

Nutrition and Fitness

By Dr. B Sesikeran (Director, NIN) National Institute of Nutrition

'Survival of the fittest' –the term coined by Herbert Spencer is the leading idea of Darwin's Theory of natural selection. The theory supports the random variation among the traits of organisms, and if some variant traits fortuitously confer advantages on the organism that bear them, i.e., enhances their fitness, then those organisms will have descendents with adaptive modification. But what is fitness and how can one tell when a trait enhances fitness. With reference to humans, "fitness" is a synonym for health. Some of the dictionaries quote it's meaning as "The state of being healthy and strong so that you are able to do hard work or sport/ the degree to which someone or some thing is suitable or good enough for a particular situation or purpose / be healthy enough after being ill or drunk, to be able to do something." Well, in the true sense the definition varies, there is no common definition for all.

Lee Pinkerson very beautifully wrote the lyrics and music for the Olympian song in February 2004 in honour of the 2004 Olympic Summer Games in Athens, and for the Fifth International Conference on Nutrition and Fitness.

A millennium has come again
The Olympics are back where they began
Let's remember all they truly are
More than a game they're a way of life
A torch to guide us past painful strife
For possessions will not take us very far

But the food we eat and the work we do

The way we treat each other and the planet too
Will show how sweet we greet the daytime star
Every four years at the great Olympic game

The simple words 'food we eat and the work we do' have put forth the importance of healthy diet in relation to performance on and off the field and it's effect not only on physical fitness but also on the mental and emotional well being of an individual.

Fitness is however age, sex and situation specific and so nutrition for each case would differ.

- A child who does the appropriate activity according to the milestone is fit.
- An elderly person who had a fractured femur is now able to walk is fit.
- A sports person who is back in action after the treatment for a torn ligament is fit.
- A depressed person who is able to smile is fit.

However due to ignorance, people have started taking only food as the basis of health, which is not the true picture. The lack of awareness of inclusion of exercise along with a balanced diet has become an impediment to overall good health and fitness and has lead to several degenerative disease conditions such as cardiovascular diseases and diabetes. With the modern lifestyle where mechanization has reduced the need for physical effort at all periods of life and food, which is mostly junk food with high amount of calories, the expenditure of energy does not balance the intake, which has lead to an increase in the number of obese people. Obesity is not due to over eating but is due to less physical activity.

Several researches have proved that cells contain the information of their functioning in the form of genes present on the DNA contained in it's nucleus. During pregnancy, if the mother does not consume adequate quantity of calories with required nutrients and maintains her health for the proper development of foetus, the neonate may weigh less and suffer from disease. Low birth weight infant grows up to become fat and obese at later age because the baby in the womb was programmed to use less calories during developmental stage. The regions of genes which code for such regulation becomes expressive at later stage of the life when the child is provided better nourishment and adequate amount of calories. Under these conditions, the child's body does not utilize the calories efficiently and although balanced nourishment is provided, his cells continue to function as in an energy scarce environment. Hence, the energy consumption exceeds the energy expenditure leading to obesity. Thus, it is during the programming period in foetal developmental stage when the actual genetic makeup is being decided, a special care must be taken to provide adequate nutrition and calories.

Only through proper nourishment during different stages of life, especially in women during adolescence and pregnancy, the problem of malnutrition could be tackled. It is typically associated with extreme poverty in economically developing countries, while in economically developed countries it is a result of faulty diet including overeating or the absence of a 'balanced diet'. The vicious cycle of malnutrition is prevailing in economically developing countries since a long time and needs to be intervened immediately at some point. This cycle begins with the birth of a low birth weight infant since the mother is unable to take adequate nutrients before or during pregnancy and after birth the infant is further deprived of nourishment due to poor socio-economic conditions. This condition can also arise due to pregnancy of an underweight adolescent girl. Early pregnancy, poor nutrition during maternity and weaning period further add to malnutrition and the cycle of a malnourished child to become a malnourished adult and give birth to a malnourished child thus the vicious cycle of the malnutrition at the community level keeps continuing.

This challenge could be tackled by promoting healthy food habits and developing various methods of fortification of foods that are used in daily basic diet, introducing fortified candies and sweets for children and provide healthy foods in school canteens. Although some might protest to this by saying that fortification may lead to mineral toxicity but this is true in case of developed countries like America where almost every

product from the raw material to the finished product is fortified with vitamins and minerals, even water is fortified but in India we need to approach through fortification of foods.

Other than nutrition, physical activities should also be increased. In schools and colleges, physical education should be given top priority as part of the curriculum and continued with the other subjects without compromising with any ongoing academic subjects of the educational programme. Different physical activities such as cycling and walking should be encouraged and walking tracks in parks and playgrounds should be constructed. Even work places should have an exercise session which is now being considered in multinational companies and other private sectors. Personal efforts should also be put in, like reduction in mechanization where ever it is superfluous; if you are a sedentary worker, take an activity break, discourage addiction of watching TV not only in children but also in adult members of the family, reduce the drudgery of homework and let the child take-up outdoor sports activities and play onfield games. However, regarding the nutritional aspects, one question constantly arises i.e. 'How do we cut down on calories without compromising on nutrition? Well every dietician has an answer for this, its simple just avoid fast foods and snack foods and include as much of fresh fruits and vegetables, grains and high fiber food that is home made in ones daily diet. Refined sugars and aerated drinks contain empty calories; instead consume fresh vegetable and fruit juices.

The social structure should be changed as such to include traditional foods and follow traditional cooking methods. The culture of eating with family assures that a person will have healthy food atleast once in a day. With the increasing work pressure the present scenario is such that people don't have time to cook food on daily basis so they indulge more in ready to eat foods and snack foods. Other than food and exercise, a person should also have adequate sleep of about 8 hours a day. However, fluctuating working hours and night shifts have affected adversely on the sleep and diet of people. Accordingly their requirements and demands have also changed. The digestive system of such people is disturbed due to changed eating patterns and so new queries arise as to 'what should be consumed' since the gastric system is disturbed. All such factors, which are due to environmental and social conditions, keep accumulating over a period of time and finally become causative agents of nutrition related morbidity. Though there are genetic susceptibilities to diseases and these are present since birth, still these risk factors are avoidable and amendable. To cut down on the accumulation of environmental factors people should restrict consumption of tobacco, alcohol, drinks and refined sugars, which contain empty calories, and stop smoking and restrict TV viewing and have a balanced healthy diet especially for mothers during pregnancy and breast-feeding and also to the infants. Thus by a small initiative we can boost up the proportion of healthier population with a high level of fitness.

Information, Education and Communication (IEC) strategies should also be adopted to promote healthy eating habits and the importance of physical activity at the community level. Schools can serve as right platforms and the school children can be the target audience for imparting education on nutrition and fitness. Media can play a very pivotal role in creating awareness and educating masses regarding the importance of a balanced diet and the way it can be achieved and by discouraging the promotion of calorie dense foods and other such products that are not healthy and safe to consume.
