



Quick Revision Notes

CHIRKUT STUDY

Class 12

CHAPTER 2

SPORTS AND NUTRITION

- Balance diet and nutrition : macro and micronutrients
- Nutritive and non nutritive components of diet
- Eating for weight - healthy weight , pitfall of dieting , food intolerance and food myths

Meaning of a balanced diet :

A balanced diet means eating the right amount of food from all food groups

Or

A diet which consists of all essential food constituent viz , protein carbohydrate fat vitamins minerals and water in correct proportion is called balanced diet.

Meaning of Nutrition :

Nutrition is is a dynamic process which comprises consumption of food to remain healthy and it is essentially the process of nourishing or being norished.

Macro Nutrients : it is the majority of individual diet and it is taken in large amount

- **Carbohydrate**

It is the most important source of energy e it contain the element of carbon hydrogen and oxygen carbohydrate are

actually the organic compound that are important for different digestive operation in our body.

- Simple carbohydrate - these are soluble in water and are crystalline in nature they are sweet interest and are called sugar Ex - glucose fructose sucrose lactose etc.
- Complex carbohydrate - these are not soluble in water and they are not sweeter in taste also it is not a crystalline. Ex - starch ,glycogen and cellulose

Protein : it contain carbon hydrogen oxygen nitrogen and sometime sulphur they are large molecules so that they cannot directly absorbed into our blood they are turned into amino acid by our digestive system. Body required only 0.36 gram of protein per pound of the ideal body weight.

Fat : fat contain carbon Oxygen and hydrogen . It keep us warm and protect our organs and also help in production of hormones.

Types of fat -

- Saturated fat - it will increase of cholesterol in body
- Unsaturated fat - it will lower the level of cholesterol in our body.

Water - it is made up of hydrogen and oxygen it will help in transportation of nutrient to the cell of the body and also important for the excretion of waste product. It will also regulate the body temperature and play a vital role for various chemical reaction take place in our body.

Micro nutrient :

- **Minerals** : Mineral (nutrient) In the context of nutrition, a mineral is a chemical element required as an essential nutrient by organisms to perform functions necessary for life.

a. Macro minerals :

Calcium , potassium , sodium , magnesium , phosphorus

- **Micro minerals :**

Iodine , iron , chromium , copper , cobalt

- **Vitamins** : they are the chemical which are required in very small amount to keep our body healthy.
 - **Fat Soluble vitamins**

Vitamin A , Vitamin D , Vitamin E , Vitamin K

- **Water soluble vitamins**

Vitamins B complex :

- **Vitamin b1,b2,b3,b5,b6,b12,b9,b7**

Vitamin C

Vitamins which are water soluble

	Function or role	Sources
Vitamin B1 - thiamine	Needed for the metabolism, crucial for the functioning of the nervous system. It also aids in the metabolizing of carbohydrates, maintaining appetite and normal digestion.	Found in many essentials: nuts, seeds, whole-grain or enriched breads and cereals, pork, beans, wheat germ, pork and liver.
Vitamin B2 - riboflavin	Necessary for the metabolism, it is also vital for good vision and healthy skin. Also supports the nervous and digestive systems.	Milk and yogurt, leafy green vegetables, whole-grain cereals.
Vitamin B3 - niacin	Relevant for the nervous system and digestive system and also for healthy skin.	Tuna, dairy, whole-grain or enriched breads and cereals, vegetables, meat and all protein products, as well as peanut butter.
Pantothenic acid	Aids in supporting the body's metabolism.	Common in foodstuffs.
Biotin	Fraction of enzyme needed for energy metabolism.	Common in foods. Also produced bacterially in intestinal tract.
Vitamin B6 - pyridoxine	Part of enzyme needed for protein metabolism. It also helps in the production of red blood cells. Significant function in protein metabolism.	Meats, fish, poultry, green vegetables, fruits, shellfish.
Folic acid	Needed in the making of red blood and new blood cells. Instrumental for pregnant woman, as it prevents neural defects.	Leafy vegetables and legumes, orange juice, liver, seeds.
Vitamin B12 - Cobalamin	Part of enzyme crucial for new cell synthesis. It also aids in the maintaining of nerve cells.	Animal products, eggs, poultry, seafood, milk and dairy products and eggs. It cannot be found in plant foods.
Vitamin C - ascorbic acid	Important for immune system health, and invaluable in the absorption of iron. Essential element in collagen formation. It is an antioxidant and an important function is its boosting of resistance to infections and improving the absorption of iron.	Abundant in most fresh fruits, but especially citrus fruits and vegetables from the cabbage family, as well as cantaloupe, strawberries, tomatoes, potatoes, peppers, lettuce, papayas, kiwifruit and mangoes.

VITAMINS WHICH ARE FAT SOLUBLE

Nutrient	Function or role	Sources
<i>Vitamin A (and beta-carotene)</i>	Needed for maintaining good sight, especially night vision, aids in maintaining an effective immune system and resistance to infections, vital for healthy skin, boosts the growth and repair of body tissues.	Vitamin A can be found in animal sources (retinol): dairy products, eggs and liver. Beta-carotene is found in plants: leafy vegetables (e.g. kale, parsley), fruits such as apricots and cantaloupe and a variety of so-called yellow vegetables (e.g. winter squash, sweet potatoes, pumpkin, carrots). Also, yellow and orange fruits such as mangoes and cantaloupe.
<i>Vitamin D</i>	Part of a group of vitamins which encourages bone making and absorption of calcium. It is also in charge of the absorption of phosphorus and calcium and phosphorus for the bones.	Egg yolks, fatty fish, fortified milk and margarine, liver. It is also made by the skin via sun exposure. Also exists in dairy products, egg yolk, fish liver oils, tuna and other fish, as well as sardines and yeast.
<i>Vitamin E</i>	Antioxidant. It assists in maintaining cell membranes, and guards vitamin A and fatty acids from the oxidation process.	Found mostly in plant oils (e.g. soybean, corn), leafy green vegetables, wheat germ, whole-grain products, liver and egg yolks. Also, nuts and seeds.
<i>Vitamin K</i>	Helps produce factors that boost proper blood clotting.	Leafy green vegetables and milk.

Minerals

Mineral Name	Major Functions	Deficiency Effects	Toxicity Effects	Food Sources
Calcium	Makes up bone and teeth; muscle contraction/relaxation; blood pressure; clotting; nerve function	Children – stunted growth Adults – bone loss (osteoporosis)	Diarrhea, interference with absorption of other minerals	Dairy, fish with bones, tofu, greens, legumes, fortified foods
Chromium	Helps insulin move glucose (sugar) from blood into cells	Abnormal glucose metabolism	Possible muscle degeneration	Meat, whole grains, vegetable oils
Fluoride	Helps make bones and teeth stronger, helps teeth resist decay	Susceptibility to tooth decay	Fluorosis, discolored teeth, nausea, chest pain	Fluoridated water, seafood, tea
Iodine	A component of thyroid hormone – helps regulate growth, development, metabolism	Goiter, cretinism	Low thyroid activity, enlarged thyroid	Iodized salt, seafood, plants grown in iodine-rich soil
Iron	Part of hemoglobin – carries oxygen in blood, myoglobin carries oxygen in muscle	Anemia, weakness, head-aches, reduced immunity, low cold tolerance	Fatigue, infection, liver damage, colon cancer, bloody stools, fatal to kids	Red meats, fish, poultry, eggs, legumes, dried fruit
Magnesium	Mineralization of bones and teeth, helps enzymes function, muscle contraction, nerve transmission	Weakness, muscle twitches, confusion, convulsions, bizarre muscle movements	Confusion, lack of muscle coordination, death (all due to overuse of laxatives, antacids)	Nuts, legumes, whole grains, dark leafy greens, seafood, chocolate/cocoa
Phosphorus	Bones and teeth; DNA; Phospholipids (part of cell membranes)	Weakness, bone pain (Deficiency rare – usually a side effect of medication)	Low blood calcium, increased calcium excretion	All animal tissues (meat, fish, poultry, eggs, milk)
Potassium	Maintains normal fluid and electrolyte balance, assists nerve impulse transmission and muscle contraction	Muscular weakness, paralysis, confusion (due to dehydration)	Muscular weakness, vomiting reflex	All whole foods, fruits, vegetables, grains, meat, milk
Selenium	Antioxidant, works with vitamin E	Keshan disease, muscle pain/degeneration, cataracts, low sperm, fragile red blood cells, heart damage	Nail and hair brittleness and loss, nerve, muscle, liver damage, nausea	Seafoods, organ meats, other meats, grains, veg depending on soil content
Sodium	Maintains normal fluid and electrolyte balance, assists nerve impulse transmission, muscle contraction	Muscle cramps, mental apathy, loss of appetite	Edema, acute hypertension, increased calcium excretion	Table salt, soy sauce, MSG, all processed foods.
Zinc	Part of insulin, helps many enzymes function, DNA repair, taste perception, immune function, wound healing, sperm	Failure to grow (kids), dermatitis, loss of taste, poor healing, sex retardation	Fever, nausea, vomiting, dizziness, uncoordinated, anemia, heart disease	Protein-containing foods, some grains and vegetables

Nutritive components of diet :

Those component which provide energies or calories.

Nutritive Components of Diet		
Components	Categories	Sources
Proteins	Animal	Eggs, Milk, Meat, Fish
	Vegetable	Pulses, Soyabean, Mustard, Dry fruits, food grains
Carbohydrates		Rice, Maize, Jowar, Bajra, Pulses, Banana, Potato, Sugar, Date, Grape
Fats	Animal	Ghee, Butter, Fish oil, Milk, Meat
	Vegetable	Coconut, Mustard, Cotton seed, Soyabean, Sunflower seed

Nutritive Components of Diet: Vitamins		
Fat Soluble Vitamin	Characteristics	Sources
A	Yellow colour, Oxidation destroys	Ghee, Milk, Curd, Egg yolk, Fish, Tomato, Papaya, Carrot
D	Colourless, Deficiency : rickets	Egg yolk, Fish, Sunlight, Milk, Tomato, Carrot, Cod liver oil
E	Increases fertility. Adrenal gland	Green Vegetables, Cotton seed, Coconut oil, Dry and Fresh Fruit, Milk, Sprouts, Egg yolk
K	Help clotting of Blood. Deficiency : Anemia	Cauliflower, Spinach, Cabbage, Tomato, Potato, Wheat, Egg, Green Vegetables, Meat

Nutritive Components of Diet: Vitamins

Water Soluble Vitamin	Characteristics	Sources
B1 or Thiamin	Colourless, Metabolises Carbohydrate	Wheat, Groundnuts, Green peas, Orange, Eggs, Green vegetables, Rice, Sprouts
B2 or Riboflavin	Yellow Colour, keeps eyes, nose, mouth healthy	Egg yolk, Fish, Pulses, Peas, Rice, Yeast, Wheat and Green vegetable
B3 or Pantothenic Acid	Helps in growth of body. Deficiency: grey hair	Milk, Dry fruits, Egg yolk
B5 or Nicotinamide	Deficiency: Pellagra disease. Maintains body weight	Yeast, Milk, Polished rice & Nuts

Nutritive Components of Diet: Vitamins

Water Soluble Vitamin	Characteristics	Sources
B6	Vital for formation of Haemoglobin. Keeps skin healthy	Meat, Fish, Egg yolk, Rice, Wheat, Peas
B12	Red Colour, deficiency: anaemia	Egg yolk, Fish, Pulses, Peas, Rice, Yeast, Wheat and Green vegetable
Folic Acid	Yellow Colour. Deficiency : loss of leucocytes	Yeast, Spinach, Liver
C or Ascorbic Acid	White Colour. Increases Metabolic rate. Deficiency: Scurvy	Lemon, Pineapple, Grapes, Tomato, Amla, Green chilly, Spinach, Sprouts, Turnip

Nutritive Components of Diet: Minerals

Minerals	Characteristics	Sources
Calcium	Teeth & Bones. Deficiency: Asthma, Rickets	Milk, Cheese, Yolk, Orange, Green Vegetables
Phosphorus	Teeth and Bones	Egg, Fish, Milk, Meat, Liver, Unpolished Rice
Iron	Formation of Haemoglobin. Deficiency: Anaemia	Meat, Egg, Dry Fruits, Liver, Green Vegetables
Iodine	Thyroid Gland. Deficiency: Goitre, May stop Growth	Sea Fish, Iodized salt
Sodium	Balances water in body, contraction of Muscles	Common Salt, Milk, Milk Products, Meat, Egg
Potassium	Deficiency: weakens muscles, Addison's disease	Carrot, Beet root, Onion, Tomato, Orange, Banana
Sulphur	Helps cells of the body, formation of hair & nail	Egg, Radish, Pulses, Carrot, Peas, Spinach, Tomato

Non nutritive components of diet :



Non-Nutritive Components of Diet

1. Fibre or Roughage

- ❖ Food component which can not be digested by intestinal tract
- ❖ Has no nutrient value
- ❖ Add bulks to the food and satisfy the appetite
- ❖ Prevents constipation
- ❖ Two categories
 - Soluble – soluble in water
 - Insoluble – not soluble in water



Non-Nutritive Components of Diet

2. Water

- ❖ Essential component of diet
- ❖ Blood comprises of 90 % water
- ❖ Regulates body temperature
- ❖ Functions as lubricant, keeps skin moist and protects the body from shock
- ❖ 20 % from food & 80% from water intake

3. Colour Compounds

- ❖ Food becomes more appetizing and attractive by colours
- ❖ Natural pigments are found in fruits and vegetables
- ❖ The colours from animal products and grains are less bright

Non-Nutritive Components of Diet

4. Flavour Compounds

- ❖ Flavours are derived from both nutritive and non-nutritive component of food
- ❖ Acidic food provides sour taste
- ❖ Alkaline food provides bitter taste

5. Plant Compounds

- ❖ Plant contains other non-nutritive substances
- ❖ Tea , Coffee contains caffeine



Meaning of healthy weight :

Healthy weight is considered to be the one that is between 19 and 25 according to BMI. If the BMI is between 25 and 29 an adult is considered overweight. If the BMI is 30 or greater the person is considered to be a obese.

$$\text{Body Mass Index} = \frac{\text{Weight (in kg)}}{\text{Height}^2 \text{ (in m)}}$$

Underweight - <18.5

Normal weight 18.5-24.9

Overweight 25-29.9

Obesity class I - 30-34.9

Obesity class II - 35-39.9

Obesity class II - >40

Method to control healthy body :

- Set an appropriate goal for weight loss
- Cut your calories and live in active lifestyle
- Do regular exercise like gym yoga
- Avoid fatty foods junk foods and fast foods
- Do not eat smaller meals frequently
- balancing the intake of calories and expenditures of calories

The pitfalls of dieting :

Common Pitfalls of Dieting for an Event. Diets that severely restrict caloric intake may offer results, but they trigger a “starvation response” in which the body slows down its metabolic rate to conserve energy. The loss of muscle tissue is responsible for lowering our metabolic rate.

- Extreme reduction of calories and skipping meals
- Restriction of several meals in our dieting like carbohydrate and fat
- Intake of calories through beverages like drinks etc

-
- Not exercising regularly in the dieting.

Food intolerance -

It means the individual element of certain foods that cannot be properly preceded and absorbed by our digestive system

Causes - because of the absence of activities of enzyme responsible for breaking down and absorbing the food element

Symptoms - stomach pain vomiting headache nervousness

Food myth :

There are several food methods which are prevailing not only in India but all over the world.

- 1. Potato make you fat**
- 2. Fat free product will help you in losing weight**
- 3. Eggs increases cholesterol level**
- 4. Drinking while eating make you fat**
- 5. Don't take milk immediately after eating the fish**

6. Exercise make you eat more.

Thank you. !

Don't forget to subscribe
our YouTube channel -
Chirkut study