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Research Article

Essential Nutrition & Balanced Diet for Trained Athletes

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Abstract

Today, more and more people are taking part in variety of sports. As daily exercising is important for athlete to maintain or increase performance in the same way optimal diet can help the athlete to improve sports performance. The relation of sports and nutrition is inseparable. Sports persons need more energy as their energy expenditure is higher than sedentary men, thus nutrition becomes a prime importance of sports. As in team sports, we need to play with teammates to win the game, the nutrients we eat like the proteins, carbohydrates, fats, minerals, and water needs to work like teammates with each other to provide good nutrition to the body. Just as each team member carries out different tasks during a game, each nutrient performs specific functions in our body. There is no such supplement or a food that can supply all nutritional needs to the body. So, one of the basic parts of our exercise is FOOD.

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INTRODUCTION

- Food supplies the energy for every action we under take from eating banana to running a race.
- Food also provides material that our body needs to build up and repair tissues and to regulate the functions of its organs and system.
- To reach the highest potential it is necessary for the body system of the athlete to be perfectly tuned.
- Good nutrition can help the athlete to maintain his wealth as well as to perform well.
- Selection of proper food can help athlete to maintain desirable body weight, stay physically fit, and help in better performance.

BALANCE DIET

A diet which contains appropriate type of nutrients and adequate amount of food and drinks which can help to supply energy to maintain normal growth and development and wear & tear of cell, tissues and organs of human body. A healthy diet includes three main nutrients, namely carbohydrate, proteins and fats.

NORMAL PEOPLE NUTRITION PROPORTION

Carbohydrates +55-00 %
 Protein 10-15 %
 Fat 30-35 %

SPORTS PEOPLE NUTRITION PROPORTION

Carbohydrates 60-75 %
 Protein 10-15 %
 Fat 20-30 %

PURPOSE OF NUTRITIONAL DIET FOR ATHLETES

- Good nutrition promotes a healthier mind and body
- It also aids in resistance to illnesses.
- When an athlete eats a proper diet, their energy and vitality are increased.
- The right foods help the athlete to feel better and sleep better, and speed the healing process.
- Proper nutritious diet helps in faster growth and development of sportsman.
- Eating a hygienic food gives us mental satisfaction.
- Proper nutritious food helps an athlete to perform well.

THE ROLE OF NUTRITION IN SPORTS

- Proper nutrition is an important consideration for athlete who seeks to maximize their performance.
- While an adequate diet will not directly increase strength, power, or endurance, it will provide the necessary raw material to allow a good training program to build and run the human machine.
- Many factors, including the athlete's physical condition, nutritional status, age, and genetic background, affect nutrient needs.

- Influences on nutritional need and physical performance make it difficult to measure how a change in dietary intake for a magic formula that guarantees success, leads too many nutritional myths among athlete.

DAILY ENERGY REQUIREMENTS

Daily energy requirements for an individual are the sum total of the Basic Energy required for conducting daily routine workout like walking, climbing stairs, sitting, driving vehicle, etc. plus some Extra Energy for store which can be utilized during Training.

BASIC ENERGY REQUIREMENT

For every Kilogram of body weight 1.3 Calorie of Energy is required per hour. For e.g. an athlete weighing 60Kg. would require:

$$1.3 \times 24 \text{ Hrs.} \times 60\text{Kg.} = 1872 \text{ Calories per day}$$

EXTRA ENERGY REQUIREMENT

For each hour of Training an athlete requires 8.5 calories of energy for each Kilogram of body weight. For e.g. an athlete training for two hours and his weight is. 60Kg. would require

$$8.5 \times 2\text{Hr.} \times 60\text{Kg.} = 1020 \text{ Extra calories per day}$$

Thus, an athlete weighing 60Kg. who trains for two hours would require an intake of approximately 2892 calories (1872 + 1020).

PRE-COMPETITION MEAL

The pre-competition meal can supply body with significant amounts of energy. Athlete should eat the right kinds of food for several days before the event to charge up muscles used muscles with glycogen. Glycogen is a key energy source for muscles used during most sports activities.

- Allow enough time for digestion. Eat the meal at least 3-4 hours before an event.
- Choose a meal that's high in starch is easy to digest and helps steady the levels of blood sugar.
- Consume only moderate amounts of protein. Protein foods take longer to digest than starch. And high-protein meals may lead to increased urine production, which can add to dehydration.
- Limit fats and oils. They take too long to digest.
- Restrict sugary foods. Sweets can cause rapid energy swings in blood sugar levels and result in low blood sugar and less energy.
- Avoid foods and drinks that contain caffeine. Caffeine stimulates the body to increase urine output, which can contribute to dehydration problems.
- Watch out for foods that produce gas. Certain raw vegetables, Fruits, or beans may cause problems for some young athletes.
- Remember to drink plenty of fluids with your pregame meal.

CARBOHYDRATE LOADING

- Carbohydrates are most efficient source of fuel for body, so loading carbohydrate can help the athlete to better performance in endurance events.
- Carbohydrate loading means increasing the intake of carbohydrates in daily diet i.e. 70-80% of calories should come from carbohydrates, 10-15% from fat, and 10-15% from proteins.
- During carbohydrate loading water is stored with glycogen in body so it is natural that athletes weight increase by 1-3 pounds.
- It is necessary for an athlete to load himself with carbohydrates during training sessions not just before a competition.
- Athletes participating in endurance event or in sports that require prolonged movement of varying intensities such as soccer, ice hockey, as well as tournament sports such as tennis can be benefited by carbohydrate loading.

DURING COMPETITION MEAL

- If an athlete is participating competition which last than hour then he needs to take extra carbohydrates during the event to delay fatigue and maintain exercise intensity, particularly during interval helps the athlete to boost the blood sugar level and glycogen stores will not be depleted so rapidly.
- Athlete can drink 150ml to 300ml of water at regular interval of 15-20 minutes or whenever there is a break in competition. Athlete should not wait till he gets thirsty, because the time the brain gets the signal of thirsty it might be that athlete is already in dehydration condition.

POST COMPETITION MEAL

Post competition Meal basically helps to recovery fast form exhaustion of the workout. What an athlete eats after competition definitely plays a dominate role.

ESSENTIALS OF FLUID REPLACEMENT

- Water in the blood transports glucose, oxygen, and fats to working muscles and carries away metabolic waste.
- In urine, water eliminates metabolic waste products.
- In sweat, water dissipates heat through the skin thereby regulating body temperature.
- In saliva and gastric secretions, water helps digest food.
- Water helps to lubricate joints and cushion organs and tissue throughout the body.

REPLACEMENT OF CARBOHYDRATES

- The enzymes are responsible for making Glycogen are most active and will most rapidly replace the depleted glycogen stores.
 - Commercial high carbohydrate sports drinks and powders can refuel your muscles.
 - The most popular carbohydrate rich are:
1. 8 Ounces of orange juice

2. One bowl of corn flakes with milk and banana.

PROTEIN REPLACEMENTS

Athlete should not avoid protein in recovery diet. In fact, some protein can actually enhance glycogen replacement in the initial hours after hard exercise. Protein eaten along with carbohydrates provides a winning combination.

REPLACEMENT OF ELECTROLYTES

Sweating not only loses water but also minerals i.e. electrolytes such as potassium and sodium that helps body to function normally. Electrolytes are primarily responsible for muscle cramping and intolerance to heat.

REST

Time is necessary for the recovery process of healing and refueling. to completely replace depleted glycogen stores, the muscles may need up to two days of rest after a big competition with no exercise and a high-carbohydrate diet.

Sports Nutritional Myths

1. Calories are calories; it doesn't matter where they come from.
 - False- a variety of nutrients is very important to maintaining a healthy diet.
2. Athlete's bodies require supplements during training.
 - False- Supplements are only required when the diet is not able to meet the body's demands.
3. Protein builds strong bodies.
 - False- Protein is required to repair tissue but does not build muscle by itself, exercise is required.
4. When we need fluids, we feel thirsty.
 - False- we need water long before we feel thirsty. constant fluid replacement is required.
5. Body weight matters most; light athletes are faster.
 - False- body composition is more important than body weight. Also, muscle is heavy and required or movement.
6. The only food intake that really matters is the food ingested immediately before an important event.
 - False- nutrition is a long-term pursuit and what you eat weeks before an event can affect your performance.
7. What you eat between and after events doesn't matter.
 - False- what you eat before, during, and after an event can affect your performance post event nutrition is important for rapid recovery.

CONCLUSION

Research showed that optimal diet can improve sports performance but it must be remembered that muscle glycogen will alone not guarantee successful performance of an athlete. At least one must not lose competition because of insufficient glycogen stores.

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