

IMPACT OF HERBAL PLANTS FOR SPORTS FITNESS – A REVIEW

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Abstract

Herbal plants have become increasingly popular in the realm of sports fitness due to their potential to improve athletic performance, accelerate recovery, and promote overall health. Their benefits can be attributed to various mechanisms, such as enhancing endurance, decreasing inflammation, increasing energy levels, and assisting muscle recovery. The use of herbs dates back to Vedic times, and Ayurveda remains a valuable contribution to the world made by Indian sages. Its relevance spans from treating minor issues like indigestion, limb discomfort, and bruising to ensuring proper care for infants and children. Physical activity is inherent in all sports, and naturally, this increases the likelihood of injuries. Athletes frequently encounter serious injuries due to overuse, as well as sprains and strains. An injury due to excessive stress or repeated use of a limb is classified as an overuse injury. The effectiveness of herbal plants in treating these types of sports injuries has been well-documented in research. The significance of herbal plants in sports injury rehabilitation is thoroughly explored in the research journal presented. Herbal plants have a long history of being used for their healing properties, offering various health advantages from enhancing well-being to boosting athletic performance. As interest in natural and alternative approaches to sports fitness continues to rise, herbal plants are becoming increasingly popular as a supplement to traditional training methods. This review examines how herbal plants influence sports fitness, emphasizing their contributions to improving performance, facilitating recovery, and supporting overall physical health.

Keywords: Herbal plants, Physical health, Rehabilitation, Sports fitness, Ayurveda, Sports.

Introduction

The World Health Organization defines forest medicine as any part of a plant that is primarily used in medicinal systems, including fruits, flowers, leaves, stems, bark, and roots. These medicines are relatively easy to access. Importantly, they generally do not have adverse effects on the body. Nature has provided a rich supply of effective herbs for various diseases impacting humans. A plant known for its medicinal properties and aromatic qualities is categorized as an herbal plant. Historical references to this field of medicine can be found in the Vedas, particularly in the 'Atharvaveda.' Traditional medicine has evolved alongside human cultures and religions. Its societal application truly began in the twentieth century. The World Health Organization has also recognized the necessity of herbal medicine for maintaining social health. This approach is often referred to as prophylactic. According to the International Organization for Environment and Development, around 70 percent of people in India rely on traditional herbs. A significant number of individuals work part-time or full-time in the collection and processing of medicinal plants to create medicines, with a notably high proportion of women participating. Besides providing valuable timber, these herbs constitute a substantial part of forests; herbal plants make up 80 percent of total forest exports. A survey conducted by the World Health Organization reported the total production of herbal plant products at US\$620 million, with projections estimating productivity could reach US\$5 trillion by 2050 due to growing demand. Despite India's rich biodiversity, today's herbal plants constitute only half a percent of drug exports.

To remain competitive globally, the country must implement scientific cultivation methods for medicinal plants. There is a need to develop post-harvest techniques. Efforts should be made to secure productivity and intellectual rights through patents for herbal medicines derived from research. In terms of quality, high-quality items do not seem particularly market-sensitive. While medicinal plants hold significant relevance, they rank second to wildlife and valuable timber products. India boasts 45,000 plant varieties across 15 agro-climatic zones, representing 20 percent of the world's biological diversity. Among these, 35,000 are categorized as trees or shrubs. Approximately 6,000 to 7,000 of these are herbal plants, and 960 of them are actively traded. Medicinal plants comprise 178 species, each with a production capacity exceeding 100 tons. According to AYUSH, between 25 to 30 percent of medicines worldwide are directly or indirectly derived from herbal plants. AYUSH is a national organization under the Union Ministry of Health and Family Welfare comprising various branches such as Ayurvedic, Yoga, Unani, Siddha, and Homeopathy. The domestic market for herbal medicine is valued at 80 to 90 billion rupees, while exports reach about 10 billion rupees. Even after India's independence, the unique tradition of Ayurveda has continued since ancient times but was neglected for 43 years. Despite their immense potential, medicinal plants received little attention. During that period, various institutions or government entities operated independently, leading to a lack of cooperation. As a result, fundamental research was overlooked, and integration in the production of medicinal plants was inadequate. In 2000, the National Medicinal Board was established by the Central Government to coordinate the four branches of plant usage. This initiative fostered the development of a group of scientists and socio-economic experts who engage in research and form policies regarding the cultivation, agricultural technology, and biotechnology of medicinal plants. The collaboration among these entities has positively impacted both economic development and public health.

Here's an overview of the impact of herbal plants on sports fitness:

1. Performance Enhancement

Herbal plants are commonly used to enhance physical endurance, strength, and energy, which are vital for athletes. Certain herbs possess adaptogenic qualities that help the body manage stress and physical challenges better. Notable herbs linked to improved performance include:

- **Ginseng (*Panax ginseng*):** This herb boosts energy, increases stamina, and reduces fatigue. It has been extensively researched for its ability to enhance performance, particularly in endurance sports, by improving oxygen uptake and minimizing fatigue.
- **Rhodiola Rosea:** An adaptogen that improves stamina and endurance by regulating the body's response to stress. Research shows Rhodiola enhances aerobic capacity and reduces muscle fatigue, making it beneficial for athletes engaged in extended physical activities.
- **Root (*Lepidium meyenii*):** This root is known for improving physical strength and endurance, commonly used by athletes to increase energy and speed up recovery. Studies indicate that maca may enhance exercise performance by regulating hormone levels and increasing energy.
- **Tribulus Terrestris:** This plant is popular among athletes for its ability to boost testosterone levels, which supports muscle growth and strength.

2. Recovery and Muscle Repair

Recovery is crucial in any training program because muscle repair allows athletes to perform at their best. Various herbal plants can speed up recovery, lessen inflammation, and ease muscle soreness:

- **Turmeric (Curcuma longa):** Curcumin, the active ingredient in turmeric, has strong anti-inflammatory and antioxidant effects. It's often used to minimize muscle soreness and enhance joint health after rigorous training. Turmeric may also speed up recovery by decreasing lactic acid accumulation in muscles.
- **Ginger (Zingiber officinale):** Like turmeric, ginger has anti-inflammatory effects that alleviate muscle soreness and assist recovery. It also helps reduce oxidative stress from intense workouts, promoting faster muscle repair.
- **Arnica Montana:** Famous for treating bruises and muscle pain, arnica offers anti-inflammatory benefits that ease post-exercise muscle soreness and encourage healing.
- **Boswellia Serrata:** Renowned for its strong anti-inflammatory properties, Boswellia helps diminish joint pain and muscle stiffness, aiding quicker recovery after exercise.

3. Immune Support and Overall Health

For athletes, sustaining a robust immune system is essential for optimal performance and to prevent illnesses that could disrupt training regimens. Numerous herbal plants are known to enhance immune function and assist athletes in maintaining their health:

- **Echinacea (Echinacea purpurea):** This herb is recognized for its significant immune-supporting effects. It has been traditionally utilized to alleviate the severity and duration of common colds and infections, which can frequently impede athletic performance.
- **Garlic (Allium sativum):** Renowned for its capacity to enhance immune functionality and diminish illness risk, garlic possesses antimicrobial attributes that aid in infection prevention, while also promoting circulation and mitigating fatigue.
- **Ashwagandha (Withania somnifera):** Esteemed for its stress-reducing properties, ashwagandha is an adaptogen that bolsters the immune system, enhances physical performance, and facilitates recovery.
- **Astragalus (Astragalus membranaceus):** This herb is utilized for its immune-enhancing and anti-inflammatory benefits. It is believed to increase endurance and avert illness, making it critical for athletes engaged in high-contact or intense sports.

4. Fatigue and Stress Management

Athletes frequently encounter substantial physical and mental stress, particularly during rigorous training sessions or competitive events. Specific herbal plants can aid in managing fatigue, mitigating stress, and enhancing overall mental clarity, which are critical for optimal performance.

- **Lavender (Lavandula angustifolia):** Renowned for its calming and stress-relieving attributes, lavender is commonly utilized to assist athletes in achieving relaxation and improving sleep quality, both essential elements for effective recovery. Quality sleep promotes cognitive function and enhances physical performance.

- **Lemon Balm (*Melissa officinalis*):** A member of the mint family, lemon balm is recognized for its capacity to alleviate anxiety and enhance sleep quality, thereby supporting recovery and performance.
- **Passionflower (*Passiflora incarnata*):** Passionflower is frequently employed for its soothing and calming effects, assisting athletes in reducing anxiety prior to competitions or demanding events, which enables improved focus.

Some Sports Injuries:

Athletes continually face the risk of injuries due to the various competitions and training sessions conducted throughout the year. Among athletes, knee and shoulder injuries are particularly prevalent. Sports injuries are categorized into three classes: acute, overuse, and chronic sports injuries.

1. Knee Injury:

In the event of an anterior cruciate ligament (ACL) injury, patients may experience immediate pain, swelling, difficulty bearing weight, and stiffness in the knee joint. Symptoms of a meniscus injury align closely with those of an ACL injury, though swelling may be less pronounced immediately following the incident.

2. Shoulder Injury:

In cases of rotator cuff injuries, patients typically present with pain, swelling, and an inability to elevate the arm. Additionally, shoulder dislocations accompanied by these symptoms can lead to functional impairments in flexion and external rotation of the muscles (anterior dislocation).

3. Sprains and Strains:

Injuries or muscle strains often result from falls or impacts with a hard surface, equipment, or another player. Contusions may develop following damage to muscle fibers and connective tissue; discoloration can occur due to ruptured blood vessels. While many injuries are minor, they can occasionally lead to more serious complications.

4. Sprain:

A sprain refers to the overstretching or tearing of a ligament, which connects bones to other bones. These injuries are typically caused by trauma such as falls or impacts that dislocate joints, potentially leading to tears in the supporting ligaments.

5. Closed and Open Fractures:

Closed fractures may be classified as simple (a clean break with minimal damage to surrounding tissue) or open (where the bone breaks through the skin with minimal surrounding tissue damage). Open fractures are particularly urgent due to the high risk of infection associated with broken skin.

6. Trauma and Brain Injuries:

A traumatic brain injury (TBI) occurs when there is damage to the brain resulting from an external force impacting the head. A closed injury arises when an object strikes the head violently without fracturing the skull, whereas a penetrating injury occurs when an object breaches the skull and affects brain tissue. Various types of traumatic injuries can significantly impact head and brain function.

7. Spinal Cord Injury:

A spinal cord injury (SCI) occurs when trauma causes damage to the spinal cord cells or severs the nerves that traverse the spinal cord.

Herbs Plant as Sports Medicine:

- **Sedum:** Sedum's leaves, flowers, and fruits are used medicinally. Radish leaves contain vaccins, which act as disinfectants and insecticides. It serves as a stimulant and an expectorant for coughs, asthma, and breathing issues. This proves to be beneficial for athletes.
- **Turmeric:** This variety of turmeric is not used as a spice like horticultural turmeric, but in some regions, it is prepared as a pickle. Turmeric is anti-hemolytic and treats conditions such as scabies, sprains, and blood clots from injuries, and worms. It is particularly helpful for athletes to improve blood circulation during sports-related sprains.
- **Mine Mula:** This herb is used to manage high blood pressure and respiratory diseases in athletes. Mine Mula addresses issues like hypertension, heart disease, breathing difficulties, heart failure, and some cancers. The plant thrives in temperatures between 10 to 25 degrees Celsius.
- **Nirgudi:** Nirgudi juice is given to players to reduce swelling during games. Panchang juice combined with ghee is helpful for tuberculosis. There are three additional species of Nirgudi, all sharing similar properties.
- **Sagargoti:** Also known as Gajaga, Kenja, or Kata Karanj, Sagargoti has oblong, flat, thorny pods containing 1 to 2 seeds. Its leaves and seeds are medicinal for managing bleeding and swelling during sports. Sagargoti is effective for treating hot, dry, bitter bleeding, swelling, and ear pain. Roasting sea cucumber, grinding its pulp, and mixing one-fourth with Palaspadi powder is beneficial against worms.
- **Amla:** Amla is considered nature's boon for humans. The Indian gooseberry, found primarily in the Indian subcontinent, is believed to have originated and been developed here. Amla trees thrive across almost all Indian states. The medicinal properties of Amla are highly valued in Ayurveda, making it a vital component of treatments. Chyawanprash, a well-known Ayurvedic formulation, serves as a tonic for many. Amla is rich in Vitamin C, enhancing body health and beneficial for skin, eye conditions, and hair. Vitamin C also aids in infection prevention, gum health, wound healing, and blood formation.

Conclusion:

Herbal plants provide various benefits for athletes, enhancing performance, aiding recovery, and promoting overall health. When used correctly alongside a balanced diet and workout regimen, these herbs can be a valuable asset for improving sports fitness. It's essential for athletes to consult healthcare professionals before adding new herbal supplements, especially if they are on other medications or have health issues. By making informed decisions, athletes can harness the power of herbal plants to achieve their fitness objectives and boost athletic performance. India has rich forests filled with medicinal plants and is a significant supplier of these herbs, which are vital for traditional medicine. Herbal remedies effectively treat conditions like joint pain and arthritis, with approximately 70% of the population using them for health benefits. In fact, Indian medicine has developed around 25,000 botanical formulations, with 800 herbs commonly used in Ayurveda, though only 70

of these are commercially cultivated. Cultivating medicinal plants scientifically on a larger scale is crucial for their conservation. Utilizing indigenous herbal remedies for athletes could yield substantial benefits in the sports domain.

Herbal plants provide numerous advantages for athletes, including boosting performance, aiding recovery, and promoting overall health while helping to manage stress. When used appropriately alongside a balanced diet and exercise, these plants can enhance sports fitness. However, athletes should always seek advice from healthcare professionals before adding new herbal supplements, especially if they take other medications or have existing health issues. By making well-informed decisions, athletes can fully leverage the benefits of herbal plants to achieve their fitness objectives and enhance their athletic performance.

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