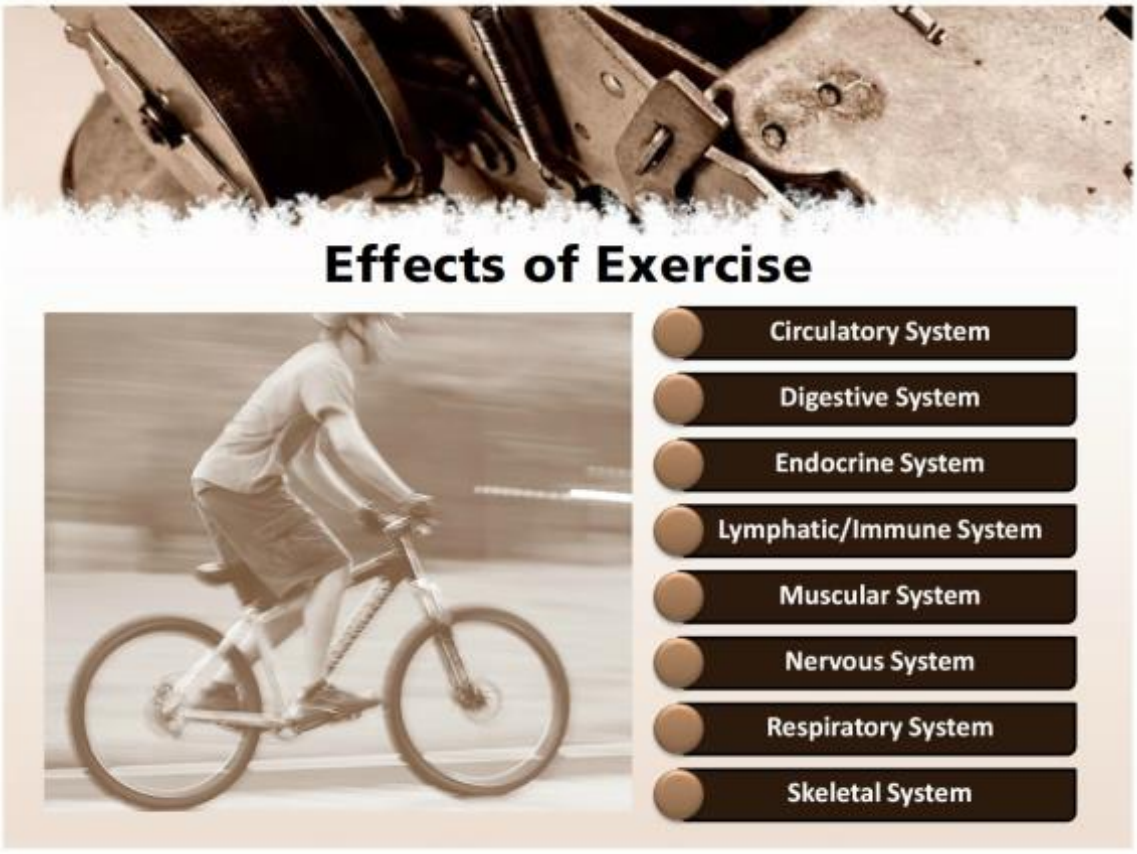
Module 1: The Perfect Machine
Topic 5 Content: Maintaining the Machine

Effects of Exercise



A machine can break down if it isn't used or properly maintained. Don't let your body break down. See how exercise can help keep your body running smoothly. Let us take a look at how exercise changes the body's systems. Pay particular attention to the circulatory and respiratory systems.

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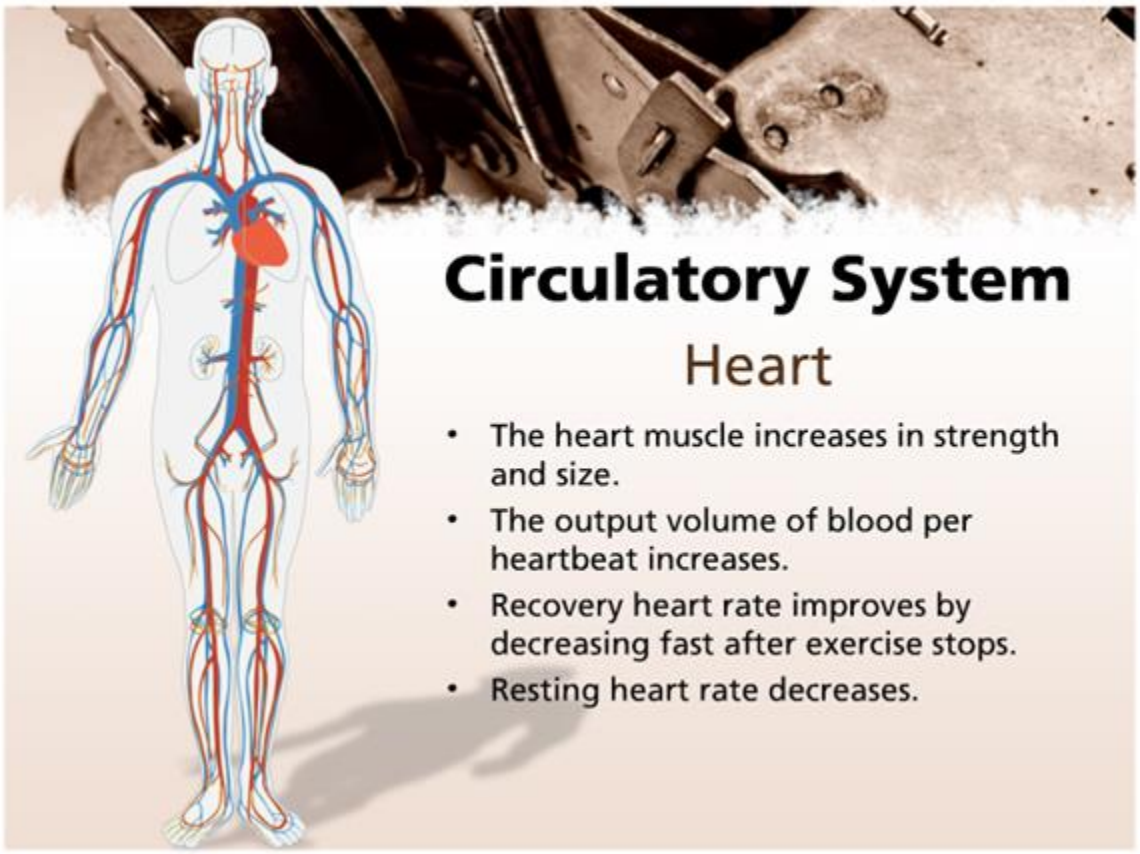
Circulatory System



The circulatory system is composed of the heart, arteries, veins, and capillaries that connect together to create a lifeline for your body. When exercised, the heart transforms into a bigger, stronger, more efficient organ. It can pump more blood per beat, which enables it to work less with fewer beats a minute. You see, the heart is a muscle. During exercise, it beats faster to keep up with the demand of oxygen needed for the skeletal muscles. When the demand decreases (and the body slows down), the heart will slow back to normal. A healthy heart will reach its resting heart rate faster than an unhealthy heart. In addition, the healthy heart will pump more slowly during rest than an unhealthy heart. This is a good thing.

Not only does the heart benefit from physical activity, the supporting blood and blood vessels improve as well. With the increased volume of blood circulating, the walls of the arteries and veins must strengthen to accommodate the demand. A person with hypertension may show a significant decrease in blood pressure after beginning an exercise routine.

As you know, the capillaries are the smallest blood vessels. They are the sites where nutrient-rich blood enters the body's cells and waste-ridden blood leaves the cells to travel back to the heart. Capillaries increase in number when the body is fit. This enables increased oxygen to reach the cells and causes an increased output of waste products.

Digestive System

The digestive system is a complex network of organs, which ingests and digests food, and rids the body of waste.

Did you ever wonder why you're told not to go swimming for thirty minutes after eating? Here's why: When you eat, blood travels to the stomach and other digestive organs for digestion of the food. It takes extra oxygen to work the muscles to break down all those nutrients into a useable form. If you exercise too soon after eating, the blood goes to the skeletal muscles instead, leaving undigested food particles in your stomach to get bounced around. Eventually the stomach cannot take the pressure and up the food comes.

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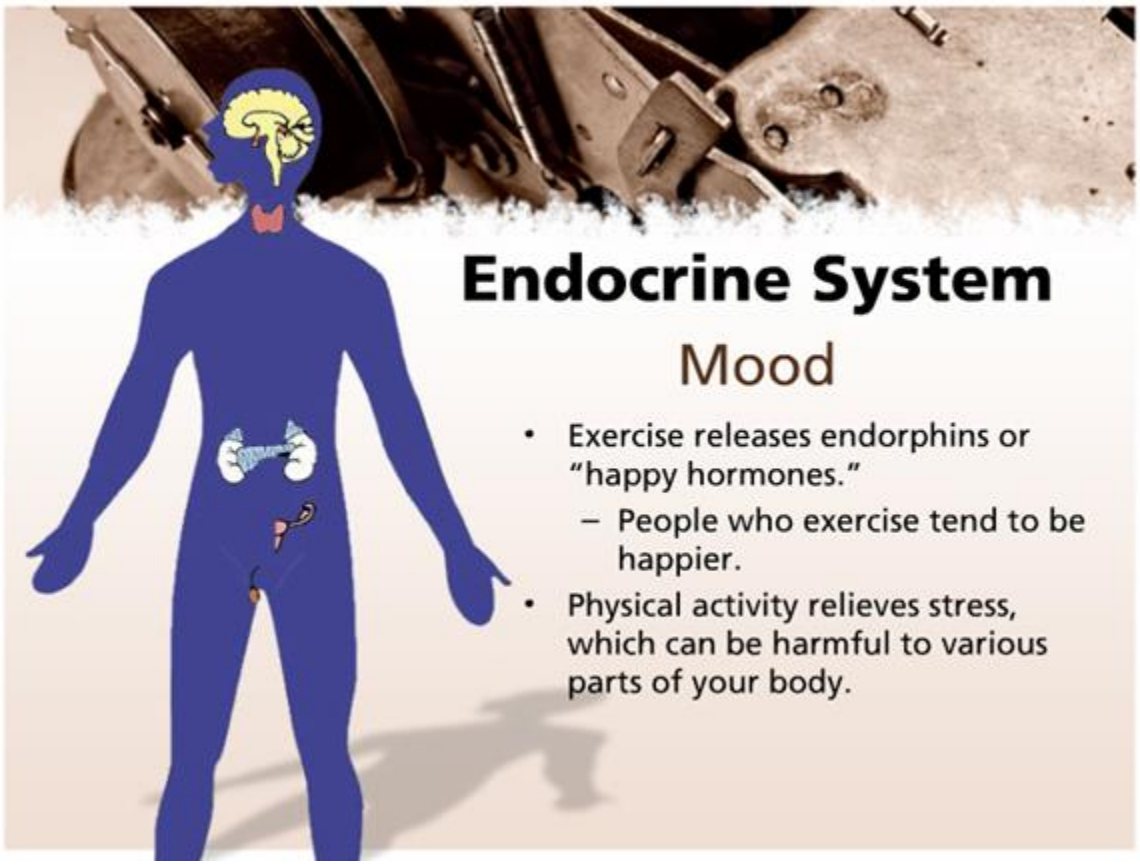
Endocrine System

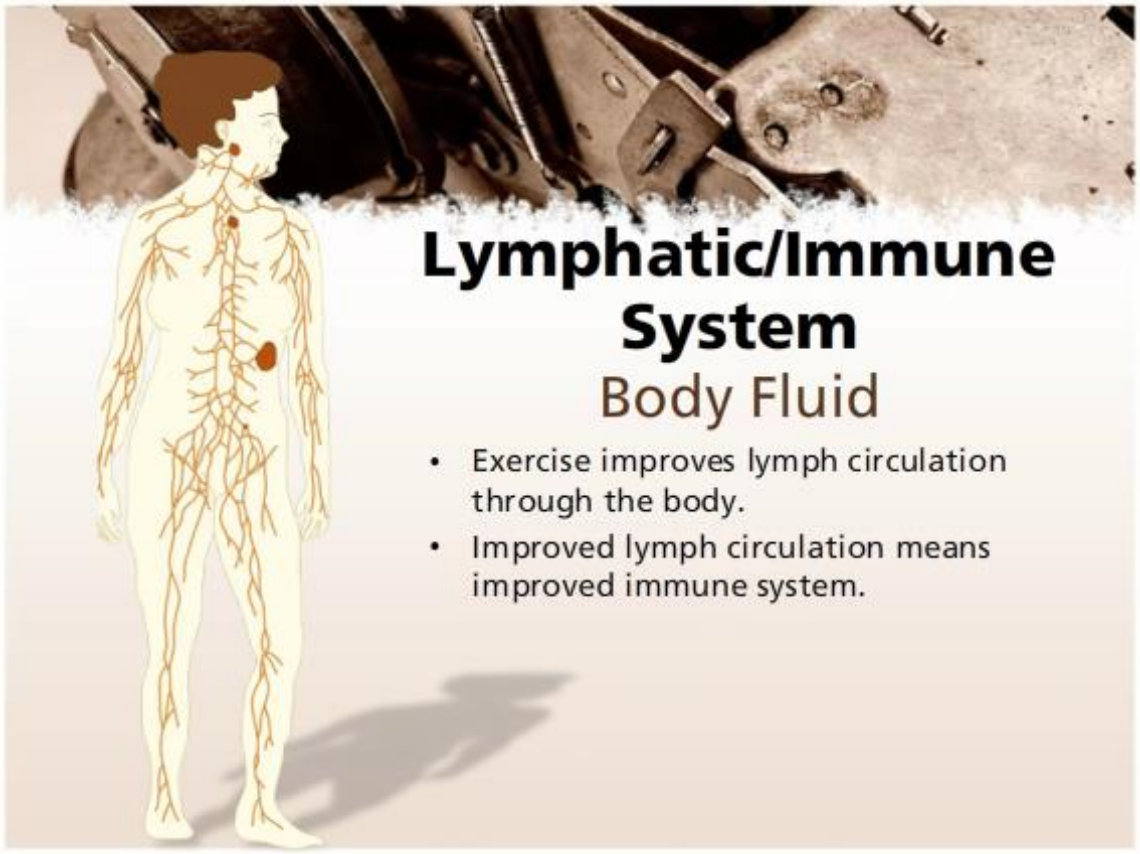


The endocrine system is the central command of the body. It is responsible for releasing hormones that start body processes and functions. It is responsible for metabolism, which increases with exercise. Did you also know that your mood can improve, thanks to the endocrine system?

Endorphins are released by the pituitary gland. They are considered "happy hormones." Endorphins are what make you feel happy inside. People who exercise tend to be happier people. When people are happier, their stress levels are also lower, which can make them healthier overall.

During and after exercise, your body's metabolism increases, burning more calories and utilizing the nutrients you provide. After extended exercise bouts, your metabolism remains elevated because of the increased muscle mass that requires more fuel.

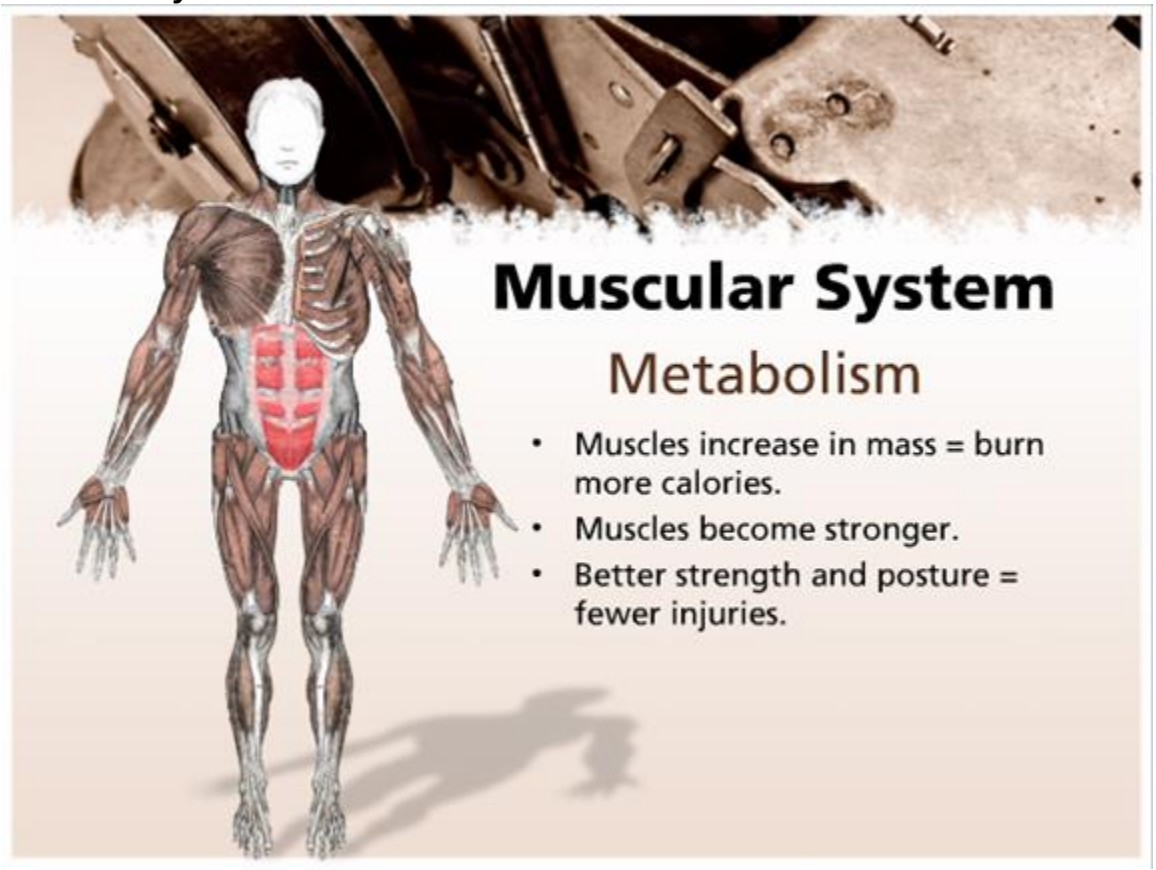
Lymphatic Immune System



Your lymphatic system is your immune system. There is a fluid called lymph that travels throughout the body, fighting germs and removing them. The lymphatic system parallels the circulatory system, but lymph circulates by way of body movement rather than a central pump.

The more you exercise, the better lymph moves through the body by way of muscle contraction, heart beats, and respiration. When you exercise, these organs are moving at a greater rate, thus improving the circulation of lymph. This could mean a decreased risk of some cancers.

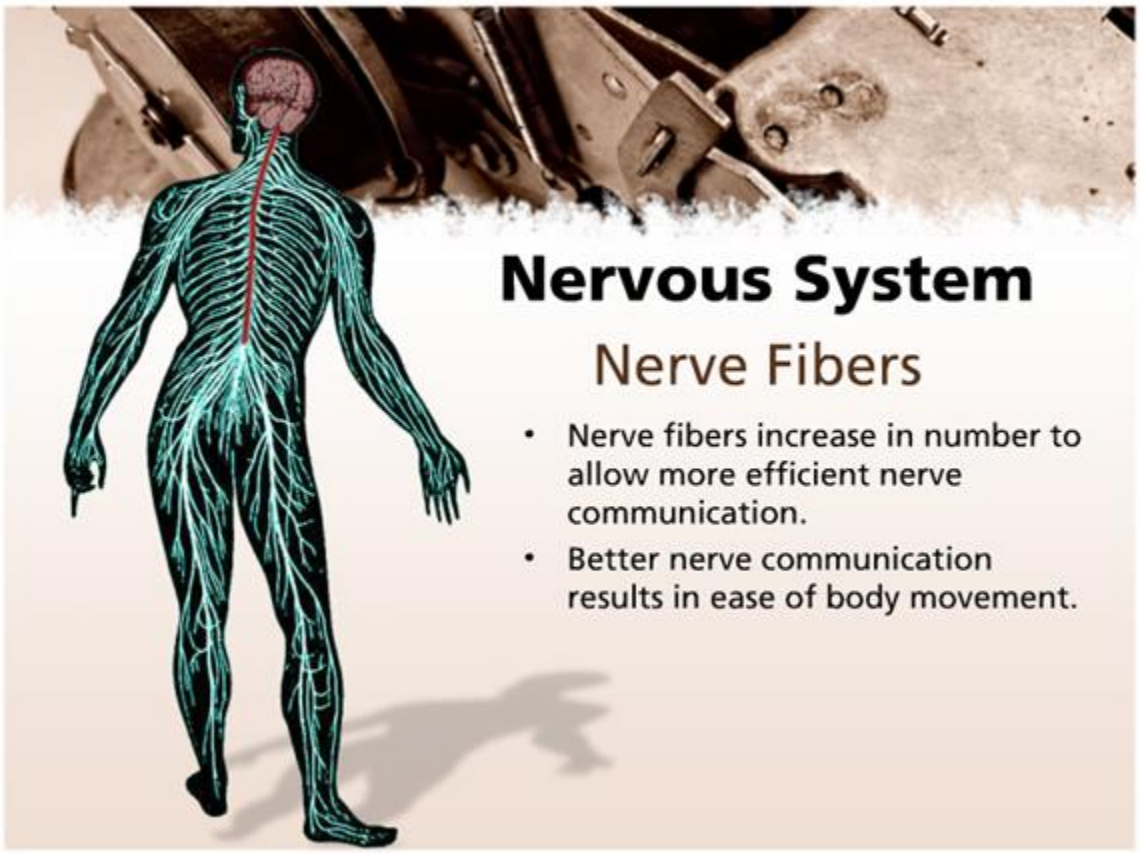
Muscular System



The muscular system is comprised of more than 600 muscles. In this module, you only studied a small portion, but all muscles benefit from physical activity.

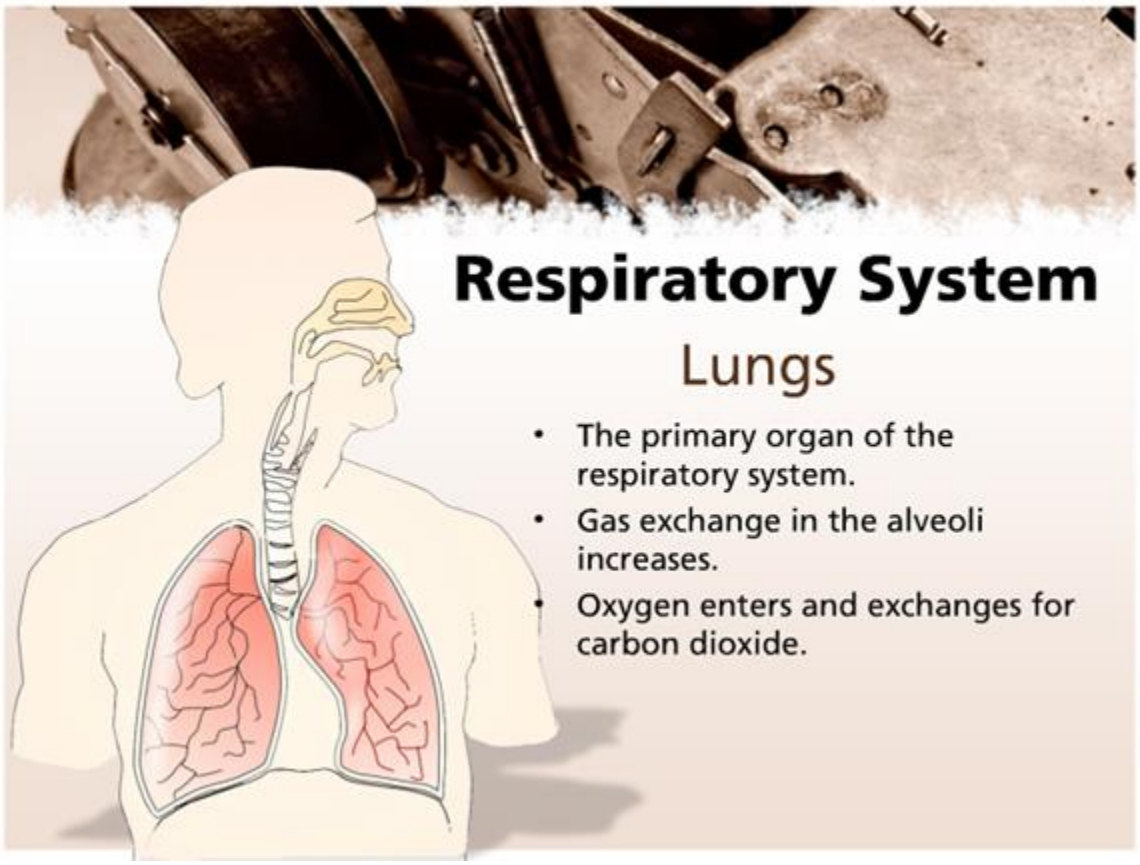
As muscles contribute to motion, they increase in size and strength, allowing the body to burn more calories. As size and strength increase, so do stability, posture, and metabolism. Your body becomes stronger and is better able to support what you ask it to do, helping you avoid injury.

Nervous System



The nervous system is composed of thousands of nerve fibers that connect together to create a communication chain. With activity, nerve fibers increase in number, allowing for more efficient nerve communication throughout the body. This increased communication allows your body to move better and easier.

Respiratory System



Exercise can help improve the function of the respiratory system.
The primary organ of the respiratory system is the lungs. This is where oxygen goes in and is exchanged for carbon dioxide. Exercise allows for better efficiency and speed of gas exchange in the alveoli.

It takes skeletal muscles to breathe. As activity increases, so does the strength of the breathing muscles. Breathing rate improves by becoming deeper and fuller. Those with asthma may notice decreased symptoms or fewer attacks.

Skeletal System

The skeletal system is composed of many bones that support posture and movement.

Exercise increases the strength of bone tissue by supporting calcium deposits into the structure. This has been shown to help reduce the occurrence of osteoporosis.