

Basic Molecules of the Human Body

Molecules (% of body weight)

Inorganic

- 1. Water** (60-65%) - solvent; reactant, temperature homeostasis, lubricant, cushioning, transport
- 2. Electrolytes*** (2-3%) - help maintain salt/water balance and acid/ base balance, important in bone and teeth formation, nerve impulses, muscle contractions, enzyme activation
- 3. Gasses** - O₂ essential for respiration and energy production; CO₂ is a waste product that affects acid and base balance; NO acts as a hormone; CO is a respiratory poison

* many organic molecules are also electrolytes

Organic

- 1. Carbohydrates** (1-2%) - energy source for most cells, used to make nucleic acids, serve as markers on surface of cells
 - 2. Lipids** (14 - 20%) - store excess energy in cells, insulation from cold, electrical insulation around nerve cells, found in cell membranes, used to make some hormones, facilitate digestion
 - 3. Proteins** (15-18%) - structural elements in many tissues, used to make hormones, transport, enzymes, membrane carriers, antibodies, clotting, buffers, regulate salt and water balance, blood clotting
 - 4. Nucleic Acids** (<1%) - stores genetic code, controls cell division, regulates metabolism
- ATP** - ATP is a special energy transfer molecule
- 5. Vitamins** (trace) - their presence affects health and functions of eyes, skin, GI tract, lungs, bones and teeth, nervous system, blood; used as coenzymes for many enzymes