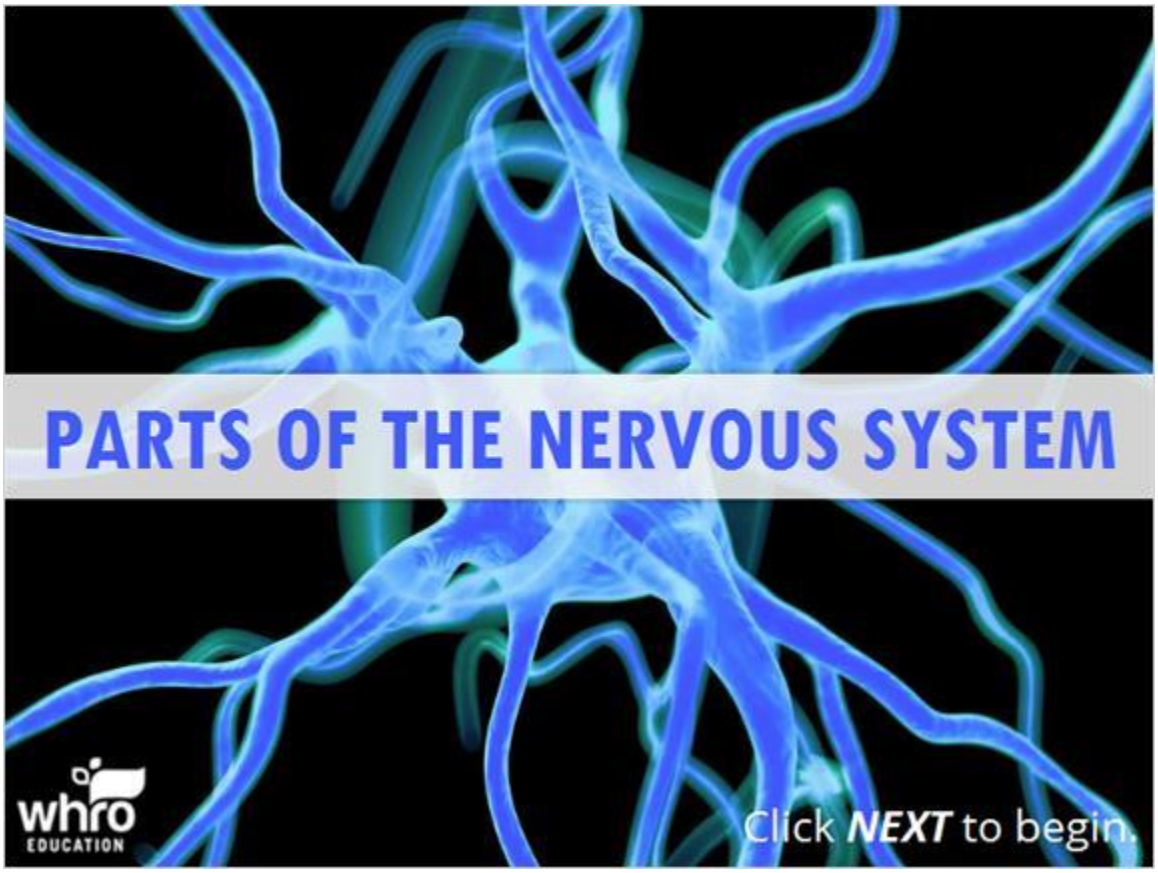
Module 7: Organ Systems and Homeostasis
Topic 3 Content: Parts of the Nervous System Notes

Parts of the Nervous System



Parts of the Nervous System. Click the ***NEXT*** button to begin.

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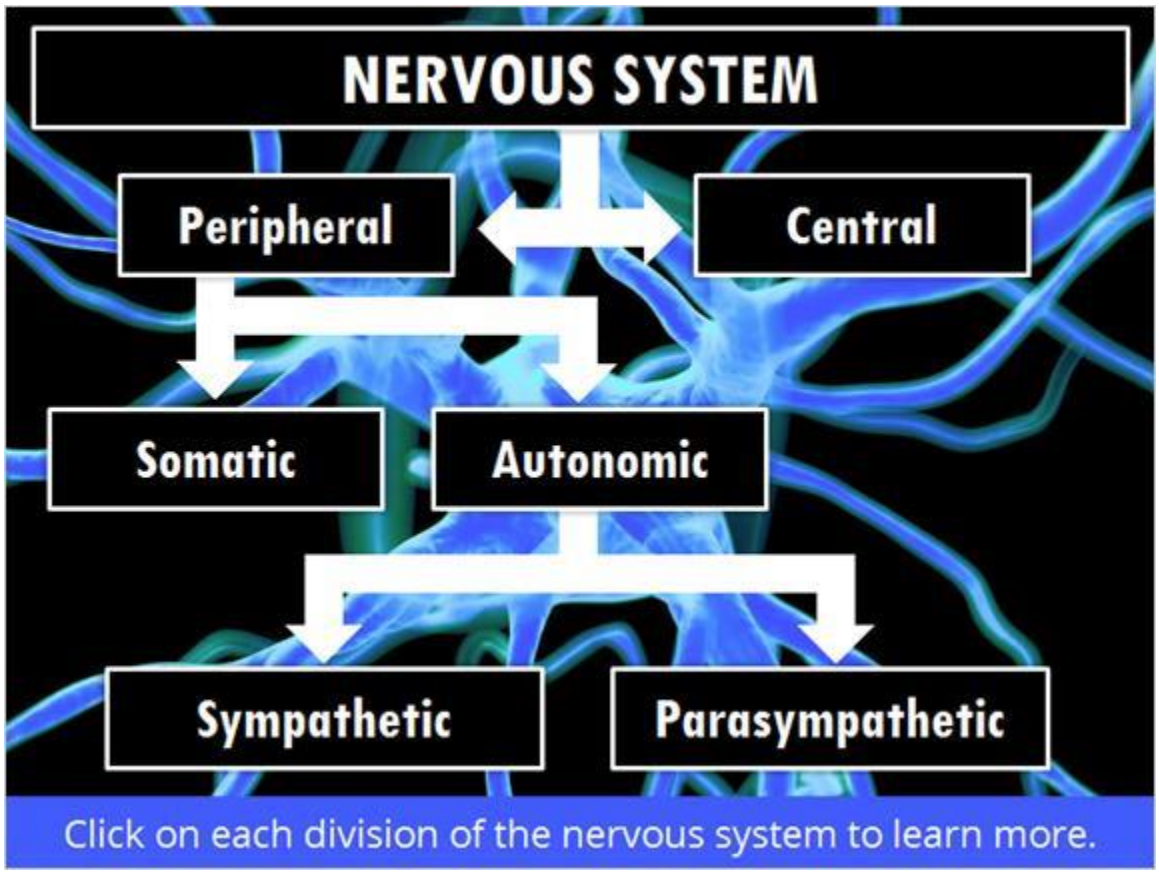
Components



The nervous system has several different components:

- the central nervous system;
- the peripheral nervous system;
- the somatic nervous system;
- the autonomic nervous system;
- the parasympathetic division; and
- the sympathetic division.

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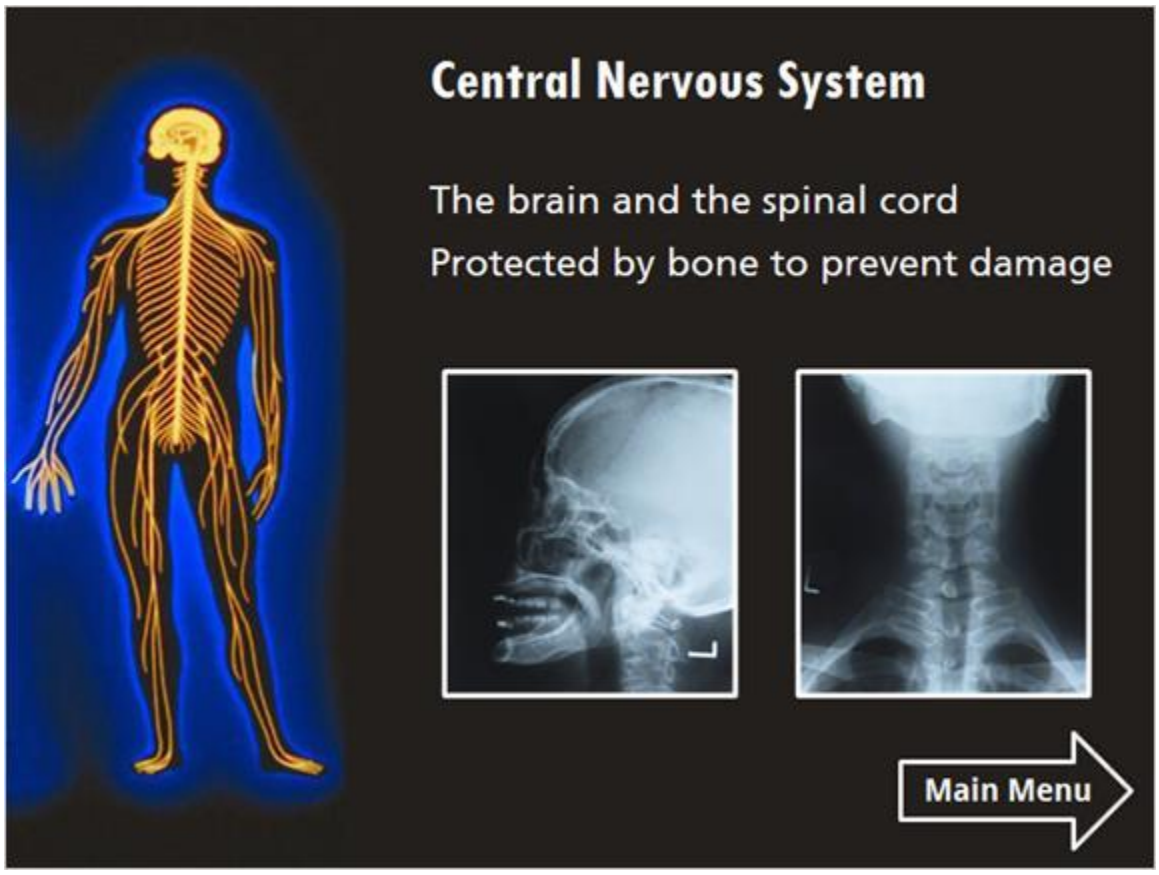
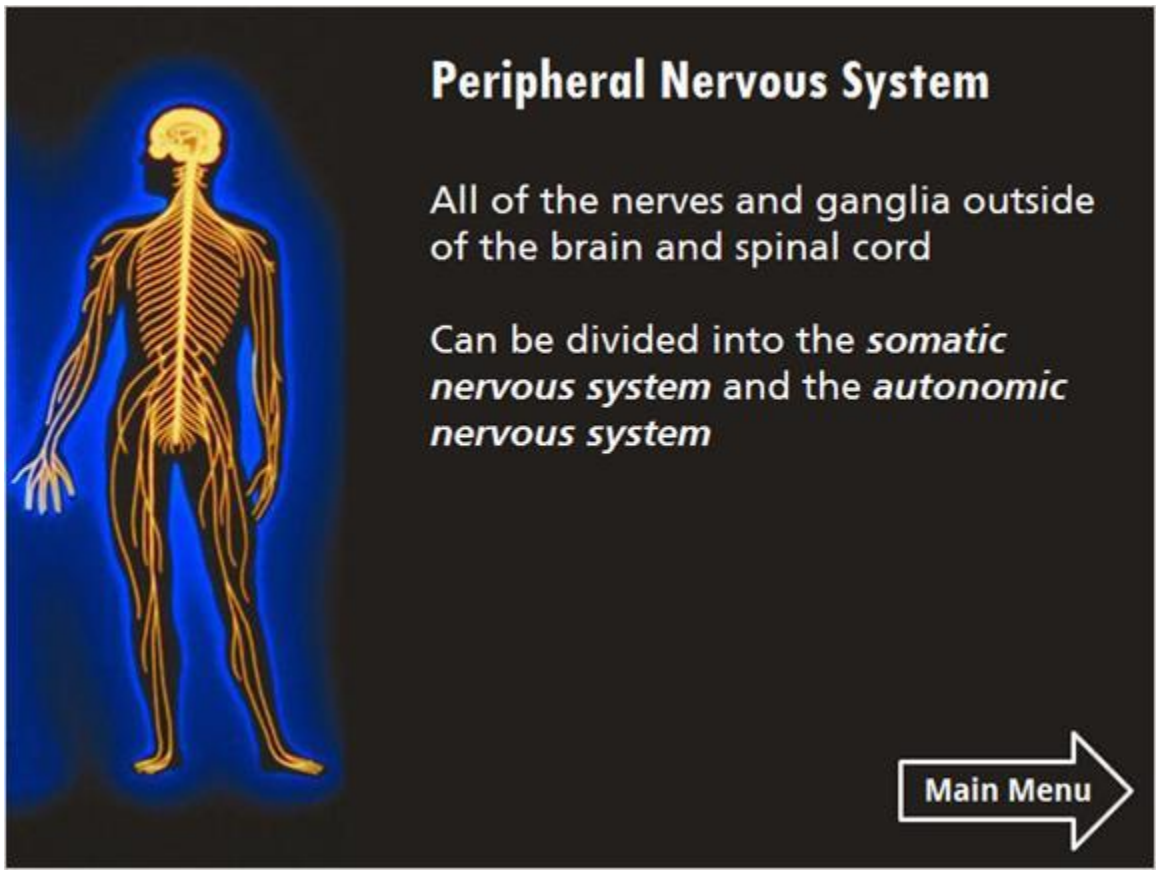
Central Nervous System



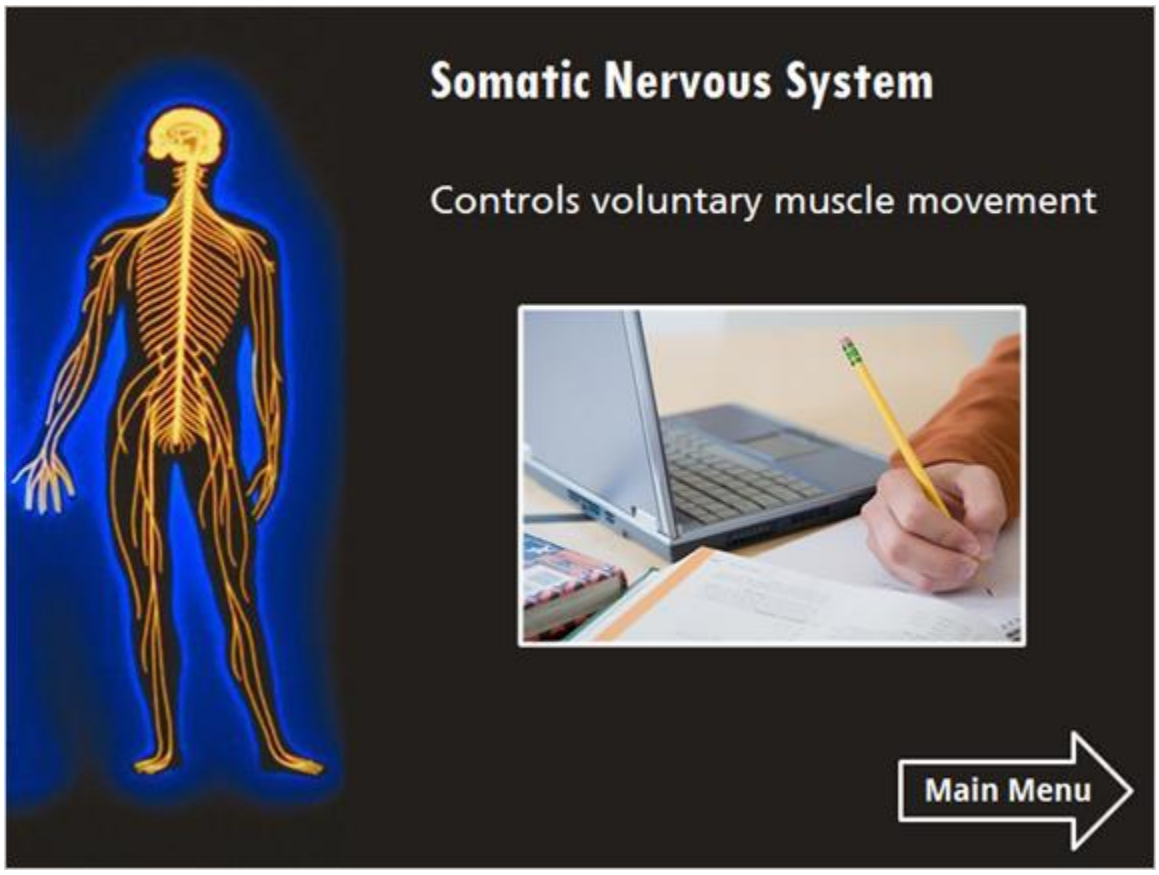
The central nervous system is made up of the brain and the spinal cord. Because these parts of the nervous system are so important, they are encased in bone: the brain within the skull, and the spinal cord within the bones that make up the spine. Damage to the central nervous system can cause severe impairments like paralysis, or death.

Peripheral Nervous System



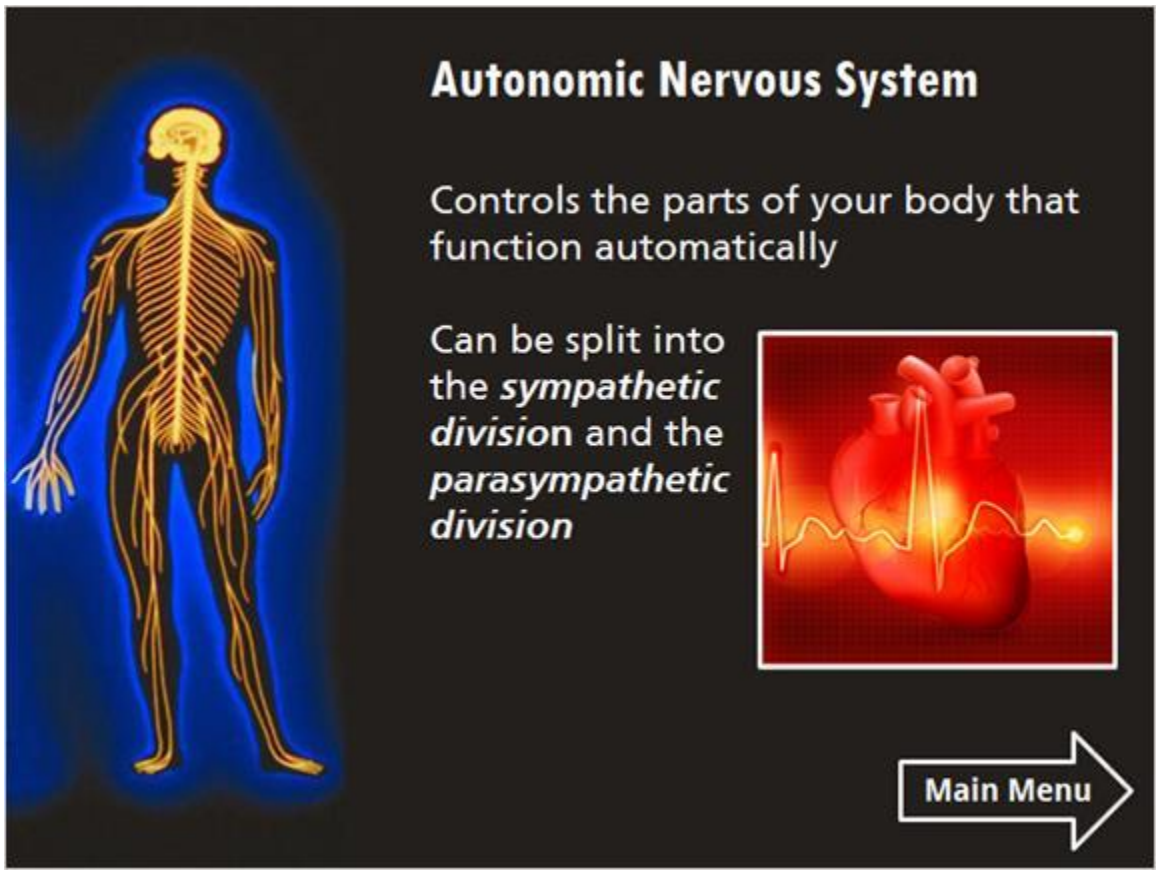
The peripheral nervous system is comprised of all of the nerves and ganglia that extend outside of the brain and spinal cord. The peripheral nervous system can be divided into the somatic nervous system and autonomic nervous system.

Somatic Nervous System



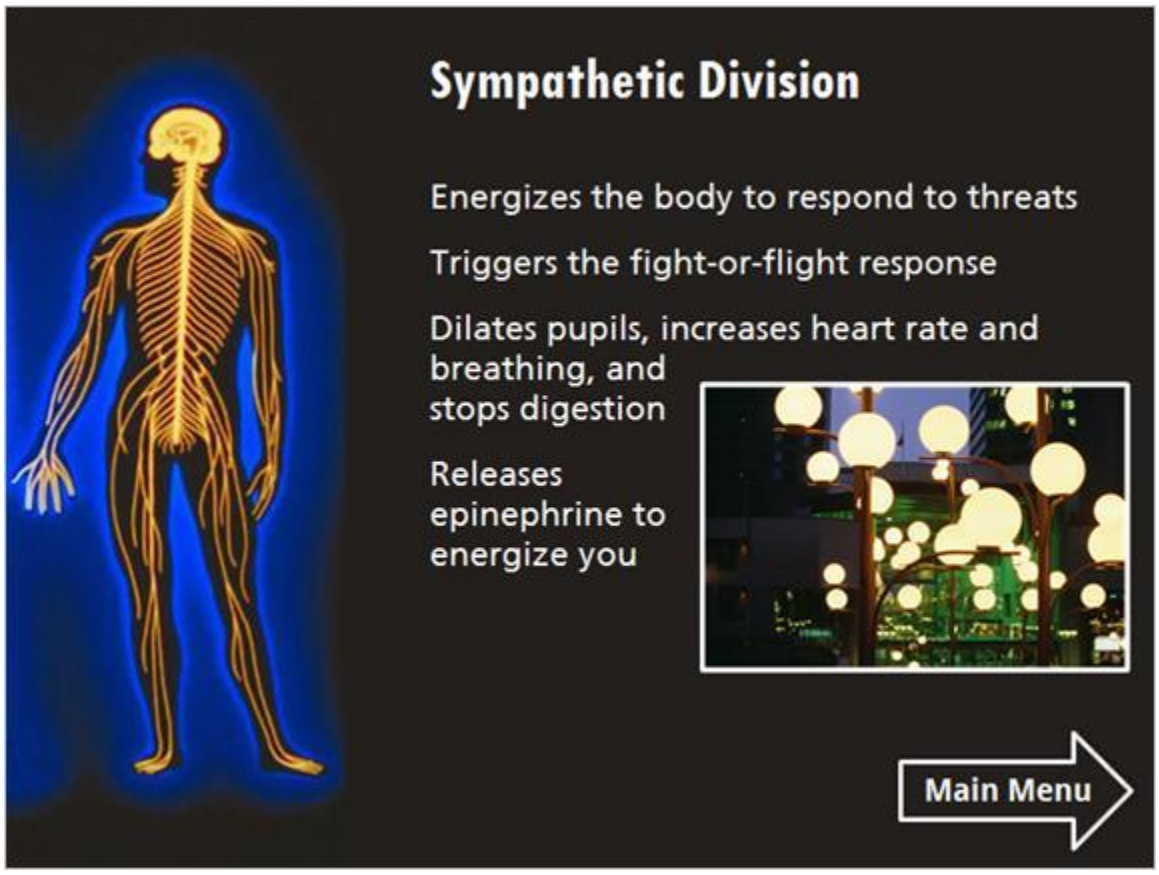
The somatic nervous system contains all the nerves used to control the voluntary muscle movements, also called skeletal muscles. If you are currently taking notes, you are using the somatic nervous system to move your pen or pencil against the paper.

Autonomic Nervous System



The autonomic nervous system controls the parts of your body that function automatically. For example, how often do consciously make your heart beat? Even without thinking about it, your heart will continue to beat, your lungs will continue to breathe, and your digestive processes will continue to function normally. The autonomic nervous system is split into two further divisions, the sympathetic and parasympathetic.

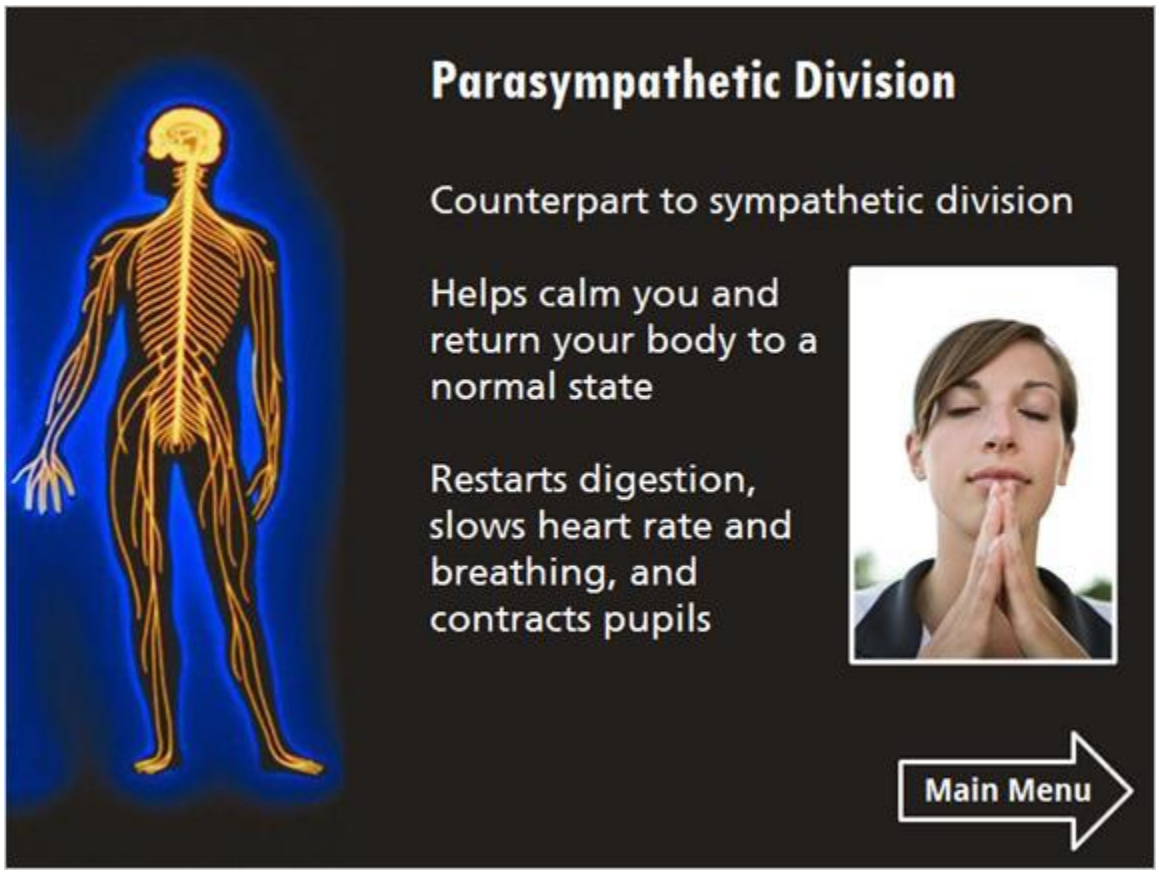
Sympathetic Division



The sympathetic division of the autonomic nervous system energizes many different parts of the body to help respond to threats.

For example, if you are walking through a park alone at night and the streetlights suddenly start going out, your sympathetic division will engage, preparing you to confront or run away from any danger that might be present. This is called the fight-or-flight response, and it helps your body prepare to survive in dangerous situations. Your pupils will dilate, opening wider to let in more light. Your heart rate and breathing will increase, helping to pump blood and oxygen to your limbs in case you need to run away or confront an attacker. Your stomach will even stop digesting, in order to save energy and redirect it to deal with potential dangers. The adrenal glands will release epinephrine, also called adrenaline, to help energize you.

Parasympathetic Division



The parasympathetic division is the counterpart to the sympathetic division. After a threat has passed, it helps calm you and return your body back to a normal state.

Consider the streetlight example; after returning to your home safely, your parasympathetic division will restart your digestion, slow down your heart rate and breathing, and contract your pupils back to a normal size. However, the adrenaline released earlier may still be present in your body, because the effects of these types of hormones take longer to start and to stop. Due to this, you may continue to feel a bit on edge, even though you are in no danger.