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Components of balance diet and its impact on sports performance

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Abstract

Prepare of this study is to increase the awareness of players in relate to balanced diet and sports performance. Balance diet is the most common problem among beginners stage of sports person. Without balance diet according to requirements of various activities we never increase our performance. In this modern era every sports person wisher and higher level of performance. Higher level of performance basically depends on many factors like Practice (sports training), Rest and Recovery, Balance diet or Nutrients, Coaching, Equipments Facilities and many Psychological factors etc. In these factors balanced diet is also play an important role to increase sports performance. A sports person's performance depends upon several dietary aspects including the type of sport, Alite's aim, environmental and practical issues. It includes pre diet, diet duration, competition and post competition.

Sports person uses various strategies of dietary to improve performance. He/She stores maximum glycogen in his/her body for mainly endurance type of activities. All components of balanced diet (carbohydrate, protein, fat, vitamin, mineral, roughage and water) increases the performance if intake an optimal amount according to activity.

Athletes would take benefit from the advice of nutritionist.

Keywords: Diet, protein, carbohydrate, fat, vitamin, mineral, water, nutrition, dehydration and anti-oxidants etc.

Introduction

Nowadays sports performance is increasing day by day. Athlete uses scientific methods in their practice and performance. Balance diet is a key component of low to higher level of performance. Any sports person couldn't afford to ignore this component. Recent studies shows that balance diet strategy increased performance in relation to time trial, distance, strength, motor neuron, co-ordination, speed etc.etc.

By nutrients a sports person can increase his/her potential to improve greater performance in any competition.

Methods:

This research paper is based on collected data from several international books related to nutrition and sports performance and concerned with Wikipedia and some national and international books have been supported by the observational fact and critical thinking by the researchers.

Objectives of the Study

- To find out the role of balance diet in sports performance.
- To examine how the components of balance diet can affect the sports performance.

Hypothesis

In this research paper, it is hypothesized that the components of balance diet plays an important role in sport's performance at any level.

Key Concept

Balanced Diet

A diet which includes carbohydrate, protein, vitamin, mineral, roughage and water in an optimal ratio according to need of activity.

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Table 1

Components	Cal. Value/gram	Smallest Unit	Other info.
Carbohydrate	4 Calories	Glucose	Primary source of energy
Protein	4 Calories	Amino Acid	Builder blocker of our body
Fat	9 Calories	Glycerol	Main source of energy in resting state

Vitamins

- These are organic compounds and vita means life and min means minute (few).
- Helps as a co enzyme in metabolic process.
- No Calorie value

Mineral

- Inorganic compound found in earth.
- In minerals mine means to mine.
- No Calorie Value.

Water

- Water is a mixture of 2 hydrogen and 1 oxygen atom.
- It is a necessary Component for survival of life.
- No Calorie value.

Impact of Balance Diet's component on Sports Performance

- Impact of Carbohydrate

Muscle glycogen provides a major source of energy during exercise. Its depletion has been shown to be a major cause of fatigue. Before competition if a sports person ate a carbohydrate rich diet for 3 days than stored in near about double of their normal amount of muscle glycogen. Studies in 1960 demonstrated that after carbohydrate loading by sports persons were asked to exercise to exhaustion at 75% of VO₂ max their exercising time significantly increased. Glycogen loading is mainly used in aerobic activities. During the final stage, performance is highly increased with carbohydrate loading.

- **Impact of Fats**

Fat is considered as a major source of energy for light to moderate levels of activity. Muscles and liver glycogen stored in the body are limited so the use of fat for energy production can delay fatigue. If sports person's body allow to use more fat than it would be an advantage mainly in endurance activity according to sports the fat requirement varies in proportions to muscle for optimal performance. A less fat is required for long runners, gymnasts, vertical jumpers. A nominal fat is desirable for these athletes. If they gain weight from fat than it will be an obstacle in the way of their performance. Fat's density is 0.8 which is less than the water's density. So the optimal amount of subcutaneous fat in the swimmer's body helped to increase their performance. Fat also secure them from heat loss due to water. Fat also works as a carrier of fat soluble vitamin and their transportation to the cells of body.

Impact of Protein:

It is not a primary source of energy, but a performance can use it in endurance activity. Protein intake after resistance training can increase the process of muscle hypertrophy cause of strength increase. Smallest unit of protein is amino acids are the building blocks of our body. So protein is essential for our body's growth and development. Generally the Recommended Dietary Allowance (RDA) for protein is 0.8g/kg for a normal person but for a sports person it is nearly 1.6 to 1.7g/kg and for strength training it may be more. In endurance activity a great demand of protein is as a supporting fuel and in strength training requires more protein

for muscle growth. Bodybuilding game is totally depends upon the optimal intake of the protein. A study shows that mix up proteins and carbohydrate increased the process of synthesis of glycogen during the recovery after intensive aerobic activity.

Impact of Vitamins

Vitamins are the organic compound which helps to regulate our body functioning and metabolic process. We need it in a small quantity. If any sports people do not take vitamins than his/her performance will decrease but there is not any proper evidence if a performer intakes extra amount of vitamins can increase his/her performance

There are two types of vitamins

1. Water Soluble (B complex and Vitamin C)
2. Fat soluble (Vitamin A, D, E and K)

Human body secrete extra amount of vitamins taken in the diet via urine.

Most vitamins are some important impact to performance of an athlete.

Vitamin A helps in body's normal growth and bone development.

Vitamin D is essential for the absorption of calcium and phosphorus for the bone.

Vitamin K is helping in electron transport chain in creb cycle.

There are mainly three vitamins which attract researchers:

- Vitamin B-complex: B-complex contains near about 1 dozen of vitamins. B-complex plays an important role in cellular metabolism. It works as co factors in the food oxidation and energy production.
- Vitamin C: Ascorbic acid plays an important role for the collagen formation and maintenance, it is required in healthy bones.

Vitamin C also helps in iron absorption from intestines, synthesis of epinephrine and nor epinephrine hormones and the metabolism of molecules of proteins.

- Vitamin E (Tocopherol): It enhances the functions of Vitamin A and C by preventing their oxidation. Tocopherol acts as an anti-oxidant. It removes the bad cholesterol in our blood vessels.

Minerals

Minerals are inorganic substances. It amounts nearly 4% in our body weight. It helps to regulate the cellular functions.

There are two (2) types of minerals:

1. Macronutrients (which is required more than 100mg/day).
2. Micronutrients (which is required in small amount).

Calcium is known for growth and maintaining healthy bones, teeth and enzyme activation. Without Calcium we don't contract our muscle. We need it around 40% of all total minerals

Phosphorus: Its required amount in the body is approximately 22% of minerals in our body.

It works with Calcium. It helps to maintain the PH scale of blood.

Iron: It mainly acts as a carrier for oxygen from lungs to cells.

Sodium, Potassium and Chloride maintains our body's acid and base balance mainly.

All minerals are required for body's physiological functions.

Impact of Water on Performance

It is the second essential thing for survival for life after Oxygen. Deficiency of water in the human body can cause dehydration, which is responsible for decreasing of performance. There is near about 60 to 70% of water in our body. It regulates all the nutrients in our body. It also maintains thermoregulation system in our body. Optimal amount of water maintains our body fluids that are needed by our body. Dehydration can decrease our blood pressure and increase our heart rate. In a study it is noticed that dehydration in the body can decrease 3% velocity in 1.5 km running and more than 6% in 5 km and above running. Water TDS level should not more than 500.

Conclusion

After this study we saw that balance diet plays an important role in sports performance. Various components of diet have their own particular effect on body. Carbohydrate plays a major role as a primary source of energy. Protein works as building blocks of body. Fat is also a major source of energy, it protects our body from cold and provide heat. Fat regulates many hormones and cover neurons. Vitamins and minerals play important role in metabolic process. Water regulates all nutrients in our body. So this study shows that if a sportsperson takes proper diet according to his/her demand of activity than he must increase his/her performance.

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