous system contains the only tissue that isn't fed directly through contact with blood.

The Immune System

The immune system helps the body fight against infection and other diseases. All of its organs are borrowed from other organ systems.

Because of the interplay between organs from various other systems, the immune system is one of the most complicated systems of all.

The primary organs of the immune system include:

- Lymph nodes, Bone marrow, Thymus, Spleen, Adenoids, Tonsils, Skin.