

Natural Products Rich in Vitamins and Minerals

Vitamin A

- The chemical name of vitamin A is retinol.
 - One of the most active, usable form
- Vitamin A is a fat-soluble kind of vitamin.
- Found in animal and plant sources.
- The major storage site of vitamin A in the body is liver.

Functions

1- Night vision: the best known function of vitamin A is in vision, where it participates in the formation of retinal pigment that helps the eye to see in dim light.

2- Healthy epithelial tissue: this function maintains differentiation of epithelial cells such as skin, lung, and intestinal tissue. It helps keep skin and hair healthy.

3- Plays a role in developing strong bones and teeth.

Sources

Animal Sources

- Eggs
- Meat
- Cheese
- Milk
- Liver
- Kidney
- Fish
- Fish oil

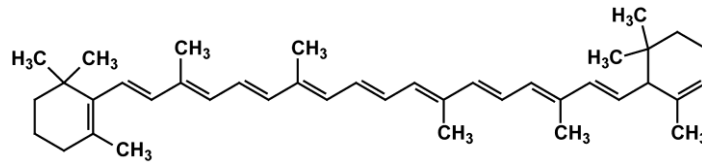
Sources

Plant Sources

- Carrot
- Sweet Potatoe
- Pink Grapefruit
- Apricot
- Broccoli
- Spinach
- Pumpkin

What do these plants have in common?

- Most are orange or yellow colors
- Beta-Carotene is precursor of Vitamin A



- Masked in some green plants

How much is enough?

- Children
2000 – 3500 I.U.
- Men
5000 I.U. (3 mg)
- Women
4000 I.U. (2-3 mg)

Signs of Deficiency

- Night blindness
- Decreased resistance to infections
- Extremely dry skin, hair or nails

Deficiency of Vitamin A

1. Night blindness is one of the early signs of vitamin A deficiency, because of the role of vitamin A in vision.
2. Bacterial invasion and permanent scarring of the cornea of the eye (xerophthalmia) is a symptom of more profound deficiency, but this is due to a different mechanism,
3. Vitamin A deficiency also results in altered appearance and function of skin, lung, and intestinal tissues

Who Is At Risk For Deficiency?

- Young children
- Children with inadequate health care
- Adults in countries with high incidences of vitamin A deficiency or measles
- Adults or children with diseases of the pancreas, liver, intestines, or inadequate fat digestion/absorption

Too Much Can Be Toxic!!

➤ Hypervitaminosis A leads to toxic symptoms:

- Dry, itchy skin
- Headaches and fatigue
- Hair loss
- Liver damage
- Blurred vision
- Loss of appetite
- Skin coloration

Other Side Effects

- ▶ Severe birth defects
 - ▶ Women of child-bearing age should not consume more than 8000 IU per day
 - ▶ Retin-A (acne cream) or Accutane can cause birth defects
 - ▶ Retinol is the most dangerous form because the body will not convert as much beta-carotene to vitamin A unless needed but it can still be harmful
- ▶ Skin can take on a yellow/orange glow
- ▶ Most cases of vitamin A overdose occur from supplements but can occur from diet

Foods High In Vitamin A

Retinol

- Liver 30,325 IU
(610% DV)
- Fortified milk 1,355 IU
(10% DV)

... Foods High In Vitamin A

Beta-Carotene

➤ Carrot (1 raw)	20,250 IU (410% DV)
➤ Carrot juice (1/2 c)	12,915 IU (260% DV)
➤ Mango (1 raw)	8,050 IU (160% DV)
➤ Sweet Potatoes (1/2 c)	7,430 IU (150% DV)
➤ Spinach, boiled (1/2 c)	7,370 IU (150% DV)
➤ Cantaloupe (1 c)	5,160 IU (100% DV)
➤ Vegetable Soup (1 c)	3,005 IU (60% DV)

Vitamin A, Beta-Carotene, and Cancer

- Surveys suggest that diets rich in vitamin A and beta-carotene can lower the risk for cancer (especially lung cancer)
- However, one study was stopped because subjects with increased beta-carotene had a 46% higher risk of dying from lung cancer
- Beta-carotene supplements are not advisable except in rare situations
- Another study showed that smokers were **more** likely to develop lung cancer if they took beta-carotene supplements

Vitamin A, Beta-Carotene, and Cancer

- Scientists, in evaluating these results, put forward the theory that beta-carotene works with vitamin C or other antioxidants to reduce the energy of free radicals. In the absence of vitamin C, beta-carotene can form a pro-oxidant. This can lead to accelerated tissue damage.
- Cigarette smokers get too much free radicals to their lungs and therefore they may experience deficiency of vitamin C and other antioxidants. This is the reason why a small increase in the incidence of cancer is seen after smokers have been supported with beta-carotene.