

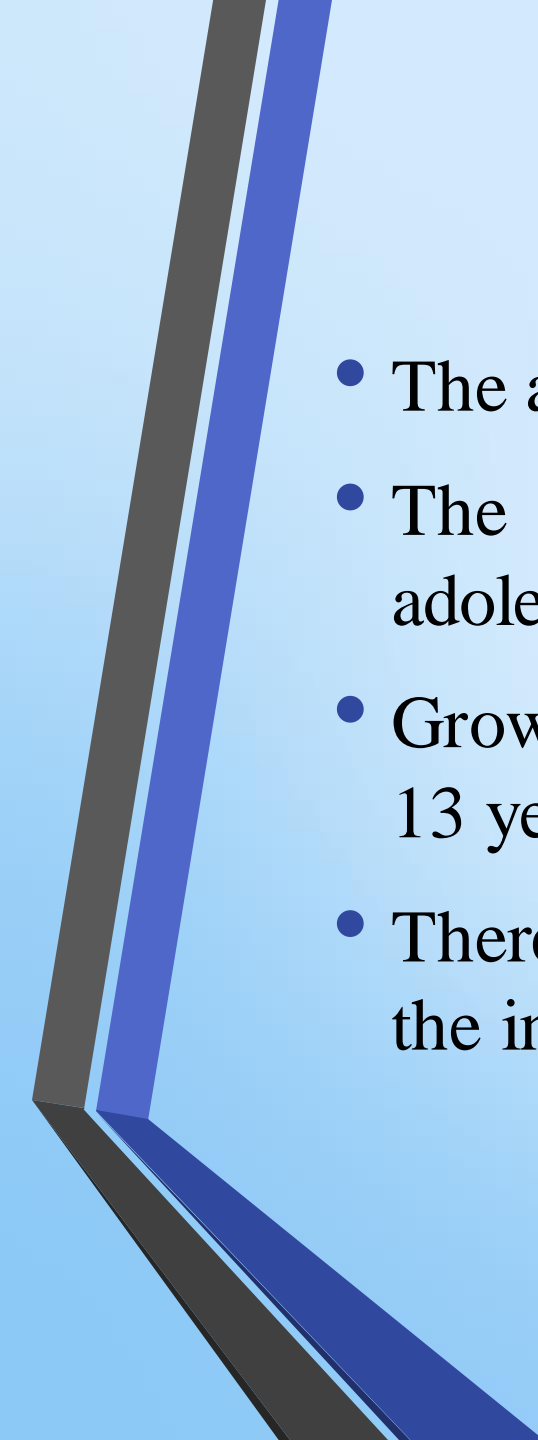


DIET THERAPY 1

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Unit 3

- **Nutrition during adolescence**
- **Nutrition during adulthood**
- **Nutrition during old age**

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- The age group of adolescence is between 13 - 19 years.
 - The period of transition from childhood to adulthood is called adolescence.
 - Growth velocity for boys between 12 -13 years and for girls 10 - 13 years.
 - There are many physical and mental changes which results due to the influence of hormones.

Energy

- The calorie intake for both boys and girls remains same up to 9 years.
- After 10 years boys need more calories than girls.
- Calorie needs increase the metabolic demands of growth and activity.

Protein

- ICMR recommends 55gm protein for girls and 53 gm protein for boys.
- Protein meets growth and pubertal changes in both sex and developing muscle mass in boys.
- Girls need more protein than boys.
- Protein rich foods milk meat fish egg pulses and legumes whole grains

Fat

- ICMR recommends 35 gm fat for girls and 45 gm fat for boys.
- Essential fatty acids helps in relaxing muscles and blood vessels in uterus and reduces menstrual pain
- EFA rich foods :corn cotton seed safflower soybean oil green leafy vegetables flax seeds.

Minerals

Calcium

- During adolescence, 800 mg of calcium and 800 mg of phosphorus is needed.
- Bone growth demands calcium. Elemental ca: p ratio is 1:1 should be maintained.
- Calcium rich foods -milk and Milk products agathi leaves gingelly seeds Ragi

Iron

- ICMR recommends 28 mg of iron per day.
- Iron is needed for hemoglobin synthesis.
- Girls need more and than boys to compensate menstrual blood loss.
- Iron rich foods: rice flakes egg yolk green leafy vegetables jaggery liver dried beans dried fruits Ragi Jowar Bajra

Zinc

- ICMR recommends 12 mg of zinc per day.
- It increases pubertal growth and deficiency leads to pubertal delay.

Vitamins

- ICMR recommends 400 microgm of Vitamin A and 400 microgm of vitamin D.
- Folic acid and Vitamin B12 are essential for DNA synthesis.

Nutritional problems in adolescence

- Obesity
- More calorie intake and poor physical activity leads to obesity.
- Other causes are
- Skipping meals
- Eating junk food (very salty High sugar, fat foods)
- Consume more sweet beverages like soft drinks
- More calorie intake
- Lack of exercise
- Due to family habits hormonal imbalance emotional stress
- Eating disorder

- There are three types of eating disorder -anorexia nervosa, bulimia nervosa and binge eating disorder.

Anorexia nervosa

- It occurs in middle adolescence (15 to 17 years).
- They will be extremely thin and rapid loss in weight.
- They rigidly avoid one particular food like milk non vegetarian foods. Refuse to eat and eat only tiny portion.

Bulimia nervosa

- It occurs in late adolescence (18 to 20 years).
- Usually near the ideal body weight, sometimes loss in weight.
- Eat large meals but no gain in weight.

Binge eating disorder

- It occurs at any age until adulthood.
- Usually overweight or obese.
- They may have obesity-related diseases such as type 2 diabetes high blood pressure high cholesterol.
- They frequently eat when not hungry.

- **Osteoporosis** Excess exercise high fibre consumption of soft drinks reduces the muscle mass and bone density.
- Reduce calcium intake leads to osteoporosis.

Anaemia

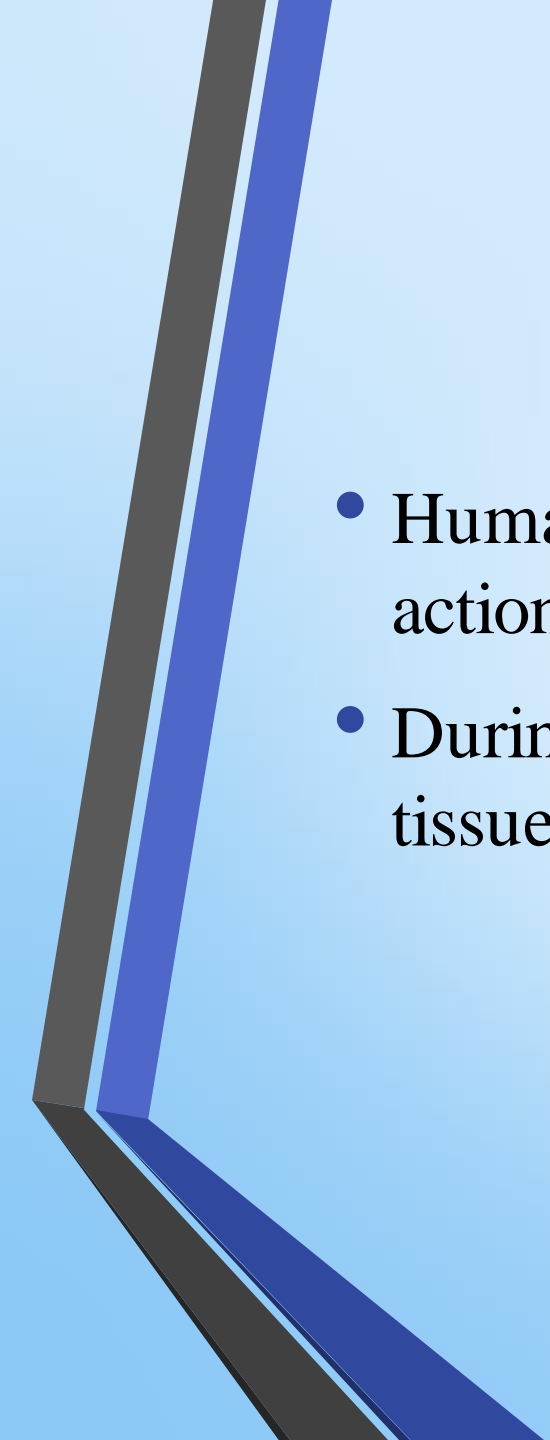
- Anaemia is common during adolescence due to lack of iron in diet and due to loss of iron in mensuration.

Undernutrition

- Undernutrition during adolescence due to lack of nutrient in diet, childhood marriage, Peer influence, eating outside home with poor selection of food, emotional disturbance.



NUTRITION DURING ADULTHOOD

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- Human needs a wide range of nutrients which performs various actions of body.
 - During adulthood nutrients are required for energy, replacement of tissues and maintenance of body functions.

Energy

- Reference man weight is about 60 kg and reference men women weight is about 55 kg (this is only for non pregnant and non lactating).
- The energy intake of adults depends on their activity.
- Based on the activities adults are classified into sedentary worker (teacher tailor housewife) moderate worker (fisherman Farmer industrial worker) heavy worker (stonecutter mine worker woodcutter)

Protein

- ICMR recommends protein for men 60 gm and for women 55 gm protein is mainly needed for the cell impairments and growth.
- Protein rich foods -egg fish meat milk pulses and legumes whole grains

Fat

- ICMR requirement fat for men 25 gm and for women 20 gm.
- Fat provide more calories in their diet.

Minerals

Calcium

- The requirement of calcium for both men and women are same as 600 mg.
- The Ca:P is 1: 1 is to be maintained in the diet.
- Calcium is mainly needed for bone development.
- Calcium rich foods- milk and Milk products, agathi leaves, gingelly seeds.

Iron

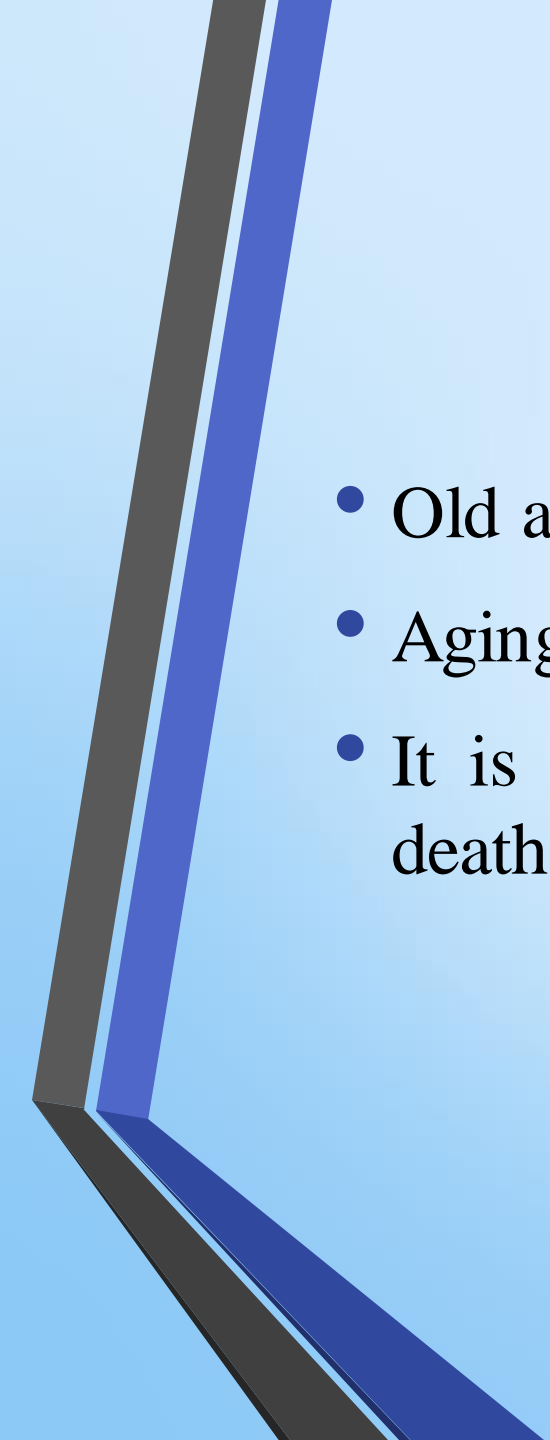
- Iron requirement for women is 4 mg greater than men because iron loss through mensuration and reproduction.
- Iron rich foods: Rice flakes, green leafy vegetables, jaggery, dried beans, dried fruits, Ragi, Jowar, Bajra, egg yolk, liver

Vitamins

- The requirement of Vitamin A is same for both men and women.
- The requirement of B vitamins is based on calorie requirement.
- We should concentrate on Vitamin C and Vitamin E foods in diet.
- **Antioxidants:** it helps to neutralize free radicals which leads to cell damage and cause cancer.
- Some of the antioxidants of foods are carrots, green leafy vegetables, Orange, lemon, papaya, mango.



NUTRITION DURING OLD AGE

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- Old age is best at the age of retirement that is, 60 years and above.
 - Aging is not a disease that a biological process.
 - It is a normal process begins at conception and ends only with death.

Energy

- After 35 years, BMR decreases due to reduce muscle mass and metabolic activity.
- So calorie intake depends on the work they do.
- ICMR recommends energy for sedentary work old men 1900 K.cal and for sedentary old women 1800 K.cal.

Protein

- The daily requirement of protein is 1 gm per kg body weight.
- For men 60 gm per day.
- Protein is needed for skeletal muscle mass and for cell growth and maintenance.
- Protein rich food Milk, fish meat eggs pulses legumes whole grains.

Fats

- ICMR requirement fat for old men 25 gm and old women 20 gm.
- EFA in diet helps to reduce hair loss, vision loss, improper digestion, poor kidney function, painful joints and mental depression.
- EFA rich foods corn, cotton seeds sunflower soya bean oils, green leafy vegetables flax seeds

Minerals

Calcium

- There will be heavy loss of calcium in bones after 40 years leads to osteoporosis so calcium intake is high in old age 800 mg.
- Deficiency of calcium leads to poor bone density, dental decay and pain in joints.
- Calcium rich foods: milk and Milk products, agathi leaves, gingelly food

Iron

- Iron deficiency anaemia is common in old age.
- So iron rich food should be taken in diet regularly.
- Iron rich foods- rice flakes, green leafy vegetables, jaggery, dried beans, dried fruits, Ragi, Jowar, Bajra, egg yolk, liver.

Vitamins

- Vitamin D is needed for calcium absorption otherwise calcium deficiency leads to osteoporosis.
- Vitamin C is needed for iron absorption which prevents anaemia.
- Vitamin B is helpful in functioning immune system. Vitamin A & E act as good antioxidants and prevent free radical formation that leads to cancer.

Water

- For proper kidney function an adequate amount of water is needed to eliminate waste products.
- Water can be in the form of juices, buttermilk and soups.

Fibre

- Fibre helps to reduce cholesterol and heart diseases so fibre should include in diet.
- Ex: Whole vegetables and fruits.