Ashwagandha and Sports Performance

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Ashwagandha
Withania somnifera  fam. Solanaceae

• Ashwagandha is the dried roots of Withania somnifera, a woody shrub found wild and cultivated in India, Africa and the Mediterranean.

• Ashwagandha’s use dates back 4000 years.
Ashwagandha many names

Common names include Winter cherry, Indian ginseng, Ayurvedic ginseng.

Name means “smells like a horse.” Ashwa = horse, gandha = smell. The root reputedly imparts the strength of a horse.

Name *somnifera* means to sleep.

Classified as a *rasayan*, a life extender. Specifically a *Medhya rasayan*, a rejuvenator of the brain and mind.
Phytochemicals in Ashwagandha root

Root is rich in withanolides (steroidal lactones), alkaloids, glycosides, fatty acids, chlorogenic acid, numerous amino acids.

Plus sitoindosides, saccharose, B-sitosterol, hentriacontane, scopoletin, dulcitol, chlorogenic acid.

Traditionally used for aphrodisiac, anti-aging, anti-asthma and rejuvenating purposes.
Proven biological activities in humans

- Adaptogen – helps to maintain homeostasis in times of stress, improves psychomotor skills, mental calculation, reaction times.

- Anti-inflammatory activity

- Anxiolytic

- Improves relaxation and sleep

- Improves reproductive health

- Enhances overall cardiovascular function

- Immunomodulator
Study: Ashwagandha and Cardiorespiratory Endurance

• **Ashwagandha is a known adaptogen**, valued for its ability to increase vitality, energy, endurance and stamina, suggesting it could enhance sports performance.

• Can a high concentration root extract of ashwagandha enhance cardiorespiratory endurance and improve quality of life (QOL) in healthy athletic adults?
Ashwagandha and Cardiorespiratory Endurance

• A prospective, double-blind, randomized, placebo-controlled trial. A total of 50 healthy adults aged between 20 and 45 years and normal body mass index (BMI) received 300 mg twice daily of ashwagandha (as KSM-66) or placebo for 12 weeks.

• Efficacy was evaluated by conducting a 20-minute Shuttle Run Test at baseline, week 8 and week 12, with a look at oxygen consumption at peak physical exertion (VO2max); and quality of life assessed by a self-reported World Health Organization-QOL questionnaire.
Ashwagandha and Cardiorespiratory Endurance Outcomes

• V02 Max increased by 4.91% at 8 weeks, and by 5.67% at 12 weeks.
• Quality of life measures positively affected, with social relationships up 9.46%.
Ashwagandha and Cardiorespiratory Endurance Outcomes

**IMPACT:**

- Improving VO2max—or the amount of oxygen the body can use during exercise—supports muscle efficiency and performance.
- The Ayurvedic herb ashwagandha has been used among millions over millennia as a traditional remedy for general weakness and to improve vitality and stamina.
- The study results suggest ashwagandha (as KSM-66) enhances both cardiorespiratory endurance and quality of life in healthy, athletic adults.
Study: Ashwagandha Boosts Muscle Strength and Recovery

• **Ashwagandha**

• *Withania somnifera* Dunal, has been used for millennia for a range of health benefits via effects on the nervous system, endocrine system, cardiopulmonary system and energy production system.

• Traditional Ayurveda also advocates the use of ashwagandha for “bala” or “strength.” Could ashwagandha function as an ergogenic aid, supporting physical performance parameters related to muscle strength, muscle recovery and body composition?
In an eight-week, randomized, prospective, placebo-controlled, double-blind study, 57 men (ages 18 to 50 years old) with little experience in resistance training were randomized into treatment (n=29) and placebo (n=28) groups. Subjects received 300 mg of ashwagandha root extract (as KSM-66 Ashwagandha) twice daily or a starch placebo.

Following baseline measurements, subjects underwent resistance training for eight weeks and were measured at study’s end. Primary efficacy of muscle strength was evaluated using the 1-RM load for the bench press and leg extension exercises; secondary efficacy of muscle recovery was evaluated using serum muscle creatine kinase (CK) levels.
Ashwagandha Boosts Muscle Strength and Recovery Outcomes

• Significantly greater increases in Muscle Strength and muscle size at the arms and chest.

• Testosterone levels - ashwagandha group 96.2 ng/dL compared to 18.0 ng/dL, placebo group

• Double the reduction of body fat in ashwagandha group
Study: Ashwagandha, Testosterone, Male Fertility

• **Ashwagandha** (*Withania somnifera* Dunal) has been traditionally used in Ayurvedic medicine as an aphrodisiac to help treat male sexual dysfunction and infertility. Studies have supported its ability to increase testosterone levels in humans.

• However, research on its ability to improve low sperm concentration in humans, as well as the safety of supplementation, had not been pursued.
Ashwagandha, Testosterone, Male Fertility

• The 90-day pilot study, conducted at five infertility centers in Mumbai, India, involved 46 male patients between 22 and 40 years of age with low sperm count.

• The men were randomized to treatment with a full-spectrum root extract of ashwagandha (as KSM-66 Ashwagandha from Ixoreal Biomed), receiving 225 mg per dose, three times daily, or placebo capsules thrice daily.

• Semen parameters and serum hormone levels were evaluated at the end of treatment.
Ashwagandha, Testosterone, Male Fertility Outcomes

• 17% increase is serum testosterone. This is the big sports number, with anabolic implications.
• 167% increase in total sperm count
• 53% increase in semen volume
• 57% increase in sperm motility
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