

ANIMAL NUTRITION

NUTRITION

- ◉ **Nutrition**
 - A proper and balanced food and water ration to facilitate growth, body maintenance , reproduction, and other animals functions
- ◉ **Nutrient**
 - A food or group of foods of the same general chemical composition that supports animal life

6 BASIC NUTRIENT GROUPS

- ◉ Water
- ◉ Proteins
- ◉ Carbohydrates
- ◉ Fats
- ◉ Vitamins
- ◉ minerals

WATER

- ◉ **What is water necessary for?**
 - Supporting reactions in the body
 - Transporting nutrients
 - Maintaining body temperature
 - Body form
 - Waste removal



WATER

- ◉ Most important nutrient
- ◉ Makes up 65% of the body
 - Blood 90%
 - Muscle 72%
 - Bone 30%
- ◉ **For animals:**
 - Must provide a clean, fresh water supply



PROTEINS

- ◉ Carbon, hydrogen, oxygen, nitrogen
- ◉ **What are proteins necessary for?**
 - Tissue repair
 - Milk, wool, egg production
 - Developing a fetus
 - Enzymes, hormones
 - Antibodies
 - DNA, RNA



PROTEINS

- ◉ Amino acid
 - The building block of protein
- ◉ In your animal:
 - Proteins from plant or animal material are broken down into amino acids
 - Amino acids are used to build things the animals body needs to function

PROTEINS

- ◉ 25 amino acids total
 - 10 are essential
 - These cannot be made by the body - must get from diet
- ◉ Example:
 - Cats cannot make enough taurine
 - If not added to the diet
 - ◉ Eye lesions
 - ◉ Heart failure

CARBOHYDRATES

- ◉ Components
 - Carbon Hydrogen Oxygen
- ◉ What are carbohydrates necessary for?
 - Energy for body functions
 - Energy for producing heat (warm blooded)
 - Energy to be stored as fat

CARBOHYDRATES

- ◉ Sugar and starches
 - Easily digestible
- ◉ Crude fiber
 - Not easily digested
 - Ruminant animals have specialized digestive systems to use crude fiber

FATS (LIPIDS)

- ◉ Carbon, hydrogen, oxygen
 - In a different combination than carbohydrates
- ◉ 2.25 times as much energy as carbohydrates and proteins

FATS (LIPIDS)

- ◉ Why are fats necessary?
 - Providing energy
 - Absorption of fat-soluble vitamins
 - Providing fatty acids

VITAMINS

- ◉ Organic substances required in small amounts for biochemical reactions in the body
- ◉ Necessary part of some reactions
 - Metabolism
 - hair, feather, bone, eyes
 - Regulating body glands
 - Forming new cells
 - Immune function
 - Nervous system function

VITAMINS

- ◉ Classified by solubility
- ◉ Fat soluble vitamins
 - Can be stored in the body
 - A, D, E, K
- ◉ Water soluble vitamins
 - Very little can be stored
 - B, C

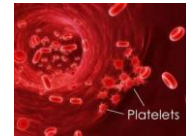
FAT SOLUBLE VITAMINS

- ◉ Vitamin A
 - Vision
 - Green leafy plants are rich in A
- ◉ Vitamin D
 - Produced after exposure to UV rays (sunlight)
 - Bone development
 - Deficiency
 - Rickets = soft and deformed bones



FAT SOLUBLE VITAMINS

- ◉ Vitamin E
 - Reproductive hormones
 - Deficiency
 - Poor fertility, miscarriages
- ◉ Vitamin K
 - Blood coagulation (clotting)
 - Green forages have lots of K



WATER SOLUBLE VITAMINS

- ◉ Vitamin C
 - Immune function
 - Deficiency
 - Scurvy = swollen, painful joints and bleeding gums
- ◉ B-complex vitamins
 - Riboflavin
 - Niacin
 - Folic acid
 - thiamine



MINERALS

- ◉ Inorganic elements that are essential to life's processes
- ◉ Macrominerals
 - Required in large amounts
- ◉ Microminerals
 - Required in trace amounts
- ◉ Macrominerals are not more important, just need in larger quantities!

MACROMINERALS

- ◉ Calcium and Phosphorus
 - Functions
 - Bones and teeth
 - Metabolism
 - Deficiency
 - Rickets (soft, deformed bones)

MACROMINERALS

- ◉ Potassium and Sodium
 - Regulation of body fluids
 - nerve function
- ◉ Chlorine
 - Gastric secretion - hydrochloric acid
- ◉ Salt provides both sodium and chlorine



MICROMINERALS

- ◉ Iron
 - Component of hemoglobin in blood
 - Deficiency
 - Anemia - weak, listless, poor appetite
- ◉ Iodine
 - Needed in the thyroid gland
 - Deficiency = goiter (swelled thyroid gland)
- ◉ Zinc
 - Immune function



PET NUTRITION

- ◉ Most commercial pet foods are properly formulated
 - Problem: table scraps
- ◉ Supplementation
 - To add specific targeted nutrients to a diet
 - Careful not to oversupplement
 - Wasteful
 - Can be toxic