

On the Move!

What Is *IT!*

How do muscles help some organisms move?
Did you know muscles make up about 40% of the human body's weight? Without muscles, it would be impossible to walk, eat, or see! There are three different types of muscles in the body—skeletal, smooth, and cardiac. Two of these, the smooth and cardiac muscles, move by themselves without you even thinking about it! The skeletal muscles, however, are controlled by you. These muscles are associated with the movement of bones in your body. The muscle is attached to the bone, and when it contracts or tightens, it becomes smaller causing the finger, toe, arm, or leg to move. The various skeletal muscles work together in pairs to make you walk slow or run very fast.

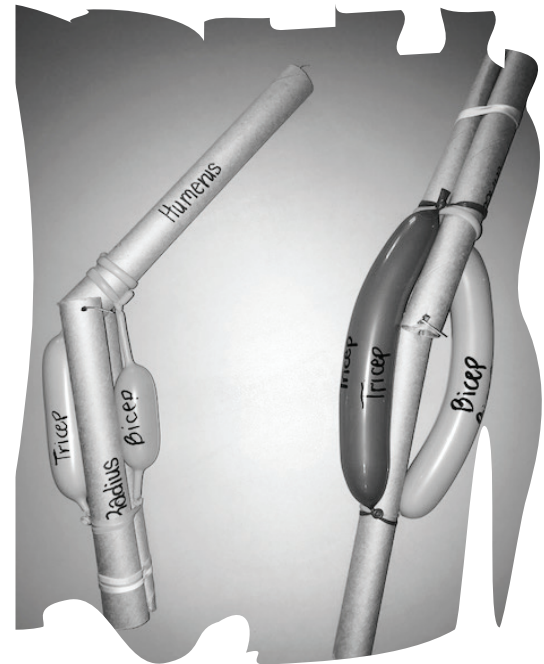
Think About *IT!*

How does exercise play an important part in maintaining healthy muscles?

Move it or lose it! Without proper exercise and healthy eating habits, muscles can lose their tone, that is, they shrink in size and strength. The body naturally conserves energy when muscles are not being used by storing or sending the energy to support it elsewhere. As a result, muscles begin to waste away. Exercise and good nutrition can help prevent loss of muscle tone.

Extend *IT!*

Learn more about diseases that affect the muscular system like ALS or Muscular Dystrophy. How do these diseases affect muscle tone? Or investigate new technologies that can help improve muscle tone in people who have suffered spinal injuries.



Materials List:

- Cardboard tubes
- Rubber band
- Balloon pump (if needed)
- Paperclips
- Long balloons
- Rubber glove
- Scissors
- Marker

Dare to Change *IT!*

How can your understanding of muscles help make a difference in your school and community?

Scenario: Ana is the new director of the local Assisted Living Home. She observed that many of the residents spent their time sitting listening to music, watching television, or playing card games. After reading an article about how astronauts needed physical therapy after spending a great deal of time in zero gravity, Ana thought there might be a possible connection with the resident's lack of physical exercise and their need for assistance whenever they wanted to get up and move. She decided to reach out to local science researchers, fitness experts, and engineers to develop an *On the Move!* campaign. Ana hopes if she educates the residents on the importance of staying physically active, it will provide a better quality of life and reduce the need for mobilization help.

Challenge: Use your knowledge of how muscles work in moving joints to design and build a "muscle-joint" model that can help educate the residents of the Assisted Living Home on the importance of physical exercise for better muscle tone.

Suggested Resources and Articles:

Healthfinder.gov [May-National Physical Fitness and Sports Month](#)

American Physiological Society – <http://www.the-aps.org>

Medical News Today – [What are the main functions of the muscular system?](#)

mentalfloss.com – [What would happen to your body if you never left your bed?](#) By Shaunacy Ferro

nasa.gov – [The Human Body in Space](#)

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