

MICRONUTRIENTS



National Institute of Nutrition

Jamai Osmania Post
Hyderabad - 500 007

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VITAMIN A is a fat soluble vitamin

- * β carotene is a precursor of vitamin A
- * It is present in all green leafy vegetables and all



yellow and orange coloured fruits like p a p a y a , r i p e mangoes etc..and vegetables like pumpkin, carrots.

- * Vitamin A is also present in foods of animal origin like butter, whole milk, curd, egg yolk, and liver.
- * Intake of vitamin A rich foods from the adolescent age will enhance the reproductive health as vitamin A has a significant role in maintenance of the reproductive health.
- * Vitamin A status is very important during pregnancy and has effect on maternal and child health therefore it is very important to consume vitamin A rich foods by pregnant and lactating women including all age groups.
- * Vitamin A is important for the improvement of defensive mechanism in the body by fighting against infections thus providing resistance in children.
- * β carotene converts in to vitamin A and it is important for the health of the eyes of small children.



- * The deficiency of vitamin A leads to nutritional blindness (night blindness-inability to see in dim light)

Consequences of vitamin A deficiency

- * The early symptoms due to vitamin A deficiency among children can be recognized by identifying 'bitot spots'.



Bitot spots

- * In severe deficiency cases, serious damage occurs in cornea.
- * Corneal xerosis characterized by dryness and haziness can be completely reversed with vitamin A administration.
- * In untreated cases the lesions progress rapidly resulting in corneal ulceration, keratomalacia and irreversible blindness.



Keratomalacia

DIETARY IRON

- * Dietary iron is an essential micronutrient for the formation of haemoglobin (Hb) in blood red cells.
- * Hb plays an important role in transport of oxygen.
- * The term 'haem' means 'iron' while 'globin' refers to 'protein'.
- Iron rich foods are green leafy vegetables, animal meat, liver etc.,
- Iron which is present in green leafy vegetables is non heme iron while the iron present in the animal foods is known as heme iron.

- During menstruation the iron loss will be around 15-30mg/cycle, therefore, the demand for iron in the girls is more.
- During pregnancy the stored iron will be utilized for foetal growth and development.
- Consumption of iron during pregnancy is very essential to maintain the pregnant women's health.
- Women require 500-600 mg of additional iron for their entire pregnancy period.
- During lactation period also women require more iron.
- Intake of Iron folifer tablets which are supplied through Primary Health Centres and Anganwadi Centres by the vulnerable population for 100 days help to overcome severe anaemia.

IODINE

- * Iodine deficiency disorders (IDD) are important micronutrient deficiency disorders of public health importance in India.
- * Iodine is one of the essential micro-nutrients required for normal growth and development of the human brain and body.
- * Iodine is available in all food items and water.
- * Iodine occurs in food as iodide ions or as free inorganic iodine.
- * 1/3 of iodine is absorbed by thyroid gland.
- * Excess of iodine is excreted through urine.
- * The requirement of iodine ranges from 100-150 $\mu\text{g/day}$.

- ★ Iodine deficiency leads to hypothyroidism and goitre



Iodine deficiency in pregnancy leads to:

- Premature abortions
- Improper fetal growth
- Poor mental development
- Growth retardation (Cretinism)



Cretinism

- ★ Goitrogens are the substances that are present in cruciferous vegetables like cabbage, cauliflower, radish, knol khol, mustard seeds etc..

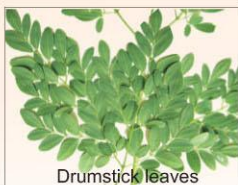
- ★ Look for the logo 'smiling sun' on Iodised salt packets



Calcium

- ☐ The skeleton accounts for at least 99% of the body stores of calcium
- ☐ Gain in skeletal weight is most rapid during the adolescent growth spurt.
- ☐ About 45% of the adult skeletal mass is formed during adolescence
- ☐ Requirement of calcium for the growth of the skeleton is derived from the diet.
- ☐ More requirement and rapid deposition of Calcium occurs during early adolescence, between 10 and 14 years in girls and 12 and 16 years in boys.
- ☐ During peak adolescent growth, calcium retention is, on an average, about 200mg/day in girls and 300 mg/day in boys.

- Achievement of peak bone mass during childhood and adolescence is crucial to reduce the risk of osteoporosis in later years.
- Recommended calcium intake is possible by regular intake of several servings of dairy products, such as milk, *dahi* and cheese
- Finger millet ie., Ragi and drumstick leaves are good sources of calcium.
- Physical activity in the morning and exposure to morning sun which provides vitamin D is essential for building and retain bone strength in the body.
- Dietary intake of calcium, other vitamins or minerals, like vitamin D and phosphorous are needed for building up bones.



During pregnancy women need extra amount of calcium for the healthy growth of foetus.

Some calcium rich foods



This was developed as part of the project:
Assessment of nutrition knowledge and impact of nutrition education related maternal health on adolescent girls in urban slums of Hyderabad.

Investigators : Dr. D. Raghunatha Rao, T. Prasanna Krishna, T. Vijaya pushpam, Anil Kumar Dube, N. Amulya Rao and K.V. Rameshwar Sarma
