Chapter-2

Sports and Nutrition

Balanced Diet: - A complete food, a diet contains adequate amounts of all the necessary nutrients required for proper growth & maintenance of the body.

OR

A balanced diet is a diet that contains an adequate quantity of the nutrients that we require in a day. A balanced diet includes fat, protein, carbohydrates, water, fibre, vitamins and minerals present in the foods that we eat.

Nutrition: - It is the process of obtaining & consuming food or breaking down food & substances taken in by the mouth to use for energy in the body.

Nutrients: - The energic food in our diet consists of various types of essential chemicals for our body termed as nutrients. - E.g. Protein, fat, carbohydrates, vitamins & minerals.

Macro Nutrients: - Macro Nutrient is needed in large quantities they normally include carbohydrates, fat, protein and water.

Micro Nutrients: As vitamins and minerals which are required in small quantities to ensure normal metabolism, growth and physical well-being.

Functions of Balanced diet:-

- Sufficient energy is given by a balanced diet.
- It helps an individual to grow and develop to the optimum level.
- Proper functioning of organs is done by a balanced diet.
- It helps to repair or replace the worn-out tissue.
- It helps to improve the overall health status.
- A balanced diet improves metabolism.
- It prevents deficiency diseases and maintains body weight thus the overall efficiency of the individual improves.

Proteins are the basic structure of all living cells. Proteins are the main components of muscles, tendons, ligaments, organs, glands, and all living body fluids like enzymes hormones and blood. Proteins are needed for the growth & development of the body. It helps to repair or replace the worn-out tissues. It does not provide energy in normal routine whereas it acts as an energy source only under extreme starvation. Proteins are required for making blood, muscle, Nails, skin, hair and body parts and repair them and important in some situation like early development maturation, Pregnancy etc.

Carbohydrates:

- Simple carbohydrate gives quick energy on the other hand complex carbohydrates release slow energy.
- The types of simple carbohydrates are Glucose, Galactose, Fructose, Maltose, Sucrose, and Lactose. The complex is starch, Glycogen, Dextrin and Cellulose.
- Simple carbohydrate is sweeter than complex carbohydrates.
- Simple Carbohydrate can be absorbed quickly on other side complex carbohydrates take time.
- Simple carbohydrates can be dissolved in water but complex carbohydrate is insoluble in water.

Fats:

- Fats are store in the body and used as emergency sources of energy.
- Fats are important sources of energy for long-duration activities and important for the proper function of glands and other internal organs.
- It helps in the transportation of fat-soluble Vitamins A, D.E.K.
- It helps in blood clotting maintenance of skin & hair. Our diet should consist of 20%–25% of fat higher in take off at the high risk of obesity and many heart diseases.
- Fats maintain body temperature and protect it from the effect of external temperature.
- Fats make the body soft & oily.

Water:

Water is a very useful component of our diet because blood plasma comprises 91% of water, water comprises 75% of muscular weight & 70% of body weight. It is important for the secretion of waste produces. It regulates body temperature. Our body loses approximately 2% of our body weight or water per day. We compensate for this loss of water by drinking water and by intake of food substances. It also functions as a lubricant keeps the skin moist and protects the body from shock. 20% of water intake comes from food and the remaining intake come from direct drinking water.

Need for vitamins and minerals:

- They give the body energy
- They help carry out metabolic reactions
- They insulate the body's organs
- They withdraw heat from the body

The function of Micronutrients.

Minerals:

- Calcium: - It is required for bone and teeth formation, deficiently causes Osteoporosis, Rickets and retorted growth.

- Iron: - It is required for the formation of Hemoglobin, deficiency of iron leads to Anemia.
- Phosphorus: - It helps in making strong bones and teeth.
- Sodium: - It helps the nervous system for better response, deficiency leads to cramps and tiredness.
- Iodine: - It helps in proper growth and development of the body, deficiency leads to goitre.
- Fluoride: - It helps the formation of teeth and nails.
- Chloride: - It helps the body to fight against infection, proper functions of the nervous system.

Vitamins:

- Vitamin A - helps in normal growth and development of eyes and skin.
- Vitamin D - Important for the formation of strong bones & teeth.
- Vitamin E - It protects the cell membrane and acts as an antioxidant.
- Vitamin K - Helps in Blood clotting and heals wounds.
- Vitamin B - For growth & development.
- Vitamin B_2 - Helps in growth of RBC.
- Vitamin B_3 - Play an important role in energy transfer, reactions in the metabolism of glucose, fat & alcohol.
- Vitamin B_5 - Involved in the oxidation of fatty acids & Carbohydrates.
- Vitamin B_6 - It helps in the metabolism of amino acids.
- Vitamin B7 - It plays a key role in the metabolism of lipids, proteins and carbohydrates.
- Vitamin B9 - Folic Acids needed for normal cell division especially during pregnancy and infancy.
- Vitamin B12 -It involved in cellular metabolism of carbohydrates proteins and lipids and helps in the production of RBC in the bone marrow.

Fat Soluble Vitamin:

Vitamin A: Vitamin A is found in Cord liver Oils/animal Liver, yolk, Milk, & Milk products, carrot.

Vitamin D: Vitamin D is found in milk, fish, and Liver oils Vitamin E is found in Green leafy Vegetables, Pulses, eggs, cereals.

Vitamin K: Its main sources are tomatoes, Potatoes, Spinach, cabbage, soybean, fish, cauliflower, wheat, eggs, and meat.

Water-Soluble Vitamins:

Vitamin B complex

B2 -- We can find in eggs, dark green vegetables, legumes, whole and enriched grain produced milk.

B3 -- Fish, meat, peanuts and whole enriched grain produced milk.

B5 -- Pork, meats whole grains, cereals legumes, green leafy vegetables.

B6 -- Cereals, grains, vegetables, milk, cheese, eggs, fish liver, meat, flour.

B12 -- Fish, red meat, milk, cheese, eggs.

Vitamin C Citrus fruits like grape, lemon, oranges, and kiwis, other good sources of vitamin C are mango, papaya, pineapple.

Non nutritive component of diet:

Non-nutritive component of diet does not provide any calorie or energy but have their importance.

- Fibre: It is undigested part of the food. It cannot be digested by human intestinal part. It increases appetite and smoothers function of intestines. It removes constipation.
- Flavour Compounds: It addresses the taste of food. But does not contribute any nutritive value. Like tea in milk or coffee powder in milk gives it colour and taste.
- Colour Compound: It makes it attractive to see by the wide reflection of colours made possible through pigments. Natural Pigment is found in fruits and vegetables like red, orange, yellow, green etc.
- Plant Compounds: There are some plants which contain the non-nutritive element. Ingestion can beneficial or harmful. Many compounds Inhibit cancer.

Eating for weight control -A healthy weight. The pitfalls of dieting, food intolerance and food myths.

Meaning of healthy weight:

A healthy weight is a weight that lowers your risk for health problems, generally, body mass index (BMI) and waist size are good ways to achieve a healthy weight. Methods to calculate BMI = Weight in Kg/ (Height in m)2.

Methods to control healthy body weight:

- Balanced diet
- Drink lots of water
- Eating a lot of fibrous food
- Regular Medical Checkup
- Avoid Fats
- Medicine only by doctor's advice
- Physical Activity
- Avoid Drinking
- Avoid Junk food
- Meals in small intervals
- Follow Hygienic Habits

- Do not do Dieting
- Never try slimming pills
- Avoid overdoes of carbohydrate.
- Balancing the intakes of calories and expenditure of calories.

Pitfalls of Dieting: (severe dieting)

- Disturbed digestive system
- Acidity problem
- Gastric problem
- Muscular weakens
- Quick Tiredness
- Lose the shining of the face
- Disturbed the metabolic rate
- Muscles cramp
- Chances of heart problems
- Pain in stomach
- Palpitation
- Burning sensation in urine
- After dieting, when a person comes on his normal diet. Bodyweight overshoots the initial body weight from where he started the dieting.

Food Intolerance

Food intolerance is that when a person has difficulty in digesting a particular food. Food intolerance is more common than food allergy. It means the individual elements of certain foods that cannot be properly processed and absorbed by our digestive system.

Causes of food intolerance: Food intolerance is caused by part or complete absence of activity of the enzymes responsible for breaking down or absorbing the food elements. These deficiencies are usually innate.

Symptoms: Nausea, Vomiting, Pain in joints, headache and rashes on the skin, Diarrhea, sweating, palpitations, flatulence, nervousness, etc

Management of food intolerance

- Individuals can try minor changes of diet to exclude food causing adverse reaction.
- It can be managed adequately in such a way without the need for professional assistance.
- If unable to know the food which causes a problem you should seek expert medical

help.

- Fructose intolerance therapy, lactose intolerance therapy and histamine intolerance therapy can be applied.

Food myths: Some various myths regarding food which are prevailing not only in India but all over the world. What to eat, when to eat and how often to eat are such questions which usually confuse most of the individuals.

- Don't take heavy Breakfast
- Potato Increase in obesity
- Does eating sweets cause diabetes
- Do not drink water during meals
- Sweets are not good for health
- Don't take milk just after eating fish