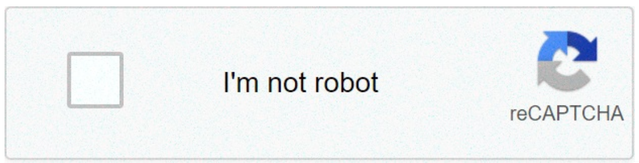

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CBSE Class 12 Physical Education Notes Chapter 2 Sports and Nutrition is part of Physical Education Class 12 Notes for Quick Revision. Here we have given NCERT Physical Education Class 12 Notes Chapter 2 Sports and Nutrition. Physical Education Class 12 Notes Chapter 2 Sports and Nutrition Balanced Diet and Nutrition A balanced diet is that which contains the proper amount of each nutrient. A balanced diet consists of all essential food constituents i.e. protein, carbohydrates, fats, vitamins and minerals in correct proportion. Nutrition is the science that deals with food and its uses by the body. Food supplies the energy for every action our body undertakes, from eating bananas to running a race. Food also provides material that our body needs to build and repair its tissues and to regulate the functions of its organs and systems. The chemicals in food which our body needs and are essential for the growth and replacement of tissues are called nutrients. Macro and Micro Nutrients Macro Nutrients The macro nutrients include carbohydrates, proteins and fats. Carbohydrates Carbohydrates are the main source of energy in all activities that we do. The elements of carbohydrates are carbon, hydrogen and oxygen. Carbohydrates are organic compounds which are important for our digestive process. They require less water in diet. There primary function is to provide energy to the body, especially to the brain and nervous system. There are two main types of carbohydrates i.e. simple carbohydrates and complex carbohydrates. Proteins Proteins are the basic constituents of our cells. They are large molecules, so they cannot get directly into our blood. So, they turned into amino acid by our digestive system. There are 23 amino acid and only 9 are available in diet. Proteins form tissues, repair the broken tissues, regulate balance of water and oxygen etc. They are body building foods. Foods rich in proteins are eggs, meat, fish and dairy products as well as pulses, nuts and cereals Fats Fats contain hydrogen, carbon and oxygen. These are the most concentrated source of energy in food. Fats have a very high energy content. Foods rich in fats are butter, oil, sausage, cheese, fish, chocolate, olives and nuts. If we permanently take too little exercise, we become overweight or even ill. Many fats are unhealthy such as trans-fats in deep fried foods. Micro Nutrients Micro nutrients are vitamins, minerals and secondary plant compounds. Vitamins Vitamins are compounds of carbon which are essential for the normal growth and working of the body. They are required in very small quantities. Many of them can be stored in the body for months or even years but others need to be freshly absorbed every day. There are two groups of vitamins i.e. fat soluble and water soluble Fat Soluble Vitamins The vitamins that are composed of carbon, hydrogen and oxygen and are soluble in fats such as vitamin A, vitamin D, vitamin E and vitamin K. The fat soluble vitamins are explained below Vitamin A This is essential for normal growth of the body. Deficiency of vitamin A leads to night blindness and also affects the kidneys, nervous system and digestive system. Sources are milk, curd, ghee, egg yolk, fish, tomato, papaya, green vegetables, orange, spinach, carrot and pumpkin. Vitamin D This is essential for the formation of healthy teeth and bones. The presence of this vitamin in the body enables it to absorb calcium and phosphorus. Its deficiency causes rickets, softness of bones and teeth diseases. Sources are egg yolk, fish, sunlight, vegetables, cod liver oil, milk, cream and butter. Vitamin E This is essential in increasing the fertility among men and women as well as proper functioning of adrenal and sex glands. Its deficiency causes weakness in muscles and heart. Sources are green vegetables, sprouts, coconut oil, dry and fresh fruits, milk, meat, butter and maize. Vitamin K This is helpful in the clotting of blood. Its deficiency causes anaemia and blood does not clot easily. Sources are cauliflower, spinach, cabbage, tomato, potato, wheat, egg and meat. Water Soluble Vitamins The vitamins that are composed of nitrogen, sulphur and are soluble in water such as vitamin B complex, vitamin C. Vitamin B Complex There are 12 vitamins in this group, some of them are Bj, B2, B3, B6 and B12. They are necessary for growth, proper functioning of heart, liver, kidney and maintains smooth skin. Its deficiency causes Beri-Beri disease. Pellagra and also decreases immunity. Sources are wheat, milk, nuts, peas, egg yolk and sprouts. Vitamin B, (Thiamin) Vitamin Bt or Thiamin, helps to release energy from foods, promotes normal appetite, and is important in maintaining proper nervous system function. Vitamin B2 (Riboflavin) Riboflavin or Vitamin B2, helps to release energy from foods, promotes good vision, and healthy skin. It also helps to convert the amino acid tryptophan (which makes up protein) into niacin. Vitamin B3 (Niacin) Vitamin B3 or niacin works with other B-complex vitamins to metabolise food and provides energy for the body. Vitamin B3 is involved in energy production, normal enzyme function, digestion, promoting normal appetite, healthy skin and nerves. Vitamin B6 (Pyridoxine) Vitamin B6 is a key factor in protein and glucose metabolism as well as in the formation of haemoglobin. Haemoglobin is a component of red blood cells-it carries oxygen. Vitamin B is also involved in keeping the lymph nodes and thymus gland healthy. Vitamin B12 (Cobalamin) Vitamin B12 is also known as Cobalamin, aids in the building of genetic material, production of normal red blood cells, and maintenance of the nervous system. Vitamin C Vitamin C is also called Ascorbic acid, which is a water-soluble vitamin and cannot be stored in the body. Most plants and animals can produce their own vitamin C but humans cannot. Vitamin C is needed for proper growth, development, and to heal wounds. It is used to make the collagen tissue for healthy teeth, gums, blood vessels and bones. Deficiency of vitamin C causes scurvy. Minerals Minerals contain elements needed by our body in small quantities. But these are essential for proper growth and functioning of the body. A shortage of minerals can have severe effects on health. For example, a long-term shortage of foods containing iodine in people leads to thyroid gland diseases. Some of the important minerals are mentioned below Iron It is important for the formation of haemoglobin. Its deficiency leads to anaemia and sources are meat, eggs and dry fruits. Calcium It is needed for the formation of strong bones, teeth and also for clotting of blood and muscle contraction. Its deficiency causes rickets, asthma and sources are milk, egg yolk, cheese and orange. Phosphorus It is required for development of strong bones and teeth and also for making energy. Its sources are egg, fish, meat and unpolished rice. Potassium It is important for growth and keeping cells and blood healthy. Its deficiency weakens the muscles of the body and sources are carrot, beet root, onion, tomato, orange and mango. Sodium It is needed for the proper functioning of the nervous system. Its sources are milk and milk products, meat and eggs. Iodine It is essential for proper thyroid function. Its deficiency causes goitre and sources are seafood and salt. Fluorine It is important to make the enamel (polish) of the teeth hard and prevents dental caries. Copper It is helpful in red blood cells,connective tissue and nerve fibre formation and functioning. Zinc It is required for insulin production and also for functioning of male prostate, digestion and metabolism. Nutritive and Non-Nutritive Components of Diet Food components whether they are nutritive (providing calories) or non-nutritive (not providing calories) are needed to a multitude of food and beverages. They not only provide a sweet flavour to foods, they are also used to preserve foods (in jams or jellies), provide body bulk and texture (in ice-cream and baked goods), enhance other flavours (like salty) and aid in fermentation (in'breads and pickles). The nutritive components of diet are proteins, carbohydrates, fats, vitamins and minerals. Non-nutritive components do not contribute to the energy, calories or nutrition of the body. Some non-nutritive components are essential for the body while others harm the body. Colour compounds, flavour compounds, food addictives, plant compound, water, roughage or fibre are some non-nutritive components of diet. Eating for Weight Control This means eating the right amount of food that contains all the essential nutrients required by the body in proper quantities. Eating too much can lead to obesity and too less can lead to underweight. Therefore eating the right amount will lead to healthy weight. A Healthy Weight The most accurate assessment of your ideal weight takes into account the composition of your body, how much of your weight is lean body mass (muscles and bones) and how much is body fat. For optimum health, body fat should be no more than 20% of total weight for men and 30% for women. A person is maintaining healthy weight or not, can be checked with the help of BMI Body Mass Index (BMI) is a measure of body fat calculated on the basis of height and weight. This method applies to both adult men and women. To calculate BMI, take the weight in kilograms and divide it by height taken in metres. Then divide the number once again by height. For example, BMI is to be calculated by using the body mass index formula, for Height = 1.70 m, weight = 70 kg BMI calculation = $\frac { Bodyweightinkg }{ (Heightinmetres)2 }$ $\frac { 70 }{ \left(1.70 \right) ^{ 2 } } =\frac { 70 }{ 1.70\times 1.70 } =24.22$ Once the BMI number is determined, the following table is used for determining whether the person is of normal weight, overweight, underweight or obese. BMI Weight status Below 18.5 Underweight 18.5-24.9 Normal 25.0-29.9 Overweight 30.0 and above Obese From the table, the score 24.22 shows normal weight status. The Pitfalls of Dieting People use various techniques of weight loss such as taking diet pills, fasting, reducing calories consumption, exercise etc. There are some dangers pitfalls of dieting that need to be checked for reducing weight in a healthy way. The pitfalls of dieting are mentioned below Eating too Little In dieting people take just 1500-1800 calories per day. But this is not sufficient to meet the daily requirements. This may result in massive weight loss and other related health problems. More Drinking than Eating In order to reduce calorie consumption, more drinks are taken like sweetened juices, sodas, tea and coffee with sugar. These increase the weight. Skipping Meals Not taking breakfast, lunch, dinner or proper meals reduces the metabolic rate. Then the body starts conserving energy, the next time it gets food. This also results in more intake of calories in next meal. Intake of Labelled Foods By taking foods that are labelled as Tow fat, Tow sugar, Tow calories' may not produce proper results. For example, drinking more tea with sugarfree results in more intake of tea and hence greater calorie consumption. Not Performing Exercises No exercises reduce the level of metabolism drastically and there is no burning of calories. In that case dieting will not be effective. Food Intolerance Food intolerance is the intolerance of certain elements in some foods that cannot be properly processed by our digestive system. It is pretty common to have an adverse reaction to a certain food, but in most cases it is an intolerance rather than a true allergy. Although intolerance and allergy may have similar symptoms, a food allergy can be more serious and it usually comes on suddenly. Features of food intolerance are as follows Usually comes on gradually. May only happen when you eat a lot of a particular food. May only happen if you eat the food often. Myths about Foods Various food myths are prevailing in India as well as over the world. What, when and how often to eat are questions confusing many people. People believe in these myths because the myths seem credible. However, now that we have advanced scientific knowledge, we can dispel these myths. The most common food related myths which are still prevalent in contemporary society are Potatoes make us fat. Fat-free products help in reducing weight. Avoid eggs because they increase the cholesterol level. Drinking water while eating makes us fat. Don't consume milk immediately after eating fish. Starve yourself if you want to lose weight. Exercising makes you eat more. Sports Nutrition Sports nutrition is the study and practice of nutrition, that deals with the nutrition requirement of sportspersons. Sports nutrition plays an important role to attain excellence in sports. The appropriate proportion of vitamins, minerals, carbohydrates, fats, proteins and fibres are essential for the proper nutrition of a sportsperson. As a result of the higher amount of physical activities in sports, athletes require more nutrients to keep the energy level adequate. During a sports training session, an athlete tends to lose a lot of fluids and electrolytes. Fluid loss negatively affects the sports performance of an athlete if not replaced in time. Thus, it is vital to drink enough water and electrolytes after a training session. Effects of Diet on Performance A proper diet is the intake of appropriate types and adequate amounts of foods and drinks to supply nutrition and energy for the maintenance of body cells, tissues and organs and to support normal growth and development. For a sportsperson athlete, it is essential to take a balanced diet as a lot of physical activity and endurance is needed in sports. The quality of sports diet depends on the correct proportion of carbohydrates, fats, proteins, minerals, salts etc, which constitute the main nutrients of diet. Factors Affecting Diet Several factors that affect our diet are Age, Sex and Body Surface Area Diet differs from age to age. Youngsters need different types of food both in quality as well as quantity as compared to older people who need diet in less quantity and with lesser fats. Types and Duration of Activity Diet also depends on types of activities that we do and their duration. Eating Habits and Social Customs Eating habits and social customs also affect the diet of an individual. Climate Factors Food varies in different climates, like the diet is different in summers as compared to winters Health Status and Growth If you are in a good state of health then you will have good diet, whereas an unhealthy individual cannot have a similar diet, . Pre, During and Post-Competition Fluid and Meal Intake Nowadays sportsmen and women follow a controlled diet, particularly on the day of competition. Although diet doesn't turn poor . athletes into great ones, a proper diet makes the difference between performing poorly and tapping your full potential. The Pre-Competition Meal The goal prior to a competition or a training session is to maximise carbohydrate stores in the muscles and liver and to top up blood glucose stores. This helps in sustaining energy boosting performance hydrating the body preserving muscle mass and speeding recovery after competition. Nutrition Requirement during Competition What you eat or drink during competition, or a training session is important under specific circumstances. Light meals are recommended and carbohydrates should be consumed in gel form. Sports drinks may be useful since they have electrolytes that help speed hydration and recovery. Many endurance athletes prefer to drink water and eat fruit and other foods to supply their energy even on really long runs. If you are exercising intensely for longer than two hours, especially in the heat, do not rely on water alone. This will decrease your performance and your recovery. Use commercial carbohydrate drinks 15-20 minutes before the start of the competition. The Post-Competition Meal Post-workout nutrition can help you recover re-hydrate refuel build muscle and improve future performance. Ideally, a large, high-carbohydrate meal should be eaten within two hours of the finish of competition. Bananas and dried fruits are good immediately following a match, as are sandwiches and high-carbohydrate drinks. A main meal severed hours later might consist of bread, pasta, potatoes and rice as well as other simple sugars like cakes, sweets and proteins. Consume carbohydrates within 15 minutes after the competition is over. Then within 1-2 hours consume 100-200 gm carbohydrates and 20 gm proteins. Food Supplements for Children Food supplements, also known as dietary supplements, are nutrients that are added to your diet. They provide vitamins, minerals, herbs, amino acids, enzymes and other beneficial substances. Taking a balanced diet regularly will not require the need of taking food supplements. Food supplements are taken by children when they feel that their diet is not proper. Advantages of various food supplements are Supplements can contribute to improve muscular strength, endurance and overall physical performance. Food supplements can also prevent a variety of diseases and health conditions. Protein supplements available as powders, shakes or bars, provide high quality protein to your diet and boost your protein intake. Disadvantages of various food supplements are Vitamin A toxicity, for example, can cause liver damage, blurred vision, headaches, bone pain and swelling, drowsiness and nausea. Supplements can also interact with medications which can cause unwanted side effects and decrease the efficacy of the medicine. Fat-soluble vitamins can accumulate in your fat tissue if you regularly take in more than you need. Precautions which can be taken for food supplements are For optimal benefit, consult your doctor about the right dietary supplements for you. Find out more about the supplement ingredients before you purchase the product. Avoid dietary supplements with megadoses of any ingredient, particularly vitamin A, vitamin D and iron. A megadose is one that exceeds the recommended dietary intake. Although megadoses can be beneficial for the treatment of certain health conditions, they can also cause toxicity symptoms. Finally, stop taking any supplement if you experience an unpleasant side effect and never combine supplements with medication or other supplements without your doctor's recommendations. We hope the given CBSE Class 12 Physical Education Notes Chapter 2 Sports and Nutrition will help you. If you have any query regarding NCERT Physical Education Class 12 Notes Chapter 2 Sports and Nutrition, drop a comment below and we will get back to you at the earliest.