

## Law of Thermodynamics Applied

Thermodynamics is the study of energy. The term "thermodynamics" comes from two root words: "thermo," meaning heat, and "dynamic," meaning power. Thus, the Laws of Thermodynamics are the Laws of "Heat Power." As far as we can tell, these Laws are absolute. All things in the observable universe are affected by and obey the Laws of Thermodynamics.

**Energy is Valuable:** The First Law of Thermodynamics (Conservation) states that energy is always conserved, it cannot be created or destroyed. In essence, energy can be converted from one form into another, but it cannot be created or destroyed. Indirectly, this explains why we store fat.

**Energy must be respected:** The Second Law of Thermodynamics (Entropy) states that "in all energy exchanges, if no energy enters or leaves the system, the potential energy of the state will always be less than that of the initial state." Incorrect approaches to fat reduction can further damage energy systems.

**Energy management is critical:** Third Law of Thermodynamics states that "The entropy (random movement or energy) of a pure perfect crystal is zero (0) at zero Kelvin (0° K)." In other words molecules have completely stopped moving and no energy is being required. Nature sets the rules for smart, effective and efficient fat storage reduction activities and we must understand and trust nature.

How does this apply to human health potential?

The universe VALUES its energy systems to the degree that it will protect the mechanisms that preserve energy reserves and diversity of energy sources toward maintaining an efficient system of operation. A complex multi-cellular organism like the human body requires complex variable and adaptable energy systems to preserve health on a daily basis so all food sources play a part in the energy utilization systems.

Applied Laws of Thermodynamics state that:

*ENERGY IN = ENERGY OUT so that no fat is stored*

*ENERGY IN > ENERGY OUT so therefore fat is stored*

*ENERGY IN < ENERGY OUT so fat stores can be reduced*

Practical considerations we can learn from applying an understanding of the Laws of Thermodynamics:

1. If we can consume just the right amount of energy that is needed for each particular day there would be nothing left to store as fat; but that is impractical, therefore a system of storage is required.
2. As long as there is "energy beyond what is needed" the body will immediately store what's left over, and within hours. People store fats everyday... its that simple. Energy management is the solution.
3. It is NO ACCIDENT that FAT is the chosen form for stored energy in a carbon based organism. Fats generate over twice the amount of energy per gram as carbohydrates and proteins, so energy storage is efficient with fats as reserve tissue. There are target fat percentage guidelines to respect and achieve.
4. A dynamic complex living being requires daily cellular regeneration, so the methods used to reduce fat storage must not compromise these processes. Every cell uses enzymes and has a bi-lipid layer that requires fats and proteins to rebuild and replicate cells. Use energy managed applied nutrition plans.