



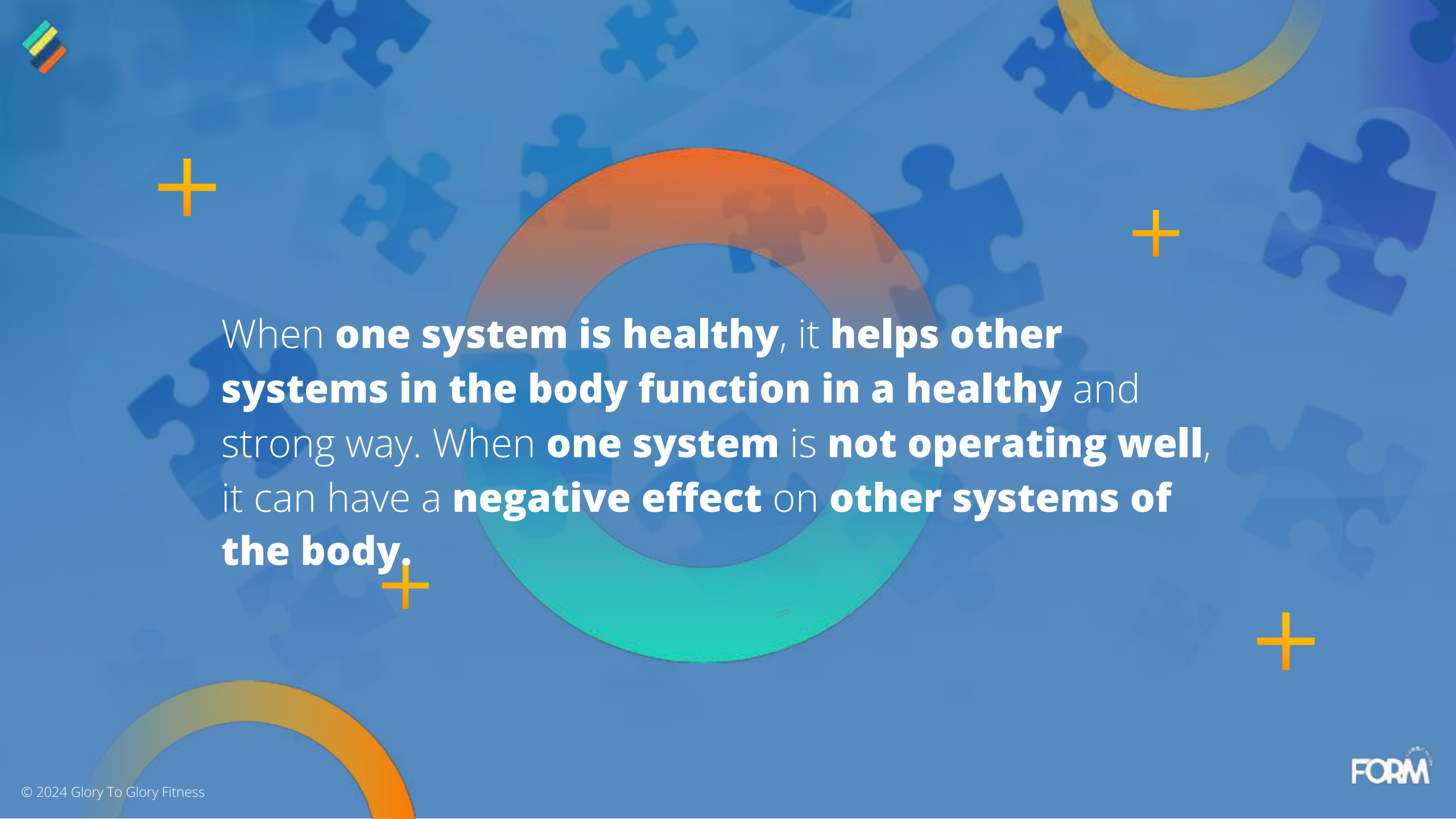
MADE TO MOVE

Review

- What are some examples of activities that produce healthy, strenuous movement?
- What are your favorite ways to move?
- What are specific ways that movement causes healthy changes in the body?



A **human body** is one whole made up of a **series of integrated systems**. A **system** is an **organization of differing amounts and types of body parts arranged to perform complex functions for the body**.¹



When **one system is healthy**, it **helps other systems in the body function in a healthy** and strong way. When **one system is not operating well**, it can have a **negative effect** on **other systems of the body.**



Review

Who can name one of the major systems of the body?

Can anyone explain what one or more of the systems do?

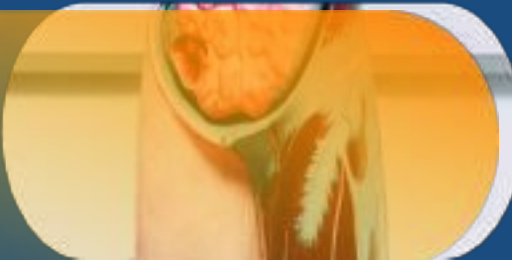


Major Systems of the Body

- **Skeletal:** gives the body structure against mechanical stress, protects internal organs, and produces red blood cells. Consists of bones, ligaments, cartilage, and tendons.
- **Muscular:** creates movement through the contraction of muscle fibers.
- **Nervous:** gives communication from the brain to the various systems of the body. Consists of the brain, spinal cord, nerves, and ganglia.



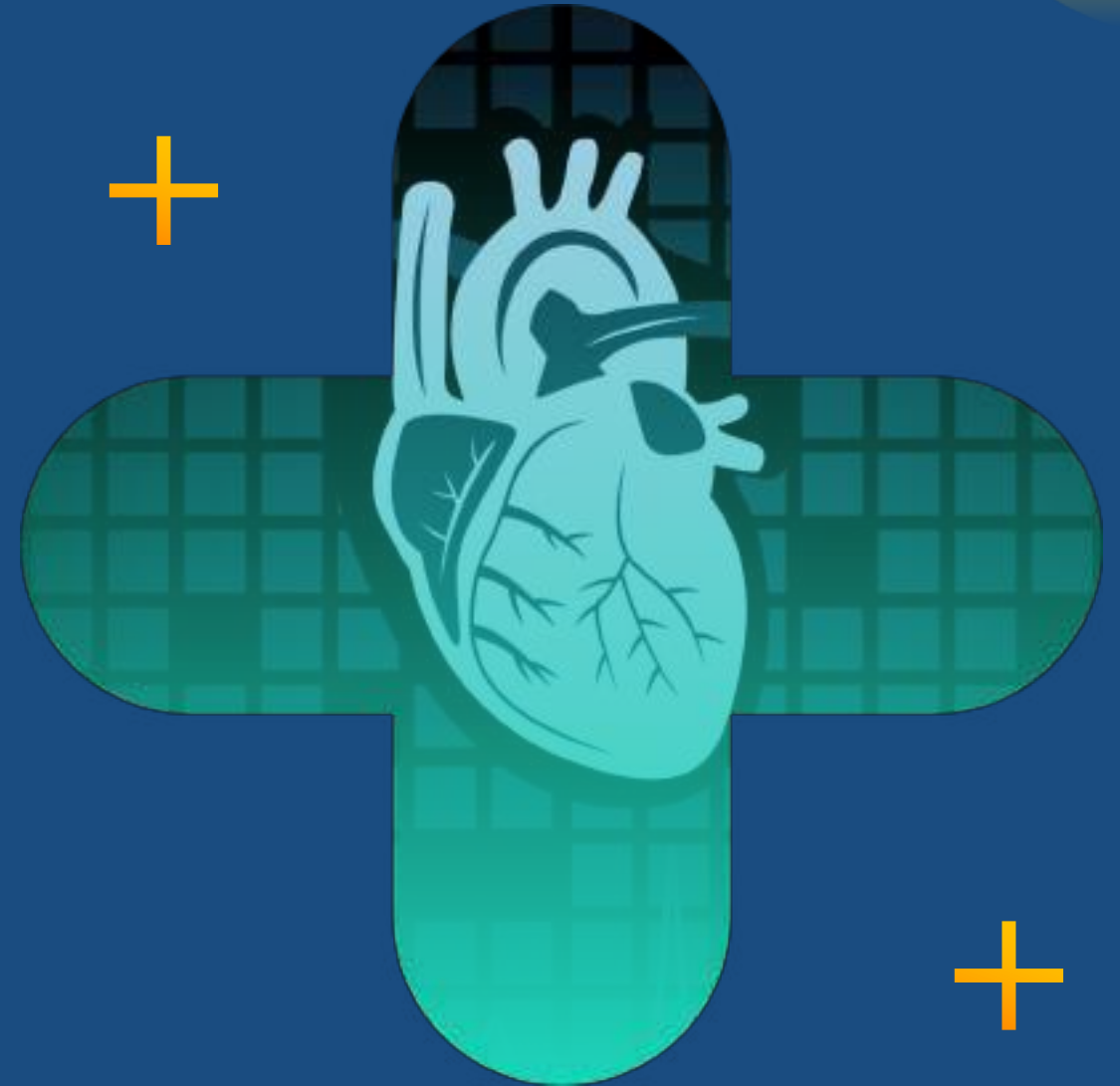
Major Systems of the Body



- **Endocrine:** regulates activities in the body through production of hormones using glandular secretions.
- **Cardiovascular:** circulates blood through the body. Consists of the heart, arteries, veins, and capillaries.
- **Lymphatic:** maintains healthy blood flow and blood volume by returning excess fluid in the body back into the bloodstream, helps the immune system to catch invading bacteria, and assists in absorption of fat soluble vitamins. Consists of spleen, thymus, lymphatic glands or nodes, and lymphatic vessels and ducts.

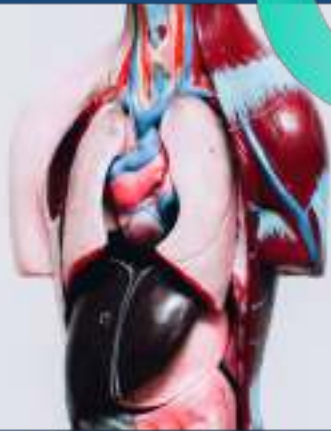
Review

- Which system consists of bones, ligaments, cartilage, and tendons?
- Which system consists of the heart, arteries, veins, and capillaries?
- Which system consists of the brain, spinal cord, nerves, and ganglia?



Major Systems of the Body

- **Lymphatic:** maintains healthy blood flow and blood volume by returning excess fluid in the body back into the bloodstream, helps the immune system to catch invading bacteria, and assists in absorption of fat soluble vitamins. Consists of spleen, thymus, lymphatic glands or nodes, and lymphatic vessels and ducts.
- **Respiratory:** oxygenates blood and helps regulate blood pH. Consists of the nose, mouth, throat, voicebox, windpipe, and lungs.





Major Systems of the Body

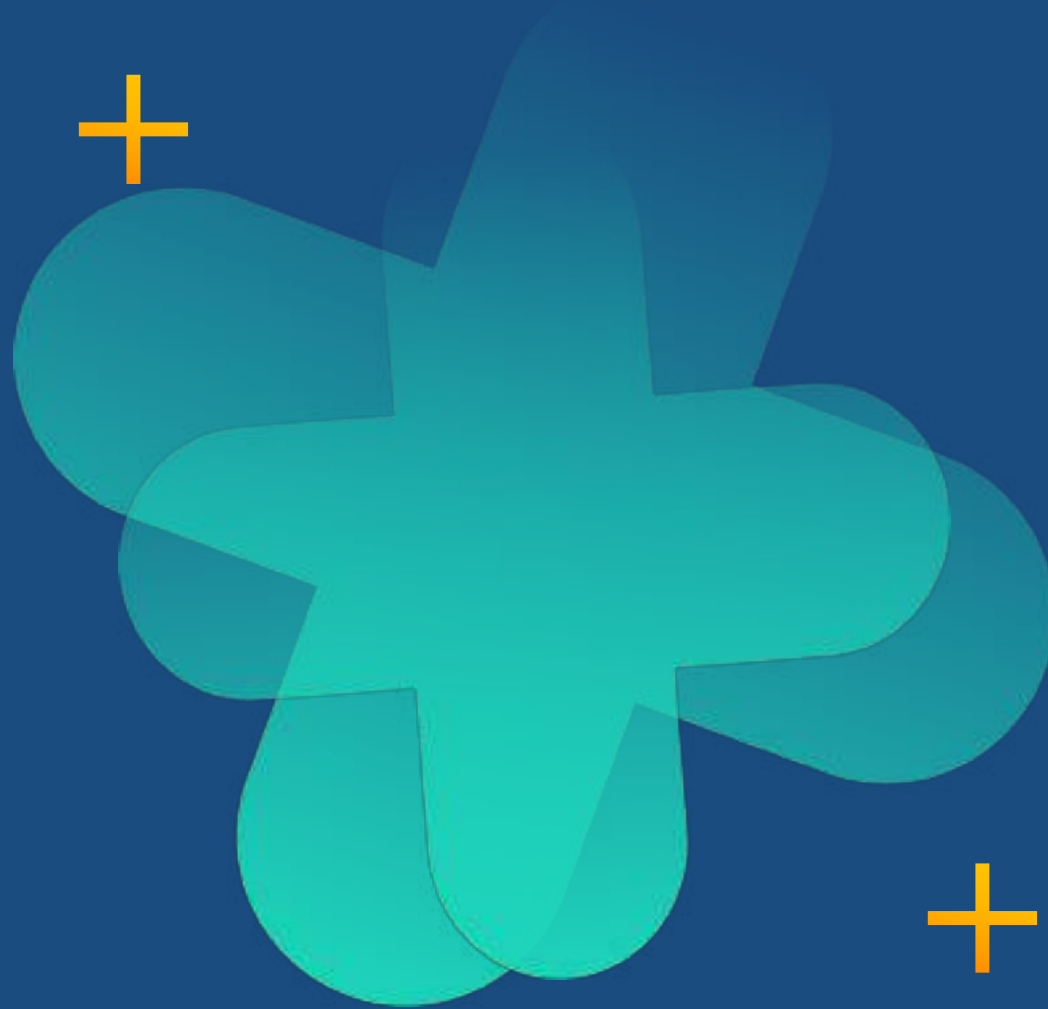


- **Digestive:** processes food into molecules for absorption of nutrients into the bloodstream and then eliminates waste products through defecation. Consists of the mouth, esophagus, stomach, small intestine, large intestine, and anus. Assisting organs include pancreas, gallbladder and liver.
- **Urinary:** helps to regulate proper volume and composition of fluids in the body, including ridding the body of waste products through urinary excretion. Consists of kidneys, renal pelvis, ureters, bladder and urethra.
- **Reproductive:** produces and transports egg and sperm cells, develops the offspring, and produces certain hormones. The male reproductive system consists of the external genitals (penis, testes, and the scrotum) and internal parts including the prostate gland, vas deferens and urethra. The female reproductive system consists of uterus, ovaries, fallopian tubes, cervix and vagina.



Review

- What functions in the body is the digestive system responsible for?
- What system consists of the nose, mouth, throat, voicebox, windpipe, and lungs?
- What system maintains healthy blood flow and blood volume by returning excess fluid in the body back into the bloodstream, helps the immune system to catch invading bacteria, and assists in absorption of fat soluble vitamins?





MEMORY CHALLENGE!



- Who in class can name the most of the ten major systems of the body?
- Who can explain the basic functions of the most systems?





Your Body is Like a House

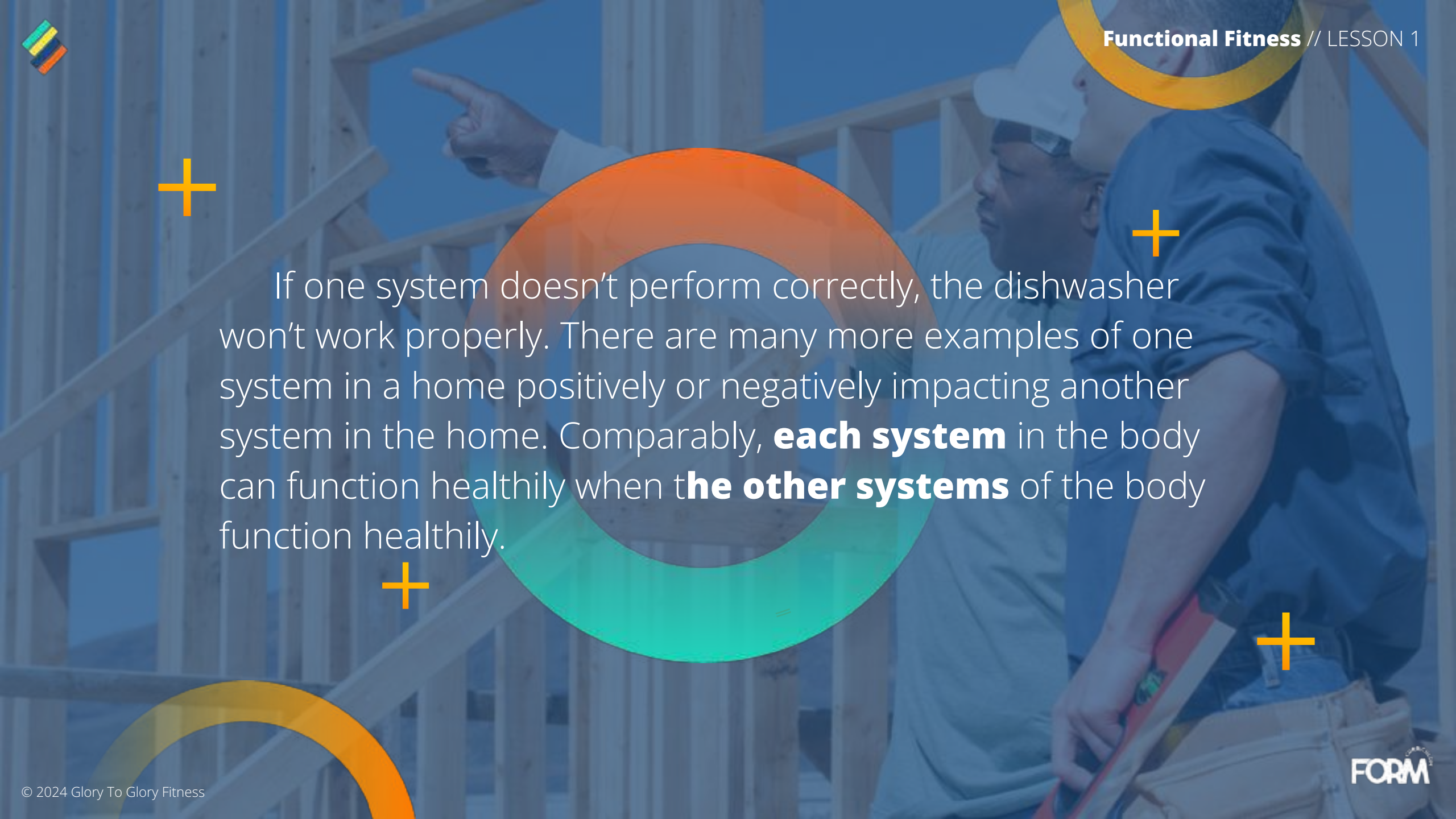


A **house**, similar to the body, is a whole made up of different systems like plumbing, electrical, HVAC, structural, natural gas, and more. For example, if you want to run your dishwasher, most homes **require at least three interworking systems** to perform this function: electrical, plumbing, and natural gas.



Plumbing brings water to the water heater, **natural gas** heats the water, **plumbing** brings the heated water to the dishwasher and **electricity** powers the dishwasher.





If one system doesn't perform correctly, the dishwasher won't work properly. There are many more examples of one system in a home positively or negatively impacting another system in the home. Comparably, **each system** in the body can function healthily when **the other systems** of the body function healthily.

Review

- In what ways is the human body similar to a house?

Made to Move

Movement is an essential key to the long term health of the systems in our bodies. Our bodies are made to **move**. The more often we **move** in a healthy way, the better the systems in the body usually function.



Review

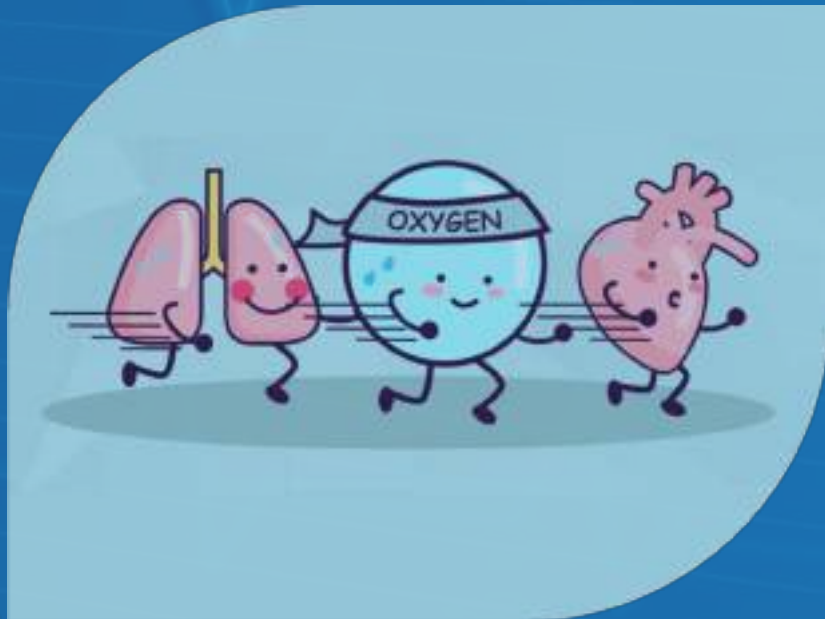
- Can you think of ways our bodies work better when we move them a lot?
- What are your favorite ways to move?

Made to Move



For example:

- Strenuous movement like running, hiking, biking, or lifting weights causes heavy breathing. Heavy breathing causes the stretching of lung fibers which allows the lungs to take in more oxygen with each breath each day leading to better oxygenation of the blood.



Made to Move

For example:

- Strenuous movement improves lymphatic circulation which enhances the oxygenation of blood leading to better organ and brain health.
- Elevated heart rate through strenuous movement improves blood pressure and the circulatory system's ability to carry blood and its nutrients throughout the body.



Made to Move

For example:

- Movement like brisk walking or swimming helps improve digestion.
- Movement improves various cognitive and memory processes in the brain as well as producing naturally antidepressant (“happy”) hormones.²

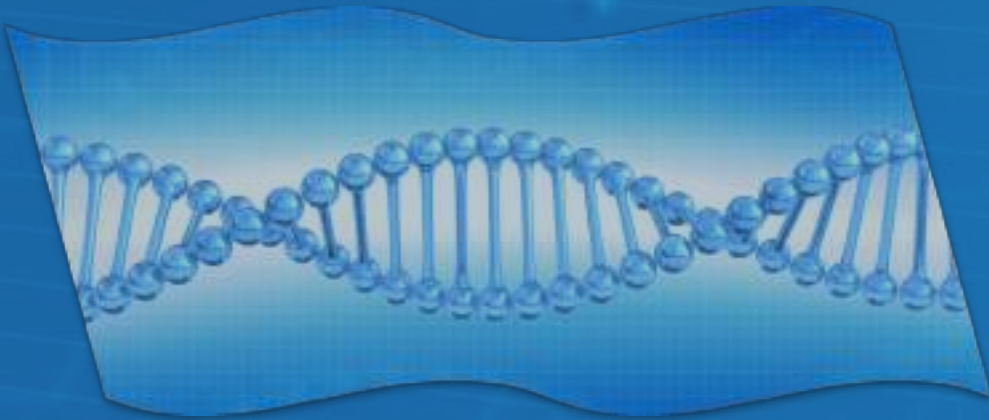


² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6770965/>

Made to Move

For example:

- Movement like strength training with weights improves bone density.
- Movement improves sleep quality and, as a result, improves overall cellular repair of the body's various systems.





“The more often we move in a healthy way, the better the systems in the body usually function.”



Homeostasis



“**Homeostasis** is a self-regulating process by which an organism can maintain internal stability while adjusting to changing external conditions.”³



³<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7076167/#:~:text=Homeostasis%20has%20become%20the%20central,adjusting%20to%20changing%20external%20conditions.>

Homeostasis



Simply put, the body wants to reach and maintain a state of secure wellbeing. The body wants to feel good and work well. It strives for all its systems to optimally function.



Homeostasis

We each feel the draw to be comfortable, cozy and relaxed. Often, many people spend a majority of their day doing the following:

- Eating
- Sitting: school, riding in cars, sitting at meals, sitting while watching media, sitting with friends, etc.
- Sleeping



There's a strong draw to do as little as possible and feel as comfortable as possible. Rest is good! However, our bodies won't reach its desired homeostasis through an excessively sedentary life.





MEMORY CHALLENGE!

Who can get the closest to the definition of *homeostasis*?



Homeostasis



“**Homeostasis** is a self-regulating process by which an organism can maintain internal stability while adjusting to changing external conditions.”⁴



⁴<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7076167/#:~:text=Homeostasis%20has%20become%20the%20central,adjusting%20to%20changing%20external%20conditions.>

Homeostasis

Here's our difficulty: the wellbeing (**homeostasis**) we're longing for in our bodies isn't primarily found through relaxation. Instead, it's more readily reached through **movement**. Our bodies adapt (make small internal changes) when we **move**.

Homeostasis

Let's look back at the following examples:

- Strenuous **movement** like running, hiking, biking, or lifting weights causes heavy breathing. Heavy breathing causes the stretching of lung fibers which allows the lungs to take in more oxygen with each breath each day leading to better oxygenation of the blood.
- Strenuous **movement** improves lymphatic circulation which enhances the oxygenation of blood leading to better organ and brain health.
- **Movement** improves sleep quality and, as a result, improves overall cellular repair of the body's various systems.⁵

⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6770965/>

Homeostasis

Let's look back at the following examples:

- Elevated heart rate through strenuous **movement** improves blood pressure and the circulatory system's ability to carry blood (and its nutrients) throughout the body.
- **Movement** like brisk walking or swimming helps improve digestion.
- **Movement** improves various cognitive and memory processes in the brain as well as producing naturally antidepressant ("happy") hormones.
- **Movement** like strength training with weights improves bone density.



“Homeostasis”



Consistent functional fitness and strenuous movement promotes the healthier digestion of food, circulation of blood, oxygenation of cells, reinforcement of bone, hypertrophy (growth) of muscle, production of hormones, cognitive processes (brain health and thought clarity), the ability to fight infection and recover more quickly from illness, and much more.





“The wellbeing (homeostasis) we long for is produced, in large part, by a life filled with movement.”





Review

- In what ways does movement improve how the body functions?
- In what ways does a sedentary life (a life of little to no strenuous movement) work against the body's design?



In Review

1

Similar to a house, a **human body** is one whole made up of a **series of integrated systems**. When one system is healthy, it helps other systems in the body function in a healthy and strong way. When one system is not operating well, it can have a negative effect on other systems of the body.

2

The systems of the body include the **skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive system**.

3

One of the best ways to **ensure the healthy functioning** of these various systems is **consistent strenuous movement**.

4

The body is seeking **homeostasis** (wellbeing of all its parts). We tend to seek that wellbeing through **being sedentary** (moving as little as we can).

5

One of the best ways to cooperate with the body's pursuit of homeostasis is putting the body through **consistent strenuous movement**. Various systems of the body make **positive adaptations** (changes) in **response to movement**.

A person is running on a track, captured in a side profile. The image is overlaid with a semi-transparent blue filter. In the top right corner, there is a circular icon of a globe with a teal border. In the bottom right corner, there is a teal plus sign. The text 'Conclusion: Our bodies are made to move.' is centered in the middle of the image. The word 'Conclusion:' is in teal, and the rest of the text is in white.

Conclusion: Our bodies are made to move.