

# VITAMIN D – FOR CHILDREN

## + Why vitamin D?

Today there is a growing problem of vitamin D deficiency in children.

The 2010 American Academy of Pediatrics (AAP) recommendation that all children receive 400 IU of vitamin D each day may not be adequate.

Talk to your pediatrician about your child's vitamin D levels.



## + Purposes of Vitamin D

- Maintains normal blood levels of calcium and phosphorus
- Aids in the absorption of calcium for strong bones
- Protects against osteoporosis, certain cancers, depression, high blood pressure, heart disease, diabetes, and several autoimmune diseases
- Improves brain function
- Helps regulate the immune system and the neuromuscular system



## + What is vitamin D?

Two forms are important in humans:

1. Ergocalciferol (vitamin D<sub>2</sub>)
2. Cholecalciferol (vitamin D<sub>3</sub>).

Vitamin D<sub>2</sub> is synthesized by plants. Vitamin D<sub>3</sub> is synthesized by humans in the skin when it is exposed to sunlight. Foods may be fortified with vitamin D<sub>2</sub> or D<sub>3</sub>.

+ A 2009 study published in *Pediatrics*

70% of American children do not get enough vitamin D, and they are more likely to have high blood pressure, high blood sugar levels, and low levels of good cholesterol in their blood.

## CAUSES OF VITAMIN D DEFICIENCY

- Decreased vitamin D synthesis
  - Races with darker skin
  - Agents blocking UV exposure
    - Sunscreen, clothing, shade
  - Geography
    - High latitude, fall/winter seasons
    - Air pollution, cloud cover, high altitude
- Decreased intake of vitamin D from fortified milk etc.
- Excess body fat
- Low maternal vitamin D stores during pregnancy or infants exclusively breastfeeding
- Malabsorption conditions (celiac disease, Crohn's disease, cystic fibrosis, biliary obstruction, chronic liver disease)
- Certain drugs such as some steroids, tuberculosis drugs, seizure medications

# VITAMIN D – FOR CHILDREN

## + SOURCES OF VITAMIN D

- Sun- at least 15-30 minutes sun exposure to arms and legs daily without sunscreen. Always protect the face and neck.
- Daily multivitamin with at least 400 IU.

Food Sources	International Units (IU) per serving	Percent Daily Value (based on 400 IU/day)
Salmon, cooked, 3½ oz.	360	90%
Tuna fish, light, canned in water, 3 ounces	154	39%
Milk (nonfat is recommended for children >2 years old), vitamin D fortified, 1 cup	98	25%
Margarine, fortified, 1 Tablespoon	60	15%
Pudding, prepared from mix and made with vitamin D fortified milk, ½ cup	50	10%
Ready-to-eat cereals (fortified with vit. D at 10% daily value), ¾ cup to 1 cup servings	40	10%
Egg, 1 whole (vitamin D is found in the yolk)	20	6%
Cheese, Swiss, 1 oz.	12	4%
Orange Juice (fortified with calcium & vit. D; 8oz.)	100	25%
Yogurt (6oz.) (e.g. Yoplait Light)	80	20%

Your body can make 10,000 units of vitamin D in just 30 minutes in the sun!



Vitamin D levels increase during spring/summer and decline in fall/winter because of varying exposure to ultraviolet light.



## + SUPPLEMENTATION: over the counter options

### Good choices for infants & toddlers:

- Enfamil D-Vi-Sol Drops (vitamin D only)
- Enfamil Poly-Vi-Sol Drops with iron (a multivitamin plus iron)
- Enfamil Poly-Vi-Sol Drops (a multivitamin)
- Enfamil Tri-Vi-Sol Drops with iron (vitamins A, D, and C plus iron)
- Enfamil Tri-Vi-Sol Drops (vitamins A, D, and C)

### Good choices for older children:

- Flintstones Children's Multivitamin plus Calcium (a multivitamin with vitamin D)
- Flintstones Gummies plus Bone Building Support (has Calcium and vitamin D)
- GNC Kids Vitamoo Soft Chews (Calcium and Vit. D)
- L'il Critters Calcium Gummy Bears with vitamin D
- L'il Critters Vitamin D Gummy Bears
- NBA All-Star Vitamin D Gummies
- Rhino Gummy Calci-Bears with vitamin D