

Life Functions

I) Nutrition

Do Now:

➤ Answer the following questions:

1) What are some of the things you did today to stay alive?

2) True/False: Only foods containing sugar can give you energy. Why or Why not?

3) True/False: Fats have no place in a healthy diet. Why or Why not?

What does it mean to be alive?

- Once you are alive, how do you stay alive?
- There are  life functions/activities.

<i>Life Activity</i>	<i>Definition</i>
	Circulation and absorption of nutrients
	The release of energy from food
	Organisms obtain and process food
	Control and coordination of all activities in an organism
	Removal of harmful cellular waste
	An increase in size and/or number of cells of an organism
	The production of new individuals
	Producing complex substances from simple substances
	The sum total of all life functions

How do single celled and multi-celled organisms perform these life functions?

<i>Life Function</i>	<i>Single Celled Organism</i>	<i>Multi-cellular Organism</i>
Transport	[] through cellular membrane	[] system
Respiration	[] through cellular membrane	[] system
Nutrition	[] and diffusion , [] intracellular	[] system extracellular
Regulation	Chemically responds to environment	[] and Nervous systems
Excretion	[] out cellular membrane	[] system
Reproduction	Mitosis (Binary Fission)	[] system

Heterotrophic Nutrition

We now know there are **2 types** of nutrition
(Autotrophic and Heterotrophic)

Autotrophic Nutrition: organisms make their own food

Used by: plants (photosynthesis) and some bacteria (chemosynthesis)

• Photosynthesis light + CO₂ + H₂O → glucose (C₆H₁₂O₆) + O₂ + H₂O

Heterotrophic Nutrition: organisms take in food

Used by: some single celled organism, animals, fungus

Why do organisms need food?

For **energy** to carry out cellular metabolism (sum of all life processes)

• **Nutrients** are found in foods

11 Tomatoes Vitamin A			30 Broccoli Selenium
5 Cups Green Tea EGCG Content			71 Cantaloupe Vitamin E
25 Asparagus Calcium			19 Wheat Slices Zinc
96 Blueberries Antioxidants			10% Certified Organic Aloe Vera
10 Cups Green Beans Folate			12 Orange Slices Vitamin C



- Provides **energy** and materials for cell development, **growth** and **repair**
- The energy that food gives us is measured in **calories**

There are six different nutrients the human body utilizes for proper functioning. They are:

Organic Nutrients:

1. Carbohydrates - supplies energy for body functions

Sources: cereal, bread, pasta, sugar



2. Fats/Lipids -supplies energy, major part of cell membrane and stored form of energy in body

Sources: butter, animal fats, oil



3. Proteins - growth and repair of body tissue, can also supply energy

Sources: fish, meat, eggs, legumes



Inorganic Nutrients:

4. **Water** - fluid needed for chemical reactions to take place, also transports materials

Sources: **drink it, plants, most foods**



5. **Minerals** - makes up body structures, also helps regulate metabolism

Sources: **Ca (calcium), Fe (iron), Na (sodium), I (iodine), K (potassium)**



6. **Vitamins** - acts as a catalyst (helps chemical reactions occur quickly and accurately) **(co-enzyme)**

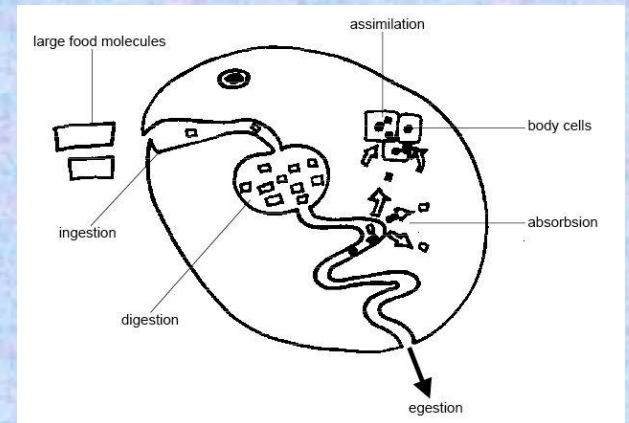
Sources: **supplements, vegetables, fruits, meats**



Define nutrition: Life activity by which your body gets food and changes it into a usable form

There are some terms you need to know when we speak of organisms performing heterotrophic nutrition.

1. ingestion: taking food into the body
2. digestion: breaking food down into usable molecules
3. egestion: elimination of undigested food particles
4. intracellular: digestion which takes place inside cells
5. extracellular: digestion which takes place outside cells in a canal



Food Pyramid

