The Bariatric Food Pyramid

- High saturated and trans fats and cholesterol-rich foods
- High sugar foods
- Carbonated and/or alcoholic beverages

SERVINGS: 2/day
- Cereals: rice, pasta: 90 gr*, breakfast cereals, bread, and toast: 30 gr*
- Legumes: lentils, peas, black and white beans, soybean: 50 gr*
- Tubers: potato, sweet potato: 85 gr*
* cooked weight

SERVINGS: 3-5/day of each food group
- Fruit: Low sugar fresh fruit: melon, watermelon, blueberries, grapes, apple, orange, etc.: 140 gr
- Legumes: lentils, peas, black and white beans, soybean: 50 gr
- Vegetable oil: primarily olive oil: 1 teaspoon
- All types vegetables: 85 gr

SERVINGS: 4-6/day
- Low fat meat: chicken, beef, pork: 10 gr
- Poultry: blue: 60 gr; white: 85 gr
- Low fat or fat free dairy products: hard cheese: 30 gr; soft cheese: 90 gr
- Milk: 140 gr, yoghurt: 115 gr
- Legumes: lentils, peas, black and white beans, soybeans: 85 gr
- Eggs: 1 large: 50 gr
* cooked weight

DON'T FORGET
- Daily nutritional supplements: Calcium and Vitamin D
- Iron
- Vitamin B complex
- Vitamin B12
- Ensure daily water or near-zero sugar, non-caffeine fluid intake
CHAPTER-I

INTRODUCTION
CHAPTER- 1

INTRODUCTION

In this new millennium, our love affair with fitness and sports continues to grow. We’re more like football, basketball, bicycling, golf, running, tennis, weight training, and a host of other fun activities and games, take part in physical activities. Health and fitness improved more and more people start an exercise program is one of the main reasons. Can positively impact their health, especially of nutrition - research has become physically active adults may be more interested in other aspects of their life styles that are shown.

Nutrition, diet and health, development, and their effects on performance are studied. Relatively young science, nutrition research needs essential nutrients contributed significantly to our knowledge, however, during the first part of the twentieth century, most of the essential nutrients needed to prevent nutrient nutrition research and focused on the identification of deficiency diseases, such as inadequate vitamin since C is dirty. Food and medical researchers have recently developed countries, diseases such as heart disease and cancer as the major chronic diseases, as a tool to help prevent the effects of a particular component is focused on. Nutriceutical, a drug used to feature a relatively new term Or medical, special nutritional effects. Recent research findings of our food, our health is one of the most important reasons.
that continue.

Other than the health benefits of exercise and fitness, many physically active people in the golf tournament, tennis matches and road races as part of the local sporting events, athletic competitions are fun to find. Athletically competition people always are looking for means to improve performance, the new piece of equipment or an improved training method. In this regard, proper nutrition and exercise to improve sports performance can be a very important factor. The effect of diet on exercise performance were studied before 1970, only scattered, however, after numerous sport scientists and sports nutritionists and sports performance exercise, such as food composition and dietary supplements, nutritional impact is studied. Results of this study was specific to athletic performance to improve the nutritional guidance is provided.

What are nutrients?

Peanut butter and a glass of milk or a spoonful of it all one thing you might think, but in reality most of the food is made up of various chemicals. Some of these chemicals are not used for other body.

And work is useful to human development. The latter is known as nutrient chemicals. Nutrients found in the foods we eat are six groups…

- Carbohydrates
- Fats and oils (two types of lipids)
- Proteins
- Vitamins
- Water

As you may know, the term organic is commonly used to describe foods that are grown without the use of non-natural fertilizers or chemicals. But when scientists describe individual nutrients as organic, they mean that these nutrients contain an element called carbon that is an essential component of
all living organisms. Minerals and water are inorganic because they do not contain carbon. Both organic and inorganic nutrients are equally important for sustaining life but differ in their structures, functions, and basic chemistry.

Carbohydrates, Fats, and Proteins Are Nutrients That Provide Energy.

Carbohydrate, fat, protein and energy that food provides the nutritional elements. We break down the nutrients our body through physical activity and basic operations and to support the use of the fuel or the means to reassemble. Take a Multivitamin and a glass of water can be beneficial in other ways, though the stair-climber on the energy needed to run your twenty minutes! The energy nutrients are also known as macronutrients. Macro "big" is, and the normal functions of our body and health to support the need for large amounts of this nutrient.

Alcohol is a chemical found in food, and the energy, but it is not considered essential nutrients for good health provides. It regulates body
functions or repair of tissues because it does not support. In fact, alcohol is considered to be both a drug and a poison.

We kilocalories (kcal) 4 kcal per gram provide both carbohydrates and proteins expressed in units of energy per gram of fat provides 9 kcal, while alcohol do so 7 kcal per gram of fat for every gram we provide, we more than doubled to more than one gram of carbohydrate or protein energy.

**Carbohydrates Are a Primary Fuel Source**

Carbohydrates, especially for our brain and body during exercise, is the primary source of fuel for our bodies. The term "carbohydrate" close look at the nutrient chemical structure reveals. Carbo - refers to carbon, and water hydrate - refers. You that water is composed of hydrogen and oxygen can remember. Thus, carbohydrates carbon, hydrogen and oxygen chains are made of.

---

Rice, wheat and other grains, and vegetables are carbohydrates, carbohydrates and fruits that contain natural sugars, carbohydrates, covering a wide variety of foods. Carbohydrates and pulses (lentils, dry beans, and
peas included), milk and other dairy products, seeds and nuts found.

**Fats Provide Energy and Other Essential Nutrients**

Fat, a type of lipid, another important source of energy for our body. Lipids are insoluble in water or organic materials is a different group. Lipid triglycerides (more commonly known as fat), phospholipids, and sterols are included. Like carbohydrates, fats, carbon, hydrogen, oxygen, and is made up of, however, is much less than the carbohydrates with oxygen and water. This species they produce more energy per gram than either carbohydrates or proteins explains why, which allows them to pack tightly together.

Fat rest and during low intensity exercise, our bodies are an important energy source. Our body is able to store a large amount of adipose tissue as fat. We are asleep when the fat stores, for example, can be broken down for energy during the fasting period. Fat diet, fat-soluble vitamins and essential fatty acids are also important to meet.

Various forms of edible fats. Solid fat products such as butter, lard and margarine are included. Liquid oils and fats are considered to include Vegetable oils such as olive oil and canola. Cholesterol is synthesized in our body, and it can also be used in the diet, which is a form of lipids.

**Proteins tissue growth, repair and maintenance support**

Protein, carbon, hydrogen, oxygen, and includes, but is included in the element nitrogen, carbohydrates and fats are different. Within proteins, amino acids, known as the four elements together in a small building blocks. We break down the proteins and amino acids in the diet for just our own body to build proteins reassemble them, our muscle and protein in the blood.

Protein energy can provide, even though they are not the primary source of energy for our bodies.
Proteins are found in many foods. Our primary source of protein in meat and dairy products, but we also receive small amounts of protein from vegetables and whole grains. Seeds, nuts, and legumes a good source of protein.

Properties of Proteins

Proteins are chains of amino acids that fold is a unique 3-dimensional structure. Natural folds in the shape of a protein is determined by the sequence of amino acids, which are known as its original state. Biochemists four different aspects of protein structure, refer to:

* Primary structure: the amino acid sequence

* Secondary structure: highly patterned sub-structures - alpha helix and beta sheet or a stable shape is assumed that the chain segments. Secondary structures of protein molecules present locally in many different secondary motifs have meaning, is defined.

* Tertiary structure: the overall shape of a protein molecule; Secondary structural motifs spatial relationship to one another

In addition to the layer structure, the protein 's biological function is to shift between several similar structures. In the context of these functional rearrangements, these tertiary or Quaternary structures in general "conformations" is known as the transitions between them are called conformational changes.

Complete and incomplete: Proteins are separated into two groups. Plant proteins are incomplete and do not include all of the 20 amino acids. An animal protein is complete and includes all 20 amino acids. I mostly get the protein you eat, but all of the amino acids in them or not depends on what substance.
The primary structure of the translation process is done by the covalent peptide bonds are held together. The secondary structures are held together by hydrogen bonds. The third structure is mainly hydrophobic interactions, but hydrogen bonds, ionic bonds are usually involved in the process and by DISULFIDE taken together.

Tall structures in the form of protein folding is the process by which this is a result of the primary structure. The mechanism of protein folding is not fully understood. Any unique Polypeptide have more than one stable conformation is close, each conformation has its own biological activity, and only one active conformation, or the native conformation is considered.

The two ends of a chain of five amino acid carboxy terminus (C-terminus) and ends on the free group based on the nature of the amino terminus (N-terminus) is called.

Working with proteins

Proteins are sensitive to their environment. They are only a small pH range and with a minimum amount of electrolytes in solution conditions, may be active in their original condition. Close to its original state of a protein is
often described. Its original state of a protein that is said to have become useless. Denatured proteins are usually well-defined secondary structure. Many proteins denature and distilled water solution will remain the same.

In the 20th century, more shocking is the discovery that many proteins in the native and denatured states of the solution in terms of control (for example, removing a denaturing chemical dialyzing), was formed, a denatured protein can be converted to the form of the original. The issue of how proteins come to his hometown to study biochemical studies of protein folding is a very important area.

Through genetic engineering, the researchers changed the sequence and structure, regulation and other properties of proteins, predicted "target" can. The properties of the genetic sequence of the protein has a "chimeric" is to be spliced together to make proteins. Funds in the form of cell and molecular biologists to investigate the change in the cells represents a major equipment. Another area of research completely new property or functions of proteins, protein engineering attempts to engineer proteins with a known field.

Protein-protein interactions using two-hybrid screening can be screened for.
Protein regulation

Various molecules and ions in protein, is able to bind to the appropriate sites. These sites are called binding sites. They show chemical specificity. Particle is called a ligand that binds. The strength of ligand-protein binding affinity as the binding site of a property.

Practically every function performed by proteins involved in the cell, methods for controlling these functions depends on the control of protein activity. Regulatory protein can include the size or concentration. Some forms of regulation include:

* Allosteric modulation: a site on the protein binding of a ligand to the ligand-binding effect on another site.

* Covalent Modulation: covalent modification of proteins in a protein’s function or some other aspect of a ligand-binding effect.

Diversity

Proteins up to 3,000,000 (muscle protein titin 27,000 subunits long chain of amino acids) are the people of the molecule, usually a larger molecule. Long chains of amino acids are almost universally referred to as the
Proteins in general, soluble fiber or membrane-associated (see integral membrane proteins) are classified as. Almost all biological catalysts known as enzymes (enzymes exception the catalytic properties of ribozymes, RNA molecules to be discovered.) Antibodies are soluble proteins, based on the adaptive immune system, soluble proteins are another example. Membrane-associated proteins to move from place to place, but they do not change their products to the exchangers, and ion channels, including; improve their products but can only shift the shape of the binding receptors. Cytoskeleton filaments of cells, and animal protein as much structure: Examples of skin, hair, and cartilage are important components, all of which tubulin, actin, collagen and keratin, are included. Another special class of proteins such as myosin, kinesin, and dynein motor protein. These proteins, organelles, cells, and can move the muscles that produce physical force "molecular motors," he says.

The role of protein

Functions

Proteins such as signal transduction and metabolic regulation of cellular functions, including practically every function performed by a cell, are involved. For example, protein catabolism enzymes known as proteases and other enzymes such as glycosidases are required.

Nutrition within

Protein nitrogen and amino acids, the building blocks of protein to meet the body's needs, the human diet is an important macronutrient. The exact amount of dietary protein needed to satisfy these requirements can vary widely depending on age, sex, physical activity level, and medical condition, as specified by the RDA.
Recommended intake of protein differs from country to country, but the strength is required, the more serious athletes, however, (bodyweight per kilogram), 0.8 and 1.2g/kg BW is among the marginalized, the figure is somewhat between 1.0 and 2.0g per kilogram of body weight, which is known as maximum protein:benefit ratio is. Proteins are found in all foods, it is still only small amounts of protein for vegetarians protein choices, as are most of the beans, nuts, meat and dairy products, food centers are very similar.

Protein, muscles, tendons, enzymes, skin, hair, eyes, and other organs, with a tremendous variety of regulatory processes, is a key component in the growth and differentiation. Because the supply of essential amino acids in a variety of different proteins and protein quality are especially important. Given an adequate intake of nitrogen, amino acids 10 to 18 of glucose in the human
body can not manufacture. The remaining 8 amino acids (threonine, Valine, tryptophan, isoleucine, leucine, Lysine, phenylalanine, and methionine) is produced by the body and must be acquired through supplementation. Thus, they are called essential amino acids.

For use within the body, food for the spirit of the majority of the protein, urea or uric acid, or some animals are excreted in the urine must be either converted, by which ammonia is converted into protein catabolism. The relative abundances of all the essential amino acids, proteins, often with the same amount of meat as the animal protein in general, are obtained, and PDCAAS (protein digestibility corrected amino acids are using a "high-quality" protein, "perfect" is referred to, or acid Score).

The lack of two key amino acids found in plant proteins, as the name suggests, the quality of the protein or nutrition supplements to the average person is not required, however, the difference between plant and animal proteins, amino acids, especially for athletes or bodybuilders, discernable Animal of proteins, Pulses within the grain lysine, and methionine,
one of the main benefactors of the athlete’s diet regime. Nevertheless, in terms of quality, the amino acids found in plant and animal extracts are similar.

Protein deficiency such as fatigue, insulin resistance, hair loss, hair pigment loss, muscle mass loss, low body temperature, hormonal irregularities, as well as damage to the skin elasticity produce symptoms. Only in times of drought, severe protein deficiency, lack of energy, allowing the body to the material, it is fatal.

The mass amounts of people to lose weight in a short period of time in which some "wild food", is attributed to vitamin deficiencies that are known, and the loss of muscle mass, and fat is not as widely known, particularly because of fat to muscle mass gains it is a dangerous practice.

Excessive protein intake has also been linked to many problems -
* Overreaction of the immune system
* Liver dysfunction due to increased toxic residues
* Bone density, due to the increased acidity of the blood and bone defects in horses (foot problems) foundering damage.

The protein increase calcium excretion overdose are forced, by reasearchers on the field is assumed. Excessive protein intake may be, the regular intake
of calcium stabilise, that older women are more rewarding, which will be able to increase the uptake of calcium by the small intestine that is considered.

Proteins likely ancestor of allergies and allergic reactions to certain foods. Each form is a little different because of the structure of proteins is Others are completely safe, while some response from the immune system reacts. Many people casein, milk protein allergy; Gluten, a protein in wheat and other grains; Special proteins found in peanuts; Or shellfish or the other Seafoods. Protein or amino acids due to a hostile one for a variety of types, two different types of protein on the reaction is very unusual.

**Vitamins help regulate biological processes**

Vitamins are organic compounds that help us regulate our body processes. Vitamins building and maintaining healthy bone and muscle tissue, we can fight against illness and disease, so our immune system, and help ensure healthy vision is critical. Contrary to popular belief, it also helps to maintain the health of our blood, vitamin energy (or calories) are not included; however, vitamins, carbohydrates, fat free, and use of energy and protein plays an important role in helping our bodies. We normal health and body functions, the vitamin (besides minerals) are referred to as micronutrients to support a relatively small proportion of the nutrient needs.

**Fat-soluble and water-soluble: Vitamins are classified as two types.**

The classification of vitamins, exploitation of transport, and is stored in our bodies affects how the water is based on their solubility. Our body can not synthesize the vitamin, we must consume them in our diets. Both types of vitamins are essential for our health and food are different. The fat-soluble and water-soluble vitamins let us review the various properties.
**Fat Soluble vitamins are stored in the body**

Vitamin A, D, E and K are fat soluble vitamins. Fat-soluble vitamin with dietary fat is absorbed into our intestines. They use either the liver or they can be stored for later use, or where other organs, is transportation.

Fat-soluble vitamins in our capacity to store water-soluble vitamin that sets them apart. We are able to store the vitamin, because we use daily or weekly basis to the nutrient intake is not recommended. Given the long period of our food has recommended average dose, intakes of the vitamin would be enough to support healthy function.

Fat-soluble vitamins can be stored in its disadvantages. Consumption of large amounts of this vitamin, especially from supplements, may cause an excessive build up and result in dangerously toxic levels. Some of the vitamin A toxicity can occur relatively rapidly. Toxicity symptoms of damage to our hair, skin, bones, eyes, and nervous system are included.

We are fat-soluble vitamins can be stored, although they are relatively
rare, defects, can be added to. Undigested fat in our diet with a low-fat diet or in our digestive tract can lead to deficiencies of these vitamins are excreting. Mineral oil as a laxative in the fat-soluble vitamins using our faeces, resulting in a significant loss.

It is a very low fat diet, as well as to prevent the absorption of fat, normal fat-soluble vitamin deficiencies that can lead to disease. Fat-soluble vitamin deficiencies such as night blindness in the most severe cases of osteoporosis and can lead to death in serious health problems. Fat-soluble vitamins are found in foods that contain fat. Meat, dairy products, vegetable oils, avocados, nuts, and seeds are all potentially good source.

**Water Soluble Vitamins Should be Consumed Daily**

Unlike the fat-soluble vitamins, water-soluble vitamins dissolve in water. Vitamin C and the B vitamins (thiamin, riboflavin, Niacin, Vitamin B6, vitamin B12, pantothenic acid, biotin, and folate) are directly absorbed through the intestinal walls into the bloodstream. This vitamin is needed or where they travel in the body cells.

These vitamins dissolve in water because obviously, we can not store large amounts of them. We use our kidneys are filtering out any excess water-soluble vitamins, and we then our urine, the excess is excreted. We can not store large amounts of this vitamin, because the amount of food we consume toxic rarely occurs. We can remove greater than our bodies, we have access, however, can be complemented by the use of toxic levels of this nutrient.

Our inability to store large amounts of water-soluble vitamins as a result of other daily or weekly basis, we need to have access to sufficient quantities of these nutrients. We regularly, in our food consumption and nutrient deficiency symptoms of this disease can be the result of too quickly. However, this does not mean that we should take vitamin supplements.
To get adequate amounts of these nutrients. The water-soluble vitamin whole grains, fruits, vegetables, meat and dairy products, including many foods are abundant.

**Minerals help regulate many bodily functions**

They do not contain mineral carbon, meaning the organic materials. Some important dietary minerals sodium, potassium, calcium, magnesium, iron, and include. Minerals in our body normally function to promote the use of them when they are broken down during digestion or that are in different macronutrients and vitamins, they are not destroyed by heat or light. Thus, they are all the minerals calcium in our bones, calcium is the same as in the milk we drink, and sodium in our cells as our table, sodium is in. This means that no matter what the environment of salt to maintain their structure.

There are many important functions in our body minerals. They help the fluid regulation and energy production is necessary for the health of our bones and blood, and the metabolism, help rid our body of harmful BY-PRODUCTS.

The required quantity of minerals in our diet and mineral found in our bodies are classified according to how much. Our food, and the body of minerals and trace minerals in the two categories of minerals.

**Supports all functions of the body of water**

Water, inorganic nutrients that are essential for our survival. We juices, soups, and other liquids in water consumption in its pure form, and fruits and vegetables as a solid food. Adequate fluid intake of water both inside and out to ensure a better balance in our cells, and the nerve impulses, muscle contraction, nutrient transport, and waste products excreted in regulation to help. Because of the key role that water plays in our health.
Nutrition and health-related fitness

Usually nutritional intake, digestion, absorption, transport and metabolism of nutrients found in food, including organic food by the use of particular substances and is defined as the total amount involved in the process. This definition stresses the food we eat, but the American Dietetic Association notes biochemical or physiological functions that can be interpreted in the broadest sense nutrition and mental, will be affected by a variety of social and economic factors.

Many college students choose our food, especially in the case of the latter factors, which may be influenced by economic ones, although many different types of food are similar biochemical and physiological roles. From the standpoint of health and sports performance, it is important that the food is the biochemical and physiological role or function.

We provide a variety of nutritious foods we eat are the primary objective. One or more physiological or biochemical functions in the body of the nutrients that are found in foods of a particular substance. Carbohydrates, fats, proteins, vitamins, minerals, and water: the six main classes of nutrients found in food. However, diet can affect body functions that contain substances other than essential nutrients.

The main nutrients to the three basic functions. First, they provide energy for human metabolism. Carbohydrates and fats are the main source of energy. Protein can also provide energy, but this is not its main function. Vitamins, minerals, and water are sources of energy. Second, nutrients by
building and repairing body tissue is used to promote growth and development. Skeletal structure of certain minerals such as calcium and phosphorus, making the protein, the main building material for muscles, other soft tissues, and the enzymes. Third, nutrient metabolism, or the body of vitamins, minerals, and proteins regulating human metabolism work more closely together in order to maintain a variety of physical processes are used. For example, red blood cell (RBC), hemoglobin in the blood to carry oxygen to the muscle tissue is required. Hemoglobin is a complex mixture of protein and iron, but other minerals and vitamins that are necessary for the overall development of the synthesis and RBC.

In order for our bodies to work effectively, we need more than forty specific essential nutrients, and as recommended by nutrition scientists, we need different amounts of these nutrients.

**Role of nutrition in health promotion**

Let food be our medicine and medicine your food. Two thousand years, this statement is attributed to Hippocrates, and the development of chronic diseases related to diet as a preventive and therapeutic health values is becoming more and more significant trend is finally coming to an end. As noted earlier, nutrients and other substances in food may influence gene expression, some positive and others negative effects on our health is.

Most chronic diseases have a genetic basis: your parents have a coronary heart disease or cancer, if you contract the disease is expected to rise. Initiation, promotion, and progression: the user must pass through three stages. Your genetic predisposition to the disease may lead to the beginning of the stage, but the factors in your environment that encourages the development and final progress. Other nutrients serious health problems that preclude progressing antipromoters is considered the beginning of the process, some of the nutrients in this regard that the promoters are believed to lead to disease progression.
**Health benefits of exercise and eating habits, both when upgrading**

Most chronic diseases, including genetic factors and the behavior of multiple independent lifestyle factors, is caused by the interaction. Reduces the risk of any given disease, we develop a disease that is associated with many risk factors as possible should be reduced.

**Noted that the promotion of diet to health.**

Individual health benefits of exercise and proper diet can provide sound nutrition, exercise and nutrition, although both are part of a healthy lifestyle, however, the total reduction of risk factors appears to be the maximum. Health risk factors for the disease, key risk factors for heart disease improved lifestyle behavior in favor of proper nutrition and exercise that can be effective. In addition, several risk factors for heart disease, such as diabetes, obesity, and high as the disease itself.

Blood pressure, all of which benefit from the combination of proper nutrition and exercise can. A combination of diet, exercise regimen favored approach for the prevention and treatment of obesity, a disease unto itself, and is a major risk factor for other chronic diseases.

**Nutrition, exercise and sports-related Fitness**

Health, genetic endowment game development an important part of the success of the play, but as a proper sports training and sports nutrition as a lifestyle behavior, not. One of the key factors determining the success of the Games to compete in both mind and body to prepare for the proper physical and mental training has the ability to maximize your genetic potential. In this regard, athletes, such as strength, power, speed, endurance, and neuromuscular motor skills as their sport specific fitness components that are sports related fitness, develop.
The United States Olympic Training Center (USOTC) elite players at the training focuses on three features: physical strength, mental strength and mechanical edge. Jay Kearney, a former senior sport scientist

USOTC Sports Science and Technology at the world-class competition to win with a small margin to provide elite competitors that are noted.

An elite international competitor, college wrestling, high school baseball player, one of the senior age group distance runner, or a youth league soccer players and athletes at all levels of the competition, the best, appropriate to their age can improve their performance through intense training, physical and mental development, and sport. As the saying goes, "Do your best with what you got." However, thanks to the training of sports and exercise scientists and the most comprehensive investigation of the effect of nutrition is one of the means to improve athletic performance has investigated a number.

**Sports nutrition**

State of the art physical and mental training in sports success is one of the most important factors. A high level of athletic competition, athletes generally, their biomechanical expertise (mechanical edge) to enhance their mental focus (mental strength) to sharpen and physiological functions necessary for optimal performance (physical ability) to get the best coaching. Clyde Williams, a renowned sports scientist from England, as well as specialized training, initial encounter on the battlefields of history at this time whether certain foods, physical activity was seen as necessary for the preparation of the report. In ancient Greece, more than one anti-strength, power, and stamina are on target to achieve the competition stadiums.

We in sport, biomechanical mental, physical and thinking can affect the various food components, see. Carbohydrates used during exercise to maintain normal blood sugar levels and may prevent mental fatigue: for
example, losing excess body fat will increase the biomechanical efficiency of iron muscles and proper diet can ensure the optimal oxygen delivery. Sports Nutrition and athletic performance impact of these factors may favor.

Sports Nutrition to improve the performance of algorithms involving a relatively new area of study. Louise Burke, Australia's leading sports nutrition, training session after each exercise to recover quickly and perform optimally during competitions, training to promote good health and adaptation strategies for the application of eating is defined as a sports nutrition.

Sports nutrition factors are becoming increasingly important for optimal athletic performance indicates that, and is a viable career opportunity. Athletes receive adequate nutrition are today?

Dietary habits of athletes in various sports, especially when compared to, tremendous changes. Surveys conducted with several different groups of athletes, some athletes may receive an adequate intake of nutrients, while others may not reveal that. An excellent review of the average nutrient intake of different survey techniques used to assess the validity and utility that provides critical Syracuss University of Science presented by Sarath.
I study a general method to record the player’s food approximately three to seven days, and then a variety of nutrient intake to match them with the RDA was to use computer analysis. Although all studies was inadequate nutrient intakes agreement ballet dancers, basketball players, bodybuilders, gymnasts, runners and other athletic groups have been reported in the strength athletes such as football players and as a specific athletic groups, appears to have adequate nutrition, skiers, swimmers, triathletes, and wrestlers.

Inadequate nutrient intakes for high school athletic ability levels ranging from Olympic caliber athletes for both genders and all age levels has been reported. Such as dancers, gymnasts, body builders, distance runners, and wrestlers as weight control, sports, athletes involved in the nutritional intake of the poor are most vulnerable. Female athletes were more likely than males incur inadequate nutrient intake. Zinc, calcium, protein and B vitamins, many also found insufficient by some researchers, however, most studies of the most significant dietary deficiency of iron.

A nationwide survey of elite athletes, including those in this study, many, inadequate nutrient intake was due to a very low calorie intake. He attempts to control body weight by adopting techniques as a strange addition, some studies report a higher incidence of eating disorders in athletes of the groups. The problem is more prevalent in women, although a small percentage of male athletes also display inappropriate eating behavior.

Sports nutritionists recommendations of many endurance athletes compared with carbohydrate deficiency is considered that the feed. Hawley and other such foods impair athletic performance have shown that, although they may have an increased carbohydrate intake is essential for speedy recovery between bouts of intense exercise, especially when an athlete's training increase indicates that. Theoretically, this could lead to improved performance of the advanced training competition.

This review summarizes some of the essential nutrients for a variety of
athletic teams is not receiving the recommended allowances or may not be meeting standards specific recommendation indicates that. The survey analyzed the diet of the players in that context, however, it should be noted that standard, the RDA, such as, and in many biochemical studies or actual nutritional status (such as by a blood test) did not analyze the effect of exercise capacity or dietary deficiency effects exerted on the player or game performance. RDA for vitamins and minerals and has a safety factor, the RDA of dietary intake of essential nutrients required by an individual with the correct nutritional deficiencies that can not be tolerated. If a player develops a nutrient deficiency, on the other hand, the athletic performance may deteriorate, and some deficiencies can lead to injuries.

For a number of reasons, many athletes do not appear to be receiving adequate nutrition. A recent report, experts in various international sports athletes nutrition conscious effort to eat a proper diet can, however, eat the food's nutritional content, they may be confused about the show. The emotions of its comprehensive review of the nutrition knowledge so short and athletic, athlete, select and prepare nutritious meals is not supported, the poor, or that the other has been reinforced by subsequent studies. Such as financial and other constraints such as time, food selection and preparation may be limited.

In addition, their coaches, athletes can not receive sound nutrition information. Short cited by some surveys and wrestling coach, a recent survey, many high school and college level coaches coach approximately 60 to 80 per cent noted that they did not take a formal course in nutrition is poor backgrounds, or the public, or better nutrition background needed. However, the condition of the course, especially in sports nutrition, nutrition are taking college-level courses will be changed as many coaches and athletic trainers appears. National Athletic Association trainers certification course for nutrition is essential for.
How important is nutrition to athletic performance?

Training genetic endowment and the state: As mentioned earlier, an athletic event, the ability to perform well are mainly based on two factors. First and foremost is the genetic endowment. Individual player possesses his or her chosen sport is essential to the success of the characteristics must. For example, world-class male Marathoner 26 sub-five minute mile in order to perform at a high aerobic capacity and must have a low body fat percentage. He underwent rigorous training program and its genetic potential to the maximum, except that their performance will be upasresta. Comparative genetic endowment of athletic training in the state is the most important factor. Has the advantage of a well-trained athlete.

No matter what the level of competition in the player or if it will meet the World Championship, or a high school swimming, training, genetic endowment, and the two most critical factors in determining the success of the state. However, the player’s nutritional status can have a significant impact on athletic performance. An internationally recognized Olympic sports medicine physician, L. Prokop, he again and again feeding the small, seemingly trivial error has been noted that the critical moment of destruction for many months and years of hard training.

Malnutrition represents unbalanced nutrition and under nutrition or individual either received adequate intake (under nutrition), or one or several nutrients (fed up), do not eat excessive amounts of the nutrient, as the above may exist. Either condition can hamper athletic performance. As noted previously, the three main functions of food, metabolism, regulation of energy supply, and to build and repair body tissue.

An inadequate intake of some nutrients such an inadequate energy supply, one of the best on the level of exercise an inability to regulate metabolism, or the key enzymes in the body tissues or due to a decreased synthesis can impair athletic performance. On the other hand, excessive
intake of certain nutrients or disrupt the normal physiological processes in the body formed by leading to unexpected changes, athlete health and impair athletic performance, and can.

Competition and training for nutrition is nutrition: Sports nutrition for physically active people can be seen from two aspects. Three basic purposes of food is to regulate metabolic processes, energy supplies, and to support the development and training in preparation for competition. All three need to be considered during the development period - the first two, is the importance of the head during athletic competition.

Competition, the exercise intensity and duration of a player, depending on the particular body energy sources and systems, will be used for the nutrition competition. Carbohydrates stored in muscle as glycogen intense exercise lasting about 1 to 3 minutes without oxygen can be used, and glycogen and fat oxidation becomes more and more important: the muscle stores of high energy Compounds in very short, high-intensity exercise used during It is lasting longer than 5 minutes in tolerance. Each of the three systems, the efficiency of energy release of certain vitamins and minerals may need.

Individual and is nourished, athletic competition usually six main classes of nutrients for anyone to impose any special requests. But carbohydrates and fat energy stores in less than 1 hours is enough to satisfy the demands of the activities of the energy. Protein during exercise is usually not considered to be a significant energy source. Increased levels of metabolic activity in the body, vitamin and mineral content regulation will be enough to help, and the body of water supply would be appropriate under normal environmental conditions.

When used before or during the competition, however, the influence of specific dietary changes may increase. For example, on the basis of available Despite all the research findings contract, some other nutrient or related compounds with a number of well-designed laboratory and field studies on the

36
beneficial effects of exercise are documented. Some of these actions are comparable to competitive athletic events. Some compounds such as sodium bicarbonate, with supporting scientific evidence for a beneficial effect when combined with others, such as sodium phosphate is somewhat stronger, the data are less conclusive.

Training and Nutrition: Proper nutrition during training is one of the keys to success in competition. Energy costs during the training period is over, because the calories needed to maintain body weight per day in certain activities - Calories additional 500-1,000 or more may increase. Additional Calories wisely by choosing a variety of foods, you have to work harder during exercise new body tissues and systems of the energy required for the formation of an adequate amount of all nutrients should receive. Carbohydrates, fats, proteins, vitamins, minerals, and a balanced intake of water is all that is required. For endurance athletes, dietary carbohydrates should receive more emphasis.

However, food is important that special attention during the game, in some cases, can also be trained. For example, training the body during the early stages so that they become more efficient energy systems will begin to make adjustments. The so-called chronic - training effect, and the body of certain nutrients, including many adjustments. For example, the acute effects of long-distance running in the muscle cells and increased blood hemoglobin content increased myoglobin and cytochromes, all three need iron to form Compound. Therefore, the daily intake of iron sufficient quantities to meet the general needs of the severe effects of the training is effective in the body, including the need to make adjustments.
Based on available scientific information, nutritional supplementation during training well nourished for a player does not seem to be necessary. However, some nutrients may be useful under certain circumstances, a number of principles that are affordable. For example, excessive exercise training is often referred to as upasresta performance characteristics overtraining syndrome in athletes can lead to chronic fatigue. Although the overtraining syndrome of unknown etiology, or the immune system, adverse changes in skeletal muscle of many theories postulate.

Derman and other skeletal muscle disorders including chronic fatigue may be relevant to the player suggest. Nutritional, vitamin E supplementation to prevent loss of muscle tissue has been studied as a possible means to help. Shepherd and shake a nutritional imbalance adverse competitive athletes, trying to increase the influence of body mass lost more unusual food can absorb, which is already thin, especially in athletes can affect the function of the immune system. With various amino acids, especially glutamine supplementation, as a means to strengthen the immune system has been studied. The basic theory of these and other nutrients to be viable however, the research data is usually limited or controversial, and additional research is needed.
Nutritional supplementation is necessary in some cases. For example, excess bodyweight can interruption in operations, loss of body fat may be helpful. Desirable in order to achieve a competitive weight using a very low calorie diet is not advised, although vitamin - mineral supplements used by athletes to such a procedure, in order to prevent nutritional deficiency can recommend.

To help optimize the performance of a player's athletic eat?

The importance of nutrition for your athletic performance of your gender, your age, your body weight status, your diet and lifestyle patterns, the environment, depends on a variety of factors, including the type of training can What are you, and you type in a game or event. Ultra-endurance marathon runner or triathlete in training and during the race may change significantly, while the latter point, for example, the nutritional needs of a golfer or baseball player, nonathletic less than suffice.

If a player is the best nutrition related to exercise and nutrition opinions offered by the researchers to the limit. Some researchers players at the end of a daily diet, nutritional balanced diet is very similar to the needs of each person, and therefore requires no special recommendation of the note. On the other extreme, the normal daily intake of food is required from the player, and for that reason the most important nutritional supplements that are almost impossible to get all the nutrients that are in some state. Recognizing the importance of a balanced diet, nutrition and other critics of certain nutrients or dietary supplements for athletes under certain conditions, emphasizing the importance of increasing access to a compromise between these two extremes, arguing.

In general, sufficient to meet their energy needs and adequate nutrition Calories access to the athletes must meet the requirements for essential nutrients. Sound nutrition is the key to athletic person to eat a variety of healthy foods.
Needed for sound nutrition for all women and rigorous physical training is especially important for young men. Women because of the potential health problems of iron and calcium in their diet need to pay special attention to the content. Muscle, bone, and other tissues of the body have been growing rapidly since childhood and adolescence, protein, calcium, and iron, as well as many other nutrients needed for growth and development during the year, is relatively high. Strenuous exercise may increase slightly the requirements, but to obtain sufficient caloric intake from healthy food to provide the nutrients needed for easily. Keystone Sports nutrition is still a nutritional balanced diet, but some athletes may benefit from dietary changes.

**When and what to eat before a player must complete**

As in the pre-event meal carbohydrate load and a significant intake of carbohydrates as glycogen in the liver or muscle dietary practices are designed to maximize the body stores. Athletic events in endurance events not want, however, the time and the meal eaten before competition designed to considering there may be some import points.

It's not just the food intake before the competition's physical performance in athletic events to benefit the well-established fact, yet, so to speak, is one of the main subjects of discussion among athletes pregame meal. A number of special meals throughout the year, has been used Because of their perceived benefits to physical functioning, and special products have been marketed as a pre-event nutritional supplements. Research the value of a particular precompetition food is not authentic, however, some general guidelines have been developed from years of practical experience.

Can be achieved by creating the appropriate time and that the main goal of precompetition meal. Generally, precompetition meal should be following ....

1. At the beginning of the race to be a relatively empty stomach allows.
2. Help to prevent or reduce gastrointestinal distress
3. Lightheadedness or a feeling of fatigue, hunger, avoided.
4. Adequate fuel supply mainly carbohydrates in the blood and muscles, can provide.
5. Provides an adequate amount of water in the body.

In general, a solid meal for about 3 to 4 hours prior to the competition should be eaten. The digestion in the stomach is empty, and yet the feeling of hunger is reduced, so that will be generated to allow for a sufficient time. However, from emotional stress or a high-fat or high protein content will be concerned with the meal, digestion times may be delayed. Therefore, the composition. Dining complex. It provides for easy digestibility, high fat, low carbohydrate, and protein should be low in the middle.

Precompetition the composition of the meal, such as talk of a gastrointestinal problem, contribute to the stomach, heartburn, or during competition, the need for a bowel movement can stimulate acid should not exceed the increased bulk. In general, it can be avoided, such as food, gas, seed formers, heartburn elicit have spicy food, and bulk foods such as bran products include.

High sugar Compounds gastric simply create a delay or reverse osmotic effect, the distress, cramps, nausea or a feeling that leads to the stomach, may increase the liquid content. High sugar loaded, especially fructose, as well as gastrointestinal problems such as diarrhea can lead to other forms. Individuals sensitive to the large amount of concentrated sugar can cause blood sugar to drop a reactive, such as Lactose intolerance known as food intolerances, should be used with caution in individuals. By experience, you must learn what foods disagree with you during the performances, and of course, you should avoid this competition before.

Adequate fluid intake event period will be carried out under hot
environmental conditions, especially if the event is sure to be one. Such as alcohol, diuretics, excretion increased body water, which should be avoided. Large amounts of protein to increase water output.

So the kidneys and should be avoided. Adequate hydration fluids to help ensure competition might be the first 30 to 15 minutes.

Can choose a variety of foods for five precompetition meal. The meal with a complex carbohydrate high protein low dose middle of the diet should contain. The food you should be grateful. What do you like to eat should be within the guidelines presented above.

During the competition a player, you should be eating?

Carbohydrate and water, with the possible exception of athletic competition during most types no need to use anything. Hot weather, exercise, water intake, body temperature regulation may be critical to the carbohydrate, no longer the preferred energy source during exercise can provide additional supplies. Very rare cases, such as ultradistance competition, a hypotonic salt solution can be recommended.

A sports competition or hard training session, then you can eat?

In general, a balanced diet to meet your nutritional needs and market competition or below normal, hard physical training is required to restore your nutritional status that is all. Carbohydrates and fats are used during exercise and food exchange lists can be changed easily from the main nutrients in the foods. If you need to change that increased calorie Energy costs and additional small amounts of protein, vitamins, minerals, and may be required for effective recovery that will help you with the electrolytes.

Such as long-distance running and swimming, or long bouts of tennis as long as the nature of daily physical activity, the persons involved, complex
carbohydrate foods in their daily diet should be stressed. The constant daily high intensity workouts are necessary for the muscle glycogen, will help to fill. Complex carbohydrates in the body are rich in vitamins and minerals necessary for their metabolism. Immediately after a hard workout more quickly eaten simple sugars can help restore muscle glycogen, but the source of carbohydrate protein may be more effective.

Market competition and a tennis tournament or swim meet as often as the competition, and must eat, for those who, pregame meal may be related to the relevant principles.

Closure

In the past 10-15 years, the relationship between nutrition and sports knowledge has grown dramatically. The ergogenic effects of specific dietary practices and great strides have been made as health benefits.

Despite this knowledge, effectively and systematically for both performance and health reasons, the majority of athletes, efforts to promote positive dietary practices have lagged behind.

Nutritionists Athletes, coaches, parents and administrators have developed many educational tools, however, the development and implementation of nutrition education programs which support the decision to work towards a specific model or frame. In addition, some research of sports nutrition and psycho-social cultural aspects of the exploration has been carried out. Inside and outside the world of sports as it relates to food affects the performance of the player is the lack of understanding about.

To further explore the relationship between nutrition and sport, athletes food choices affect the performance of a practical model to understand the need to provide a structure: nutrition education programs for the implementation of group and individual counseling: educating coaches and
athletes about healthy nutrition and dietary practices athletes and the athletes
knowledge and food choice influences our understanding of the question.

Physical education teachers provide education and nutrition for athletes
in the sports nutrition is low , or no , knowledge dispense with a nutritional
supplement . Williams states, modern coach, nutrition education should
include among other topics that "

"They without valid data , myths and misconceptions continue to
indicate that . Athletes often a major source of nutrition information, expressed
as a coach . Coaches , trainers , and athletes especially need more effective
nutrition education . Only about food for the Fitness and Sports need to know ,
but they are useless or even dangerous pills and warned about the need to
buy other products . quite a few athletes fad products marketed as food
supplements are not monitored for effectiveness or safety of the concept .
athletes to produce a sell the unqualified the should be warned about relevant
nutrition information . greater emphasis on scientifically -based nutrition
education is required .

Nutritional adequacy of training the person is not going to make an
Olympian, but good nutrition is an essential part of training for all athletes. Elite teams, physicians, coaches, trainers, strength coaches, sports psychologist, and is still used by athletes to ignore nutrition practices. All health professionals, including qualified sports nutritionists, each individual must work together for the good of the player.
METHODOLOGY

In this chapter the choice of subjects, and the statistical techniques used in the questionnaire, information, construction and management of the collection methods used are discussed.

Subjects Selection

The athletes of various sports and games for the sample of students who are representing their respective universities. For the purposes of information such as athletics, football, volleyball, basketball and handball and was 253 the total number of athletes were collected from different teams. players on both boys and girls from different universities.

Sports Authority of India coach to study sports users and those who are working under the coach and they are taken, such as Football, Volleyball, Athletics, basketball and hockey, and the total number of 79 were from different disciplines. Physical education teachers in various colleges affiliated to various universities in the works, including physical education teachers. The 271 physical education teachers from the universities in the study have been taken. Data collection methods used. The study data were collected using questionnaires.

Questionnaire construction

Questionnaires were two types. I feed them about this type of questionnaire to assess your knowledge of India users working under the Physical Education teachers working in colleges and coaches. Type II of the questionnaire was to athletes.

The questionnaires, therefore, necessary to take into account relevant aspects of the study, with a maximum coverage of areas related to nutrition, physical education and nutrition with the best care under the guidance and
supervision of experts and the construction of framed to maximize the worth of subjects and meaningful response as a concept. To get the nutritional knowledge, nutritional four different areas, such as food ingredients, nutritional deficiency disorders, nutrition and nutritional value of food were selected as the respective games.

Construction and layout of the questionnaires respondents will be able to respond in an orderly manner, so that was a logical way. Efforts questions, simple and clear, was to make.

Dealing with uncertainty and vagueness leading to a room. One-word answers to questions were asked and was given a room in question and the explanation given by the experts at most care was taken questionnaires frame

**Rewriting**

Based on feedback and critical evaluation of the respondents to the questionnaire on the changes made, and it was finalized.

**Questionnaire administration**

The investigator met the guidelines and various universities in India with a letter of introduction to all the physical education directors and related physical education teachers during the annual meeting to get permission to administer questionnaires, almost all physical education teachers is a stage. At the end of the meeting.

Can teachers investigator to interview him, and among them the need and importance of a questionnaire distributed to be able to explain. Teachers were given a reasonable time to fill out the questionnaires. They can write the answers without meeting their discussions were devised. Investigator refresher courses in different colleges in India for a personal interview may be conducted in such a questionnaire.
This type of visitor's guide with an introduction letter regional centers of India visited the Sports Authority of India under the coach and I headed to the questionnaire. With the permission of the Director regional centers, together investigator met all the coaches and the administration of the questionnaire. I work under the Indian Sports Users coach questionnaire for users of the games held at Delhi with the previous permission for coach refresher courses were administered during the time. In addition to the visitor to fill out the questionnaires to coach some of his work at the centers visited.

Type II questionnaire administration investigator University coaching camps were going on where the various places visited. After getting permission from the coach class athletes assembled for administrating investigator Type II questionnaire. The athletes were instructed to answer all questions. The questions were read by the investigator.

And given a reasonable time to complete the questionnaire if explained. Make sure the answers to the questionnaires will be used only for the purpose of research that was given to students.

**Scoring**

I have all the right answers to the questionnaire, and two and a half marks Type II and Type Two points were awarded for answers in the questionnaire were right.

**Statistical technique**

Subjects were collected, the data were treated statistically. More ratios Athletes, coaches and physical education teachers and more ratio was found to be significant when the Scheffe 's post hoc test was used to compare the intra-group was used. Descriptive statistics of the different groups were used to analyze the nutritional knowledge of the situation.
Statement of the Problem

The purpose of the study of nutrition knowledge of athletes and the Physical Education College of Teachers was assessed.
**Delimitations**

1. In this study, men and women’s track and field athletes were demarcated, Volleyball, representing their respective universities to the football, basketball and handball.

2. Sports Authority of India coach connected with the study were selected for the purpose.

3. Indian University to study under teachers colleges in the physical education teachers work in the demarcated.
Limitation

1. There may be limitations questionnaire research. The account may have crept in response to any prejudice that may be considered as a limitation of the study.
2. No causative factors were used during data collection.
**Hypothesis**

Essential factor for the performance of a sports nutrition knowledge. So physical education teachers and outstanding sports persons should have knowledge of nutrition.
**Definition and explanations of the terms**

**Nutrition**

Nutritional intake, digestion, absorption, transport and metabolism of nutrients found in food, including organic food by the use of particular substances and is defined as the total amount involved in the process.

**Nutritional Knowledge**

The food and nutritional knowledge and health, development, and personal development of their impact.

**Athletes**

Persons who are participating in any competitive sports events.

**Significance of the Study**

An athlete's achievement a significant positive effect on well-specific athletic performance can be, and conversely, bad eating will hinder. To maximize potential while preparing for the event, a player must consistently practice good nutrition. Giving body.

The need to refuel and re-energize what training he criticizes. Everything is edible by humans, but the use of each category of food to which it is difficult to find an appropriate level; less useful in lowering one's diet provides valuable nutrients as well as the high amount.

Athletic trainers and physical education teachers to provide nutrition education. Athletes often a major source of nutrition knowledge as a coach and physical education teacher picked. So coaches, trainers, physical education teachers and especially athletes need more effective
Survey of nutrition knowledge Athletes, physical education teachers and other professionals in carrying out nutrition education for athletes to provide a starting point. They greatly in their eating habits can affect all aspects of life including athletes, because the coaches, physical education teachers and athletic performance is therefore important to examine the other nutritional knowledge. This study will bring to light the confusion about nutrition and sports performance and sports persons and sports professionals can provide guidelines for nutrition education.