

## Role of Nutrition and Dietetics in Enhancing Sport Performance of Students and Young Athletes.

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### Abstract

*Nutrition plays an important role in promoting an individual success by helping a person stay healthy and optimally fuel themselves so they can maximize training and conditioning. An often over-looked component in many programs, smart nutrition planning can equate to greater gains in lean body mass, minimized fatigue related to poor hydration and under-fuelling, and enhanced recovery which supports all future training and competition. Sports nutrition counselling helps student-athletes learn to maximally fuel performance through well-balanced, nutrient-dense eating. Meeting nutrition needs through food first is prioritized and the strategic use of sports foods, fluids, and supplements will be made on an individual basis. Healthy eating attitudes and behaviours are emphasized.*

*Diet plays a major role in promotion of health and well being of individual. A good and balanced diet habit improves the quality of life while poor diet may lead to morbidity and diseases. Nutritionists and dietetics are concerned with this aspect. While dietetics is related to food management, nutrition is related to promotion of health. Due to changes in food habits of most of the urban population, role of nutritionists and dieticians is becoming more important. They suggest corrective food habits considering various aspects of an individual such as age, work routine and sickness etc. and thereby improving their quality of life.*

*This paper discusses about the nutritional and dietetics needs of a person, reviews common misconceptions, and examines the nutrition knowledge of sportsmen and their sources of nutrition information. Topics covered include energy, carbohydrate, protein, fat and micronutrient needs, hydration requirements and timing of meals.*

### Introduction

Good nutrition is important for everyone, but athletes in particular feel firsthand how not eating properly can affect performance. Their need for calories is greater than the average person, ranging from 2000 to 5000 calories a day, depending on gender. Nutrition is the science or study that deals with food and nourishment, especially in humans. Nutrition is the provision to humans to obtain the materials necessary to support life. In general, humans can survive for two to eight weeks without food, depending on stored body fat and muscle mass. Survival without water is usually limited to three or four days. Lack of food remains a serious problem, with about 36 million humans dying every year from causes directly or indirectly related to hunger.

Nutrition is an important aspect of an sportsman's training program. Although exercise and athletic training is considered to increase nutrient needs in some athletes, a balanced diet with adequate

calories can potentially provide the necessary nutrients. It is likely, however, that for various reasons, not all athletes are able to consume a diet that meets their nutritional needs and thus resort to nutritional supplements with the intention of preventing deficiencies and even enhancing performance.<sup>1</sup>

Coaches, parents, and athletes often look for a "miracle food" to enhance performance. The truth is, there are no special foods or supplements that can help athletes train harder or compete better. What does make a difference is the athlete's overall diet and the timing of meals. Good nutrition is essential to support an athlete's growth, strength, and stamina. Parents and coaches can use the following nutrition information to help young athletes feel energetic and perform their best.<sup>2</sup>

Dietetics is the health field that focuses on the interaction between nutrition and health. Dietitians and dietetic technicians design "nutrition

therapies” that help the body use the natural nutrients and properties in food to protect against disease and promote health.

Diet plays a major role in promotion of health and well being of individual. A good and balanced diet habit improves the quality of life while poor diet may lead to morbidity and diseases. Nutritionists and dietetics are concerned with this aspect. While dietetics is related to food management, nutrition is related to promotion of health. Due to changes in food habits of most of the urban population, role of nutritionists and dieticians is becoming more important. They suggest corrective food habits considering various aspects of an individual such as age, work routine and sickness etc. and thereby improving their quality of life. They also educate their clients about preparation of food according to the principles of nutrition. They know about food production and processing, psychological factors influencing food choice, digestion and its effects on nutritional aspects. A growing and aging population will increase the demand for meals and nutritional counselling in nursing homes, schools, prisons, community health programmes, and home health care agencies.

#### **Why is Proper Nutrition Important?**

Are nutrition and health related? Is healthy eating important? Of course! Like a finely-tuned racing car, your body needs the right fuel (food) and regular maintenance (exercise, lifestyle and mental attitude) to achieve its true health potential. Nothing is more important than healthy eating! Put in the wrong fuel or let it go without regular use and there's no way it can deliver its full power and performance. Without healthy eating, your body's engine will cough, splutter and eventually stall.

#### **Maintaining a balanced diet by healthy eating can:**

- Give you vitality and energy for life
- Help you stay at a weight that's right for you
- Boost your immune system
- Improve sports performance
- Delay the effects of aging
- Keep you active and fit into old age
- Help beat tiredness and fatigue
- Protect teeth and keep gums healthy
- Enhance your ability to concentrate and possible alter mood

- Ward off serious illnesses like heart disease, certain cancers, mature-age onset diabetes, and gallbladder disease <sup>[1]</sup>

#### **Role of Dietetics in Health Care**

- **Basics of Healthy Eating for Today**

##### **Low Fat**

Cutting down on all fats from fatty and fried foods, butter, cream, margarine and oils is agreed on by nutritionists the world over as a way of making the modern diet healthier and reducing weight. Cutting down on saturated fat in particular is important for the heart.

##### **Base your meals on starchy foods**

Starchy foods should make up around one third of the foods you eat. Starchy foods include potatoes, cereals, pasta, rice and bread. Choose wholegrain varieties when you can: they contain more fibre, and can make you feel full for longer. Most of us should eat more starchy foods: try to include at least one starchy food with each main meal. Some people think starchy foods are fattening, but gram for gram they contain fewer than half the calories of fat.<sup>[1]</sup>

##### **High Fiber**

Not just bran! Fiber, that largely indigestible part of our food and often the part that really gets us chewing, is responsible for so much good. It not only keeps our insides moving smoothly but it helps to lower cholesterol, prevent gallstones and bowel cancer, and keep our weight in check. Wholemeal and grain breads are full of it, as are brown rice, barley, lentils, beans and vegetables. To start your day, there is a wonderful array of wholegrain and bran breakfast cereals.

##### **Vitamins, Minerals, and Anti-oxidants**

Vegetables, fruit and grains carry an abundance of vitamins, minerals and numerous other natural substances (called phytochemicals) which scientists are only just beginning to discover. Phytochemicals function as anti-oxidants, which fight off free radicals that could otherwise damage our cells, membranes and DNA. Numerous studies show that people who eat lots of vegies and fruit have lower rates of heart disease and cancer.

##### **Variety**

Variety doesn't mean 10 different cereal packs in your cupboard, but rather a variety of botanically different foods. Pasta, bread, puffed wheat and

couscous all look and taste different but are all derived from the one basic (but versatile) grain (wheat). So they all provide similar nutrient. Substituting other grains like oats, barley, corn or rye for some wheat adds diversity to your diet and ensures a wider range of nutrients. The nutrients you miss from one food, you can make up from another.

### **Moderate Sugar and Sweets**

Sugar in modest amounts adds to the flavour of cooking and is a useful fuel for athletes and other active people. In excess, however, sugar adds unwanted kilojoules and can displace other more important foods - particularly for children and teenagers. In chewy and sticky form, sugar also can cause dental caries (or tooth decay).

### **Light on Salt**

Our modern diet is laden with salt. It's not until you avoid salt for a few weeks that you notice how it masks the true flavour of foods. As 75 per cent of our total salt intake comes from everyday commercial foods (including bread, biscuits, cereals, butter, deli meats and snack foods), it is imperative to buy salt-reduced or no-added-salt products.

### **Drink Plenty of Fluid**

Two litres (8 glasses) of fluid a day is needed to keep the body hydrated and the kidneys working efficiently. In hot weather, even more fluid is required. Alcohol and strong coffee do not count, as these act as diuretics and force the kidney to excrete more fluid than normal.

### **Enjoy Mealtimes**

Stress, tension, rushing and eating on the run all take their toll on your digestion and health. Try to relax and take the time to really appreciate the food in front of you. Not only will it increase your enjoyment and satisfaction by having a "comfortably full" stomach, this technique is often recommended as a strategy to help people lose weight.

### **Main Components of Nutrition**

#### **Protein**

Proteins are often called the building blocks of the body. Protein consists of combinations of structures called amino acids that combine in various ways to make muscles, bone, tendons, skin, hair, and other tissues. They serve other functions as well including nutrient transportation and enzyme production. In fact, over 10,000 different proteins are in the body.

#### **Water and salts**

Water is one of the most important nutrients in the sports diet. It helps eliminate food waste products in the body, regulates body temperature during activity and helps with digestion. Maintaining hydration during periods of physical exertion is key to peak performance. While drinking too much water during activities can lead to physical discomfort, dehydration in excess of 2% of body mass (by weight) markedly hinders athletic performance. Water and salt dosage is based on work performed, lean body mass, and environmental factors, especially ambient temperature and humidity. Maintaining the right amount is key.

#### **Carbohydrates**

Carbohydrate is arguably the most important source of energy for athletes. No matter what sport you play, carbs provide the energy that fuels muscle contractions. Once eaten, carbohydrates breakdown into smaller sugars (glucose, fructose and galactose) that get absorbed and used as energy. Any glucose not needed right away gets stored in the muscles and the liver in the form of glycogen. Once these glycogen stores are filled up, any extra gets stored as fat.

Adequate carbohydrate intake also helps prevent protein from being used as energy. If the body doesn't have enough carbohydrate, protein is broken down to make glucose for energy. Because the primary role of protein is as the building blocks for muscles, bone, skin, hair, and other tissues, relying on protein for energy (by failing to take in adequate carbohydrate) can limit your ability to build and maintain tissues. Additionally, this stresses the kidneys because they have to work harder to eliminate the byproducts of this protein breakdown.

#### **Conclusion**

Proper nutrition and diet for young student/sportsperson is critical not only to their athletic success, but more importantly to their growth, development, and overall health. Nutritional recommendations should be based on the most current scientific data; we must provide information about appropriate resources for the school nurse when advising student athletes and their coaches and parents. Student athletes and their advisors often are misinformed or have misconceptions about sports nutrition. Thus nutrition plays an integral role in promoting athletic success by helping athletes stay

healthy and optimally fuel themselves so they can maximize training and conditioning. . It is likely, however, that for various reasons, not all athletes are able to consume a diet that meets their nutritional needs and thus resort to nutritional supplements with the intention of preventing deficiencies and even enhancing performance.

Dietetics play the role of managing food and nutrition to promote health. A Nutritionists and dietitians are food and nutrition experts who provide nutritional services in hospitals, schools, nursing care facilities, and other institutions. These essential health care professionals are responsible for developing food and nutrition programs to prevent and treat illness or promote general dietary health.

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