



Story General Information

Move It or Lose It (🌈 A Physical Health Story) (4th Grade – 9-10 yrs.)

Your body is made of lots of muscles, so it only makes sense that our bodies were made to move. This story is about how your body moves and how using your muscles to move your body makes both your body and your brain healthy.

- 🌈 You may have heard the phrase “use it or lose it”. “Use it or Lose it” definitely applies to the muscles of our body and the parts of our brain that move these muscles.
- 🌈 Moving our bodies causes chemicals – endorphins – to be released in our brain. These chemicals do lots of different things that help our body and our brain.
- 🌈 You may have also heard the phrase “muscle memory”. If you have, FORGET ABOUT IT! There is no such thing as muscle memory – it is cerebellar memory.

The facilitator begins with an introduction of themselves, neuroscience, and an overview of the program, Brain Health: It's SPECTacular. In this story, the focus is Physical Health. Knowing more about how the body physically works can help the brain stay healthy. The children learn what “being physical” means in this story. It not only discusses the importance of moving the body and how muscles allow the body to move, but also stresses the significance of good sleep and eating habits. When the body is energized and moving, the brain is happy and healthy!

Muscles are all over the body and connected to the bones. Therefore, when they contract and release it causes the body to move. There are even muscles at work when the body is not moving. These muscles are called anti-gravity muscles and keep people and animals from floating away. The children discuss ways they can use their muscles every day and look at images of muscles in the body.

The facilitator emphasizes to the children the idea of “move it or lose it” and describes what that means. If people are not diligent about using their muscles, the muscles become weak and unable to function properly. However, when people use their muscles, those muscles get stronger and bigger!

Muscles do not move on their own. Muscles are controlled by the brain. The brain even has a map of the body inside it! The facilitator shares images of a homunculus or the map with the children and shows how the map is proportioned based on the amount of brain power needed to move a body part.

The brain is happy when the body is moving. This is how people/animals survive. The body must move to get food, water, and for other necessities of survival. Moving also pumps blood through the body and releases chemicals (endorphins and endocannabinoids) that turn on the brain's “happy place.” As the heart works faster to pump blood, the more chemicals are released. The facilitator discusses how exercise like walking, running, or swimming activates the reward center of the brain and makes someone feel really good afterwards (runner's high). The release of these chemicals also lowers stress and anxiety, which helps maintain good brain health.

Movement also helps maintain the body's ability to balance eating and sleeping. The facilitator introduces the children to the term *metabolism*. They discuss how the brain and body need energy from food to function and

metabolism is how the brain balances the right amount of nutrients. Food provides calories for the body and muscles burn those calories when working. Exercise increases the amount of Slow Wave Sleep (SWS) during the night. SWS allows the brain and body to repair itself. A rested, repaired, and nutrient full body and brain are healthy, happy ones!

The facilitator discusses and debunks the myth of “muscle memory.” Muscles are not capable of holding on to memories. Memory is a function of the brain, in particular, the cerebellum. Over time, necessary movements for activities such as riding a bike, writing with a pencil, or playing video games become habits. The brain no longer has to think about how to do these motions because the cerebellum remembers. Therefore, it is not “muscles memory;” it is “cerebellar memory.”

Finally, the children review the three major points of the story. The body and the brain need muscles to move and function to maintain a healthy balance both physically and mentally. There are many ways to move the body to use all the muscles. Muscles do not remember the movements; however, the cerebellum in the brain does. Repeated movements become habits. The key to healthy muscles is to remember the phrase “Move it or Lose it.” Strong muscles contribute to a healthy, happy body and brain. A healthy, happy brain is SPECTacular!

Story Objectives:

- Students will explain why moving our bodies is important to stay healthy.
- Students will list activities that use muscles.
- Students will describe how muscles make the body move.
- Students will explain why exercise (running/walking/swimming) make us feel good or happy.
- Students will describe how physical activity help with maintaining a healthy level of nutrition and sleep.
- Students will recognize that “muscle memory” does not exist; but habits do.
- Students will describe how and why habits or “cerebellar memories” are stored in the brain.