

Ashwagandha and Longevity



THEORY:

Several Ayurvedic botanicals

are mentioned in ancient texts as serving as *rasayanas* or life extenders. Extract of ashwagandha (*Withania somnifera* Dunal) root is among the leading ingredients used for this purpose, and it has shown positive effects against stress and inflammation. Investigators have proven the usefulness of the *Caenorhabditis elegans* worm model in lifespan extension research. Could consumption of ashwagandha root extract and the purified components in it positively affect lifespan?



PARAMETERS:

Wild type *C. elegans* or mutant worms were grown on NGM plates with OP50 *E. coli* as food, with ashwagandha root extract (ARE) or purified ingredients (PI) (both provided by Ixoreal Biomed) on the plates. ARE was diluted into various fractions: suspension, ~80% water soluble fraction, ~60% water soluble fraction, and ethanol solubilized mixture of the purified components in the same ratio as ARE. Treatment was chronic from embryo stage to death, and both lifespan and dose response assays were conducted.



OUTCOME:



Treatment with the purified ingredients at a concentration of 100 ng/ml **extended the lifespan** in the human nicotinic acetylcholine receptor alpha-7 equivalent mutant, *acr-16*, but not wild type or other mutant worms.



The purified extract **increased lifespan by 21.4%** compared to control and 14% compared to ethanol.



Researchers concluded: "We are able to show that one of the age-old healthy longlife supplements, Ashwagandha does extend lifespan of *C. elegans*. ... It will be worthwhile to evaluate KSM-66 for longevity effects on higher animal model."



IMPACT:



Around the world, people are living longer lives, as access to health care, sanitation and quality food have improved health and lifespan. A new study out of Imperial College London estimated that average lifespan by 2030 could extend beyond age 90 in many developed countries, particularly those with universal health coverage.¹ However, beyond just length of life is supporting health of life; the integrated use of an ingredient such as ashwagandha that has proven health benefits in stress management and inflammation could ensure the additional years are healthy ones.

1. Kontis V et al. *Lancet*. 2017; ePub 21 February. DOI: 10.1016/S0140-6736(16)32381-9

Source: Kumar R et al. "*Withania somnifera* root extract extends lifespan of *Caenorhabditis elegans*." *Annals Neurosci*. 2013;20(1):13-16. DOI: 10.5214/ans.0972.7531.200106.

Ashwagandha for Stress & Anxiety



THEORY:

Stressful situations can cause increases in levels of serum cortisol, and increase levels of anxiety and depression in otherwise healthy adults. Ashwagandha is an adaptogen known to promote homeostasis. Can ashwagandha reduce stress and anxiety, and improve general well-being in otherwise healthy adults under stress?



PARAMETERS:

A single-center, prospective, double-blind, randomized, placebo-controlled trial at Asha Hospital, Hyderabad, India. A total of 64 healthy adults received 300 mg twice daily of ashwagandha (as KSM-66) or placebo for eight weeks. Efficacy measured using Perceived Stress Scale (PSS) score, serum cortisol level, General Health Questionnaire-28 (GHQ-28) score, and Depression Anxiety Stress Scale (DASS) score.



OUTCOME:

After eight weeks, adults taking ashwagandha:



PSS score was reduced **44%**



Serum cortisol levels were reduced **27.9%**



GHQ-28 scores were **72.9%** with greatest reduction in the **79.3%** decline.



DASS domain scores dropped **71.6%**, with the biggest decrease in the **depression** domain at **77.0%**



All changes were **statistically significant** compared to placebo.



Researchers concluded: "High-concentration full-spectrum Ashwagandha root extract improves an individual's resistance toward stress and thereby improves self-assessed quality of life."



IMPACT:



Clinical depression costs over \$51 billion in absenteeism from work and lost productivity, and \$26 billion in direct treatment costs.¹ And it is projected that mental disease, including stress-related disorders, will be the second leading cause of disabilities by 2020.² Ashwagandha is known to reduce serum cortisol levels; and reduces over-excitation of neurons, producing calmness and increasing focus and mental well-being. The study results suggest ashwagandha (as KSM-66) safely and effectively reduces levels of stress and depression, as well as physiological markers of anxiety.

1. *J Clin Psychiatry*. 2003;64(12):1465-75

2. *Metabolism*. 2002;51(6 Suppl 1):49-53

Source: Chandrasekhar K, Kapoor J, Anishetty S. "A Prospective, Randomized Double-Blind, Placebo-Controlled Study of Safety and Efficacy of a High-Concentration Full-Spectrum Extract of Ashwagandha Root in Reducing Stress and Anxiety in Adults." *Indian J Psychol Med*. 2012 Jul-Sep;34(3):255-262. DOI: 10.4103/0253-7176.106022.

Ashwagandha

Improves Memory, Cognitive Function



THEORY:

One of the central herbs in Ayurveda, root extract of ashwagandha (*Withania somnifera* Dunal) has been used for its neuroprotective, anti-stress and rejuvenative effects, connected to its interplay with multiple systems in the body, including the nervous system, endocrine system and energy production system. While it has been used for brain support, clinical research is still needed to outline its effect on memory improvement and different aspects of cognitive function. This study sought to explore ashwagandha's impact on memory, visuo-spatial processing, executive function and attention, and information processing speed.



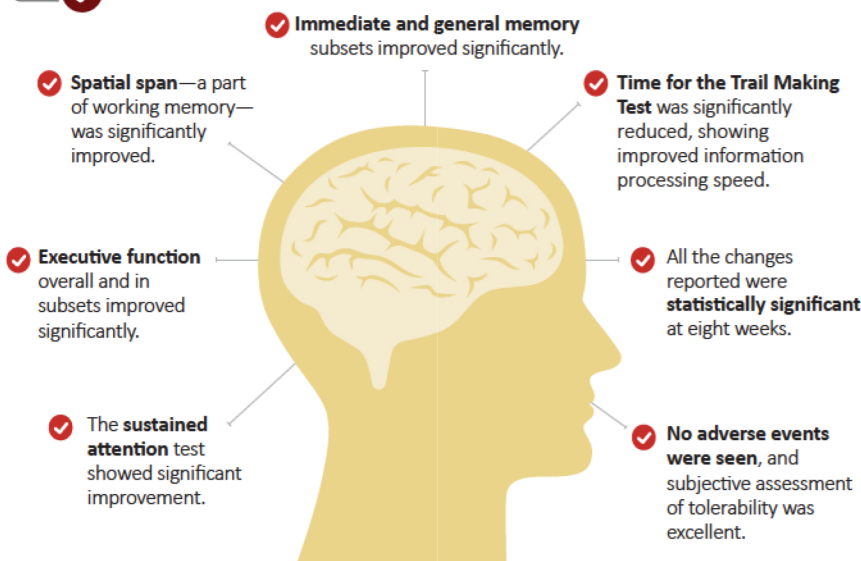
PARAMETERS:

The eight-week prospective, randomized, double-blind, placebo-controlled study included 50 healthy adults over age 35; exclusion criteria included moderate/severe memory impairment, known neuropsychiatric conditions, persistent endocrine disorders and severe co-morbid medical conditions. The use of nootropic agents, memory enhancing drugs or alternative medicines was prohibited during the study. Participants received a full-spectrum root extract of ashwagandha (as KSM-66 Ashwagandha from Ixoreal Biomed), receiving 300 mg per dose, twice daily, or placebo capsules twice daily. Efficacy parameters were judged using the Wechsler Memory Scale III scores for memory and cognition domains. No differences between groups were seen in vital parameters at baseline.



OUTCOME:

At the end of the eight weeks, for the participants taking ashwagandha:



Researchers concluded: "Ashwagandha can be effective in improving immediate memory and general memory, and in improving executive function, attention and information processing speed without any side effects."



IMPACT:

As various developed countries face the challenges of supporting an aging population, many people fear the decline in their overall health, as well as the specific challenges associated with a decline in cognitive function. A recent study out of Japan found older adults are significantly concerned about cognitive decline, which can impact mental health.¹ Further, there has been a rise in the availability of products purporting to improve memory and cognitive function, which may fight cognitive decline or even boost intelligence.² Ashwagandha's history of safe, efficacious use in the area of brain health, coupled with these preliminary results, suggest a larger clinical trial could confirm its role in cognitive support.



1. *Gerontologist*. 2015;55(Suppl_2):707-8. DOI: 10.1093/geront/gnv355.10

2. *Psychology Today*. 2012 Mar 26. "Training Working Memory: Why and how."

Ashwagandha:

The Stress/Weight Management Connection



THEORY:

Ashwagandha (*Withania somnifera* Dunal) has a long history of use as an adaptogen, helping to counteract the negative effects of stress on the body. Various bioactives in ashwagandha have been shown in pre-clinical studies to impact cortisol levels and exert anxiolytic properties. As previous research has connected stress to anxiety and weight gain, the question was raised as to whether ashwagandha root extract could improve general well-being and reduce physiological markers of stress that have been associated with obesity, reducing hunger and stress-eating behaviors to impact weight and improve general well-being.



PARAMETERS:

The eight-week prospective clinical trial, conducted at a study center in Pune, India, involved 52 men and women between 18 and 60 years, who had a Perceived Stress Scale (PSS) score greater than 20, suggesting chronic stress symptoms, and a body mass index (BMI) between 25 and 39.9. The trial was conducted using a random assignment, parallel-group, double-blind, placebo-controlled design, in which the participants received a full-spectrum root extract of ashwagandha (as KSM-66 Ashwagandha from Ixoreal Biomed), receiving 300 mg per dose, twice daily, or placebo capsules twice daily. Primary outcomes were measured with the PSS score and Food Cravings Questionnaire-Trait (FCQ), with secondary outcomes related to weight, BMI, serum cortisol levels and happiness.



OUTCOME:

At the end of the eight weeks, participants taking ashwagandha had a:



22% decrease in mean serum cortisol levels



3% reduction in body weight, compared to only 1.4% in the placebo group



On the primary outcome measured by PSS score, subjects taking ashwagandha exhibited a marked reduction in the mean score on the PSS, dropping from 20.3 to 13.6, posting a significantly greater improvement than the placebo group.



FCQ mean scores for Planning, Positive Reinforcement, Negative Reinforcement, Lack of Control, Emotion and Environment were all reduced in the ashwagandha group by a statistically significant amount, suggesting the subjects rejected the use of food as a method to cope with stress.



Researchers concluded: "Ashwagandha root extract can be useful for body-weight management in patients experiencing chronic stress."



IMPACT:

In the United States, one-third of adults feel they are living with extreme stress, and nearly half of all adults report their stress has increased over the past five years, per the American Institute of Stress. Chronic stress has been linked to adverse health effects on the heart, brain and immune function,¹ and most recently to weight gain. In fact, a study released in February 2017 of more than 2,500 men and women found those with the highest levels of the stress hormone cortisol in hair samples had larger waists, greater weight and a higher BMI; obese individuals had particularly high cortisol levels.² Using a natural solution such as ashwagandha root extract to mitigate the stress-weight connection through control of cortisol levels could have a significant impact on health care costs as well as personal happiness levels.



1. *Indian J Psychol Med.* 2012. DOI: 10.4103/0253-7176.106022
2. *Obesity.* 23 Feb 2017. DOI: 10.1002/oby.21733

Source: Choudhary D, Bhattacharyya S, Joshi K. "Body Weight Management in Adults Under Chronic Stress Through Treatment with Ashwagandha Root Extract: A Double-Blind, Randomized, Placebo-Controlled Trial." *J Evid Based Complementary Altern Med.* 2017 Jan;22(1):96-106. DOI: 10.1177/2156587216641830.

PAID CONTENT

Ashwagandha: Science-Backed Sleep Support

Sleep is as critical to good health as food and water. Research associates poor sleep with numerous health conditions, including stress, hormone and blood-sugar issues that can cascade into illness. Quality sleep supports our mental and physical performance. It impacts our immune system. Nearly one-third of American adults, however, don't get enough¹—and that's a pre-pandemic statistic.

Since the emergence of COVID-19...



22%

of people said their sleep quality has gotten worse



Almost 15%

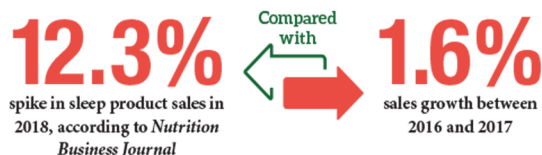
Prescriptions for sleep disorders jumped from February to March 2020 following years of decline²

The Quest for Rest: Identified as one of New Hope Network NEXT Data and Insight team's 2020 trends.

“Consumers seek products to help them prepare to be alert and energized when life demands it, alongside counterbalancing periods to recharge, relax and reenergize.”

A growing opportunity

As consumers increasingly understand the relationship between healthy sleep and overall health, their demand for natural sleep solutions swells.



Researchers attribute the sales boost partly to CBD, and note that crafty formulators are combining hemp CBD with other botanicals targeting occasional sleeplessness, allowing them to make sleep support claims.



\$800M

Estimated 2022 sleep product sales (*Nutrition Business Journal*)

Withania somnifera is a small woody shrub that grows in India and a few parts of the Mediterranean and Africa. Its power lies in its roots. Ayurvedic practitioners have revered this root's life-affirming power for 4,000+ years. An adaptogen, ashwagandha multitasks to help the body adjust to stress and achieve balance.



New research reveals ashwagandha's potential for sleep support:

In a double-blind, placebo-controlled 2019 study using KSM-66 Ashwagandha, sleep challenged subjects who received 300 mg of ashwagandha twice daily for 10 weeks showed:

- ✓ Significantly shorter time falling asleep
- ✓ Significant improvement in sleep efficiency
- ✓ Significant improvement in sleep quality

(Measured by the Pittsburgh Sleep Quality Index, examining subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications and daytime dysfunction)

- ✓ Significant calming effects, reduced nervousness

(Measured using the Hamilton Anxiety Rating Scale consisting of 14 psychological and somatic symptoms)

...compared to the placebo.³



Subjects were monitored using sleep actigraphy, a non-invasive sensor-based method. Researchers' conclusion:

“Ashwagandha root extract is a natural compound with sleep-inducing potential, well tolerated and improves sleep quality and sleep onset latency in patients with trouble sleeping at a dose of 300 mg extract twice daily. It could be of potential use to improve sleep parameters in patients with occasional sleeplessness and anxiety, but needs further large-scale studies.”

Aging Americans and sleep

In a double-blind, randomized, prospective, placebo-controlled 2020 study using KSM-66 Ashwagandha, subjects between the ages of 65 and 80 who received 600 mg/day of ashwagandha for 12 weeks showed:

- ✓ Significant increase in the quality of sleep
- ✓ Significant increase in mental alertness
- ✓ Significant improvement in quality of life

(Measured using the World Health Organization Quality of Life-BREF scale, including aspects of physical health, psychological condition, social relationships and environmental factors)

...compared to the placebo.⁴



Researchers' conclusion:

The outcome suggests significant improvement of sleep condition, mental alertness, and quality of life in elderly participants who received ashwagandha root extract in comparison to those who took a placebo. Therefore, ashwagandha root extract could be an acceptable and admirable alternative supplement in improving various age-related health issues and may boost overall general well-being in an elderly person.

KSM-66: Backed by more science than any other ashwagandha

22 Gold Standard human clinical trials

700 finished products

The highest concentrated, most bioavailable, full spectrum ashwagandha root extract on the market