



VITAMINS AND THEIR USES

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VITAMINS

- Non-caloric essential nutrients, necessary for specific metabolic control and disease prevention.
- Vitamins are organic (carbon) compounds needed for normal function, growth and maintenance.
- Vitamins are cofactors, they don't do anything by themselves.



SUPPLEMENTS

- Supplements are “Product intended to supplement the diet and contains vitamins, minerals, botanicals, amino acids, and their extracts that may be missing or may not be consumed in sufficient quantities in a person's diet.”
- NOT consumed as a food replacement
- Available in market in the form of pills, powders and liquids.



VITAMIN SUPPLEMENTS

Vitamin supplements are vitamins sold with specific health claims beyond their usual physiological functions, not just to treat deficiency diseases but also for medicinal purposes.



TYPES OF VITAMINS

❖ FAT SOLUBLE VITAMINS

❖ WATER SOLUBLE VITAMINS



FAT SOLUBLE VITAMINS

A – carotenoids, vision, used as color and antioxidant

D– source - sunlight, regulates Ca:P ratios

E – used as antioxidant

K – contributes to blood clotting factor



WATER SOLUBLE VITAMINS

- B₁
- B₂
- B₆
- B₁₂
- Biotin
- Pantothenic acid
- Niacin
- Folacin
- Vitamin C



VITAMIN - A

Also known as RETINOL

FUNCTIONS:

- Vision
- Gene transcription
- Immune function
- Embryonic development and reproduction
- Bone metabolism
- Haematopoiesis
- Skin and cellular health
- Antioxidant activity



FOOD SOURCES

- liver (beef, pork, chicken, turkey fish), including cod liver oil, carrot, broccoli leaf, sweet potato, butter, kale, spinach, pumpkin, collard greens, Cheddar cheese, cantaloupe melon, egg, apricot, papaya, mango, pea, Broccoli, milk, tomatoes



DEFICIENCY DISEASES:

Night Blindness, Xerophthalmia, Xerosis etc.



VITAMIN - D

Also known as **CALCIFEROL**

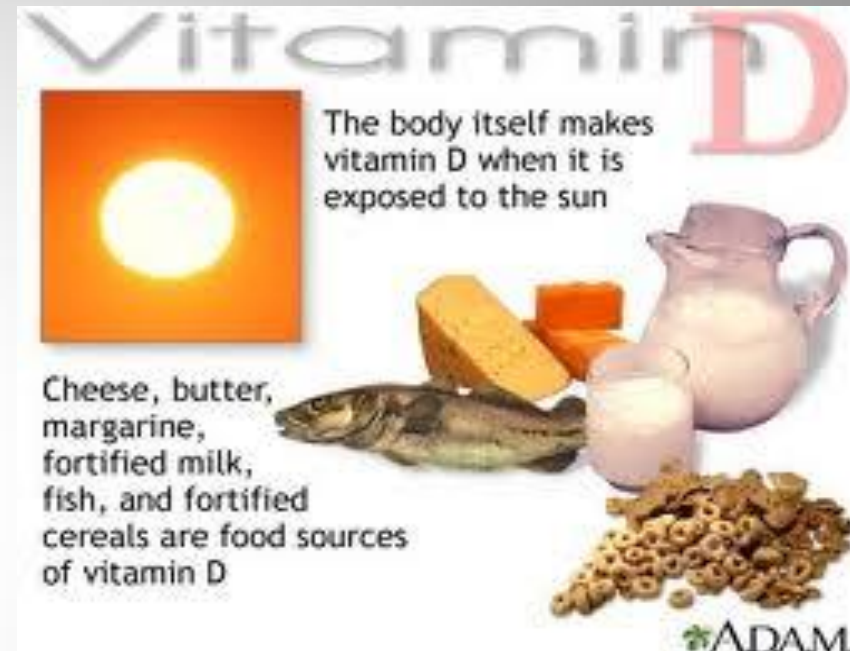
FUNCTIONS:

- Keeps calcium and phosphorus levels normal in the body
- Maintain sand builds strong bones, teeth and nails
- Supports cell functions and other neuromuscular functions in the body
- Supports bone mineralization and bone remodelling
- Maintains a healthy immune system
- Important for body's overall growth and development



FOOD SOURCES

- Sunlight,
- Butter
- Liver
- Kidneys
- Egg yolk
- Fish oil etc.



DEFICIENCY DISEASES:

Rickets, Osteomalacia, Hypervitaminosis D etc.



VITAMIN - E

Also known as TOCOPHEROL

FUNCTIONS:

- Protects cell membranes and other fat-soluble parts of the body from oxidation
- Promotes normal growth and development
- Promotes normal red blood cell formation
- Acts as anti-blood clotting agent
- Essential for proper pregnancy, lactation and muscular functions
- Plays some role in the body's ability to process glucose
- Also been known to aid the process of wound healing



FOOD SOURCES

Corn, cottonseed, and peanut oil
Almonds, sunflower seeds, walnuts
wheat flour, wheat germ, Vegetables
and fruits e.g. Spinach, lettuce,
onions, blackberries, apples, and
pears etc.



DEFICIENCY DISEASES:

- Lack of vitality
- Lethargy
- Apathy
- Inability to concentrate
- Muscle weakness



VITAMIN - K

Also known as **PHYLLOQUINONE**

FUNCTIONS:

- Acts as antihaemorrhagic factor essential for synthesis of prothrombin in liver, which is required for blood clotting.
- Can be reactivated to continue biological action
- Works as a cofactor for an enzyme that makes two bone proteins



FOOD SOURCES

Carrot, cabbage, tomato, liver,
egg yolk, cheese synthesized
by clone bacteria



DEFICIENCY DISEASES:

- Haemorrhage
- Hypoprotrombinemia



VITAMIN - C

Also known as ASCORBIC ACID

FUNCTIONS:

- Protects you body from free radicals
- Helps form connective tissue that hold your bones, muscles, and tissues together (collagen)
- Aids in the healing of wounds
- Aids the body in absorbing iron from plant sources
- Helps to keep your gums healthy
- Helps your body to fight infections
- Aids in the prevention of heart disease
- Helps prevent some forms of cancer



FOOD SOURCES

Guava, Broccoli, Cantaloupe, Red Bell Pepper, Orange Juice, Strawberries, Tomato Juice, Raw Tomato, Sweet Potato, Tangerine, Spinach, Leafy Greens, Berries, Citrus Fruits



DEFICIENCY DISEASES:

- Weight loss
- Fatigue and joint pain
- Scurvy
- Reduced resistance to colds and infections
- Slow healing of wounds and fractured bones



VITAMIN - B

TYPES OF VITAMIN - B

B1 - THIAMINE

B2 - RIBOFLAVINE

B3 - NIACIN

B6 - PYRIDOXIN

B12 - COBALAMIN



VITAMIN - B

FUNCTIONS:

- Proper nerve function
- Stabilizing the appetite
- Promoting growth and good muscle tone
- ATP production
- Energy production
- Carbohydrate, fat, and protein metabolism
- Formation of antibodies and red blood cells



VITAMIN - B

FUNCTIONS:

- Cell respiration
- Maintaining proper balance of sodium and phosphorous in the body
- Maintenance of good vision, skin, nails, and hair
- Alleviating eye fatigue
- Maintenance of skin and tongue
- Improves circulation
- Health of the digestive track



FOOD SOURCES

- **Pork**
- **Fish**
- **Liver**
- **Legumes**
- **Nuts**
- **Whole grain or enriched breads and cereals**
- **Large amounts in**
 - dairy**
 - eggs**
 - meats**
- **Small amounts in**
 - leafy green vegetables**
 - enriched grains**



DEFICIENCY DISEASES

- B1 - Loss of appetite, Insomnia, Loss of weight, Depression, Heart & Gastrointestinal problems**
- B2 - Itching and burning eyes, Cracks and sores in mouth and lips
Bloodshot eyes, Dermatitis**
- B3 - Pellagra, fatigue, aches, and pains**
- B6 - Nervousness, insomnia, Water retention**
- B12 - Anemia, nerve damage, hypersensitive skin**



VITAMIN SUPPLEMENTS

- **Supplements are best when accompanied by a well balanced diet**
- **Fat-soluble vitamins are more likely to be toxic to the health if taken in excess, because they are stored in the body, where as water-soluble are excreted**
- **The persons who are not eating a well balanced diet and could use the added nutrition of a multivitamin**
- **Food provides calories and energy that are required for daily activities, vitamin supplements do not provide energy or calories**
- **Supplements should not replace a healthy diet**



AVAILABILITY IN MARKET

Vitamin- B12 capsules

B-12 strips

Vitamin - D3

Liquid Vitamin

Methylcobalamin

Vitamin code – Iron

Vibro – multivitamin

Yashidol

U-fit capsule

Ceeplex Syrup

Acido folico

Health Plus-Mega multivitamin



VITAMIN SUPPLEMENTS

- For the most part vitamin supplements are safe to consume provided that they must be taken by following the instructions of physician

References

- WWW.GOOGLE.COM
- BIOCHEMISTRY BY LEHINGER
- FUNDAMENTALS OF BIOCHEMISTRY BY J.L.JAIN,SUNJAY JAIN AND NITIN JAIN

