Socio-Economic Perspectives of Issues and Challenges of

Sustainable Development in India

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Economic and Health Factors Affecting Performance of Athletes

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INTRODUCTION

United Nations general assembly proclaimed the UN Decade of Education for Sustainable Development 2005-2014. It emphasizes education as an indispensible element for achieving sustainable development. In India, Decade of Education for Sustainable Development is achieved through socioeconomic development, capacity building /training, formal education, healthy life style etc.

Sports can be a means of sustainable development through changed behaviors such as physical and global self-esteem, self confidence, locus of control, interpersonal skills, knowledge and understanding. Sports have gained massive popularity all over the world and it has become a way of life. It serves a vital social and cultural function in the society and helps in all round development of human personality. It provides ample scope and healthy means of recreation and relaxation of human mind and society. A healthy body is always recognized as important as a healthy mind.

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Price Rs. : 3500/-
ISBN 978-81-8387-544-8

Risk assessment by NIN indicates that 80% of the world population consumes a caffeinated product every day. Caffeine is consumed most frequently through beverages such as coffee (71%), soft drinks (16%) and tea (12%).Coffee consumption as caffeine is estimated to be 0.1kg per capita in India. A cup of 250ml coffee contains 80-150mg of caffeine compared to 60mg from tea (www.pfndai.com/Gazette p).

Caffeine affects the central nervous system, muscle and adipose tissue, and hence may influence performance positively. There are three possible ways in which caffeine may directly affect the central nervous system to improve perception of effort or affect neural activation of muscle.Secondly,caffeine may directly stimulate muscle glycolysis through activation of glycogen phosphorylase by release of calcium ions from the sarcoplasmic reticulum, and finally, caffeine may stimulate release of fatty acids from adipose tissue to be used as an energy source prior to and during exercise and so spare muscle glycogen in prolonged activities(Birch etal2007).

Caffeine has a dehydrating effect on the body, so fluids containing them should not be part of any hydration plans for exercise. Athletes should consume fluid to both minimize loss of body weight from fluid loss and ultimately restore pre-exercise weight; a sports drink can be helpful for endurance athletes. For sports that require less than 30 minutes of exertion, replacing the water lost in sweat is of greater concern than are the losses of body carbohydrate stores and electrolytes, which are not usually too great in such activities. Water is certainly cheaper than a sports drink. But sports type drinks such as carbohydrate electrolyte drinks (body fuel, Gatorade, exceed) can taste better than water and that may make one drink more often, a clear benefit for fluid replenishment. In addition, the carbohydrate in these drinks quickly replaces carbohydrate used up during practice/ competition (Ward law 1994).

The majority (>50%) middle income group daily consumed any one or two of the following namely boost, Bourn vita, Horlicks, Tang. Indigenous health mix powder was taken by

the 20% of the sports people who belongs to Coimbatore as a native. Commercial sports drinks such as Gatorade, Red bull and isotonic were taken by the30% of athletes only during the competition. Health mix and tang was consumed by 20% of them. They consume health mix or tang daily Before/after the competition. High income category people had an intake of complan, ensure, protein x, whey protein, nutrilite, Gatorade, lucozade and etc.

Table 3
Economic Cost of Supplements (N=150)

Income Group	*Amount Spent Monthly on Food in %*	*Amount Spent Monthly on Supplements in %*
Low income	85-95	-
	75-85	5
Middle income	50-60	15
High income	50-40	30

An analyses of the economic cost of supplements on income revealed that the expenditure on food tends to be high when the income is low as the income increased they wanted to go ahead with commercial health drinks and tailor made formulas.

Table 4
Comparision of Cost of the Commercial Health/Nutritional Supplements with Indigenous Health Mix

Supplement	*Quantity*	*Price*
Palm Jaggery coffee power	500g	110.00
Bajra/Ragi Mix	200g	43.00
Health mix	200g	43.00
Black gram pudding	250g	43.00
Boost	500g	159.00
Bourn vita	500g	155.00
Horlicks	500g	149.00
Gatorade	500ml	35.00
Complan	500g	210.00
Ensure	400g	398.00
Protein X	400g	235.00

Contd.

Supplement	*Quantity*	*Price*
Whey protein	500g	1500.00
Nutrilite	1kg	1500.00
Lucozade	500ml	400.00
Red bull	250ml	85.00
Indigenous health mix	100g	15.00

Patrica Rea (2011) points out that there are 1.2 billion people in India, of which roughly 300 million have the economic means to purchase dietary supplements.

From the above table it is clear that the commercial health and nutritional supplements are very costly and is not affordable by most of our sports person. Only the elite crowd could try such commercial preparations by carried away the advertisements.

The indigenous health mix prepared at household level by the Dr.Sivanthi Club for women volleyball team costs only Rs.15.00/100gm.This is very cheap on comparison with other commercial products. Moreover it is a cereal-pulse product. Nutritionally the amino acids which are lacking in cereals are compensated by the amino acids of the pulses to make it balanced. The cereals namely wheat, jowar, ragi, brown rice, bajra, sago and barley are added. Pulses namely soya bean, horse gram, greengram, roasted Bengal gram, and bengalgram are added.

Nuts and oilseeds namely peanut, pista, badam, cashew nut are added. This makes the product calorie dense. Palatability components palm jaggery and flavoring agent dried ginger is also added to enhance the taste.

CONCLUSION

Sports are necessary for the development of creative man power. The concept of human capital has relatively more importance in labor -surplus countries. India is endowed with more of labors due to high birth rate. The surplus labor is the human resource available in more abundance than the tangible capital resource. This human resource can be transformed into human capital with effective inputs of physical education,

health and moral values. The intangible human capital is an instrument of promoting comprehensive development of the nation because human capital is directly related to human development. When there is human development, the qualitative and quantitative progress of the nation becomes inevitable.

Sports nutrition is a promising market in India. The availability of tailor-made products for the sports persons during training, competition and after competitive sports is more. Many people are carried away by the media advertisements. Hence, care must be taken while choosing a particular supplement. It is concluded that a larger proportion of sports population do not have enough nutritional supplements due to their economic means.Inspite of the availability of low cost indigenous supplements, the advertisements on the commercial vulnerability make it beyond the reach of many. Lacks of economic factors affect health factors which in turn affects performance. The study has not considered infrastructure facilities and training, a strong economic determinant factor that can affect performance. For our Indian situation it is best to go ahead with indigenous health products to get stamina and increased performance.

SUGGESTIONS FOR SUSTAINABLE DEVELOPMENT IN THE MARKET OF SPORTS NUTRITION

- Regulations must be followed in the production of health drinks by following standards and use of best practices.
- Early childhood nutrition must be given much important in order to increase performance in future.
- Physical education teacher/fitness coach should play a role in promoting preventive health by stressing the importance of nutrition and creating awareness regarding the steroids.
- Economic incentives in terms of free accommodation and provision of better infrastructure, training and nutrition will enhance the heath status and performance of athletes.

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India and china have emerged as economic Super powers. Rapid urbanization and globalization have enhanced the standard of living. India has made a mark in all fields such as technology, medicine, nuclear power and so on. But when it comes to sports India is always at the bottom rung. Sports beverages have the largest share of the market and were worth $24.9 billion in 2007.This are expected to increase to $27.8 billion in 2008 and $87.0 billion in 2013, for a compound annual growth rate of 25.6 %(bccresearch.com/report/sports-nutrition-energy supplements-fod043a.html).

India was in the sixth place in the Asian games in 2010. It earned 14 gold medals, 17 silver medals and 33 bronze medals. It lost many medals which they could have grabbed like in triple jump, racing and relay. India's achievement in commonwealth games 2010 was commented as "Awakening of giant after 76 years from 1-101 medals". The 38 gold, 27 silver and 36 bronze medals brought this laurel to us!

In India, we lack the sports culture. Our educational curriculum gives more emphasis on academics and sports remains the most neglected area. Parents also do not like to encourage their children to take up sports seriously, since they are ignorant about the career opportunities which paves path for the sustainable development.

Reasons for the poor performance of our players could be attributed to the lack of nutritious protein rich food, lack of stamina, cultural, traditional and social practices to include only vegetarian items leading to poor physique, lack of training facilities, lack of finance, lack of opportunities for development, lack of knowledge , falling prey to steroids and lack of motivation etc.

In order to succeed, athletes have resorted to ways of boosting performance by using physiological, nutritional and pharmacological agents. They are known as ergogenic aids. There are ranges of nutritional products which normally occur in everyday foods at low levels, but can be taken in higher doses as supplements because of purification or synthesis processes (Birch et al2007).

Keeping the above facts in mind, the present study on economic and health factors affecting performance of athletes was chosen.

OBJECTIVES

- To study the economic and health factors
- To compare the commercial and indigenous nutritional supplements taken by the sports persons.

METHODOLOGY

The study is confined to the economic and health factors in the performance of athletes through the personal interview method. Quaid-e-millath Government College, YMCA College of physical education, Saidapet and Sports Authority of India, Egmore were selected for the conduct of survey. The study is focused to health and nutritional supplements and not the regular intake of food. The results obtained are tabulated using percentage analysis. Table 1 gives the details about the players interviewed.

Table 1
Details of Players (N=150)

Place	*Type of Game*	*Women*	*Men*	*Total*
QMGC	Volleyball	25	-	25
	Kabaddi	24+1*	-	25
SAI	Volleyball	10*	25*	35
YMCA	Tennis	15	20	35
	Volleyball	20	10	30
		95	55	150

*National players

RESULTS AND DISCUSSION

The persons interviewed were TN police team for volleyball, women's volleyball team an organization known as Dr. Sivanthi's club and volleyball and tennis teams of YMCA. Majority (57%) of the sports men and women surveyed belonged to the lower income group(<=Rs 5000) followed by 24% middle income (Rs 5000-10,000) and 19% high income (>=Rs10,000)respectively. The majority expressed that they

were unable to afford nutritious food and cannot go anywhere near the commercial supplements that are extremely expensive.

Athletes use food supplements in an attempt to enhance performance. A study by Alaranta etal 2006 showed that 55% of high performance British athletes used supplements. Another study by Petrocz etal 2008 found that 58.8% of high performing athletes use atleast one nutritional supplement. Supplements included vitamins, creatinine, whey protein, iron, caffeine, magnesium and ginseng.

Table 2
Frequency of Usage of Nutritional Supplements

Types of Supplements	*Number of Persons in Percentage*	*Daily Once*	*Daily Twice*	*Before Competition*	*After Competition*
1.Low income					
a) palm jaggery coffee	10	✓			
b) tea/coffee	70	✓		✓	✓
Middle income					
a) Boost	80	✓	✓	✓	
b) Bourn vita	50	✓	✓	✓	
c) Horlicks	50	✓	✓	✓	
d) Health mix (indigenous)	20	✓			✓
e) Tang	20			✓	✓
f) Gatorade	30				✓
f) Red bull	30				✓
G) Isotonic Glucose	30				✓
High income					
a) Complan	40	✓	✓	✓	✓
b) Ensure	30	✓	✓	✓	✓
c) Protein X	20	✓	✓	✓	✓
d) whey protein	20	✓	✓		✓
e) Nutrilite	20				✓
f) Gatorade	10				✓
G) Lucozade	10				✓

*multiple response

The frequency of consumption of health/nutritional supplements by the low income group includes daily intake of (70%) of either tea or coffee. About 10% of them prefer to take palm jaggery coffee.