

# ASHWAGANDHA ADVANTAGE

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## Special Report

# Ashwagandha Supports Sports Performance

*by Judd Handler*



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It may come as a surprise that an herb—whose name translated in English means “the smell of a horse”—that had virtually no clinical research to corroborate its traditional use, and is largely unknown in the West, is poised for big growth in 2017 and beyond.

Sales of ashwagandha (*Withania somnifera*) are already surging. In February 2017, the adaptogen known in Ayurvedic medicine as the “prince of herbs,” with more than 5,000 years of varied medicinal use, was ranked No. 7 in Amazon’s herbal supplement category.

Although many people in the West are unfamiliar with ashwagandha, formulators can capitalize on this storied herb’s growing popularity by focusing on its applications in sports performance enhancement and recovery.

Ashwagandha isn’t yet widely familiar like probiotics, flax seed or even turmeric; however, there are three main reasons to consider integrating it into product formulations.

First, adaptogens are riding a wave of popularity. A Google search of “adaptogen health trends” yields nearly 2.2 million results. Consider some of the following headlines from popular blogs: “What on Earth Are Adaptogens and Why Are They Trending?” “The Health Trends That Will Be Huge in 2017” and “The Rise of Adaptogenic Herbs.”

Ashwagandha’s increasingly well-known stress-relieving abilities are evident at trendy juice bars and in tonic beverages. The ingredient is also becoming more popular in natural energy drinks and elixirs; health-conscious actress Gwyneth Paltrow stated she includes it daily in her morning smoothie.

The second reason sales of ashwagandha will likely continue to climb is an adjunct of the first reason. Adaptogens are trending because of their ability to help the body adapt to both physical and mental stressors. Based on recent statistics, American adults need adaptogens more than ever. According to the American Psychological Association (APA), 75 percent of adults reported experiencing moderate to high levels of stress in the past month, and nearly half reported their stress has intensified in the past year. Americans and other Western adults continue to report high levels of stress.<sup>1</sup>

Because of the ever-increasing stressful lifestyle American and other Western adults are leading, more people are searching for natural products that reduce stress and boost energy without negative side effects. The push for more natural stress-management solutions has led to increased clinical research on adaptogenic herbs, including ashwagandha, which has been clinically proven to moderate cortisol levels by 30 percent and reduce anxiety by nearly 50 percent within 60 days of use.<sup>2</sup> Now that there’s a baseline and ever-growing body of research supporting its use, this makes a compelling third reason for the flourishing popularity of ashwagandha.

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## From Stress Relief to Sports

The sports nutrition market was valued at nearly US\$28 billion in 2015, and more than ever, fitness enthusiasts are searching for natural solutions to enhance athletic performance. The sports nutrition market has faced an onslaught of hurdles gaining (and keeping) consumer trust due to negative perception over anabolic steroids, stimulants and hormones.<sup>3</sup>

Initial research around ashwagandha for sports performance has been promising. Brand holders looking for safe, efficacious and natural ingredients to help their customers get bigger, faster and stronger now have the backing of an increasing pool of research that suggests ashwagandha promotes better health and enhances physical performance. Ashwagandha has demonstrated the ability to improve the rate of recovery following strenuous exercise, increase endurance and boost muscular strength.

Exercise, particularly high-intensity exercise, is a stressor. Fitness enthusiasts are becoming more aware that a Type A career mixed with Type A workouts is a recipe for imbalance, illness and time away from the job and the gym. Habitual exercisers are progressively looking to adaptogens to help the body return to a state of normal functioning, or homeostasis. And the growing body of research on ashwagandha suggests it's one of the most effective botanical solutions for bringing the body back to balance and improving workout metrics.

## Ashwagandha and Athletic Performance

Ashwagandha helps the body manage its cortisol release timing. The amphoteric herb regulates vital physiological processes, including rapidly returning rising levels of the stress hormone back to normal. Due to its stress-modulating effects, ashwagandha encourages the body to be more energy efficient. Instead of letting stress consume cellular energy functions for both mental and physical tasks, ashwagandha increases levels of adenosine triphosphate (ATP), the cellular energy currency. Ashwagandha reduces the enzyme that breaks down ATP, thereby not bankrupting the cellular energy currency.

Not only does ashwagandha decrease the breakdown of ATP, it also increases cellular energy by boosting levels of succinate dehydrogenase (SDH), an enzyme found in the mitochondria (the part of the cell responsible for cellular respiration). It functions not only in mitochondrial cell respiration and energy generation, but also plays a role in tumor suppression.<sup>4</sup> Ashwagandha increases energy production in muscles by making mitochondria function more effectively, as ATP is produced in the mitochondria. Ashwagandha also increases creatine levels, which in turn generates ATP, providing rapid energy.

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Adrenal exhaustion and adrenal fatigue have recently become trendy health topics. Athletic performance can suffer if the adrenal glands are dysfunctional. Another marketable advantage for ashwagandha lies in its ability to help support the nervous system and adrenals, helping preserve energy for stressful situations, including high-intensity exercise, thus preventing the body from exhaustion or burnout. Functional medicine has increasingly focused in recent years on the hypothalamus-pituitary-adrenal (HPA) axis, especially root causes of HPA axis dysfunction in relation to adrenal fatigue or burnout. Ashwagandha can enhance athletic performance and encourage faster recovery by ameliorating HPA-axis imbalance. Ashwagandha is also believed to accelerate the cell repair process in the body. This is helpful not only in anti-aging but also in helping recover faster between sessions of exercise and physical activity.<sup>5</sup>

Although it's been used for thousands of years as a rejuvenative herb that boosts energy, stamina and strength, recent research also demonstrates ashwagandha's ability to metabolize sugars and discourage body fat storage.<sup>2</sup> And by cutting down the demand for cortisol, ashwagandha helps to shift the production of hormones toward more anabolic hormones such as dehydroepiandrosterone (DHEA) and testosterone. Researchers have confirmed this testosterone-building effect of ashwagandha in animal and human studies.<sup>6,7</sup>

One theory as to how ashwagandha produces more muscle-building testosterone maintains when there is an excess of a certain hormone, such as cortisol, the compounds in ashwagandha function as hormone precursors and occupy cell membrane receptor sites. This prevents actual cortisol from attaching to cell membrane receptors and exerting its effect. Conversely, if levels of anabolic hormones such as testosterone are low, ashwagandha's compounds exert a supporting effect, allowing actual testosterone in the body to take over.<sup>8</sup>

Although ashwagandha's anabolic-enhancing attributes are impressive, its ability to encourage post-exercise rapid recovery is equally astonishing. This can be a crucial selling point because without recovery, gains in athletic performance would mean very little. For instance, if a powerlifter supplemented with ashwagandha and improved a deadlift by 15 pounds in as little as a few weeks, the increase would mean nothing if the powerlifter would be sore for several days. However, ashwagandha has been clinically proven to reduce post-exercise serum creatine kinase levels by 99 percent, resulting in less muscle damage.<sup>9</sup>

### **Additional Research**

Although the studies suggesting ashwagandha can improve strength and endurance are relatively limited in number, the ones that exist are promising because they show results not in vulnerable populations, such as the obese or frail, but in healthy populations, including high-level athletes.

One study examined the cardiorespiratory effects of ashwagandha on 40 elite Indian cyclists for eight weeks. The experimental group receiving ashwagandha capsules twice a day for the duration of the study demonstrated significant improvement in maximum volume of oxygen (VO<sub>2</sub>max) and duration until exhaustion on a treadmill test. Eight weeks of supplementation with ashwagandha improved VO<sub>2</sub>max by 13 percent.<sup>10</sup>

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Another study examining ashwagandha supplementation for eight weeks tested VO<sub>2</sub>max in male hockey players between 16 and 19 years of age. The test group's participants supplemented with ashwagandha for eight weeks. Similar to the test finding in the elite cyclists, the hockey players demonstrated significant VO<sub>2</sub>max and hemoglobin levels, demonstrating ashwagandha improves energy supply to muscles during exercise.<sup>11</sup>

A prospective, double-blind, randomized, placebo-controlled trial in India involved 50 healthy adults between 20 and 45 years of age. The 25 participants receiving 300 mg twice-daily ashwagandha supplementation for 12 weeks demonstrated a 5.67 percent increase of VO<sub>2</sub>max at the study's conclusion. Despite the improvement in cardiorespiratory performance, no vital parameter changes occurred, including pulse rate, blood pressure or respiration at rest.<sup>12</sup>

A study published in the *International Journal of Sports Nutrition* examined healthy male subjects receiving an ashwagandha supplementation of 300 mg twice per day for eight weeks. The subjects' serum testosterone levels, muscle strength (as measured by a maximal single-repetition load), muscle size and body fat percentage were measured. At the conclusion of the eight weeks, serum testosterone levels increased by more than 15 percent, arm muscle size increased over 17 percent and average body fat decreased by an average of 16 percent.<sup>9</sup>

### Ashwagandha Quality

Ashwagandha's remarkable effects on stress modulation and athletic performance come not from one or two constituents in the herb, but dozens. With this in mind, it is important to use a "full spectrum" ashwagandha extract, which preserves the full botanical portfolio, including all 35 withanolides that have been isolated. The efficacy of an ashwagandha extract is dependent on the preservation of its numerous constituents in the original herb.

Withanolide content is largely measured by gravimetric analysis, which does not provide accurate results, according to Kartikeya Baldwa, director of Ixoreal Biomed. "Unfortunately, gravimetric analysis often overestimates withanolide content by a factor of 2.5 to 3. This is because gravimetry does not adequately discriminate between withanolides and some other constituents, thereby bundling withanolides with other compounds and over-assessing the extent of withanolides," Baldwa stated. He added that a more accurate assessment in constituent analysis is via high performance thin layer chromatography (HPTLC) testing.

The highest amount of active compounds comes from new ashwagandha roots, not old root stock and not from leaves. And according to Baldwa, Withaferin A is one withanolide which has demonstrated cell toxicity in numerous scientific studies.

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“It is undesirable to have Withaferin A in an ashwagandha extract ... Some ashwagandha extracts have high levels of Withaferin A because the manufacturers use ashwagandha leaves,” Baldwa said. “The extracts containing leaves have so little safety and efficacy data supporting them that most European countries’ regulatory authorities explicitly disapprove extracts with leaves and allow solely root-only extracts,” he added.

The challenge for those looking for a reputable ashwagandha supplier is to find one that controls the entire chain of operation, “from seed to shelf.” Some suppliers use hydroalcoholic extraction, which creates a bitter end-product. According to Baldwa, ashwagandha root extract should be produced using no solvents or alcohol and should be neutral in taste.

If a brand selling meal replacement or energy bars, for example, wanted to capitalize on ashwagandha’s efficacy in boosting athletic performance, it would be hard to gain repeat sales if using an ashwagandha extract with an offensive, bitter taste.

In terms of cost-effectiveness, high-quality ashwagandha can be a good option for sports formulations. According to Baldwa, KSM-66 costs “about \$1 for 30 servings at the clinical proven daily dose.” He added the price point allows small businesses to buy ashwagandha in bulk, and that intermediaries can often facilitate purchases in lesser quantities.

## Marketing Ashwagandha in Sports Nutrition Applications

Although adaptogens in general are trending and ashwagandha sales are experiencing double-digit growth year over year, both adaptogens and ashwagandha are still not well-known in the West.

Jared Paulson, educational/sales manager at Ayush Herbs, said, “The biggest problem with marketing ashwagandha isn’t figuring out what it is good for, it is trying to narrow it down enough to be succinct and engage the customer.”

Paulson noted far more people have issues with stress, memory and immunity than the niche interested in improved athletic performance, and that most people looking to improve athletic performance aren’t necessarily looking for a helpful adaptogenic herb. “They want something flashy with the newest science, amino acids and cool marketing,” he suggested.

One avenue to attract consumers is by capitalizing on a male health concern: low testosterone. “The major way we promote ashwagandha that relates to athletics is in relation to supporting healthy testosterone levels in males,” Paulson said. “It is part of our male support formula and our physicians frequently use more ashwagandha in combination with this formula for better effects.”

Kristen Marshall, director of marketing at Verdure Sciences, believes ashwagandha is well poised to gain significant traction in the supplement marketplace. “Ashwagandha

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is considered one of the founding ingredients in Ayurveda, and this adaptogen has continued to gain traction with consumers as many seek multifunctional, natural ingredients to balance their health,” she affirmed.

The data supports Marshall’s claim. According to Baldwa, who oversees Ixoreal’s KSM-66 ashwagandha brand, shopping searches for ashwagandha in Google have doubled in the last 12 months. “We see a strong growth in demand of KSM-66. And though the overall market is still small, that can be seen as good news in the sense that there is a lot of room to grow,” he noted.

Targeting mainstream consumers with a wide marketing message that ashwagandha can help them be productive at work, at play and to feel better at home might be a winning strategy, as the clinical trials involving ashwagandha have mostly focused on these benefits. “These are the benefits that mainstream consumers actually care about,” Baldwa stated. “Like the ability to focus better, to feel more empowered or capable in stressful situations, to build stamina and endurance, to become stronger and more fit, and to have greater self-control.”

Another marketing strategy that may prove effective is getting product endorsements from professional athletes. KSM-66 has endorsements from father-son team Paul and Jordan Romero. Paul was named *Competitor Magazine*’s “Adventure Racer of the Year” in 2013, while his son, at age 13, became the youngest climber to summit Mt. Everest.

Among adaptogens, ashwagandha possesses one of the broadest sets of beneficial effects on both psychological and physiological functioning. With an increasing consumer demand for products that enhance the mind-body connection, ashwagandha is well-suited to capitalize on this trend for its abilities to calm the mind, promote rest and increase energy. Despite the somewhat off-putting English translation of its Sanskrit name, another translation of ashwagandha may prove quite marketable: “strength of a stallion.” Based on its long history, safety record, cost-effectiveness, and the support of an ever-increasing body of clinical evidence, ashwagandha is a natural fit for the sports nutrition market. ●

*Judd Handler is a California-based health writer and lifestyle coach.*

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