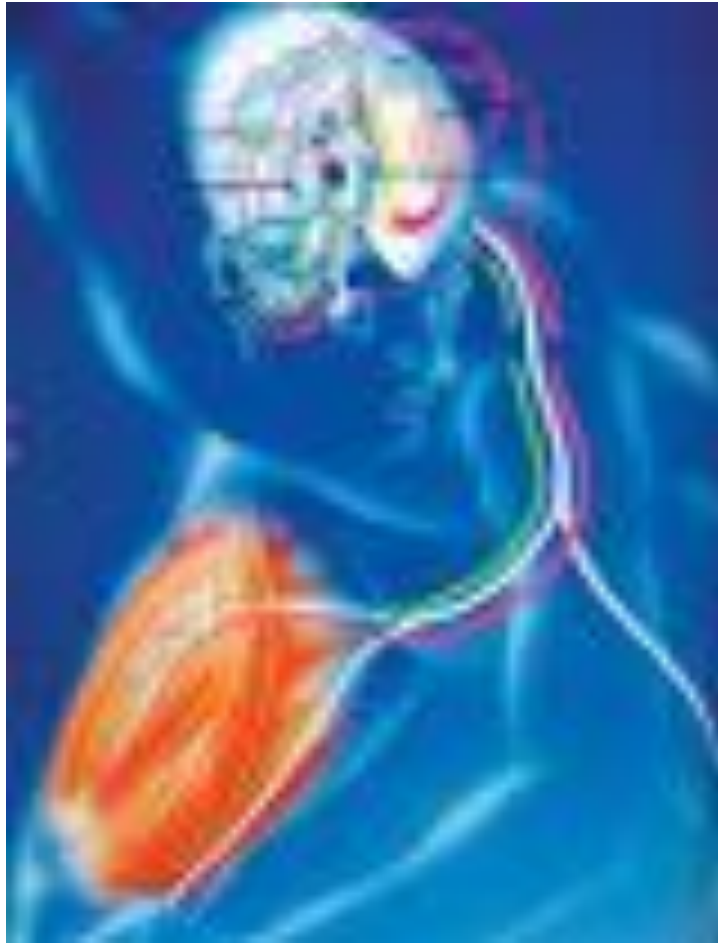
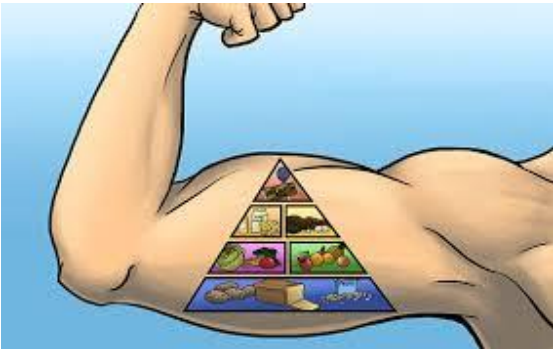


Why do we need energy?



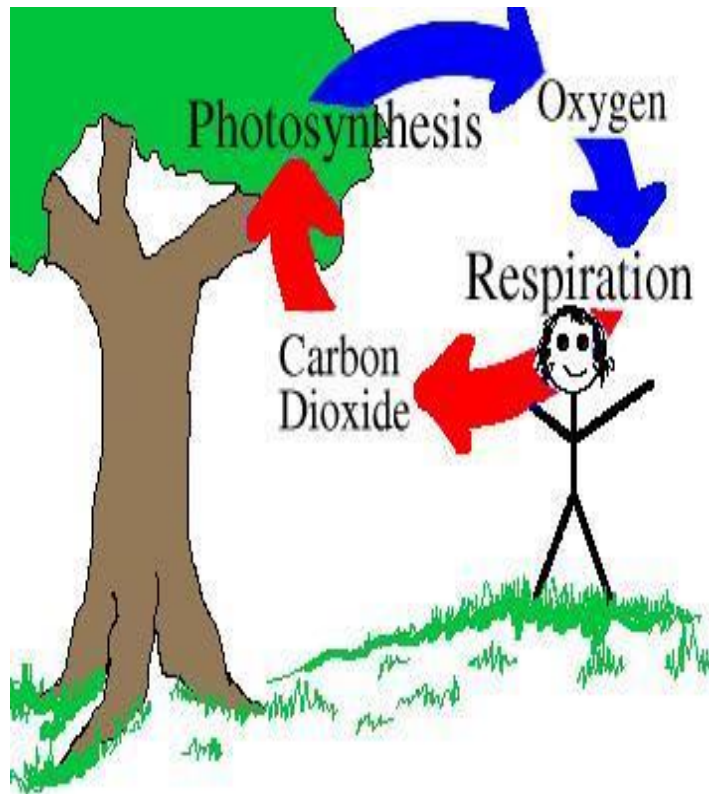
- To move muscles, the brain generates an electric pulse and sends it through nerves to the muscle, causing it to contract.
- To generate this pulse, the brain needs energy.

Why do we need energy?



- Energy is also needed for the muscles themselves to move (the electric pulse is a signal, rather than a power source).
- When you move, muscle cells release chemical energy using glucose (by breaking bonds) to move your arms for example
- In warmblooded animals (such as humans), energy is also used to maintain body temperature.

Cells and Energy



- To stay alive, cells need a constant supply of energy (ATP).
- Plant cells get energy from sunlight and make glucose.
- Animal cells get energy from glucose.

Cells and Energy

- ATP is produced by almost all living things in organelles called mitochondria found in cells.
- It is not energy itself, but rather temporarily "stores" energy in its' bonds.
- When the third phosphate bond is broken, energy is released. This creates ADP which has one less phosphate attached to the group.
- **KNOW THAT** Chemical energy is stored in the **BONDS** between atoms of every molecule.
- A major energy source for most cells is stored in the smallest sugar molecule called **GLUCOSE** ($C_6H_{12}O_6$)