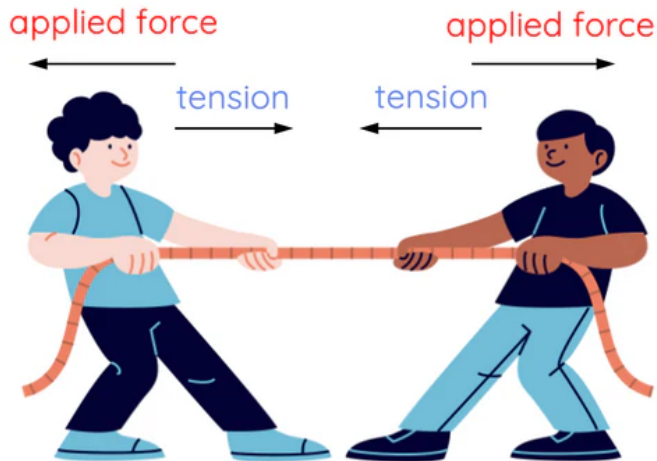




# Tension



**Tensegrity** is a term created by R. Buckminster Fuller, a combination of the words tensional and integrity [1]. Tensegrity refers to separate components of an object that are held together by tension. **Tension is a force caused by pulling or stretching an object tight** [2]. For instance, a rope pulled tight in a tug-of-war is said to be “under tension” due to the forces caused by the teams pulling on both sides of the rope.



Notice here in the left cartoon [3], that **the direction of the tension force is in the opposite direction of the applied pulling force!** This is how tension lets us create illusions, like the Tensegrity table in the photo on the right [4], where the top and bottom pieces of wood are only connected by flimsy wire!

The top surface of the Tensegrity table, where the action figure sits, appears to be floating and defying gravity. There is no wooden support holding it up. **The shorter center wire holds up the weight of the Tensegrity table** with upward tension opposing the force of gravity pulling downwards. **The 4 longer outer wires supply tension to keep the upper surface stable** from tipping in any direction. Tensegrity tables also remain intact while upside down or even while held by one end in the air on their sides—smart placement of the wires means tension keeps the two wooden segments in place in any orientation. Physics still works! Tension is doing the heavy lifting for this mind-bending illusion.

[1] Swanson, R.L. (2013). Biotensegrity: a unifying theory of biological architecture with applications to osteopathic practice, education, and research—a review and analysis. *The Journal of the American Osteopathic Association*. 113 34–52

[2] Halliday and Resnik (2020). Force and Motion. *Principles of Physics*

[3] "Forces: an introduction". <https://scienceready.com.au/pages/forces>. Science Ready. Retrieved 24 Oct 2025

[4] Polkilo. "How to Make Floating Tensegrity Table." Instructables, [www.instructables.com/How-to-Make-Floating-Tensegrity-Table/](http://www.instructables.com/How-to-Make-Floating-Tensegrity-Table/).