**Foundations of Human Biology 1**

**Week 1 – Organ Systems video transcript**

Welcome everyone to this lecture recording on organ systems.

So here we will cover all of the organ systems you will learn in your first-year foundations of human biology courses. We'll just give a very brief overview of each the organs and what their key functions are.

If we look overall, we have a number of organ systems in our body and each of these organ systems work together to allow the body to maintain homeostasis or normal levels of function. Our systems include the integumentary system, which you can see on the top left; the skeletal system, which is top right; the muscular system, which is middle left; nervous system, middle right; the endocrine system, which you can see at the bottom left; and the cardiovascular system at the bottom right of the figure on the right.

Also looking at this figure on the right, we have more systems here. We have the lymphatic system, which incorporates the immune system on the top left; we have the respiratory system, top right; digestive system, middle left; urinary system, middle right; and reproductive system at the bottom left and right.

So, let's briefly look at some of these systems in a bit more detail as to what they actually provide for the human body.

Our entire **integumentary system** provides us with protection, sensory function, thermoregulation and also vitamin D synthesis. This includes things like skin, nails, hair, the external coverings of our body, if you like.

If we look now at the **skeletal system** with this attractive rainbow skeleton on our right. The skeletal system includes is things like bones, ligaments, tendons, joints, and it's involved in protection, movement, also blood cell production in the bone marrow, and storage of minerals and nutrients such as calcium and phosphorus in the bones.

Our **muscular system** consists of muscles. We have skeletal muscles, our cardiovascular muscles and our smooth muscles. And these all contribute to movement and contractability throughout the body.

Our **nervous system** is a very important communication system. We have the central nervous system, which is the brain and spinal cord, and we also have our peripheral nervous system, which is all the nerves that come from the central nervous system and extend to our limbs and other extremities in the body. So being the communication system, the nervous system will transmit signals between the brain and other organs and tissues.

Now we have our **endocrine system**. This is our other communication system in the body. You can see in the figure of the rock on the right, there are a number of endocrine organs that we have in the body. We'll go into these in more detail when we reach the endocrine system topic, but for now, what the endocrine system does is it produces and secretes hormones to act at other sites in the body. So, these are carried in the bloodstream.

Next, we have our **cardiovascular system**. This is a transport system in the body. It consists of the heart and also all of the blood vessels in the body. What it does is it supplies the body with both oxygen and nutrients that the various organs and tissues need to function and produce the energy. As well as supplying the body with oxygen and nutrients, it also removes the carbon dioxide and metabolic waste products from organs and tissues as well. So that's also a very important feature.

Next, we have our **lymphatic and immune system**, so our lymphatic system is mostly involved in maintaining fluid balance in the body, and our immune system is responsible for protecting our body. We have a bit of overlap between the two because our lymph nodes are responsible for filtering the fluid that passes through them so they help to protect us as well because they will remove any foreign substances or organisms that might be there.

Next, we have our **respiratory system**. This is a very important system because it is responsible for ventilation, so what it does is it moves fresh air containing oxygen into the body, and it's also responsible for moving the waste gases. So, this is quite closely linked to the cardiovascular system, which is responsible for transporting the oxygen from the lungs and transporting the waste products and gases to the lungs for removal.

Next, we have our **digestive system**. This is really important; this breaks down all of the food that we eat. As a result of breaking down that food in a process called digestion, we’re then able to absorb the nutrients from that food. Those are put to good use by the body to help create energy and also provide nutrients to our various tissues and organs.

Now we have our **urinary system**. The urinary system filters the blood delivered to it by the cardiovascular system, and it's responsible for then reabsorbing the necessary solutes and water, so everything the body needs is then reabsorbed after it's been filtered, and it's also responsible for excreting waste. Any waste products are excreted through the urine and it plays a role in fluid balance, so it helps by regulating the blood volume, and reabsorbing the amount of water required to maintain fluid balance.

So finally, we have our **reproductive system**, so this is important because it helps to ensure the survival of our species. So, for humans to continue, reproduction needs to occur. What the reproductive system does is it produces oocytes (or eggs) and spermatogonia (or sperm), and it helps to nurture the developing offspring. We will go into far more detail about the reproductive system when we get to that topic.

So that is a whirlwind course of the human body and the systems that it houses and the systems that help the body to function as an organism. As you can probably see, a lot of these organs work together as systems so that homeostasis can be maintained.

We hope you enjoy the course and enjoy learning about all of these systems in much more detail.

Thanks, everyone!