



REVIEW OF RESEARCH

ISSN: 2249-894X

IMPACT FACTOR : 5.7631(UIF)

UGC APPROVED JOURNAL NO. 48514

VOLUME - 8 | ISSUE - 9 | JUNE - 2019



DIET AND SPORTS PERFORMANCE

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ABSTRACT:

Diet is vital to good health for people of all ages. Poor nutritional habits play a role in causation of a number of common disorders such as coronary heart disease, obesity, osteoporosis, diabetes, vision problem, kidney disease etc. and other social psychological problems. Certainly diet is directly related with health and performance. It is said that proper nutrition is a vital to our health as is oxygen to our life. Nutrition is the science of food and its relationship to health and physical activity. Well balanced diet should provide all the nutritional and caloric needs of an individual. Since an athlete is constantly burning calories and breaking down tissue, the food that he or she needs is food that supplies all the nutrients necessary for repair, growth and energy. Athlete must have proper nutrition to attain optimum health and physical fitness, be able to withstand rigorous training and be capable of good performance during competitions. Repeated claims have been made over the past several decades that the physical work performance of average persons can be significantly improved by special diets or dietary supplements, and even greater improvements made in trained athlete in sports performance. Yet the concept that adequate amounts of a well-balanced diet are all that athletes actually require for optimal performance has not been superseded.



KEYWORDS: Nutrition, Diet, Sports performance.

INTRODUCTION:

Although proper nutrition may not guarantee success in sports, improper nutrition will definitely affect sports performance adversely, in that the athlete will be unable to make full use of the potential he has developed through sound scientific training and from his intrinsic inherited genetics. Proper nutrition means consuming adequate foods

and fluids to provide sufficient. Such as carbohydrates and fats for energy, protein for body building, maintenance and repair of all body tissues. Vitamins and minerals to assist in metabolic processes, water the fluid medium for most metabolic processes. It is necessary to provide guidelines for each individual to use in planning their daily food intake. Although the merit of good nutrition are gaining ever increasing recognition it is the

application of this knowledge to daily living that must be achieved. Conscious thought however must be bestowed on cutting down the amount of fat and salt in the diet and avoiding fried food as far as possible. But small quantities of both saturated and unsaturated fats are necessary for a balanced diet. A sufficient fluid intake of eight to ten glasses of water a day is necessary in a tropical climate like that of India.

OBSERVATION:

it is seen that good nutrition can enhance sporting performance. A well-planned nutritious diet should meet most of an athlete's vitamin and mineral needs, and provide enough protein to promote muscle growth and repair. Foods rich in unrefined carbohydrates, like wholegrain breads and cereals, should form the basis of the diet. Carbohydrates and fats are the main nutrients providing energy to the body. In nutrition energy is measured in kilocalories (kcal) or kilojoules (kJ). 1 Kilocalories equal to 4.2 kilojoules equal to energy required to raise the temperature of 1 kilogram of water by 1° C. The daily energy requirements equal to daily basal metabolic energy requirements plus additional daily physical activity energy requirement. However, of the total daily requirements, approximately 50% should be from carbohydrates 25% to 35% from fat, and 10% to 15% from proteins. The basal metabolic energy requirement of males is generally 25% higher than that of females. The larger and taller body size and type have the higher requirements. The younger person has also the higher requirements. The extreme climate is too requiring the higher calories. The additional daily physical activity energy requirement is much higher in active athlete about 1000 to 4000 kilocalories than in non-active individuals who requires 500-1000 kilocalories. The total daily energy requirements for most athletes would therefore range from 3000 to 6000 kilocalories. Percent body fat change is a useful guide as to whether the total daily energy intake meets the requirements. All excess calories taken in will be converted and stored as fat, thereby raising body weight and percent body fat. The recommended percent body fat for healthy non-athletes is about 16% to 20% for males and 20% to 24% for female. Top class competitive male and female athletes however, usually have less than 10% and 15% body fat respectively. A deficiency of calories intake would decrease body weight and percent body fat. Rigorous muscular training with no calorie intake deficiency will also decrease percent body fat but not body weight. In fact, there may even be an increase in body weight, if there is significant increase in muscle mass.

DISCUSSION:

Carbohydrates and fats the main fuels for energy for the working muscle. As long as the energy supplies from carbohydrates and fats are adequate, percentage of which comes from proteins is usually less than four percent. The percentage participation of carbohydrates and fats in energy metabolism depends on the type of muscular work, type of diet, state of physical training and fitness. At rest and during light to moderate aerobic muscular work, when the oxygen supply is adequate, both carbohydrates and fats contribute to the energy supply. During moderate to heavy aerobic muscular work of more than one hour, fats are the main source of energy. During extremely heavy, anaerobic muscular work of a few minutes carbohydrates are the major and almost exclusive source of energy. Here is approximately total mean daily energy requirement of male and female athletes in different sports such as aerobic, e.g. endurance events like long distance running, cycling and swimming kilocalories per day for male 3000 to 5000, female 2500 to 4500. Kilocalories per day kg body wt. required for male 55 to 65 and for female 50 to 60. Similarly In case of anaerobic, e.g. Power events like sprints, throws, weight lifting and gymnastics requirements are 3000 to 6000 and 2500 to 4500 kilocalories per day for male and female and Kilocalories per day kg body wt. required for male 50 to 55 and for female 45 to 50. In case of events with relatively little muscular effort, e.g. bowling chess, golf and motor racing according requirements are 2500 to 3500 and 2000 to 3000 kilocalories per day for male and female and Kilocalories per day kg body wt. required for male 45 to 50 and for female 40 to 45. Under the severe aerobic conditions, carbohydrates are the major and almost exclusive source of energy for the working muscles. The energy yield from carbohydrates, under anaerobic conditions, is also only about one twentieth as efficient as the energy yield under aerobic conditions. Under anaerobic conditions, carbohydrate metabolism proceeds only as far as to the formation of lactic acid. This accumulation of lactic acid impairs the function of the muscles and is a major cause of muscle fatigue and cramps. In the body carbohydrates are stored as glycogen in the liver and skeletal muscles. The total body store of glycogen is usually only 1800 to 2000 kilocalories. Studies have shown that athletes' ability to maintain equally high levels of muscular work for more than one hour is directly related to the

initial level of glycogen in the muscles. However, the points regarding the effectiveness of the super-compensation have mainly been restricted to endurance events lasting more than one hour. This is because this diet does not enable an athlete to run, swim or cycle faster, but enables him to maintain his normal top speed for a longer period than usual, which in endurance events is usually about one hour. Furthermore, such improvements in performance have not been repeatedly or reliably reproducible. Athletes in shorter duration events like sprints, gymnastics, weight lifting and those who need to move their full body weight such high jumper will not benefit from this diet. In fact, such athletes may actually experience detrimental effects to their performances. This is mainly due to the additional weight of about 2 kg of glycogen and obligatory water that they have to carry. Some athletes have also complained of discomfort and pain due to the muscles being swollen with the additional glycogen and water. Normal training during the low carbohydrate diet phase may be adversely affected because of inefficient energy utilization in the absence of sufficient carbohydrates. For this reason, the latest thinking in this carbohydrate overload diet is to try to do away with this low carbohydrate diet phase, even though there is a small reduction in the additional glycogen stores. However, carbohydrate overload diet should not be used indiscriminately, and too much reliance and expectations should not be placed on it. Proteins are however, necessary for the building, maintenance and repair of body tissues involved in rigorous training and competition particularly if he is a growing adolescence and is developing muscles through high resistance weight training will definitely require more proteins than the non athlete. Vitamins and minerals are the only required in very small amounts daily, even by athletes in rigorous training. Any additional needs can easily be met by intakes of larger amounts of a well balanced diet. Among the many vitamins, three vitamins C, E and B complex have received most attention in sports nutrition. Among the many minerals which the body requires for efficient functioning of its various metabolic processes, iron, sodium and potassium are the ones which received most attention in sports nutrition, other minerals which may be important in sports include magnesium and zinc. Although water contains no energy and therefore, does not directly contribute to the energy needs of the body. It is very essential nutrient. This is because 50% to 70% of the human body consists of water and water is usually the fluid medium in which the body's metabolic processes function.

CONCLUSION:

It is concluded that diet is not the first and foremost thing to enhance performance. Performance depends on physical fitness and mental readiness. Although proper nutrition may not guarantee success in sports, improper nutrition will definitely affect sports performance adversely, in that the athlete will be unable to make full use of the potential he has developed through sound scientific training and from his intrinsic inherited genetics. But it is true that Athlete must have proper nutrition to attain optimum health and physical fitness, be able to withstand rigorous training and be capable of good performance during competitions. Repeated claims have been made over the past several decades that the physical work performance of average persons can be significantly improved by special diets or dietary supplements, and even greater improvements made in trained athlete in sports performance. Yet the concept that adequate amounts of a well-balanced diet are all that athletes actually require for optimal performance has not been superseded.

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