International Journal of Physical Education

A Review

Volume 6 | Issue 1 | April, 2013 | 65-69

Nutritional supplements and sports performance: Introduction and vitamins

■ SUNIL L. JADHAV

Received : 10.12.2012; **Accepted :** 05.04.2013

Author for correspondence :

SUNIL L. JADHAV
Department of Physical Education, New Law College, AHMEDNAGAR (M.S.) INDIA
Email: rb.kh03@rediffmail.com

■ **ABSTRACT**

An increasing number of athletes are adopting vegetarian diets for ecological, economic, religious, health and ethical reasons. Vegetarian diets (except possibly fruitarian and strict macrobiotic diets) can easily meet the nutritional requirements of all types of athletes provided they contain a variety of plant-foods. Vegetarian athletes, like most athletes, may benefit from education on food choices that benefit athletic performance and promote overall health. Sports success is dependent primarily on genetic endowment in athletes with morphologic, psychologic, physiologic and metabolic traits specific to performance characteristics vital to their sport. Such genetically-endowed athletes must also receive optimal training to increase physical power, enhance mental strength and provide a mechanical advantage. However, athletes often attempt to go beyond training and use substances and techniques, often referred to as ergogenics, in attempts to gain a competitive advantage.

■ **Key Words :** Sport nutrition, Dietary supplements, Vitamins, Sports performance

■ **How to cite this paper :** Jadhav, Sunil L. (2013). Nutritional supplements and sports performance: Introduction and vitamins. *Internat. J. Phy. Edu.*, 6 (1) : 65-69.

Dietary supplements are used by athletes worldwide. In the United States, the Dietary Supplement Health and Education Act has defined dietary supplements as something added to the diet, mainly (1) vitamins, (2) minerals, (3) amino acids, (4) herbs or botanicals, and (5) metabolites/constituents/ extracts, or combination of any of these ingredients. In addition to actual food products targeted to athletes and physically-active individuals, numerous companies have marketed dietary supplements to athletes, often with the claim that sports performance may be enhanced. This is the first in a series of six articles to discuss the major classes of dietary supplements listed above. The major focus will be on efficacy of such dietary supplements to enhance exercise or sport performance, with brief coverage of safety, legality, and ethicality.

Vitamins: Ergogenic theory:

Vitamins function in the human body as metabolic regulators, influencing a number of physiological processes important to exercise or sport performance. For example, many of the B-complex vitamins are involved in processing carbohydrate and fats for energy production, an important consideration during exercise of varying intensity. Several B vitamins are also essential to help form hemoglobin in red blood cells, a major determinant of oxygen delivery to the muscles during aerobic endurance exercise. Additionally, vitamins C and E function as antioxidants, important for preventing oxidative damage to cellular and subcellular structure and function during exercise training, theoretically optimizing preparation for competition. Complete details of vitamin functions and requirements are available in several recent treatises from the National Academy of Science (1999).

Vitamin deficiencies can certainly impair exercise performance. A daily intake of less than one-third of the RDA for several of the B vitamins (B_1, B_2 and B_6) and vitamin C, even when other vitamins are supplemented in the diet, may lead to a significant decrease in VO_2max and the anaerobic threshold in less than four weeks. However, most studies report that athletes who consume high-calorie diets that contain the RDA of all nutrients have few vitamin or mineral deficiencies. Nevertheless, recent survey data indicate that