

Unit 5 | Sports and Nutrition

Balanced Diet

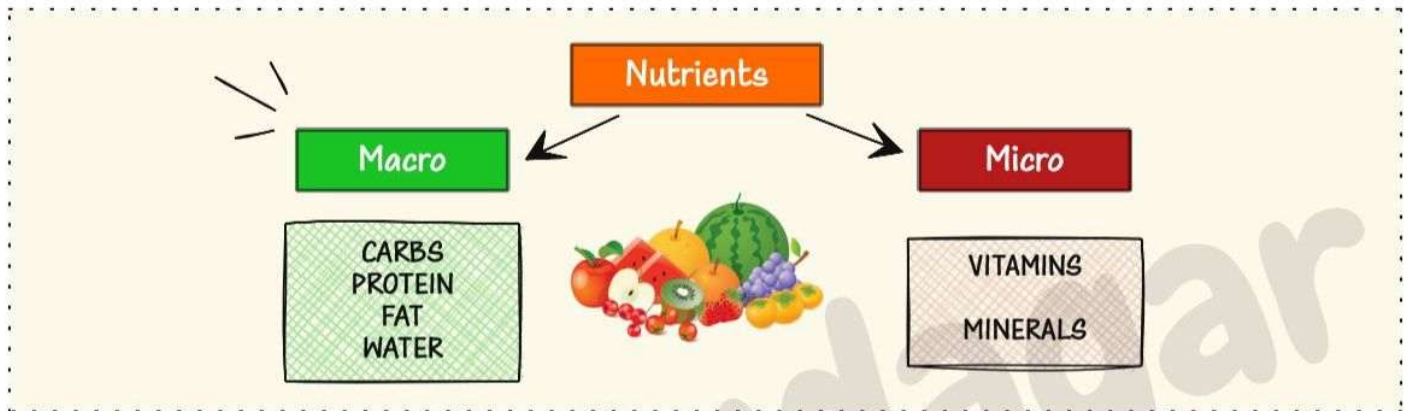


A diet which consists of all essential food constituent viz , protein, carbohydrate, fat, vitamins, minerals and water in correct proportion is called balanced diet

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 nourished.



Nutritive Component of Diet

CARBS
PROTEIN
FAT
VITAMINS
MINERALS

Non- Nutritive Component of Diet

FIBERS / ROUGHAGE
WATER
COLOR COMPOUND
FLAVORS
PLANT PRODUCTS

&

Carbs



It is the most important source of energy , 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.

Fats



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.

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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.

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

Type of Vitamin	Function	Examples of Ingredients
Calcium	Bone health, normal blood pressure, muscle contraction	Broccoli, dairy products, salmon
Chloride	Maintains fluid and electrolyte balance	Baking soda, bread, cheese, eggs
Chromium	Carbohydrate metabolism	Cheese, fish, meat
Copper	Electron carrier	Cocoa, organ meat, seafood
Fluorine	Bone and tooth health	Organ meat, legumes, nuts
Iron	Part of haemoglobin, a red protein that carries oxygen in the blood	Cereals, breads, egg yolks, fish, fruits
Magnesium	Muscle activity, and fat, protein and carbohydrate metabolism	Brown rice, cocoa, seafood, vegetables
Manganese	Brain function, energy metabolism, building proteins and bone structure	Fruits, vegetables, nuts
Molybdenum	Purine degradation and formation of uric acid	Peas, bread, grains, nuts
Phosphorus	Bone and tooth health	Bananas, citrus fruits, meat, milk
Potassium	Maintains fluid and electrolyte balance	Bananas, citrus fruits, potatoes
Selenium	Antioxidant	Dairy products, fruits, fish
Sodium	Maintains fluid and electrolyte balance	Milk, salt, spinach
Zinc	Taste perception	Red meat, seafood, legumes

Type of Vitamin	Function	Examples of Ingredients
Vitamin A	Vision and cell development in the body	Sweet potato, mangoes, eggs
Vitamin B1	Energy metabolism and nervous system function	Tuna, whole grains, pork
Vitamin B2	Energy metabolism and normal vision	Mushrooms, whole grains, milk
Vitamin B3	Energy metabolism	Whole grains, milk, eggs, meat
Vitamin B5	Energy metabolism	Mushrooms, avocado, beef, poultry
Vitamin B6	Synthesis in new cells	Green leafy vegetables, fruits, fish
Vitamin B7	Energy metabolism	Nuts, egg yolk, liver, fish
Vitamin B9	Synthesis in new cells	Green leafy vegetables, legumes, liver
Vitamin B12	Synthesis in new cells	Lamb, oysters, sardines
Vitamin C	Immunity and formation of collagen in skin	Citrus fruits, strawberries, tomatoes, potatoes
Vitamin D	Maintains calcium and phosphorus in blood	Fatty fish, fish liver oils, eggs
Vitamin E	Antioxidant	Nuts, green leafy vegetables, fish
Vitamin K	Blood clotting	Spinach, green leafy vegetables

Roughage

Aka: Fibres. It mainly consists of water, thus adding volume to the food by improving intestinal function and controlling hunger. It does not cause constipation and helps resolve large intestine disorders. These fibers help in reducing certain cancers and heart diseases.

Vitamins	Deficiency disorder
Vitamin A (Retinol)	Loss of vision (Blindness).
Vitamin B ₁ (Thiamine)	Weak muscles and severe weight loss (Beriberi).
Vitamin B ₂ (Riboflavin)	Poor diet and mouth sores (Ariboflavinosis).
Vitamin B ₃ (Niacin)	Diarrhea and dermatitis (Pellagra).
Vitamin B ₅ (Pantothenic acid)	Ischemic attacks and multiple sclerosis affect brain (Paresthesia).
Vitamin B ₆ (Pyridoxine)	Low number or lack of red blood cells (Anemia).
Vitamin B ₇ (Biotin)	Red and itchy skin (Dermatitis).
Vitamin B ₉ (Folic acid)	Immature RBCs in the bone marrow (Megaloblastic anemia).
Vitamin B ₁₂ (Cyanocobalamin)	Abnormal absorption in the small intestine (Pernicious anemia).
Vitamin C (Ascorbic Acid)	Bleeding gums and swollen joints (Scurvy).
Vitamin D (Calciferol)	Weakening of bones near joints (Rickets).
Vitamin E (Tocopherols)	Faster depletion of RBCs from the body (Hemolytic anemia).
Vitamin K (Phylloquinone)	Irregular and slow blood bleeding and clotting (Bleeding diathesis).

Color Compound

At present foods are made more attractive by using various color compounds or pigments in many foods and dishes, which are also appetizing. There are also colors produced from animal products and natural color pigments produced from fruits and vegetables.

Flavors

Nowadays, foods are made more flavorful and attractive by extracting and producing the essence from various other chemical products which has harmful effects on health. The flavor compounds are produced from both nutritive and non-nutritive components.

Plant Product

These are compounds extracted from plants that are non-nutritive substances. Some of these components have a good effect on health, like preventing cancers, whereas some have harmful effects when taken in excess.

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Healthy Weight

Healthy weight is considered to be the one that is between 18.5 and 24.9 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 obese

$$\text{BMI} = \frac{\text{weight in kg}}{(\text{height in m})^2}$$

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

Method to control healthy body :

1. Set an appropriate goal for weight loss
2. Cut your calories and live in active lifestyle
3. Do regular exercise like gym yoga
4. Avoid fatty foods junk foods and fast foods
5. Do not eat smaller meals frequently
6. Balancing the intake of calories and expenditures of calories



Pitfall 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.
- Not exercising regularly in the dieting

Food Myths

'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

Importance of Diet in Sports

Diet plays a pivotal role in an athlete's performance and overall well-being. Proper nutrition is essential during all stages of sports, including preparation, competition, and recovery.

Pre-Competition Diet

Before the event, athletes should focus on consuming nutrient-rich foods to optimize energy levels and endurance.

- Carbohydrates should be the mainstay, providing a steady source of fuel for muscles.
- Lean proteins aid in muscle repair and recovery while also supporting immune function.
- Adequate hydration is crucial.
- Athletes should aim to maintain optimal fluid levels.

During Competition Diet

Staying hydrated is paramount during sports activities to prevent performance decline. Easily digestible carbohydrates, like sports drinks and energy gels, help maintain energy levels. Some athletes may benefit from consuming small, easily digestible snacks during prolonged events.

Post Competition Diet

- After the competition, recovery is a top priority to replenish depleted nutrients and repair muscles.

- Consuming a combination of carbohydrates and proteins within the first 30 minutes is vital for muscle glycogen restoration and repair.

- Antioxidant-rich foods aid in reducing inflammation and supporting the immune system.

- Hydration continues to be essential, as athletes lose significant amounts of fluid during intense activities.