Digestion and Respiration

MMHS Anatomy
Chitranoff
• **Catabolism**: Breakdown reaction of large to small molecules. (=**digestion**)  
  → releases energy (**ATP** created)

• **Anabolic**: Synthesis reaction (=**creation**)  
  → requires energy (**ATP** used)

• **Metabolism**: Sum reactions of **catabolism** & **anabolism**.
**Digestion and Respiration**

**LIPIDS**
- Triglycerides
  - Lipolysis
  - Lipogenesis
  - Fatty Acids
  - Glycerol

**CARBOHYDRATES**
- Glycogen
- Glucose
  - Glycolysis
  - Glucogensis
  - Pyruvic Acid
- Acetyl-CoA
- Krebs Cycle
  - CO2 Waste
  - 1 ATP/Cycle
  - Electron Transport System
  - Break down oxidation

**PROTEINS**
- Polypeptides
- Amino Acids
  - deamination

**Mitochondrion**
- (Aerobic Respiration)
  - Fatty Acids
  - O2
  - H2O
  - Heat

= 32 ATP per Glucose
Respiration Reaction

Glucose + Oxygen \rightarrow CO_2 + H_2O + Heat

(Reactants) \rightarrow (Products)

(=Burning the Food)


ATP is Ubiquitous!

• ATP surplus can be used for cellular activities like...
  1. Active Transport of materials
  2. Muscle Contraction
  3. Waste Removal
  4. Thought / Brain Activity
  5. Maintaining Homeostasis