

THE PHYSICS OF ENERGY IN BODYWORK

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As a physicist certified in massage, I'm often faced with people who want to understand the science of energy in bodywork. Yet energy means different things to different people, so it's worth considering the term to help find common ground in understanding the concept of energy in manual medicine.

As therapists, we define energy as a physical sensation, like the vibration or heat we experience when we work. While we may not all feel the same thing, we can generally agree on when energy is being put into something and when it's being taken out. Energy in bodywork is sense-oriented.

In physics, energy has a precise definition: The ability to do work, to make something change. Energy is conserved—it can never be created or destroyed, just transformed or moved around. This "conservation of energy" concept unifies every experience in life, from throwing a baseball to boiling water, and allows you to see the connection.

Along with another concept (conservation of momentum), conservation of energy forms the foundation of modern science and technology. So to physicists, energy is neither elusive nor sense-oriented, but the fundamental principle from which all of science arises. Everything around us is a result of this dance of energy being transformed.

Energy is encountered in several forms: kinetic, potential and heat. Kinetic energy is the energy of motion, like that of a baseball when you throw it. Potential energy is stored energy that has potential to be used. Heat is the kinetic energy associated with the motion of all the atoms inside an object.

Imagine a roller coaster going over two hills. If the car starts at the top of the first hill and rolls down, it gradually picks up speed until it reaches the bottom. It takes the potential energy it has by being a certain distance from the earth (gravity) and converts it to kinetic energy to accelerate to the bottom of the hill. Then it slows down and continues up the next hill, converting kinetic energy back into potential energy.

Because the car started at a higher point on the first hill, it still has enough energy to go over the second one. But energy was not lost or gained in the process, just transformed.

But what if the car starts halfway down the first hill? It accelerates but doesn't have enough energy to get over the second hill, and ends up oscillating back and forth between the two. To get the car over the second hill, energy would have to be added from outside the system to help push it over.

Energy is stored, moved or manipulated by one of three

forces: nuclear, electromagnetic or gravitational. Nuclear force holds the nucleus together inside an atom. Electromagnetic forces provide the interaction between atoms. Gravitational force is the mutual attraction between masses. Since humans don't have much direct connection with nuclear force, what we experience in daily life are electromagnetic interactions in the field of gravity.

Physics dictates that anything conducting electricity has an electromagnetic field, including the human body. When you bring your electromagnetic field close to another person, the two fields interact. With training, you can learn to perceive your own field, and through this interaction, the field of another. This forms the basis of energy work.

To better understand this, let's add the concept of entropy—the degree of disorder or chaos in a system. Imagine a game of pool. You take the balls, place them into a triangular rack and set them neatly on the table. Then you strike the rack with the cue ball, scattering the balls across the table. The entropy of the table has increased—there is more disorder.

Globally, the universe tends toward increased entropy, toward chaos. Locally, however, a system that's strongly interacting with its surroundings tends toward equilibrium. Thus, by putting energy into a system, it is possible to decrease entropy.

Consider the pool table. How did you get an ordered state to begin with? By placing the balls exactly where you wanted them. You put energy into the system to increase order on the table.

The human body tends toward order, toward healing. If we cut ourselves, the body tries to knit itself back together. Life is a system for decreasing entropy. So what is energy in bodywork? It's one person adding energy to another through the interaction of electromagnetic fields, helping to decrease entropy in the body and return it to a more ordered state.

Consider that roller coaster with the car stuck at the bottom. You'd have to put energy into the car to move it past the barrier of the hill. In the same way, you connect to help your clients move past barriers toward better health. It's a concept supported by science.

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