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## Biotensegrity helps understand balance

Would you agree -- that balance is something beautiful, functional, joyful and youthful? I think so, and I have been interested in it for a long time. I have been exploring: What helps to maintain simple balance? What helps to develop specialized balance?

In the last 18 months a new path has come into my life: the emerging field of biotensegrity. Through this study, I have learned that although we usually think of balance as being about aligned verticality, it is more useful, and more interesting, to look at it as being about three dimensionality.

What is biotensegrity? It is the understanding that biological entities -- you and me -- have a tensegral structure. What is tensegrity? The term is a contraction of tension + integrity. It was coined in 1949 by Buckminster Fuller to describe structures composed of rigid elements that are suspended in elastic elements. These elements are commonly rods and wires. The rods don't touch. Instead they "float" in the wires, and they are under balanced tension. The structure encloses a central spaciousness.

The most prolific creator of tensegrities is the sculptor Kenneth Snelson, who in 1949 was twenty-two and Fuller's student, and now is in his vigorous eighties and living in New York City. One of his sculptures, *The Needle* (*right, above*), photographed while looking up, has been on display at the Hirshhorn Museum in Washington, D.C. since 1974.

An early viewer of *The Needle* was Stephen Levin, MD, a resident of McLean, VA and a young orthopedic surgeon who was, and is, passionately interested in the question: "What holds the body upright?" The conventional wisdom of "bricks all stacked up" did not accord with anything he observed -- not the human body during surgery and not the dinosaurs on display at the Museum of

Natural History. In a eureka moment, one Sunday morning in 1975, he saw *The Needle* for the first time and made the intuitive leap: "Tensegrity is what holds the body upright."



His mind connected with the fact, often observed during surgery, that the bones do not touch. Instead they are held in place by the muscles, tendons and ligaments, all under balanced tension. He realized that tensegrity is not just amazing architecture; it is also biology. This was the birth of biotensegrity.

My own connection with biotensegrity began with ice skating. I have been skating recreationally for 15 years. On the ice, I am always exploring balance. In the winter of 2012, while playing with the shapes of skating, I was often feeling: "This shape makes me feel like a three-legged stool in the air." I could perceive triangles everywhere. In March 2012 I went to a lecture by Dr. Levin and learned that biotensegrity, too, is all about triangles. The lecture answered many questions on the spot and has opened many doors since.

Gradually, as I learn more, I am incorporating biotensegrity more into my Feldenkrais teaching. I keep seeing: balance cannot be well understood by thinking about things all stacked up. It is better understood by looking three-dimensionally for triangles under balanced tension and by cultivating the sense of spaciousness at the center.