

- Garden cress seed, niger seed, cauliflower greens, bengal gram leaves, shepu, amaranth, radish leaves, mustard leaves, ghol, colocasia leaves, mint, rice flakes and dried green leafy vegetables are rich sources of iron and hence should be included daily in diet to prevent and to cure anaemia .

- For maturation of RBCs vitamin B12 and folic acid is required. Therefore it is essential to include vitamin B12 and folic acid rich foods in daily diet such as milk and milk products, fish, meat, eggs, spinach, drumstick leaves, ambat chukka, ladies finger, cluster beans, gingelly seeds, soybean, whole pulses and cereals.

- Vitamin 'C' plays special role in absorption of iron. Thus, diet should contain vitamin 'C' rich food mentioned below.

Fruits - Amla, custard apple, grapes, guava, lemon, orange, papaya, pineapple, sweet lime, tomato.

Raw salad foods - Cabbage, coriander leaves, cucumber, fenugreek leaves, fresh bengalgram leaves, fresh safflower leaves, onion stalk, radish, spinach and tender pods.

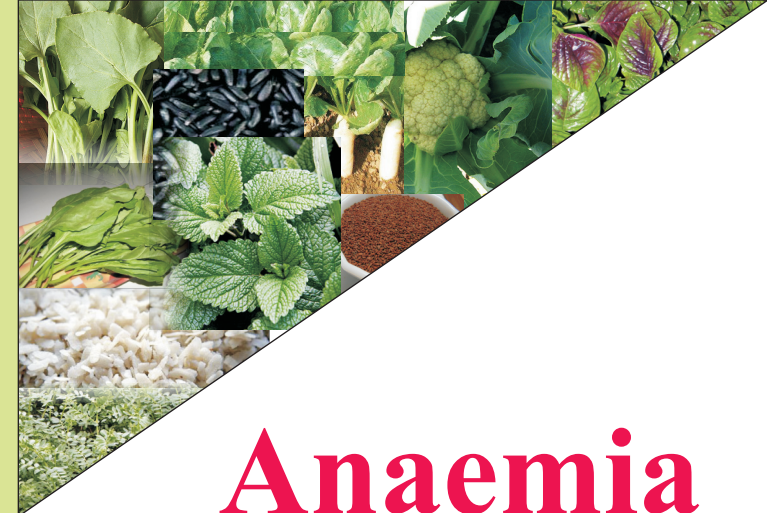
Other foods - Bitter gourd, capsicum, cauliflower, cluster beans, drumstick pods, green chillies, knol-knol, green tomato etc.

- Personal hygiene should be maintained to avoid occurrence of worm infestation. The periodical deworming is suggested especially for children.
- Pregnant women must take at least 100 iron tablets after three months of pregnancy.

Daily Requirement of nutrients

Age Group	Age Year	Energy Calories	Protein gm.	Fat gm.	Calcium mg.	Iron mg.	Vitamin 'A' mg.	Vitamin 'C' mg.	Folic Acid mg.	Vitamin 'B'6 mg.	Vitamin 'B'12 mg.
Children	1-3	1060	16.7	27	600	09	400	40	80	0.9	0.2-1
	4-6	1350	20.1	25	600	13	400	40	100	0.9	0.2-1
	7-9	1690	29.5	30	600	16	600	40	120	1.6	0.2-1
Adolescent Boys	13-15	2750	54.3	45	800	32	600	40	150	2	0.2-1
Adolescent Girls	16-17	3020	61.5	50	800	28	600	40	200	2	0.2-1
	13-15	2330	51.9	40	800	27	600	40	150	2	0.2-1
	16-17	2440	55.5	35	800	26	600	40	200	2	0.2-1
Pregment Women	Sedentary Working	2250	78	30	1200	35	800	60	500	2.5	1.2
	Moderate Working	2580	78	30	1200	35	800	60	500	2.5	1.2
	Heavy Working	3200	78	30	1200	35	800	60	500	2.5	1.2

ICMR (2010)



Anaemia

A serious health problem

Dr. Asha Arya
Principal Investigator

Dr. Rohini Devi
Co-Principal Investigator

Rupali Patange, Archana Bhojar
Research Assistant



Department of Science & Technology
(Seed Division)
Govt. of India

Department of Foods & Nutrition College of Home Science MKV, Parbhani



Anaemia - A serious health problem

Anaemia means when the haemoglobin concentration in the blood is lower than the level considered as normal. Normal haemoglobin concentration in blood is more than 12g/dl. Hence, Haemoglobin concentration of less than 12 g/dl is considered as anaemic.

Anaemia can be diagnosed by measuring the concentration of haemoglobin in circulating blood or by measuring the packed volume of red cells (haematocrit). Both these can be measured in either capillary blood obtained by finger prick or in venous blood.

Haemoglobin provides oxygen to cells. In the beginning of anaemia symptoms are not seen. Therefore, it is ignored. But preventing anaemia before it becomes severe is important because deficiency of haemoglobin leads to low oxygen supply to cells which leads to less energy production and reduced functioning capacity of cells. Number of RBCs get reduced slowly. Maturity of RBCs is affected. Immature RBCs is one of the effect of low haemoglobin content. Size and shape of RBCs can also be changed and they do not work usually like normal cells.

Signs and symptoms of anaemia

- Muscular work efficiency is lowered. Thus physical work capacity of an individual is reduced.
- Early fatigue is observed due to weakness.
- Headache.

- Breathlessness on exertion.
- Decreased appetite and disturbed digestive process.
- Paleness of skin, tongue, nails, lips and conjunctiva.
- Loss of interest in work / Loss of concentration.
- When haemoglobin content becomes very low, nails become spoon shaped and flat.

Causes of Anaemia

- Production of haemoglobin in body requires iron, folic acid, vitamin B6, vitamin B12 and proteins.
- Less consumption of iron, folic acid, vitamin B6 and vitamin B12 rich foods leads to dietary deficiency of three nutrients leading to deficiency of any of these nutrients in the body which causes anaemia.
- Deficiency of vitamin 'C' reduces absorption of iron from plant sources.
- Hemorrhage or heavy blood loss leads to anaemia.
- Worm infestation reduces the availability of dietary iron which results in anaemia.
- Consumption of iron absorption inhibitors such as tannins and phytates in larger amounts or immediately after meal result in development of anaemia.
- In India there is high prevalence of anaemia specially in pregnant women, adolescent girls and preschool children. Because during these periods requirement of all nutrients is increased. If the increased demands of nutrients are not met, person can suffer from nutrient deficiency diseases.

Effects of anaemia on

Preschool children

Anaemia affects the growth performance of the children adversely. Anaemic children exhibit less height and weight for age. Apart from it, physical and intellectual disability may be developed in them. Immunity will be decreased which can lead to development of various infections.

Adolescent girls

The growth of adolescents is affected adversely. Reproductive system is not developed properly. Intellectual and physical development may not reach to maximum potentials. This in turn may result in lower performance or failure in studies, sports and other achievements.

Pregnant women

Anaemia in pregnancy may cause abortion, low birth weight baby, mentally retarded baby, high maternal mortality rate, increased malnutrition and still birth.

Preventive and controlling measures of anaemia

- To prevent anaemia diet should be balanced i.e. diet must include foods from all basic food groups in right proportion.
- Iron, vitamin B6, folic acid, vit B12 and protein are necessary for haemoglobin synthesis and RBC maturation. Hence, diet should be planned with inclusion of rich sources of all these nutrients.