

ROLE OF HERBAL NUTRITION-IN THE FIELD OF SPORTS

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Abstract:

The objective of this paper is to focus on the concept of the safe and potential role of herbs as nutrition for Sportsmen's performance. Nutrition is a fundamental need. Various risk factors related to health result from an imbalance in nutrition. These imbalances in India are widely prevalent leading to adverse outcomes. Dietary supplements and herbal remedies are popular complementary supplements that are intended to supplement the diet and contain one or more dietary ingredients including vitamins minerals, proteins. Sportsperson looking to improve their performance, enhance immunity, or manage a health concern may be interested in trying herbs in their nutritional program.

Keywords: *Dietary supplements, Nutrition, Ingredients, Minerals.*

Introduction:

Athletes, coaches, and health professionals who work closely with athletes are consistently looking for sound, effective ways to enhance health and performance foods, fluids, and dietary supplements. Herbs are non-woody plants or parts that have long been valued for their medical or therapeutic value. Herbs contain chemicals called phytochemicals that presumably account for any effects they may have. This article will focus on several herbs that Athletes may use in hopes of improving health and performance. Sports-related uses include enhancing performance in prolonged endurance events, inducing muscular hypertrophy and increasing strength, decreasing body fats, speeding recovery, and improving performance in team sports

(Bucci,2000). Many athletes may use herbal products to try to aid in healing after an injury, to decrease inflammation, to manage pain, to stay more alert, and to boost immunity and optimize their chances of staying healthy in and out of season, enabling them to compete at the highest level possible.

As Nutraceutical blur the line between food and drugs, it is often difficult—by legal definition—to distinguish between nutrients, food additives, drugs, and nutraceutical. Nutraceutical have the advantage over medicines since they avoid side effects, are natural dietary supplements, etc. Nutraceutical, on the basis of their natural source, chemical grouping, and categories, fall into three key terms, nutrients, herbals dietary supplements, dietary fiber, etc. The regulation presents significant challenges to the globalization of nutraceutical in many ways.

Dietary supplements provide nutrients that are missing or are not consumed in sufficient quantity in a person's diet, that is, vitamin supplements, mineral supplements, macronutrients, antioxidants, herbal formulations like Chaywanprash, Musli Pak, Ashwagandha, and nonverbal products like cod liver oil.

Method:

This article will review research published on several herbs that sportsmen may use in hopes of improving health and performance. Sports-related uses include enhancing performance in prolonged endurance events, inducing muscular hypertrophy and increasing strength, decreasing body fat, speeding recovery, and improving performance in team sports. Data were collected from several legitimate

databases and services such as PubMed, Medline, Scopus, and other database sources like Google Scholar using key terms “Nutraceutical”, “Dietary supplement”, “Physical performance”, “*Asparagus racemosus*”, “*Withania somnifera*”, “*Cinnamomum*”, “*Myrtus communis* L”, “ethnopharmacological studies”, “phytochemical analysis” in each database. Relevant and related data were filtered properly if it was found appropriate to the topic of interest. Time frame was also adjusted to obtain up-to-date information regarding herbs.

Observation:

Herbs used by Sportsman to improve Physical Performance

1. *Asparagus racemosus wild* (Shatavari): The genus *Asparagus* has been recently moved from the subfamily *Asparagae* in the family Liliaceae to a newly created family *Asparagaceae*. The *Asparagus* genus is considered to be of medicinal importance because of the presence of steroidal saponins and sapogenins in various parts of the plant. *Asparagus racemosus* is plant with a woody stem that sends runners out, has needle-like leaves with small white flowers, Scandent, much-branched spinous undershrub with tuberous, short root, stock bearing numerous fusiform tuberous roots 30-100cm thick leaves reduced to minute chaffy scales & spines. Cladodes acicular 2-6 hate, falcate finely acuminate flower white, berries 7mm in diameter, a globose, 1-seeded, red soothing tonic that acts mainly on the circulatory, digestive, respiratory system. The dried root of plants is used as drug. Its content-sapogenin ,sarsasapogenins ,flavonoids . *Asparagus racemosus* has antioxidant Potential and might improve the immune system. It is also used for fluid retention, pain, anxiety. Externally it is used to treat stiffness in the joints.

2. *Withania somnifera* (Ashwagandha): Family *Solanaceae* is commonly known as

Indian Winter cherry or Indian Ginseng. It is one of the most important herbs of Ayurveda. Ashwagandha is a real potent regenerative to, due to its multiple pharmacological actions like anti-stress, neuro protective, antitumor, anti-arthritic, analgesic and anti-inflammatory etc. Ashwagandha supports healthy libido and immune system and also helps in balancing the adrenal endocrine system and boost energy, Ashwagandha has been found to be useful in improving muscle mass, body composition & overall strength. Ashwagandha supplements may improve brain function, memory reduces stress and anxiety. *Withania Somnifera* helps reduce Cortisol also known as stress hormone which is released by the adrenal glands in response to stress.

3. *Cinnamomum* (Cinnamon): *Cinnamomum* is a genus of the family *Lauraceae*, many of whose members are used as spices. There are two main varieties of cinnamon namely the Ceylon or true cinnamon (*Cinnamomum zeylanicum*) and cassia (*Cinnamomum aromaticum*). It is a small, evergreen tree, 10–15 m tall. The bark is widely employed as a spice, its leaves are ovate-oblong in shape, and 7–18 cm long. The flowers, arranged in panicles, have a greenish color. The fruit is a purple 1 cm berry containing a single seed. Three of the main components of the essential oils obtained from the bark of CZ are trans-cinnamaldehyde, eugenol, and linalool, which represent 82.5% of the total composition beneficial effects of *Cinnamomum* is attenuation of weight loss associated with diabetes, reducing LDL, and increasing HDL cholesterol, increasing circulating insulin levels *Cinnamomum* has anti-oxidant activity and strong free radical scavenging Regular physical exercise has many health benefits including reduced risk of cardiovascular disease, cancer, and other diseases. Paradoxically, it is also clear that contracting skeletal muscles produce free radicals and that long-term and intense exercise can lead to oxidative damage to cellular compounds and also contribute to muscular fatigue. In addition,

numerous studies indicated that the use of cinnamon provided protection against the oxidative disorder by lowering the human malondialdehyde (MDA) levels and elevating antioxidants enzymes activities, and improving body composition in association with improved insulin sensitivity and There was considerable evidence for substantial positive treatment effects of antioxidants on exercise performance.

4. *Arnica Montana (Arnica):* It come under family *Asteraceae*. *Arnica* is a perennial herb that grows to a height of one to two feet with yellow-orange flowers. Stems are spherical and furry, ending in one to three flower stalks, with flowers two to three inches across. Leaves are bright green. The upper leaves are toothed and slightly hairy, while lower leaves have rounded tips. The biological active compounds of *Arnica* are flavanoids , thymol ,arnacandin , carotenoids and coumarines .As an herb, *Arnica* is usually used topically (on the skin)as a result of it will cause serious aspects effects once taken orally . *Arnica* facilitates to cut pain and increase muscle strength in persons with osteo arthritis of the knee some studies urged that the use of *Arnica* decreases muscle soreness and cell injury after marathon in well trained athletes. *Arnica* is used topically for a large range of conditions, together with bruises, sprains, muscle aches, wound healing, joint pain and swelling from broken bones.

5. *Zingiber officinale* Ginger (*Zingiber officinale* Roscoe), which belongs to the Zingiberaceae . The Ginger has been commonly used as a spice and a seasoned medicine. Ginger root is employed to attenuate and treat many common diseases, like headaches, colds and nausea. Ginger is copius in bioactive constituents, like phenolic and terpene and hydrocarbon compounds. The phenolic compounds are primarily gingerols, shogaols, and paradols, that account for the varied bioactivities of ginger. In recent years, ginger has been found to possess biological activities, such as antioxidant, anti-inflammatory and

antimicrobial, activities. Use of ginger helps in relieving pain of joints related to rheumatoid artherites.It has analgesic effects and has fatigue resistance. Ginger and its bioactive constituents, together with gingerenone A, 6-shogaol, and 6-gingerol, have shown antiobesity activity, with the mechanisms primarily associated with the inhibition of adipogenesis and the enhancement of fatty acid catabolism.

6. *Camilla sinensis (Green tea):* Tea, *Camellia sinensis*, which belongs to the dicot family *Theaceae* , is a shrub or evergreen tree up to sixteen mt tall . Green tea is very popular because of its marked health edges comprising its metastatic tumor, anti-oxidant, and antimicrobial activities, as well as its effectiveness in reducing weight. Chemical composition of tea, which comprises different categories of chemical compounds, like polyphenols, alkaloids, proteins, minerals, vitamins, amino acids, and others. Green tea is taken into account to be a potent anti-inflammatory and antipyretic agent .It is one of the vital herbal supplements that have used to prevent weight gain green tea contains higher amounts of Caffeine as well as catechin polyphenols, theobromine and theophylline that possess inhibitor properties increase energy expenditure by stimulating brown fatty tissue .Green tea extract supplementation has been found to extend endurance capability, improve the antioxidant defense system, reduces nitric oxide production via its gallate structure . It inhibits the epithelial tissue cell growth that results in the inhibition of antogenesis that's concerned in several diseases like chronic inflammation GCG has direct vasodilator action in striated muscle and increases muscle microvascular blood flow. It will induce myogenic differentiation and increase the recovery of muscle mass and performance. Moreover, EGCG induces apoptotic cell death of osteoclasts in a dose-dependent manner with no impact on osteoblasts. Applicable concentrations of EGCG have an anti-inflammatory effect in the

treatment of collagen membranes and so will be used in bone regeneration. It had been additionally found that green tea has a protective effect against induced bone and hyaline cartilage alteration. Green tea extract also can be used as an adjunctive treatment, because it can manage the pain and improve the knee-joint physical performance in adults with arthritis.

7. *Myrtus communis* L. (Murad, Firanghi methi, Gandh-malti) *Myrtus comminus* is a species found in the family *Myrtaceae*. The Stem of plant is upright, 2.4-3 mt tall, branched, thickly lined with evergreen leaves. Leaves arrangement are Opposite, paired or whorled, Leaves shapes are Ovate to lanceolate, entire margined, acuminate, 2.5-3.8 cm long flowers Slender peduncles, several phenolic compounds were identified in *Myrtus communis* L. berry such as phenolic acids, flavonoids, myricetin and tannins. Myricetin and its organic compound derivatives are the main constituents of myrtle berries. Myrtle fruits are a high phenolic content, especially the anthocyanins for that it's among the fruits with the highest antioxidant activity. Recent studies have demonstrated the advantages of myrtle fruit (*Myrtus communis* L.) as a supplement in sports. Myrtle fruit supplementation might increase anaerobic performances, serum proteins and Iron and reduce triglycerides, in moderately trained athletes.

Conclusion:

Herbal supplements are the plants or plants parts with natural bioactive compounds, Chemical constituents that have health promoting and healthful properties. Many herbs have the potential to enhance exercise and physical activity. Sportsmen take herbal supplements to quickening recovery, which will increase muscle mass and reduce body fat. This study consistently attempts to resolve selected herbs that are used largely by sportsmen to boost their immunity and improve their physical performance. Knowledge herbal

supplementation to enhance physical performance within the field of sports is extremely restricted, there is insufficient research for the use of herbs to improve physical performance, immune enhancement and reduces inflammation. This knowledge has been formed through experimentation and the exchange of data on nutritional supplements herbs with different health professionals. This work can be exploited in scientific researches within the field of pharmacy and phytochemistry.

References:

1. Anupam K Sachan, Doli R Das, Senah L Dohare & Mohd Shuaib, "Asparagus racemosus (Shatavari): An overview", *International Journal of Pharmaceutical and chemical sciences*, Vol.1 (3) Jul-Sep 2012
2. Bown, D. *Encyclopedia of Herbs & their uses*. Dorling Kindersley, London. 1995. 124. 6.
3. *Complementary and alternative medicine*, <https://www.stlukes-stl.com/health-content/medicine/33/000222.htm>
4. Esther Bull, Lisa Rapport & Brain Lockwood, *Nutraceuticals*, <https://pharmaceutical-journal.com/article/Id/1-what-is-a-nutraceutical>
5. <https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/nutraceutical>
6. Luke R Bucci, "Selected herbals and human exercise performance", *The American Journal of clinical nutrition*, volume 72, Issue 2, August 2000, pages 624S-636S, <https://doi.org/10.1093/ajcn/72.2.624S>
7. Maha Sellami, olfa slimeni, Andrzej Pokrywka et.al, *Herbal medicines for sports : a review*, *Journal of the International society of sports nutrition*, volume 15, Article number: 14 15 march 2018
8. Maram M Aboulwafa, Fadia S. Youssef, "A Comprehensive insight on the health benefits and phytoconstituents of *Camellia Sinensis* and recent approaches for its quality control", 2019 oct 6, doi : 10.3390/antiox8100455.
9. Nafiseh shokri Mashhadi, Reza Ghiasvand, Mitra Hariri et.al, "Effect of Ginger and Cinnamon intake on oxidative stress and exercise performance and body composition in

- Iranian female Athletes” Int J Prev Med 2013 April; 4(Suppl 1): S31-S35*
10. Narendra Singh, Mohit Bhalla, Prashanti de jager and Marilena Glica, “An overview on Ashwagandha: A Rasayana (Rejuvenator) of Ayurveda, 2011 Jul 3. doi: 10.4314/ajtcam.v8i5S.9
 11. Priyanga Ranasinghe, Shehani Pigeera, GA Sirimal Premakumara et.al, “Medicinal properties of ‘true’ cinnamon (*Cinnamomum zeylanicum* a systematic review” open Access, Published: 22 October 2013
 12. Qian-Qian Mao, Xiao-Yu Xu, Shi-Yu Cao et.al “Bioactive compounds and Bioactivities of Ginger (*Zingiber officinale* Roscoe), *Foods* 2019 June; 8(6); 185, Published online 10.3390/foods8060185
 13. RK Goyal, J Singh, Harbans Lal, “ASPARAGUS RACEMOSUS - AN UPDATE”, *Indian Journal of Medical Sciences Medknow Publications on behalf of Indian Journal of Medical Sciences Trust*, ISSN: 0019-5359, Vol. 57, Num. 9, 2003, pp. 408-414
 14. Sharma PC, Yelne MB and Dennis TJ. *Database on medicinal plant.* 2000; 1:418.