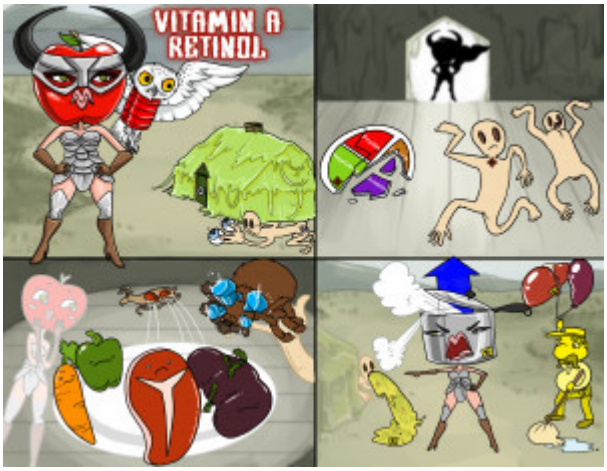
Vitamin A (Retinol)

Vitamin A (Retinol) is a fat-soluble vitamin that maintains the structural and functional integrity of the skin and mucous membranes. Supplementation of vitamin A is indicated for patients with dietary deficiencies and skin disorders. Side effects include hepatosplenomegaly, jaundice, increased intracranial pressure, and vomiting. Since vitamin A is a teratogen, do not give supplements to pregnant women. Dietary sources include animal products, dark green vegetables, and carotene-rich fruits and vegetables.



PLAY PICMONIC

Mechanism

Maintains Mucous Membranes

Maintained Mucous

Vitamin A helps maintain the structural and functional integrity of mucous membranes of the gastrointestinal and genitourinary tracts. The vitamin helps keep the mucous membranes moist.

Eyes and Skin

Eyes and Skin-suit-man

Vitamin A helps maintain eye function and skin integrity. Since vitamin A is necessary for eyes to adjust to light changes, night blindness is an indication of vitamin A deficiency.

Indications

Dietary Deficiency

Broken Nutritional-plate

Vitamin A supplementation is indicated for patients with dietary deficiency. Since vitamin A helps the eyes adapt to dim lighting, night blindness is usually the first indication of deficiency. Other symptoms of deficiency include skin lesions and dysfunction of mucous membranes. The patient may develop dry, thickened conjunctiva known as xerophthalmia. Deficiency may cause corneal degeneration known as keratomalacia, which is a keratinization of the corneal epithelium. Severe vitamin A deficiency may lead to blindness.

Skin Disorders

Skin-suit Disordered

Certain forms of vitamin A are indicated to help treat skin disorders such as acne and keratosis follicularis. Vitamin A maintains skin structure by helping skin cells mature.

Side Effects

Hepatosplenomegaly

Liver-and-spleen-balloons

Hypervitaminosis A is a toxic state caused by excessive intake of vitamin A. Intoxication affects multiple organ systems. Symptoms include hepatosplenomegaly, jaundice, skins changes, and increased intracranial pressure. Symptoms of toxicity will disappear after removing the source of vitamin A.

Jaundice

Jaundice-janitor

Excessive amounts of vitamin A may lead to liver injury. Since the liver is responsible for breaking down bilirubin, jaundice may occur. Patients with excessive levels of vitamin A may develop other skin changes.

Increased ICP

Up-arrow Pressure-cooker Cranium

Since vitamin A is a fat soluble vitamin, excessive levels will accumulate in the body leading to hypervitaminosis A. Excessive amounts of vitamin A may lead to increased intracranial pressure (refer to the Picmonic on "Increased Intracranial Pressure Assessment"). The patient may experience nausea, vomiting, and papilledema as the optic disc swells in response to increased intracranial pressure.

Vomiting

Vomit

Vomiting may occur in patients with excessive vitamin A intake. Since vitamin A helps maintain the gastrointestinal mucosa, the patient may experience nausea, anorexia, and abdominal pain.

Considerations

Teratogen

Tarantula-gem

Vitamin A is highly teratogenic and should not be supplemented in pregnant women. Excessive intake of vitamin A during pregnancy may cause malformation of the fetal skull and heart. Normal dietary intake of vitamin A does not lead to teratogenic effects.

Animal Food Products

Animal Meat and Organs

Preformed vitamin A, or retinol, is only found in food products of animal origin. Dietary sources include dairy products, meats, fish oil, and fish. The body absorbs animal sources of vitamin A better than non-animal sources.

Dark Green and Orange Fruits/Vegetables

Dark Green Pepper & Orange Carrot

Provitamin A carotenoids are found in darkly colored green and carotene-rich or orange fruits and vegetables. Rich dietary sources include carrots, mangoes, cantaloupes, tomatoes, pumpkin, and sweet potatoes. Cells found in the intestinal mucosa convert provitamin A carotenoids into retinol. However, compared with retinol found in animal products, sources of dietary carotenoids are less absorbed.