

# Nutrition and Sports Performance: A Review of the Literature

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**Abstract.** For every sports person Nutritional Health is essential in order to be able to perform his or her maximum ability. Nutrition is the process of getting food into our body and using it as raw materials for growth, fuel for energy, and vitamins and minerals that keep the body healthy and functioning properly. The foods that we eat provide the energy to the body that needs to function. Sports and nutrition are directly related to each other. Taking into consideration the fact that sportspersons need more energy to carry out their sporting activity effectively, it becomes of prime importance to take care of the nutrition for sports performance. Careful planning and implementation is required, when it comes to athlete sports nutrition. As far as the nutritional diet of sportsperson is concerned, there are lot many things that deserve proper attention like selection of foods, timing of food intake, selection of nutrition supplement and many more. These things are again decided, keeping in mind several factors like the athletes' energy needs, body composition, nutritional needs etc.

**Index Terms-** Women's Education Advocacy Educational Reform, Gender Equality in Education, India and Middle East Education, Socio-Cultural Barriers, Grassroots Mobilization, Policy Advocacy for Education, Cultural Resistance and Activism

## I Introduction

The nutrients we consume contribute greatly to our general good health and therefore have a large say in our bodily functions; the growth, strength, and general well-being are largely impacted by the nutritional intake. It is highly recommended to eat at regular times and avoid excessive dieting and skipping meals. If the need is to lose weight, then lose it gradually and the impact will potentially be a lot better. People on very strict diets often have withdrawal symptoms, which can lead to side effects and then adversely impact the individual's performance. Toxins within the body are released back into the system. Drinking fresh clean water is a great way to flushing out unwanted toxins within the body. High fibre foods will also help to detoxify. Regular daily intake will help to reduce the risk of disease and keep clean within. Get to know how to keep the body well and how it reacts and adjusts to different quality foods that are definitely good. Good balance is the key, and as you educate your mind and body more, you will potentially find a definite improvement in the overall physical ability. Lack of research and therefore lack of knowledge can lead to either insufficient intake of nutrients or even excess which can be equally bad. The wrong foods can be detrimental to the health and can have a negative effect on the performance in sport. Un-

healthy food classified as 'junk food' is particularly damaging to the overall health. Achieving excellent levels of nutritional health is essential for peak performance. Exercise and Nutrition go 'hand in hand' together. Exercise well and look to get the right combination. Reaching the highest levels of nutritional health is possible for many of us but only for those who study nutritional health well.

#### **Here are some sports nutrition diet tips**

There is a need to consume fats and infect 20-25% of your energy should come from fats. If the fat intake would be less than that, it won't be able to make any contribution in boosting your performance level.

There is a need to eat food before, during and after your exercise session, as that helps to control blood glucose level, thereby helping in enhancing your sports performance.

When an athlete performs his/her sporting activity, lot of fluid loss takes place, which causes dehydration. Dehydration can eventually cause heat stroke. So, it is vital to drink adequate water during and after your sports performance.

It is advisable for sportspersons to eat a balanced diet consisting of plenty of proteins, vitamins and minerals. opt for complex carbohydrate food and the intake of fat should be in moderate quantities.

It is vital to plan out your pre exercising or sports meal that works best towards charging your energy. Limit the quantity of salt and simple sugar.

Don't change your diet plan before going in for your sports competition.

Fasting is not recommended for sportspersons, as it is likely to hamper their performance level.

If you feel some kind of an uncomforted or pain in your abdomen or intestine, then you must have had a high fibre or high fat content food in your pre exercise/sports meal, so as to take care that it doesn't happen again.

## **II Importance of Good Nutrition**

Nutrition is the process of getting food into the body and using it as raw materials for growth, fuel for energy, and vitamins and minerals that keep the body healthy and functioning properly. Macronutrients - Carbohydrates, Fats, and Protein are the foods that we eat to provide the energy to the body that needs to function. Just like we need to put fuel to the car or recharge the cell phone battery, the body needs to be fed energy-providing foods every day. The main form of energy for our body is carbohydrates. The body has the easiest time digesting carbohydrates like sugar and starch. Carbohydrates are broken down into individual glucose, fructose or galactose units. Glucose is the body's favourite form of energy. If we don't get enough carbohydrates, the body can make glucose from protein or fat and if it get too many carbohydrates, the body is very good at storing them as fat. Good nutrition provides raw materials. Protein comes from the food we eat and is broken down into individual amino acids.

There are many different amino acids; they all have a similar structure, but are differentiated by their side chains. The body uses the amino acids to build and repair the various parts of the body. The muscles contain lots of protein, and need to replenish that protein through the diet. The body also needs protein for components of immune system, hormones, nervous system, and organs. The body also needs fats to be healthy. Membranes that contain fats surround all the cells of the body. The brain has fatty acids, and fats are also needed to signal hormones.

### **Micronutrients - Vitamins and Minerals**

The vitamins and minerals get from the diet are just as important as carbohydrates, protein and fats, even though only need them in small amounts. They usually function as co-enzymes, which means they help some of body's chemical reactions happen a lot faster. For example, many of the B complex vitamins help burn carbohydrates for energy, Vitamin A is needed for vision, zinc is involved in many metabolic processes, and vitamin C helps keep connective tissue strong and immune system functioning. Another example is calcium. Calcium has several functions in the body, but it's best known as the mineral that is stored in bones and teeth. Good nutrition provides more than energy, structural components, vitamins and minerals. Phytochemicals are found in the colourful parts of fruits and vegetables. Although they aren't required for body functioning, they may have a very powerful impact on health. For example, quercetin (found in red apples) functions like an antihistamine and has an anti-inflammatory effect. Antioxidants help protect your body from damage that comes from the sun, pollution, smoke, and poor dietary choices. They are found in the phytochemicals of fruits and vegetables, as well as some vitamins and amino acids

### **Healthy Sports Nutrition Diet**

#### **Carbohydrates**

For snacking purposes, you can opt for whole wheat pasta, macaroni, spaghetti, noodles and ravioli. You can either have them plain or slather some sauce; it is entirely your call.

If you are a rice eater, you can consume rice but it is preferable to eat it along with a low fat sauce which is not too spicy. To try out something different, you can opt for soy sauce flavouring or choose brown rice instead of white rice.

Indian cooking generally involves the extensive usage of potatoes. You can eat boiled, mashed and baked potatoes but avoid grabbing French fries. Limit your intake of butter, gravy and sour cream.

From the list of starchy vegetables, peas, carrots and sweet potatoes are your best bet.

Some people are under the misconception that breads do not form a part of sports nutrition food, but there is nothing like that and you can consume breads, rolls, muffins, bagels etc. Prefer going in for nutritious low fat bread products like multi-grain or whole-wheat bread.

As far as cereal intake is concerned, avoid consuming cereals which have very high sugar content.

It is not advisable to consume high fat milk products, especially before your sports performance.

What you should ideally look out for is a diet that leads to the process called 'carb-overloading' right before the event or the game. This will ensure the build and maintenance of muscle mass in the body.

Foods such as oatmeal, bread, potatoes, maize grit, fruit juice, sweet corn, bananas and special foods with extra carbohydrate content in them are ideal if carb-overload is what you are looking for.

### **Proteins**

Proteins are another essential requirement that should not be taken for granted. They are officially known as the 'building blocks of the body' and should essentially be consumed by athletes to build or repair muscle that has been affected or broken down during sport or exercise.

Apart from their basic function, proteins, in the form of amino acids, aids growth and strength that is vital to the performance of an athlete.

Sportsmen need nearly twice the amount of protein intake than the average adult. Protein rich foods come in the form of eggs, meats such as turkey, fish and chicken, tofu, cheese, peanut butter and lentils.

### **Iron, Vitamins & Minerals**

The trick is to have a balanced diet on all occasions to ensure the proper functioning of the body. Therefore, it necessary to get all the greens stocked on the plate before that big game or workout.

Vegetables and fruits are high in vitamins and minerals. These are the basic roots of a balanced diet and studies confirm that a high intake of vegetables and fruits could fuel sufficient iron, calcium, carbohydrate and protein into the system.

The best thing about vegetables and fruits is that large quantities or consumption does not hinder or affect health and rather helps to work towards building a better lifestyle.

All vegetables, especially the green ones such as spinach, lettuce, leeks, broccoli, asparagus, peas, cabbage and beans, are high in minerals, calcium, iron and other vitamins. These not only ensure proper circulation of oxygen all through the body but also ensures the production of new blood cells, keeping the system healthy overall.

### **Water**

Finally, it is important to understand that water is the source of life in any living being. Drinking adequate amounts water can go a long way in maintaining an athlete's or sportsman's health. Water ensures that the toxins are flushed out of the system and also replenishes oxygen supply around the body, providing the necessary minerals required to balance the diet.

An athlete should drink plenty of water, twice the normal amount advised for the average human being, and should make sure he or she has a lot of water one hour prior to the sport or exercise. However, too much water right before the start of the

sport or exercise, can lead to the formation of cramps in the abdomen or in the gastric pit.

Too much water right before the game can also lead to the urge to frequently urinate. So watch out!

Water also replenishes the potassium lost from the body while sweating. Therefore, a full bottle of water should be consumed an hour before the high-endurance sport/work out.

### **Anaerobic Exercise**

During anaerobic exercise, the process of glycolysis breaks down the sugars from carbohydrates for energy without the use of oxygen. This type of exercise occurs in physical activity such as power sprints, strength resistances and quick explosive movement where the muscles are being used for power and speed, with short-time energy use. After this type of exercise, there is a need to refill glycogen storage sites in the body (the long simple sugar chains in the body that store energy), although they are not likely fully depleted.

## **III Conclusions**

For a considerable amount of time nutrition has not played a prominent role in the life of people. A healthy diet will give the body the right amount of energy. Good nutrition will also provide phytochemicals and antioxidants that will help keep feeling young, looking great, and perhaps even disease free. A bad diet will give too many or too few calories, not enough vitamins and minerals, and will actually make need for more of the antioxidants that you are not getting. Without good nutrition, the body will fail in terms of its functions. Having a healthy eating plan is just as important as having a regular exercise routine, to improve the performance level of athletes and sports persons.

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