

Water, Vitamins, & Minerals

Intro to Water, Vitamins & Minerals

1. What is the main function of vitamins and minerals?

To regulate body functions

2. What foods are many of the vitamins and minerals we need found in?

Fruits and Vegetables



Intro to Water, Vitamins & Minerals

3. Because different fruits and vegetables have different vitamins and minerals, how can we ensure that we get all the different vitamins and minerals that we need?

Eat a variety of fruits and vegetables

4. Which vegetables have the most vitamins and minerals?

Red, Orange and Dark Green



Intro to Water, Vitamins & Minerals

5. How many calories are in Water, Vitamins and Minerals?

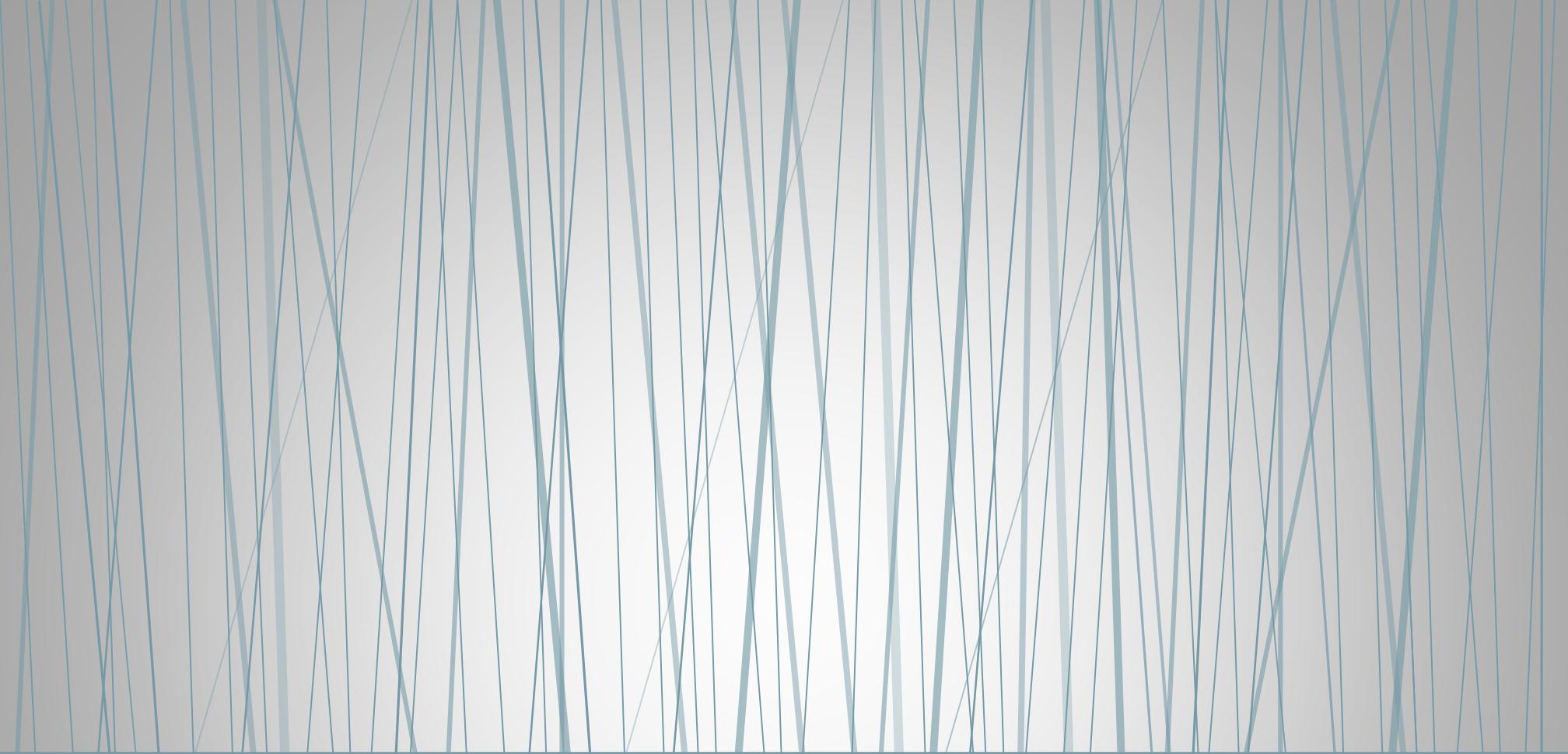
ZERO! They may not provide any energy, but they are ESSENTIAL in keeping our bodies running!

Quick Review of Nutrients:

Nutrient	Calories Per Gram
Carbohydrates	4
Fat	9
Protein	4
Vitamins	0
Minerals	0
Water	0

Vocabulary

1. **Deficiency:** Not enough of something (shortage)
2. **Toxicity:** Too much of something (can become toxic/poisonous)
3. **Water-Soluble:** Dissolves in water
4. **Fat-Soluble:** Dissolves in fat
5. **Macro:** Large / Big amount
6. **Micro or Trace:** Small / Tiny amount
7. **Electrolyte:** Minerals that help maintain fluid balance in the body



WATER

Functions of Water

1. Functions of Water:

- a. Carries water soluble vitamins
- b. Regulated body temperature through perspiration
- c. Carries waste products through and out of the body
- d. Prevents dehydration

2. How much water should we drink every day?

At least 8 cups a day (or 64 fl. oz.)

*Water is the MOST important nutrient our body needs! If you're thirsty, you're already dehydrated!



Dehydration

1. Dehydration happens when the water in your body drops below the level needed for normal body functions.

2. Common causes of dehydration:

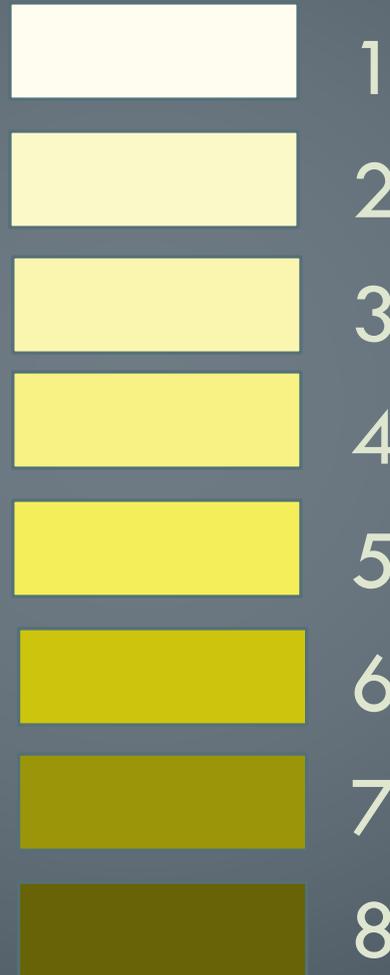
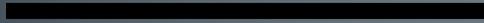
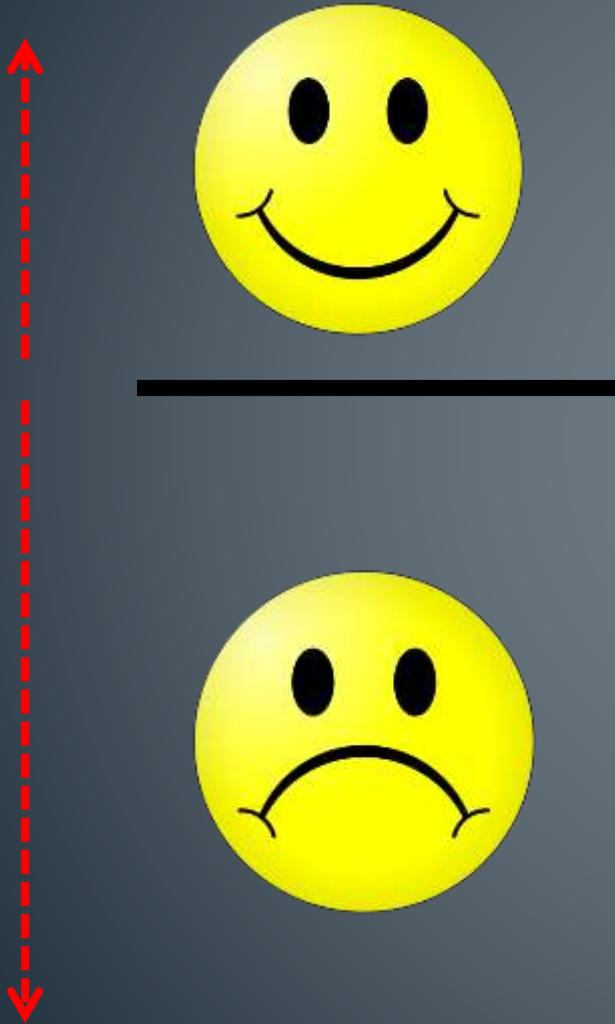
- Vomiting or diarrhea
- Excessive urinating
- Excessive sweating
- Fever

3. Signs of dehydration:

- Increased thirst
- Dry mouth
- Swollen tongue
- Weakness
- Dizziness
- Confusion
- Sluggishness
- Fainting
- Inability to sweat
- Heart palpitations
- Decreased urine output
- Dark urine



Are YOU Hydrated?



If your urine matches the colors numbered 1, 2, or 3, you are **HYDRATED!**

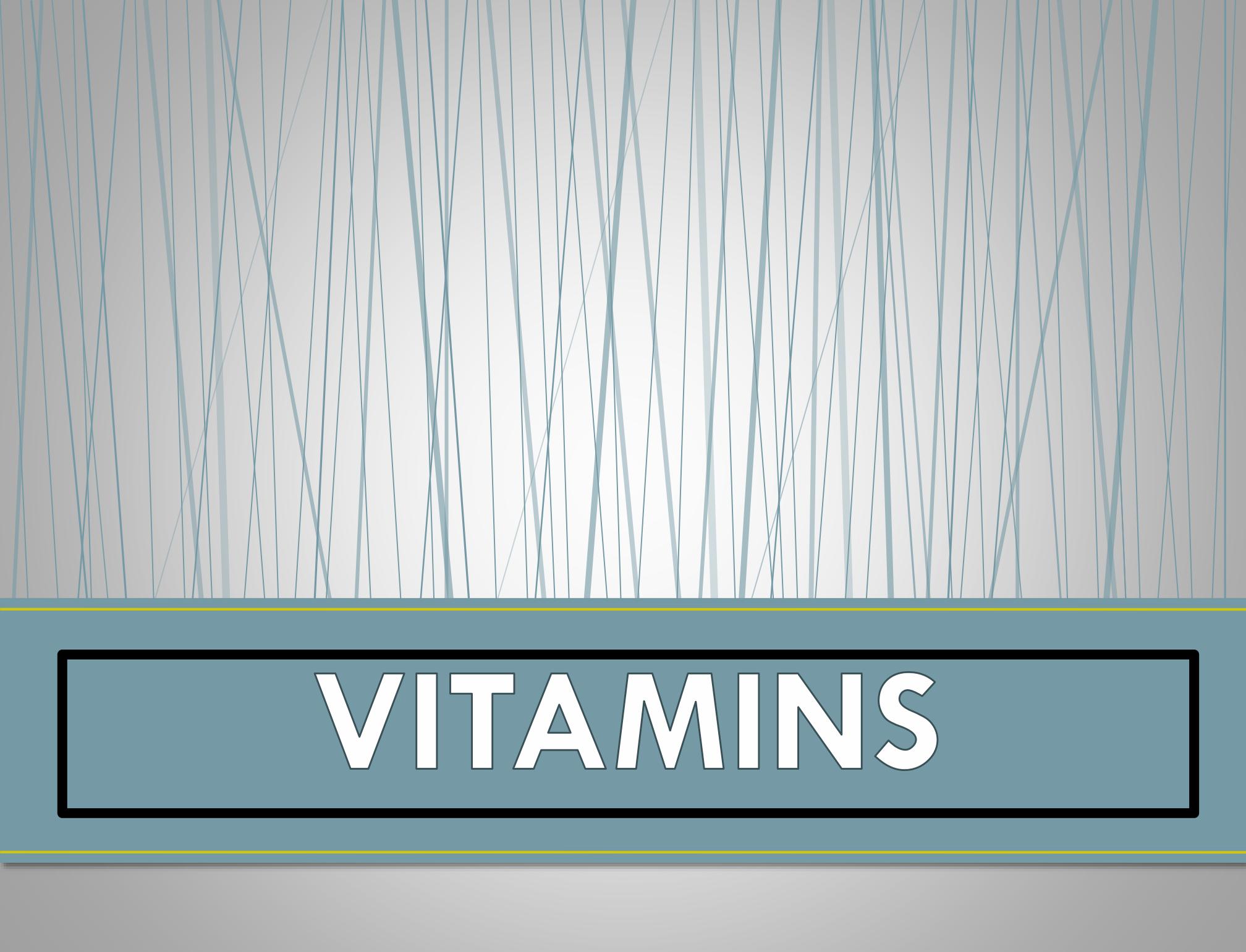
If your urine matches the colors numbered 4 to 8 you are **DEHYDRATED** and need to drink more fluid!!

FYI: Hyponatremia is over-hydration. Balance in all things

Hydration Before, During and After Physical Fitness

- For short duration (less than 60 min) water is a good choice to drink before, during and after exercise.
- For moderate to high intensity activities (more than 60 min.), sports drinks will help replace carbohydrate loss and electrolyte balance.
- Drink according to thirst during the day and include fluids with meals.
- Drink 8-20 oz. of water an hour before exercise.
- Continue drinking water during exercise, up to 16-24 oz. of fluid per hour (4-6 oz. every 15 min.).





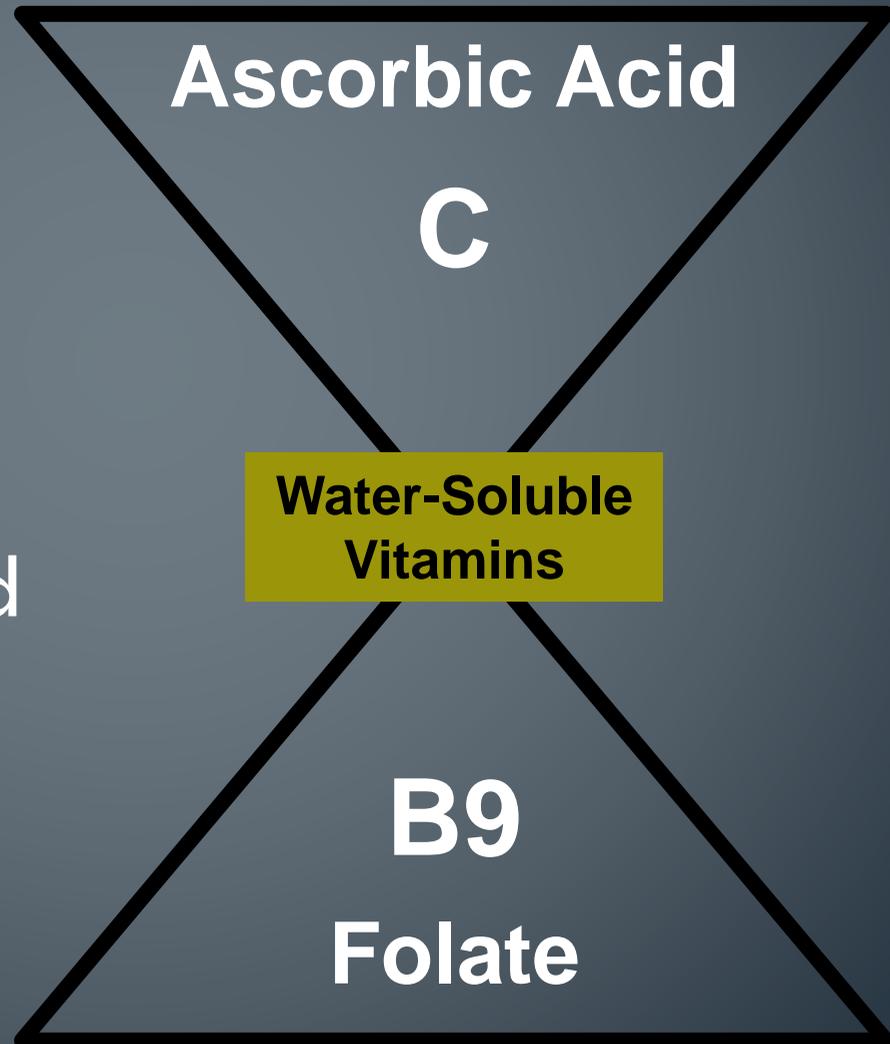
VITAMINS

How Do Vitamins Work?



Water-Soluble Vitamins

- *Water-soluble* means these vitamins dissolve in *and* are carried by water



Vitamin C (Ascorbic Acid)

Function:	Protects the body against infection
Food Source:	Citrus fruits, strawberries, broccoli and tomatoes
Deficiency:	Scurvy (Breakdown of collagen, bleeding gums and skin hemorrhages)
Toxicity:	Kidney stones, interferes with Vitamin E.



Scurvy

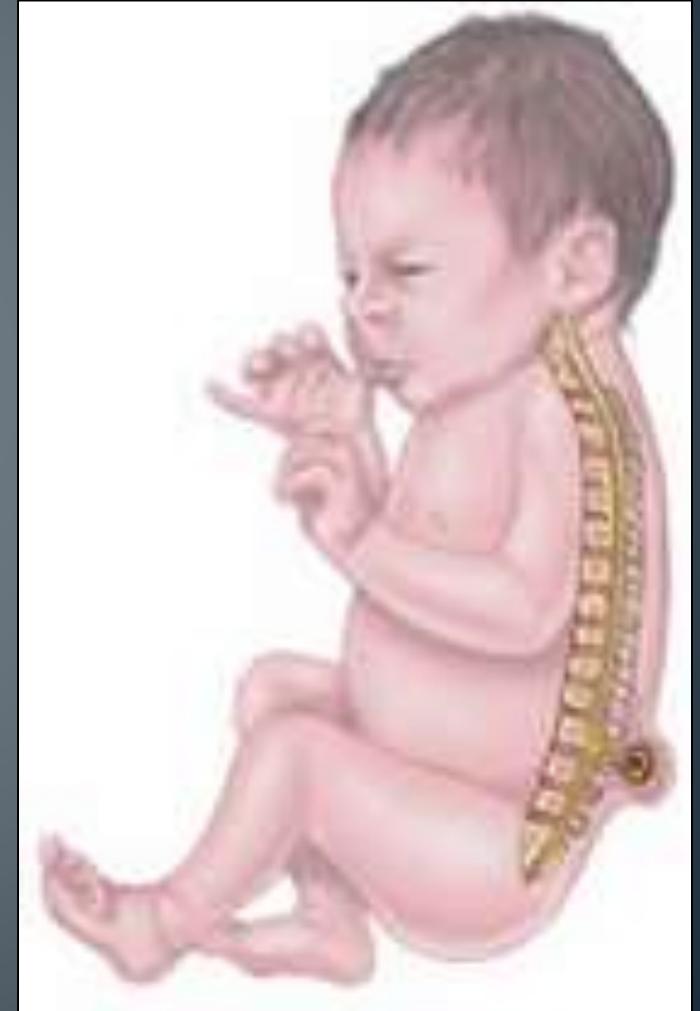
Swollen and Bleeding Gums



Spots on Skin

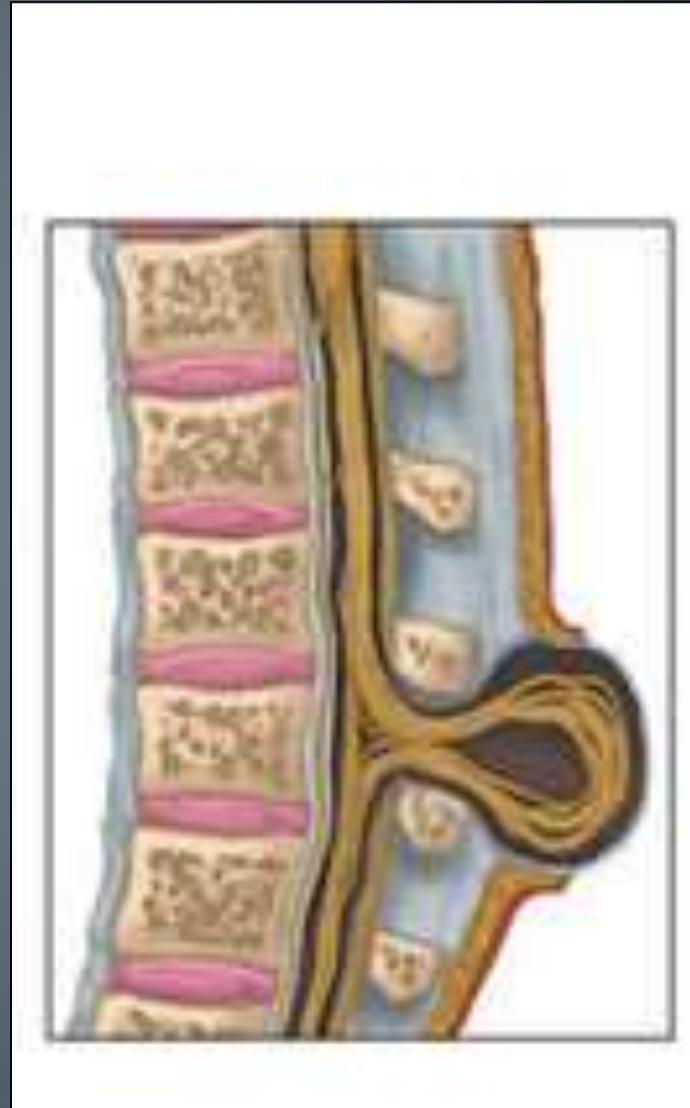
B9 (*Folate/Folic Acid*)

Function:	Helps the body make new cells
Food Source:	Dark green leafy vegetables
Deficiency:	Spina Bifida (Neural tube defect that affects the spinal cord during fetal development)
Toxicity:	Masks B12 Deficiency



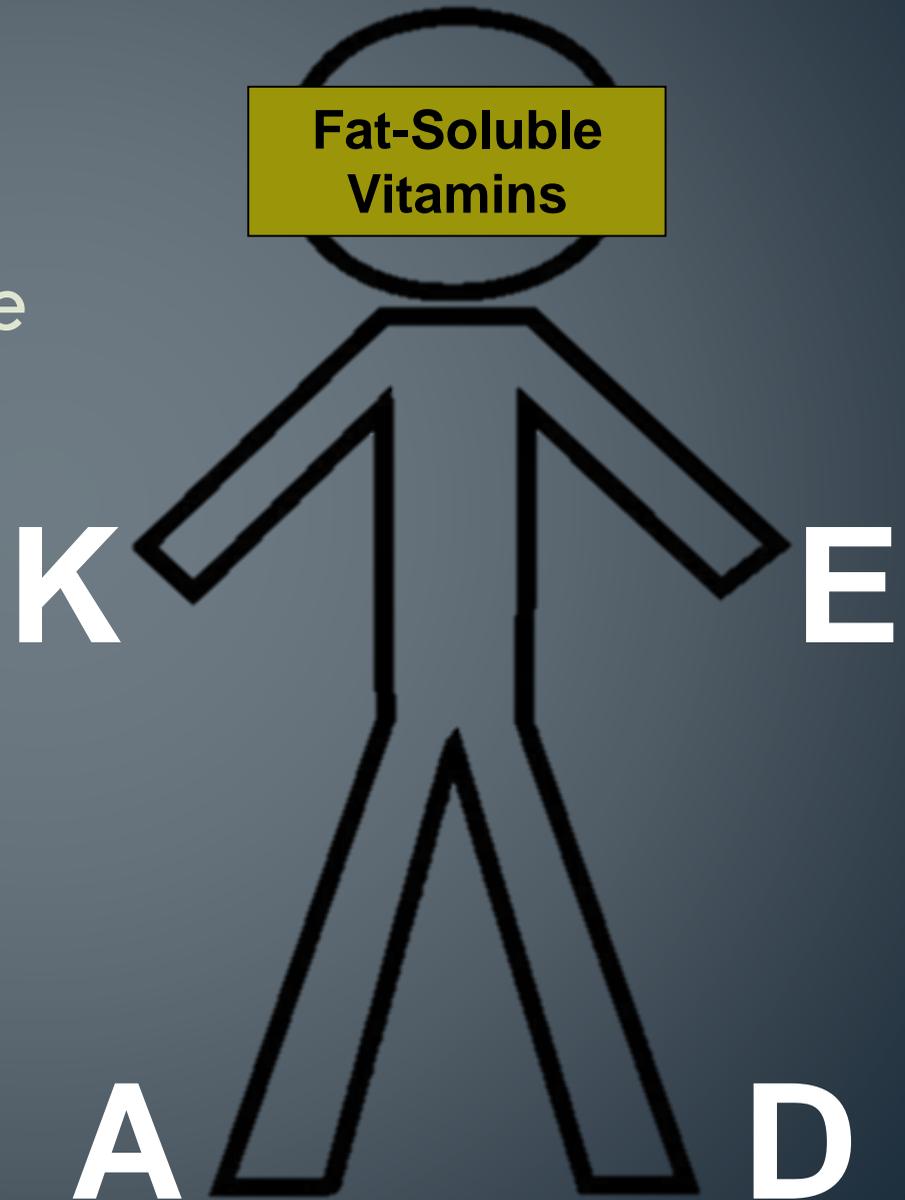
Spina Bifida

The spinal cord begins to develop within the first 28 days of pregnancy. Since folate makes new cells, it is vital that the mother's body already has a supply of folate in her system to prevent this tragic condition.



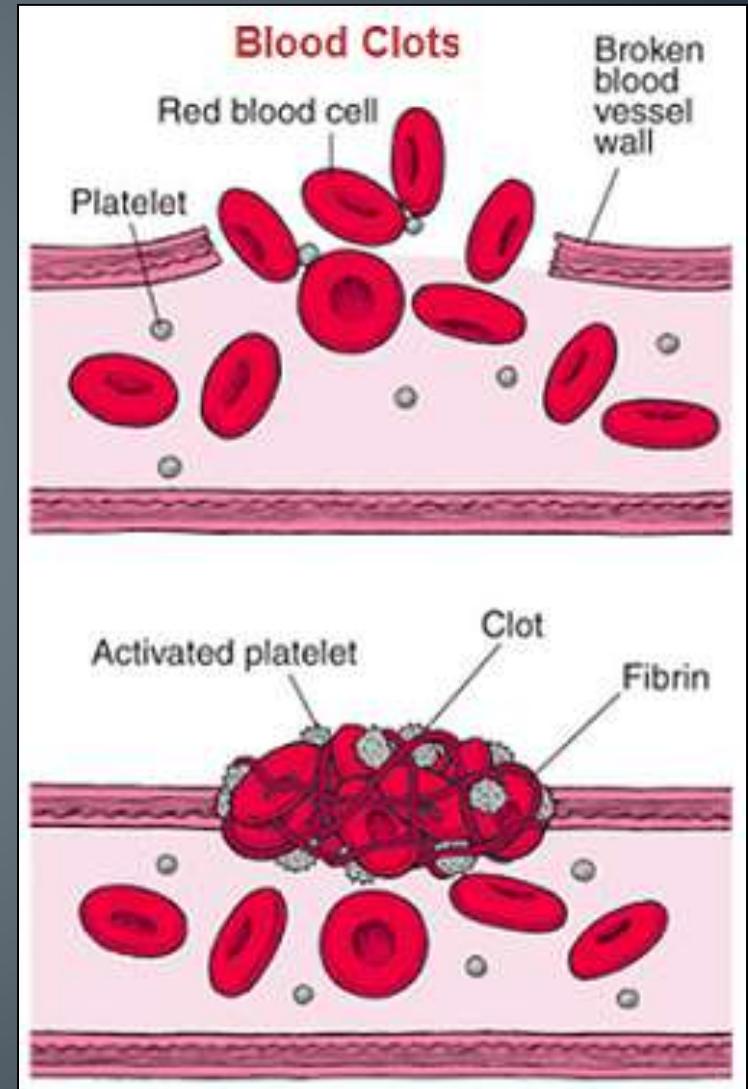
Fat-Soluble Vitamins

- Remember, *fat-soluble* means these vitamins dissolve in *and* are carried by fat
- Remember KADE?...



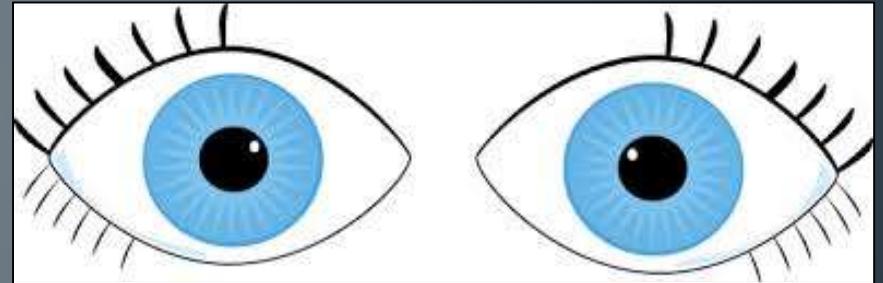
Vitamin K

Function:	Helps blood clot normally
Food Source:	Dark green leafy vegetables (spinach, kale, collard greens, parsley, etc.)
Deficiency:	Bleeding and Bruising
Toxicity:	Jaundice-breakage of red blood cells



Vitamin A

Function:	Promotes good vision, hair and skin
Food Source:	Red, orange and dark green vegetables
Deficiency:	Night Blindness
Toxicity:	Loss of appetite, blurred vision, joint pain



Vitamin D (“The Sunshine Vitamin”)

Function:	Builds and maintains bones and teeth
Food Source:	Milk/Dairy Products & Sunlight
Deficiency:	Rickets (Bowed Legs)
Toxicity:	Nausea and vomiting, kidney damage

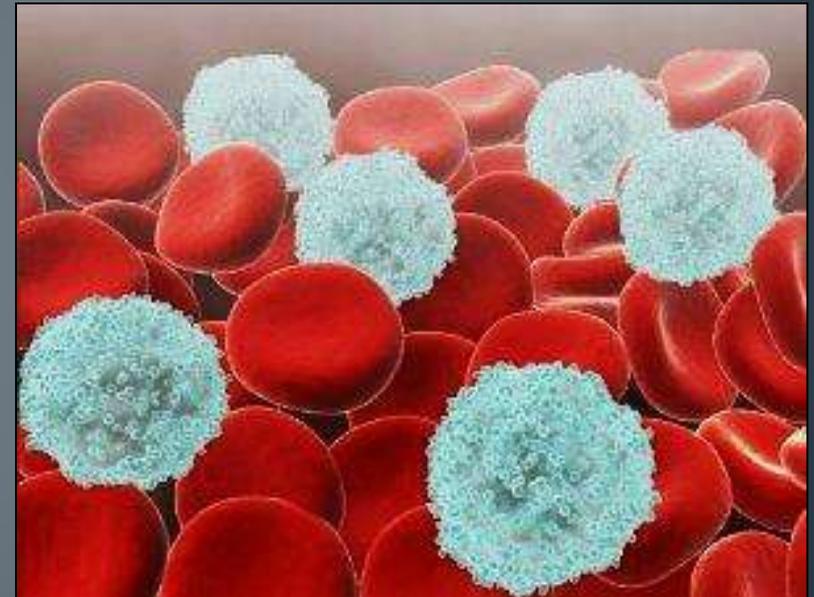


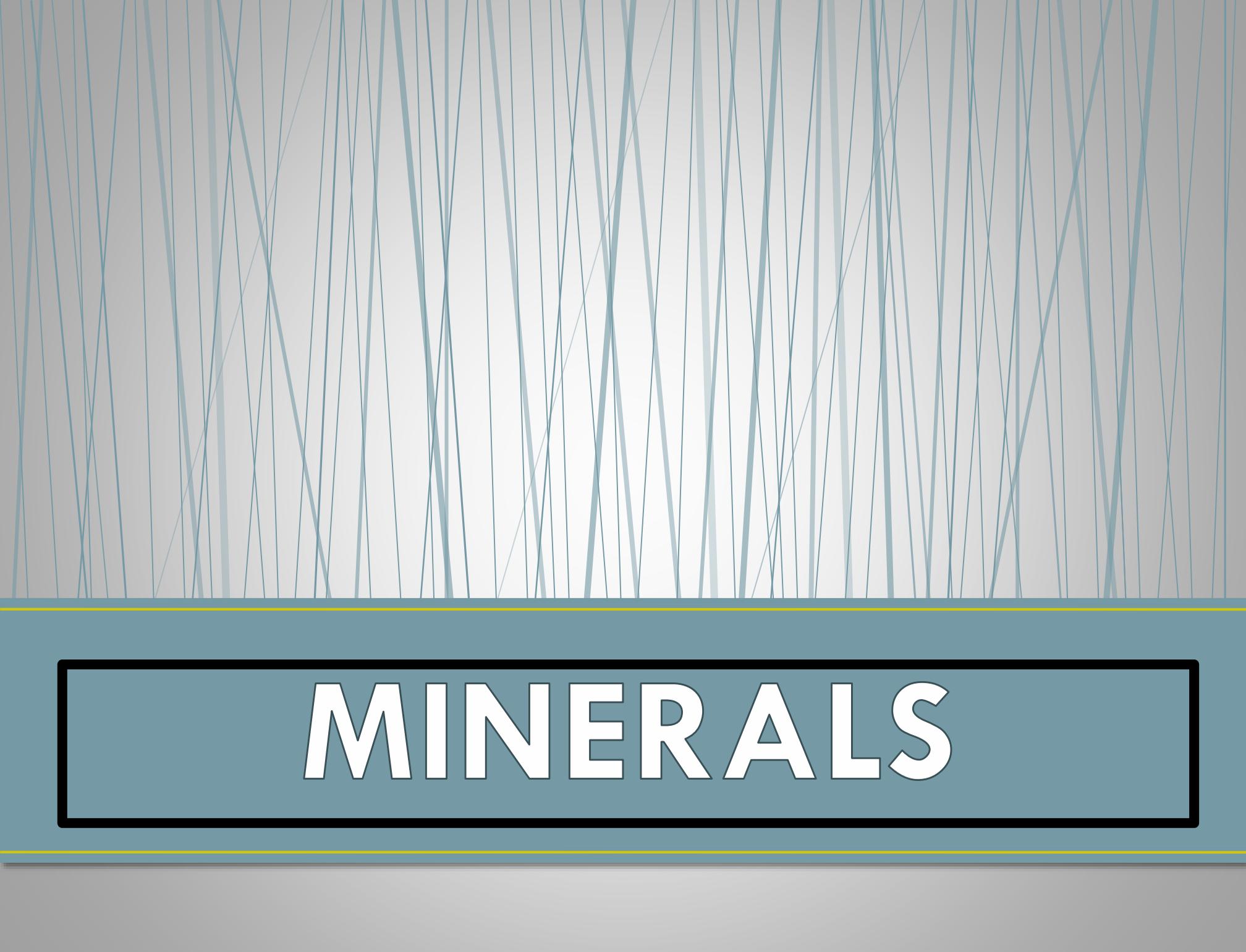
Rickets



Vitamin E

Function:	Protects the membranes of white and red blood cells
Food Source:	Vegetable Oils, Fruits and Vegetables
Deficiency:	Poor nerve connection and neurological problems
Toxicity:	Headaches, brain hemorrhages, muscle weakness





MINERALS

Macro/Micro Minerals

**Macro-
Minerals**

Calcium

- *Macro* means you need a large amount of these minerals

- *Micro/Trace* means you need a small amount of these minerals

**Micro/Trace-
Minerals**

Iron

Calcium

Function:	Strengthens bones and teeth
Food Source:	Milk/Dairy Products, Whole Grains, Dark Green Leafy Vegetables
Deficiency:	Osteoporosis (Bones become weak and brittle due to mineral loss)
Toxicity:	-Kidney stones



Osteoporosis

Normal bone matrix



Osteoporosis



Iron

Function:	Helps make red blood cells, helps our muscles store and use oxygen
Food Source:	Animal products, meat, dark green leafy vegetables
Deficiency:	Anemia (Low red blood cell formation)
Toxicity:	Heart disease, elevated LDLs



Electrolytes

- *Electrolytes* helps maintain fluid balance in the body

Electrolytes

**Sodium
&
Potassium**

Sodium & Potassium

Function:	Maintains fluid balance in the body
Food Source:	Salt, fruits and vegetables
Deficiency:	Muscle cramps, irregular heart beat, seizures
Toxicity:	High blood pressure

