



Ashwagandha Insights

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# ASHWAGANDHA & SPORTS PERFORMANCE



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## Ashwagandha & Sports performance

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# Ashwagandha's got the pump to help you elevate your game

Herbal health products continue to show robust growth and expansion as more consumers incorporate botanicals into their daily well-being regimens. Fitness, working out, engaging in sports, and play are priorities for millions, and they are also looking for products that help them not only attain physical goals but to preserve health and well-being and allow for further physical advancement, safely and effectively.

Herbal supplement sales jumped 8.6 percent in 2019, according to the American Botanical Council (ABC), which noted that \$9.6 billion of herbal supplements were sold in 2019 in the US<sup>1</sup>. Ashwagandha is one of the herbs that has made a spectacular incline in sales, as mainstream consumers have acknowledged its abilities to keep them healthy and strong, perceptions provided by mainstream press touting the benefits of ashwagandha.

In ABC's report, "Herbal Supplement Sales in US<sup>1</sup> Increased by 9.4% in 2018," (Herbalgram #123; pp 62-73), conducted in cooperation with SPINS (Chicago, IL) and Nutrition Business Journal (Boulder, CO), the authors write: "Mainstream ashwagandha sales in 2018 increased 165.9% from the previous year, with sales totaling \$7,449,103. Ashwagandha has been one of the 40 top-selling ingredients in natural retail stores since 2015, but its appearance among the top 40 herbs in the mainstream channel in 2018 suggests more widespread familiarity among casual consumers of natural products. Mainstream ashwagandha sales in 2018 likely benefitted from the continued popularity of ingredients traditionally used in Ayurveda, the primary traditional medical system of India."



## Herbal Supplement Sales in the US

Top  
40

Ashwagandha has been one of the 40 top-selling ingredients in natural retail stores since 2015

9.4% ↑

Herbal Supplement Sales in US Increased by 9.4% in 2018

165.9% ↑

Mainstream ashwagandha sales in 2018 increased 165.9% from the previous year,

\$9.6 bn

\$9.6 billion of herbal supplements were sold in 2019 in the US



# Explosion of Sports Nutrition Market

Professional athletes aside, the typical fitness consumer is defined as someone who commonly works out three to five times per week. The pandemic has brought a new style of fitness – the virtual workout, which has been rather robustly embraced: individuals who stream workouts at least once per week in 2020 rose to 85%, from a rate of 7% one year prior.

## Global Sports Nutrition Market

# \$15.6 bn

the global sports nutrition market size was valued at \$15.6 billion in 2019 and is expected to grow at a compound annual growth rate of 8.9% from 2020 to 2027

 **8.9% CAGR**  
From 2020 to 2027



According to market data from Grand View Research (“Sports Nutrition Market Size & Growth Report 2020-2027”), the global sports nutrition market size was valued at \$15.6 billion in 2019 and is expected to grow at a compound annual growth rate of 8.9% from 2020 to 2027. A steady increase in desire for various types of protein bars/powders, dietary supplements and energy drinks among athletes and fitness consumers is a primary factor of the market’s growth. And the authors of this report cite rising disposable income, rapid urbanization, and an increase in the number of gyms/fitness centers that endorse sports and fitness nutrition products as being a category.



The one aspect that ties athletes and health/fitness-minded consumers all together is the desire for quality supplementation. The sports nutrition category continues to evolve, as consumers increasingly seek products that will not only get the job done but also those that prioritize clean labels and plant-based ingredients. Serious workout enthusiasts and athletes want products to boost performance, and they are continuously hunting for sports nutrition products with natural ingredients.

# Ashwagandha's got a Sporting Spirit

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Intense exercise places the body under physical stress. Ashwagandha root is known to increase energy production in muscles through its beneficial effects on mitochondria, the structure that serves as the power plant of each cell, producing energy through the formation of adenosine triphosphate (ATP), also known as the energy currency. Specifically, ashwagandha root decreases creatine kinase, a common blood protein marker of muscle damage.

As an adaptogen, ashwagandha root helps the body manage its cortisol-release timing. Due to the stress-modulating effects, ashwagandha root encourages the body to be more energy efficient. Instead of letting stress consume cellular energy for both mental and physical tasks, ashwagandha increases available ATP levels. Not only does ashwagandha root reduce the breakdown of ATP, it also increases cellular energy by boosting levels of succinate dehydrogenase (SDH), an enzyme found in mitochondria. Ashwagandha also increases creatine levels, which in turn generates ATP, providing rapid energy <sup>2</sup>.

Recent research also demonstrates ashwagandha root's ability to metabolize sugars and discourage fat storage. And, by reducing the catabolic cortisol-release response, ashwagandha helps encourage the shift toward production and release of more anabolic hormones such as dehydroepiandrosterone (DHEA) and testosterone.

Much of ashwagandha root's effect on athletic performance has to do with the fact that the herb is an adaptogen, which improves an individual's ability to cope with stress – including the physical stress of exercise. When there is an increase in stress, ashwagandha helps normalize the physiological process of the body encouraging appropriate adaptation to changes.



The sports-fitness nutrition industry is also recognizing the benefits of brain health in athletics. Recent studies on ashwagandha's effects on brain function are increasing interests of formulators in adding it to nootropic-focused sports/fitness products.

Adaptogenic herbs such as ashwagandha root tend to focus less on the need for a single nutrient to perform a specific biological activity, and more on supporting structure and function of systems in the body, such as supporting the immune and inflammatory response to training, sleep and stress management, focus and energy. Ashwagandha root has demonstrated three key abilities attractive to those in sports and fitness: improve the rate of recovery following strenuous exercise, increase endurance and boost muscular growth.



# Key findings of KSM-66 Ashwagandha in human clinical studies for improving sports performance

In this paper, we summarize the key findings of KSM-66 in human clinical studies for improving sports performance (eg, cardiorespiratory endurance, strength, recovery, weight management, memory, stress, and sleep).

## Cardiorespiratory Endurance

**1** A study published in the *Journal of Ethnopharmacology* examined the effects of KSM-66 ashwagandha root extract on cardiorespiratory endurance and recovery over 8 weeks. The randomized, double-blind, placebo-controlled trial involved 50 healthy athletic adults aged between 18 and 45 years. The study found that participants who supplemented with KSM-66 ashwagandha root extract experienced a significant increase of 16.40% in VO2 max – which is an indication of the amount of oxygen the body can use during exercise. Also, at the study's end, researchers found that those who supplemented with KSM-66 ashwagandha root extract had improvements in the RESTQ scores of general stress (37.36%), fatigue (60.71%), and general wellbeing (59.27%) domains. The recovery behavior of athletes was assessed using TQR scores and KSM-66 supplementation demonstrated a statistically significant improvement in the TQR scores when compared to the placebo at the end of study <sup>3</sup>.

**2** An oft-quoted study published in *Ayu* investigated the effects of KSM-66 ashwagandha root extract supplementation on the cardiorespiratory endurance in 50 healthy adults. This 12-week randomized, double-blind, placebo-controlled trial revealed that KSM-66 Ashwagandha supplementation was responsible for an 11.8% and 13.6 % increase in VO2 max at week 8 and the end of the study, respectively. The quality of life measures were positively affected with the social relationship domain up by 9.46% from baseline and physical health domain up by 7.6% from baseline<sup>4</sup>.

### Effect of KSM -66 Ashwagandha on cardiorespiratory endurance

**16.40%** ↑

participants who supplemented with KSM-66 ashwagandha root extract experienced a significant increase of 16.40% in VO2 max

### RESTQ Scores

**37.36 %** ↓ **60.71%**

General Stress

Fatigue

**59.27 %** ↑

General wellbeing

# Muscle Strength and Recovery

Ashwagandha root can also function as an ergogenic support supplement for muscle strength, muscle recovery, and body composition.

**3** An 8-week, randomized, prospective, double-blind, placebo-controlled clinical trial published in the *Journal of the International Society of Sports Nutrition* included 57 men with little experience in resistance training. Researchers assessed the subject's muscle strength measure by a maximal single repetition load, muscle size, body fat percentage, and serum testosterone levels. At the conclusion of the study, those who supplemented with KSM-66 ashwagandha root extract improved muscle strength and size through resistance by increasing testosterone levels in the body by more than 15% and boosting strength by almost 75% in the upper body and 50% in the lower body.

Although ashwagandha root's anabolic-enhancing attributes are impressive, its ability to encourage post-exercise rapid recovery is equally astonishing. This study measured serum levels of creatine kinase, a protein specific to muscles that can be a muscle damage marker. KSM-66 ashwagandha root extract supplementation also reported a statistically significant decrease in exercise-induced muscle damage and a 3.5% decrease in body fat percentage<sup>5</sup>.

**4** In a new, soon-to-be-published randomized, double-blind, placebo-controlled study, researchers evaluated the ability of 8 weeks of KSM-66 ashwagandha root extract supplementation on muscle strength and recovery in 80 participants (40 men and 40 women). KSM-66 ashwagandha supplementation produced statistically significant increases for both male and female participants in terms of muscle strength for bench press and leg extension, muscle size, VO2 max, body fat percentage, and muscle recovery<sup>6</sup>.



# Testosterone Enhancement

Many studies have demonstrated that resistance training augments testosterone levels, which aids in muscle growth, especially in men. Both the studies on the muscle-building properties of ashwagandha root mentioned above also noted significant testosterone levels when KSM-66 ashwagandha root extract supplements were consumed.

## KSM -66 Ashwagandha root extract supplementation

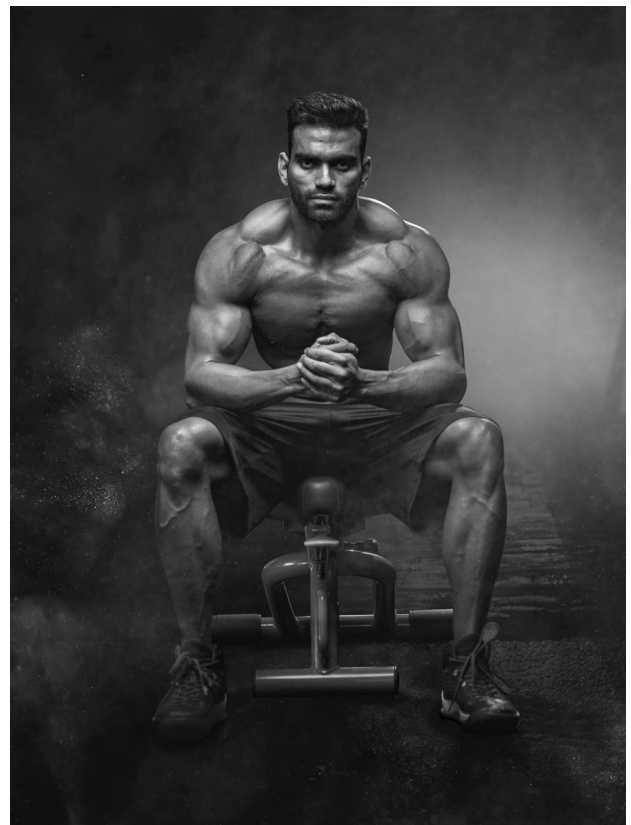
↑ **15%**

consumption of KSM-66 ashwagandha root extract (600mg/-day) resulted in a 15% increase in the levels of testosterone

**5** In the study published in the *Journal of the International Society of Sports Nutrition*, found that the consumption of KSM-66 ashwagandha root extract (600mg/day) resulted in a 15% increase in the levels of testosterone <sup>7</sup>.

**6** In the soon to be published study, significant increases in levels of serum total and serum-free testosterone in male participants supplementing with KSM-66 Ashwagandha extract, but not in female participants in the treatment group <sup>8</sup>.

**7** A 2013 double-blind, randomized, placebo-controlled clinical trial of 46 men with low sperm count published in *The Journal of Evidence Based Complementary & Alternative Medicine* found that KSM-66 ashwagandha root supplementation increased the levels of testosterone by 17% <sup>9</sup>.



**8** In another soon to be published study conducted on ( otherwise ) healthy males, KSM - 66 Ashwagandha root extract supplementation resulted in a statistically significant increase in the level of testosterone <sup>10</sup>.





# Weight Management

Body weight management is another component strongly related to the sports nutrition market. Stress-related food cravings can often lead people (even athletes) to eat in excess, leading to obesity. As an adaptogen, ashwagandha root can manage stress and negate the harmful effects of stress including the craving to binge-eat.

9 One study published in the *Journal of Evidence-Based Complementary & Alternative Medicine* found that the consumption of KSM-66 ashwagandha root extract (600mg/day) resulted in improved scores on the perceived stress scale, positively affected serum cortisol, body mass index (BMI), and body weight. The participants experienced a 22.2% reduction in the levels of cortisol over the course of the study. KSM-66 ashwagandha root supplementation resulted in a 3.0% and 2.9% reduction in body weight and BMI, respectively. In this study, supplementation with ashwagandha root extract caused a significant reduction in food cravings. Based on these results, ashwagandha root may be said to have a positive impact on eating behavior and help in weight management <sup>11</sup>.

Ashwagandha root's benefits for athletes are not only limited to performance and strength but also for all the factors that affect the performance.

Participants who supplemented with 600 mg of KSM - 66 Ashwagandha root extract experienced

↓ **22.2 %**

participants experienced a 22.2% reduction in the levels of cortisol

↓ **3.0 %**

Decrease in body weight

↓ **2.9 %**

decrease in Body Mass Index



# Memory, Cognition and Focus

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Today's athletes are increasingly seeking sports nutrition supplements that have nootropic potential. Ashwagandha root has consistently been recognized as a significant adaptogenic and anti-stress herb that slows brain aging, improves memory as well as promotes cognitive response and neuro-regeneration.

**10** In a double-blind, placebo-controlled trial published in the *Journal of Dietary Supplements*, 50 adults consumed 300 mg of KSM-66 ashwagandha root extract or placebo, twice daily for 8 weeks. The KSM-66 group experienced improvements in sustained attention, information processing, and overall cognitive memory <sup>12</sup>.



## Stress

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It is widely known that ashwagandha helps maintain homeostasis between the sympathetic nervous system and the parasympathetic nervous system. By modulating stress, ashwagandha root assists the body to reduce the energy normally required to rein in the stress hormone cortisol. That has made ashwagandha one of the go-to herbs for reducing stress and increasing general energy.

**11** Research published in the *Indian Journal of Psychological Medicine* examined the effects of KSM-66 ashwagandha root extract supplementation (600mg/day) for 8 weeks and found remarkable results in the reduction of stress and subjective measures of stress. This randomized, double-blind, placebo-controlled study included 64 participants with a history of chronic stress <sup>14</sup>.



At the study's end, those in the KSM-66 group experienced a 28% reduction in cortisol levels. Also, ashwagandha root produced a 44% reduction on the Perceived Stress Scale (PSS), and reduced depression, anxiety and stress by more than 70% on the Depression Anxiety Stress Scale (DASS)<sup>13</sup>.

#### Effects of KSM-66 Ashwagandha root extract supplementation (600mg/day) for 8 weeks

↓ **28 %**  
Reduction in  
cortisol levels

↓ **44 %**  
Reduction in  
PSS

↓ **70 %**  
Reduction in  
DASS

## Sleep

**12** In addition to being an important part of the recovery and adaptive process during competition training as well as routine intense workouts, accumulating evidence indicates that increased sleep duration and enhanced sleep efficiency are correlated with improved performance and competitive success. Recent studies published in renowned journals show KSM-66 ashwagandha root extract supplementation led to a significant improvement in the sleep parameters and a significant reduction in anxiety <sup>14-16</sup>.





## Customer Speaks :

We researched many ingredients for our Mdrive brand, not just Ashwagandha extracts. Our brand is a health supplement for men over 40. KSM-66 met many of the requirements we had for the brand - an adaptogen with many years of use as a healthy, more natural way to combat stress and maintain a healthy testosterone level. Then the clinical was released showing how valuable KSM is for the active, sports-minded male and we incorporated KSM into our athlete formulas - Mdrive Elite and Mdrive Start Protein Powder. KSM has the most clinical research of all the other branded Ashwagandha Extracts on the market. From the full spectrum extract to the sustainable farming practices to all the certifications KSM has obtained, we feel we can trust the ingredient to be safe and effective batch to batch.

The Ashwagandha ingredient was very easy to work in both our capsule formulas and our powder formula. It is basically tasteless so formulating it into our powder product was seamless. One thing we have learned is that the product may be a great formula but if it doesn't taste good no one will stick with it. KSM has been great or we would not have incorporated it into almost every one of our products! Our consumers, which include many athletes, appreciate that KSM works with their own bodies to mitigate the stressors of athletic life and promotes balance in the body.



They also appreciate that KSM has clinical evidence that shows it enhances energy, endurance, muscle strength, and recovery, as well as increases cognitive function. We always trusted that not only were we buying a great ingredient with a lot of clinical research behind it but we also were buying from a very ethical company that we trust to be there for us no matter what.

Cecile Kehoe  
Dreambrands Inc.

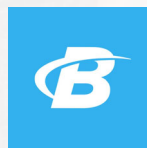


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