

# The Energy Story

What flows in, must flow out

Many people find it difficult to maintain a healthy flow of energy through their body, which has led to a global obesity and lifestyle disease crisis.

The reasons for the imbalance are very complex, but the notion of 'energy' is pretty simple.

## The Energy Cycle

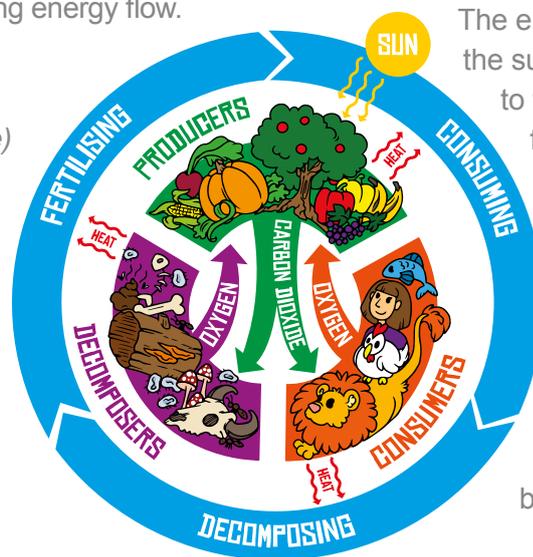
*Thermodynamics* is the branch of science that explains the physical laws governing energy flow.

The First Law of Thermodynamics states: *The amount of energy in a closed system (our entire universe) always stays the same. The energy can change from one form to another, but it cannot be destroyed; and new energy cannot be created.*

That means the energy flowing through your body right now has been moving around our universe, in a variety of forms, since the dawn of time.

Each time energy changes form, it produces heat. This heat maintains your core body temperature then is lost to the surroundings. Meanwhile, the energy keeps flowing through your body.

The energy cycle begins with the sun. Plants use sunlight to transform energy into a form that animals can digest (food) and breath (oxygen). When you eat plants or animals, some of this energy flows into your body to fuel your life processes. Then the energy flows back out and the cycle begins again.



POWERED BY



metabolicsymphony.com



### How Does Energy Get In?

All of the macronutrients in your food – Fats, Proteins and Carbohydrates - provide you with potential energy. As soon as the energy enters your body, it starts changing form.

For example, sucrose (sugar) is a Carbohydrate. When a sucrose molecule goes into your stomach, it *hydrolyses* (water is added) which splits it into two new energy molecules called *Glucose* and *Fructose*. These molecules transform into other energy formats, which continue flowing through your body.



### Energy Storage

For lifelong health, it is essential to balance your energy flow. If more potential energy goes in than comes out, the excess will be automatically stored in your body.

Glucose energy is stored for a short time as *glycogen*, which collects in the muscles ready for immediate use. Unused glycogen converts

to long-term storage in the form of *visceral (body) fat*, which collects around your body and organs.



When glycogen runs out, or your Carbohydrate intake is very low, your body will break down visceral fat for the energy it needs to keep humming.

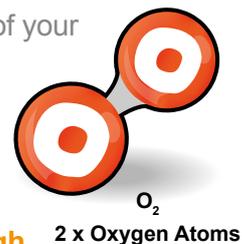
Fructose energy is stored in the liver. The liver has limited capacity and can be overwhelmed very quickly if you eat too much sugar. Too much Fructose can lead to a serious condition called nonalcoholic fatty liver disease.

### How Does Energy Get Out?

Some energy flows out of your body as waste products (wee, poo), which transfers the energy to other living things such as plants and animals (bacteria).



The majority of energy flows out of your body as carbon dioxide (CO<sub>2</sub>) when you breath out. CO<sub>2</sub> is used by plants to produce food and oxygen (O<sub>2</sub>).



**Keep the energy flowing through your body by making wise food choices and doing a minimum 30 minutes of physical activity every day.**

POWERED BY



metabolicsymphony.com