VITAMIN D

THE UNIVERSITY OF NORTH DAKOTA
Dining Services

FACTSHEET

• Vitamin D is a fat-soluble vitamin that is both found in foods and made by the body through sunlight.
• Vitamin D is the most toxic of all the vitamins, and excess is dangerous and sometimes deadly. Vitamin D is found in many dietary sources such as fish, eggs, fortified milk, and cod liver oil. The sun also contributes significantly to the daily production of vitamin D, and as little as 10 minutes of exposure is thought to be enough to prevent deficiencies.

Deficiency Diseases:

• Rickets- Occurs in children who lack Vitamin D, which results in skeletal deformities Osteomalacia- Occurs in adults who lack Vitamin D, which results in muscular weakness in addition to weak bones due to a greater loss of bone mass leading to softening of bones.
• Multiple Sclerosis- Low Vitamin D levels increase the risk for multiple sclerosis.
• Populations who may be at a high risk for vitamin D deficiencies include the elderly, obese individuals, exclusively breastfed infants, and those who have limited sun exposure. Also, individuals who have fat malabsorption syndromes (e.g., cystic fibrosis) or inflammatory bowel disease (e.g., Crohn's disease) are at risk.
• Fortification of milk with vitamin D has virtually eliminated the risk of vitamin D deficiency in children. However, the rising consumption of juice and soft drinks in place of milk is increasing the probability of deficiency, which can lead to rickets or defective bone growth.

Nutrient function:

• Essential for calcium absorption in the gastrointestinal tract
• Maintains calcium and phosphorus concentrations to enable normal mineralization of bone
• Needed for bone growth and remodeling
• Maintains normal cellular growth and function
• Maintains healthy immune function, preventing excessive inflammation
• Sufficient amount prevents rickets in children, when bones become soft and weak;
• When paired with calcium, vitamin D helps protect older adults from osteoporosis.
• Low Vitamin D levels raise the risk of peripheral artery disease, heart attack, and stroke.
• Food Sources: Vitamin D is naturally present in fatty fish such as salmon, mackerel, tuna, and sardines. In addition, some foods, like milk, cheese, eggs, and fortified breakfast cereals have extra Vitamin D added to them.
• Exposure to sunlight is an important source of vitamin D. Ultraviolet (UV) rays from sunlight trigger vitamin D synthesis in the skin. Vitamin D is also known as the "Sunshine Vitamin" because your body converts sunlight into vitamin D after it hits unprotected skin

Recommendations:

Infants
• 0 - 6 months: 5 micrograms per day (mcg/day)
• 7 - 12 months: 5 mcg/day

Children
• 1 - 13 years: 5 mcg/day

Adolescents and Adults
• Males and Females age 14 to 50: 5 mcg/day
• Males and Females age 51 to 70: 10 mcg/day
• Males and Females age over 70: 15 mcg/day

Specific recommendations for each vitamin depend on age, gender, and other factors (such as pregnancy). In general, those over age 50 need higher amounts of vitamin D than younger persons.

Good Food Sources of Vitamin D	Vitamin D mcd/day
Salmon, 3 ½ oz. cooked	1.33
Sardines in oil, 1 ¾ oz. drained	.58
Mushrooms	5
Egg yolk, large	.55
Cereal, fortified	1.3

References:

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