Ashwagandha

Latin Name: Withania somnifera

REJUVENATION; Anti-STRESS; MALE INFERTILITY

USE Whole Plant – principally ROOT and LEAF

Found in Stony regions
India, Mediterranean and Middle East, Africa and Pakistan

Over 3,000 years HISTORY as Ayurvedic Herb

QUALITIES
1) NUTRIENTS
- Rich in IRON; Amino Acids; Steroid Lactones; Alkaloids; Flavonoids

2) REJUVENATION; General TONIC
- Study: Less FATIGUE and better QUALITY OF LIFE during chemotherapy
- 2010 Physical Performance Study: Increased SPEED, POWER and maximum OXYGEN CONSUMPTION
- ANEMIA; Study: improved RED BLOOD CELL count

3) Nervous System
- SEDATION: 2012 Study: Improved sleep quality
- 2009 Study: Reduction in ANXIETY and STRESS
- Memory enhancement
- Convulsions; Anti-SPASMODIC

4) Anti-INFLAMMATION
- Osteo-ARTHRITIS; Lumbago
- Anti-AGING; Wasting Diseases
- Reduces EDEMA and Swelling

5) Male Impotence; Infertility; Aphrodisiac
- Studies: Improved semen quality
- Study of over 100 men, 71.4% reported sexual performance capacity improvement

6) IMMUNE SYSTEM
Tuberculosis; Anti-tumor
2009 Study: NATURAL KILLER CELL activity seen after 2 months
2012 Study: Reduced BACTERIAL COUNTS in tuberculosis patients
Study: Reduced growth of Breast, CNS, Colon and Lung CANCER cells without affecting normal cells

7) SKIN
- Eczema

-Used in Cosmetic products: Antimicrobial, Antioxidant, Emollient (softens and soothes skin); Moisturizer
8) WEIGHT LOSS
- Has Choline (fat and cholesterol buster)
- 2012 Study: Increased LEAN BODY weight; Decreased BODY FAT percentage; Total CHOLESTEROL decreased significantly

SAFETY: Do not take when pregnant: Stimulates Uterus
- Do not take with alcohol, sedatives or anti-anxiety agents

Ashwagandha References

Herb History and General Information

Engels, Gayle and Josef Brinckmann, Ashwagandha Monograph. *Herbalgram*. 2013; 99: 1-7

Memorial Sloan Kettering Cancer Center. See www.aboutherbs.com accessed July 17, 2014

Milot, Brenda, ELS, Review of the Therapeutic Effects of Ashwagandha (Withania somnifera). *HerbClip.* November 30, 2004 (No. 080146-269). Austin, TX: American Botanical Council. Review of Monograph – Withania somnifera, *Alternative Medicine Review*. 2004;9(2):211-214

Webb, Ginger, Ashwagandha Monograph. *HerbClip*. September 15, 1999 (No. 062398-163). Austin, TX: American Botanical Council. Review of *Withania somnifer* by Anonymous, Materia Medica: The European Journal of Herbal Medicine. 1998, Vol. 4, Issue 2:17-22

Studies

Garner-Wizard, Mariann, Managing Stress and Building Resilience through a Healthier Lifestyle. *HerbClip*. January 31, 2013 (No. 091245-465). Austin, TX: American Botanical Council. Review of Building resiliency: A strategy to cope with stress by Low Dog T., *Altern Complement Ther.* August 2012;18(4):177-180

Henson, Shari, Beneficial Effects of Ashwagandha in the Treatment of Male Infertility. *HerbClip.* February 14, 2014 (No. 101337-490). Austin, TX: American Botanical Council. Review of Efficacy of Withania somnifera on seminal plasma metabolites of infertile males: a proton NMR study at 800 MHz. by Gupta A, Mahdi AA, Shukla KK, et al., *J Ethnopharmacol*. 2013;149(1):208-214

Mishra 2000 at www.pubmed.gov accessed July 17, 2014. The review of therapeutic use of Withania somnifera indicates that it possesses anti-inflammatory, antitumor, antistress, antioxidant, immunomodulatory, hemopoietic, and rejuvenating properties.

Oliff, Heather S., PhD, Ashwagandha Extract Dose-Dependently Improves Stress Parameters. *HerbClip*. October 30, 2009 (No 070593-387). Austin, TX. American Botanical Council. Review of A standardized Withania somnifera extract significantly reduces stress-related parameters in chronically stressed humans: A double-blind, randomized, placebo-controlled study by Auddy B, Hazra J, Mitra A, Abedon B, Ghosal S., *JANA*. 2008;11(1): 50-56

Oliff, Heather S., PhD, Ashwagandha Improves Cognitive and Psychomotor Performance in Healthy Adult Males. *HerbClip*. April 15, 2014 (No. 031451-494). Austin, TX: American Botanical Council. Review of Effect of standardized aqueous extract of Withania somnifera on tests of cognitive and psychomotor performance in healthy human participants by Pingali U, Pilli R, Fatima N.,*Pharmacognosy Res*.2014;6(1)12-18

SUMMARY of Numerous PubMed Studies (see below): Fatigue improvement of Breast Cancer patients (1); Male Infertility (3); Aphrodisiac; Stress; Tuberculosis; Cholesterol (2) + Increased strength; Reduced oxidative stress; Anxiety (2); Immunity; Adrenal fatigue; Alzheimer's; Neurodegenerative diseases; [Rvw: anti-inflammatory, antitumor, antistress, antioxidant, immunomodulatory, hemopoietic, and rejuvenating properties]; Anti-oxidant

Ahmad 2010 at www.pubmed.gov accessed July 18, 2014. In a prospective study, treatment with W. somnifera reduced oxidative stress, as assessed by decreased levels of various oxidants and improved level of diverse antioxidants in healthy men. In infertile subjects, treatment reversed levels of T, LH, FSH & PRL, good indicators of semen quality.

Andallu 2000 at www.pubmed.gov accessed July 18, 2014. Increase in urine sodium, urine volume, decrease in serum cholesterol, triglycerides, LDLand VLDL cholesterol observed in 6 NIDDM and 6 hypercholesterolemic subjects treated with Ashvagandha, indicate that its is a potential source of hypoglycemic, diuretic & hypocholesterolemic agents.

Andrade 2009 at www.pubmed.gov accessed July 18, 2014. Comment on the World Federation of Societies of Biological Psychiatry (WFSBP) guidelines for the pharmacological treatment of anxiety, obsessive-compulsive and post-traumatic stress disorders - first revision, which includes Ashwagandha for anxiety disorders.

Bhat 2010 at www.pubmed.gov accessed July 18, 2014. Both a pilot study (n=32) and a crossover study (n-110) showed that regular consumption of the tea fortified with Ayurvedic herbs including W. somnifera enhanced natural killer cell activity, which is an important aspect of the (early) innate immune response to infections.

Biswal 2013 at www.pubmed.gov accessed July 18, 2014. In an open-label prospective nonrandomized comparative trial with breast cancer patients (n=100), those receiving W. somnifera root extract (2 g every 8 hrs during the chemotherapy course) reported significantly lower estimated marginal means of fatigue score than control & improved quality of life.

Chandrasekhar 2012 at www.pubmed.gov accessed July 18, 2014. In a prospective, randomized double-blind, placebo-controlled study, subjects with a history of chronic stress receiving high-concentration full-spectrum Ashwagandha root extract (300 mg) exhibited a significant reduction on all stress-assessment scores & serum cortisol levels compared to placebo.

Chopra 2012 at www.pubmed.gov accessed July 18, 2014. A 6-wk investigator blind, randomized parallel efficacy 4-arm multicenter drug trial found that despite higher doses, standardized Ayurvedic formulations (some of which include W. somnifera) used to treat osteoarthritic knees demonstrated a good safety profile.

Cooley 2009 at www.pubmed.gov accessed July 18, 2014. In a randomized, controlled trial, naturopathic care showed greater clinical benefit for subjects with moderate to severe anxiety of >6wks duration compared to psychotherapy. Naturopathic care included W. somnifera (300 mg b.i.d. standardized to 1.5% with anolides, prepared from root).

Debnath 2012 at www.pubmed.gov accessed July 18, 2014. The symptoms abated, body weight improved, ESR values normalized, IgA and IgM patterns changed appreciably& bioavailability of isoniazid & pyrazinamide increased significantly in 99 pulmonary tuberculosis patients treated with anti-tubercular drugs as an adjunct with W. somnifera & Chyawanprash.

Gupta 2013 at www.pubmed.gov accessed July 18, 2014. A controlled study showed that treatment with W. somnifera root powder 5g/d for a 3-months not only reboots enzymatic activity of metabolic pathways and energy metabolism but also invigorates the harmonic balance of seminal plasma metabolites and reproductive hormones in infertile men.

Kalani 2012 at www.pubmed.gov accessed July 18, 2014. A woman (57 yo) with adrenal hyperplasia due to 3-β-ol dehydrogenase and aldosterone synthase deficiency self-treated with Ashwagandha for 6 mos resulting in decrease of serum corticosterone, 11-deoxycortisol, 18-OH-hydroxy-corticoserone, & 17-OH-pregnenolone by 31%, 66%, 69% and 55%, respectively.

Kulkarni 2008 at www.pubmed.gov accessed July 18, 2014. The review discusses the pharmacological basis of the use of Ashwagandha in epilepsy, stress and neurodegenerative diseases such as Parkinson's and Alzheimer's disorders, tardive dyskinesia, cerebral ischemia, and even the management of drug addiction.

Mahdi 2009 at www.pubmed.gov accessed July 18, 2014. A significiant number of normozoospermic but infertile males given root powder of W. somnifera (5 g/day for 3 mos) showed a decrease in stress, improved the level of antioxidants and improved overall semen quality. Treatment resulted in pregnancy in partners of 14% of patients.

Malviya 2011 at www.pubmed.gov accessed July 18, 2014. Reviews the recent scientific validation on traditionally used herbal plants, such as W. somnifera, as aphrodisiac herbs for the management of sexual disorder erectile dysfunction.

Mikolai 2009 at www.pubmed.gov accessed July 18, 2014. At 96 hours of use, mean values of receptor expression for CD4, CD8, CD19, CD56 & CD69 increased over baseline in 5 participants who consumed 6 mL of an Ashwagandha root extract 2x daily. Expression of CD4 on CD3+ T cells and CD69 on CD56+ NK cells increased significantly.

Mishra 2000 at www.pubmed.gov accessed July 18, 2014. The review of therapeutic use of Withania somnifera indicates that it possesses anti-inflammatory, antitumor, antistress, antioxidant, immunomodulatory, hemopoietic, and rejuvenating properties.

Raut 2012 at www.pubmed.gov accessed July 18, 2014. Encapsulated W. somnifera aqueous extract was well tolerated at varying doses in healthy volunteers in a prospective, open-labeled, study. Volunteers showed significant reduction in total- and LDL- cholesterol and increase of strength in muscle activity.

Riaz 2010 at www.pubmed.gov accessed July 18, 2014. The result of acute oral toxicity for a herbal combination of W. somnifera, Tribulus terrestris, Mucuna Pruriens & Argyreia speciosa reveals it is safe up to 5000 mg/kg. The effects of study related to reproductive capability on both sex reveals increase in reproduction rate up to two generations.

Sandhu 2010 at www.pubmed.gov accessed July 18, 2014. W. somnifera increased velocity, power & maximum oxygen consumption (VO2 max) whereas Terminalia arjuna increased VO2 max & lowered resting systolic blood pressure in healthy young adults in a controlled trial. Given in combination, all parameters improved except balance & diastolic blood pressure.

Scartezzini 2000 at www.pubmed.gov accessed July 18, 2014. A review of Indian traditional medicines with antioxidant activity includes 7 medicinal plants including Momordica charantia, Santalum album, Swertia chirata Buch-Ham, and Withania somnifera.

Shukla 2011 at www.pubmed.gov accessed July 18, 2014. Treatment with W. somnifera significantly reduced apoptosis in normozoospermic and oligozoospermic men and ROS concentrations in oligozoospermic and asthenozoospermic men (all $P<0.05$). Treatment also significantly improved metal ion concentrations in infertile men ($P<0.01$)

Singh 2008 at www.pubmed.gov accessed July 18, 2014. The popular Medhya Rasayanas which retard brain aging and help in regeneration of neural tissues besides producing antistress, adaptogenic and memory enhancing effect are Ashwagandha, Brahmi, Mandukaparni and Sankhapuspi.

Singh 2011 at www.pubmed.gov accessed July 18, 2014. Reviews scientific studies which demonstrated Withania somnifera's adaptogenic / anti-stress activities, anti-tumor effect, cognition-promoting effect, anti-inflammatory and anti-arthritic effects & its usefulness in neurodegenerative diseases.

Sriranjini 2009 at www.pubmed.gov accessed July 18, 2014. Different modalities of Ayurvedic therapy including Ashwagandha tablet 500 mg one tablet thrice daily was found to be safe and, showed improvement in the overall and anteroposterior balance in ten patients with progressive degenerative cerebellar ataxia.

Usha 2003 at www.pubmed.gov accessed July 18, 2014. A new polyherbal drug Immu-25, produced good symptomatic improvement within 6 months in 36 patients with a mean age of 35 +/-10 years, with confirmed HIV infection and the herbal drug have a good immunomodulatory effect.

Ven Murthy 2010 at www.pubmed.gov accessed July 18, 2014. Review of the scientific basis for the use of Indian ayurvedic medicinal plants, including ashwaganda, in the treatment of neurodegenerative disorders.

Wollen 2010 at www.pubmed.gov accessed July 18, 2014. Summary of hypotheses regarding cell dysfunction in Alzheimer's disease and discussion of the effectiveness of, and problems with, different therapies, including W. somnifera.

Additional info on Studies:

About Herbs Monograph
…small scale human studies suggest that it may promote growth in children and improve hemoglobin level, red blood cell count, sexual performance in adults, and may also be useful in treating male infertility.

An herbal tea containing ashwagandha was shown to increase natural killer cell activity in healthy volunteers with recurrent coughs and colds. Data also indicate that ashwagandha may be useful in the treatment of anxiety. In another clinical trial, an herbomineral formula containing ashwagandha was shown to benefit osteoarthritis. Preliminary data suggest benefits of ashwagandha in improving balance in patients with progressive degenerative cereberral ataxias.

Ashwagandha also reduced growth of breast, central nervous system, colon, and lung cancer cells without affecting normal cells. Ashwagandha may help prevent chemotherapy-induced neutropenia, but it has not been studied in cancer patients.

Contraindications

Pregnant women should avoid ashwagandha as it may induce abortion (14).

...Herb-Drug Interactions

May potentiate the sedative effect of barbiturates (14) and triazolam (30) .

Herb-Lab Interactions

May cause false elevation in digoxin immunoassay (28).

FATIGUE with CHEMO

An open-label, prospective, non-randomized, comparative clinical study published in 2013 addressed the potential use of ashwagandha root extract powder (Himalaya Drug Co.; New Delhi, India) for the mitigation of fatigue caused by chemotherapy and for improving quality of life in patients with breast cancer.29 Patients undergoing chemotherapy for breast cancer were assigned alternately into the study group (n=50) or control group (n=50) and assessed for fatigue. The study group took 500 mg ashwagandha dry extract three times daily throughout six cycles of chemotherapy. The ashwagandha patients experienced less fatigue and better quality of life during chemotherapy than the control group.

INFERTILITY

In another 2013 clinical trial, three groups of infertile male patients were recruited from the infertility clinic at King George's Medical University, Lucknow, India; 60 with normal semen profile and infertility of unknown etiology, 60 with low sperm count and normal morphology, and 60 with normal sperm count and normal morphology but reduced sperm motility.30 Controls were 50 age-matched men with normal semen profile who had initiated at least one pregnancy previously. Each patient in the study group took 5 g/day ashwagandha root powder (roots purchased from the Central Council for Research in Unani Medicine; New Delhi, India; dried in shade and ground to fine powder) orally in milk for three months. Semen samples were collected and centrifuged and the seminal plasma was assessed. Results showed that ashwagandha normalized markers in seminal plasma and may resolve infertility via action on metabolic, enzymatic, and hormonal pathways.

A 2010 prospective clinical study investigated the impact of ashwagandha on semen profile, oxidative biomarkers, and reproductive hormone levels in infertile men.31 The control group comprised normal healthy, fertile men (n=75) with normal semen profile who had initiated at least one pregnancy previously. The test groups comprised patients with infertility for more than one year (n=75; 25 with normal semen profile and infertility of unknown etiology, 25 with below-normal semen profile, and 25 with below-normal sperm motility). Patients with conditions known to influence oxidative stress were excluded from the study. For three months, the test group took 5 g/day ashwagandha root powder (Central Council for Research in Unani Medicine, New Delhi) orally with milk. Sperm concentration increased significantly in all three test groups after treatment. Sperm motility improved in all three groups but not significantly in the group with below-normal sperm motility. Semen volume increased significantly in all test groups except the group with below normal sperm motility. The ashwagandha also inhibited lipid

peroxidation in the test groups, effectively reducing oxidative stress. Finally, the ashwagandha groups experienced increased serum testosterone and luteinizing hormone levels and reduced levels of follicle-stimulating hormone and prolactin — all indicators of semen quality.

TUBERCULOSIS

A 2012 clinical study with a pilot arm and a therapeutic arm investigated the efficacy of ashwagandha as an adjunct therapy in treating tuberculosis. Recently diagnosed pulmonary tuberculosis patients who had yet to take any anti-tuberculor drugs (ATD) were enlisted. In the pilot study, Phase 1 patients took either ATD or ATD plus ashwagandha (Stresscom, standardized to 4.5% withanolides, Dabur Research Foundation; New Delhi, India). In Phase 2, patients took either ATD, ATD plus ashwagandha, or ATD plus the Ayurvedic multi-herb-and-fruit formulation Chyawanprash (Dabur Research Foundation; New Delhi, India). The treatment groups in the therapeutic study were the same as those in Phase 2 of the pilot study. More improvement was seen in both herbal adjunct groups than in the ATD drug-only group, including reduced bacterial counts after 26 days in the ashwagandha group and 29 days in the Chyawanprash group.

BODY FAT

A 2012 single-arm, uncontrolled, observational, dose-response study assessed the safety, tolerability, and activity of escalating doses of ashwagandha. For 30 days, at 10-day intervals, 18 healthy participants took increasing doses of ashwagandha (8:1 pulverized ashwagandha root extract; source, preparation, and manufacturer not stated) starting with 250 mg in the morning and 500 mg in the evening (750 mg total/day) on days 1-10, 500 mg in the morning and 500 mg in the evening (1000 mg total/day) on days 11-20, and 500 mg in the morning and 750 mg in the evening (1250 mg total/day) on days 21-30. There were no significant changes in vital signs (blood pressure, pulse, body temperature, and respiration rate, taken at baseline and on days 11, 21, and 31), body weight, or blood markers during the study, nor were any significant changes in appetite, waste elimination habits, or sleep duration reported — although 33% of the subjects reported improved sleep quality. Muscle strength increased significantly and, although body weight and body mass index (BMI) did not change significantly, there was a trend toward increased lean body weight and decreased body fat percentage. Total cholesterol decreased significantly and decreasing trends were seen in fasting blood sugar, triglycerides, and LDL cholesterol.

IMMUNE BUILDING

Two 2009 double-blind, pilot studies investigated ashwagandha and four other Ayurvedic herbs for their immune-enhancing effect.36 Study 1 included 32 volunteers randomized to two treatment groups of 16 each who consumed three cups daily of Natural Care tea (ashwagandha [0.5%]; licorice [Glycyrrhiza glabra, Fabaceae, 0.5%]; ginger [1.5%]; holy basil [Ocimum tenuiflorum, Lamiaceae, 0.5%]; and cardamom [Elettaria cardmomum, Zingiberaceae, 1.5%]; Hindustan Unilever Research Center; Bangalore, India) or regular tea (Camellia sinensis, Theaceae) for two months. Natural killer (NK) cell activity was measured after one and two months of tea consumption.

There were no significant changes in either group at the end of month one, but NK cell activity was significantly increased after two months in the NC tea drinkers but not in the regular tea group.

Study 2 was a larger, double-blind, crossover study in which 110 subjects (60 male, 40 female [sic]) were randomly assigned to two groups.36 Each group consumed three cups of tea (Natural Care or regular tea) per day for two months. NK cell activity was measured before a 15-day washout period when no tea was drunk. The groups then switched to the other tea for another two months, after which NK cell activity was measured again. NK cell activity increased in both groups after two months, but the increase in the Natural Care tea drinking groups was approximately 4.2 times higher than before, while the NK cell activity in the regular tea group was about 2.9 times higher.

ANXIETY

A randomized, controlled trial published in 2009 addressed the efficacy of ashwagandha for moderate-to-severe anxiety lasting more than six weeks per self-assessment.37 Participants were randomized to receive naturopathic care with ashwagandha (n=41), a multi-vitamin, dietary counseling, and cognitive-behavioral therapy, or standardized psychotherapy intervention (n=40). The ashwagandha group took 300 mg, two per day, for six weeks of ashwagandgha extract standardized to 1.5% with anolides from root obtained from Swiss Herbals (now Swiss Natural; Richmond Hill, ON, Canada). Outcomes were measured at four, eight, and 12 weeks, with the results suggesting that both treatments caused a significant reduction in anxiety, but the ashwagandha group also experienced significant improvement in quality of life, including reduction of stress, improved vitality, motivation, general health, and patient-specific concerns. The authors stated that it is difficult to assess the precise effect of each of the component therapies and that future studies should focus on isolating the effects of component therapies and use a blinded independent assessment rather than a patient-reported assessment.

IMMUNE CELL ACTIVATION

A small, uncontrolled study assessed the immunologic effects of ashwagandha. Twice a day for 96 hours, five participants consumed 6 mL ashwagandha root liquid extract (grain ethanol and spring water extraction, Gaia Herbs; Brevard, NC) followed by 8 fl oz whole cow's milk. Blood samples were taken at 0, 24, and 96 hours, and analyzed for immune cell activation. A significant change in immune cell activation occurred across the sample indicating that further study is warranted to determine if ashwagandha might be helpful in the prevention and treatment of infectious disease, cancer, and other immune-related conditions.

TONIC

Bone and Mills (2013) reported on four studies between 1980 and 2008 that investigated ashwagandha for its tonic activity, a concept often misunderstood in Western medicine. Tonics are restorative, supportive, sometimes adaptogenic (i.e., helping the body to adapt to stressors) substances. In these studies, ashwagandha was found to significantly increase hemoglobin, red blood cell count, seated stature, and hair

melanin content, as well as decrease serum cholesterol and erythrocyte sedimentation, improve men's sexual performance, and counter decrease in nail calcium. It also improved alertness and state of awareness, responsiveness, sleep patterns, and physical capabilities of trainee mountaineers over a six-day trek with a 5,200 m (17,000 ft.) altitude gain; modestly improved muscle strength and muscle performance in healthy elderly men; and improved stress markers for chronically stressed patients.

MALE INFERTILITY

Gupta A, Mahdi AA, Shukla KK, et al. Efficacy of Withania somnifera on seminal plasma metabolites of infertile males: a proton NMR study at 800 MHz. J Ethnopharmacol. 2013;149(1):208-214. See Herbalgram.org /herbclip/490/101337-490.html 2014-02-14 [33.158 KB]

...There is some experimental evidence that ashwagandha root improves semen quality and decreases spermatorrhea by regulating reproductive hormone levels and oxidative stress.2,3 This study evaluated the effects of ashwagandha on seminal plasma metabolites, enzymes, and hormones in infertile men using high-resolution proton nuclear magnetic resonance (NMR) spectroscopy. ...

One hundred and eighty male subjects aged 22 to 45 years were recruited from the infertility clinic at King George's Medical University, Departments of Urology and Obstetrics & Gynecology in Lucknow, India,...

...Sperm concentration, motility, and LPO levels improved significantly in these groups compared with baseline values....Compared with baseline, there was a significant increase in luteinizing hormone and testosterone in all groups post-treatment. Follicle-stimulating hormone and prolactin levels decreased in all 3 groups of infertile subjects.

The authors explain, "Aberrations of endogenous metabolites, enzymatic activities, and hormone levels commonly precede the onset of infertility." An important finding in this study is that oral intake of ashwagandha for 3 months by infertile men resulted in substantial enhancement of seminal plasma metabolic profiles and improvements in enzymatic, hormonal, and clinical parameters (sperm concentration, motility, and LPO). The authors conclude that ashwagandha "can be used as an alternative empirical therapy for the treatment and clinical management of male infertility." —Shari Henson

---

MEMORY

Pingali U, Pilli R, Fatima N. Effect of standardized aqueous extract of Withania somnifera on tests of cognitive and psychomotor performance in healthy human participants. Pharmacognosy Res. 2014;6(1):12-18. See Herbalgram.org /herbclip/494/031451-494.html 2014-04-15 [13.345 KB]

...Ashwagandha (Withania somnifera) is used in Ayurvedic medicine to enhance memory and overall brain function. Many in vitro and in vivo studies demonstrate the potential benefits of ashwagandha; however, human studies are limited. The purpose of this randomized, double-blind, placebo-controlled, crossover study was to evaluate the cognitive and psychomotor effects of a standardized aqueous ashwagandha extract in healthy young male subjects.

Healthy men (n = 20, aged 20-35 years) participated in this study conducted at Nizam's Institute of Medical Sciences; Punjagutta, Hyderabad, India.

Compared with placebo and baseline, ashwagandha significantly improved the reaction time for the following tests: digit symbol substitution ($P < 0.05$ and $P < 0.001$, respectively), simple reaction ($P < 0.01$ for both), choice discrimination ($P < 0.05$ for both), digit vigilance ($P < 0.01$ for both), and card sorting ($P < 0.05$ for both). ...The mean percent reduction in reaction time between groups at study end was statistically significant for digit symbol substitution ($P < 0.05$), digit vigilance ($P < 0.01$), and simple reaction ($P < 0.05$).

In summary, 1000 mg/day of standardized ashwagandha extract improved cognitive and psychomotor performance in healthy young adult males when taken for 14 days....

STRESS

Auddy B, Hazra J, Mitra A, Abedon B, Ghosal S. A standardized Withania somnifera extract significantly reduces stress-related parameters in chronically stressed humans: A double-blind, randomized, placebo-controlled study. JANA. 2008;11(1): 50-56. See Herbalgram /herbclip/387/review070593-387.html 2009-10-30 [16.858 KB]

...Ashwagandha (Withania somnifera) has an antistress adaptogenic effect. According to Ayurvedic medicine, it promotes stress relief, restores homeostasis, and increases resistance to adverse environmental factors. However, it has not been evaluated in a randomized, controlled trial of chronically stressed people. Hence, the objective of this study was to evaluate the effect of ashwagandha on indicators of stress and anxiety in chronically stressed adults.

Men and women (n = 130, aged 18 to 60 years) with a Bengali version of a modified Hamilton anxiety (mHAM-A) scale for stress score of 24 to 42 participated in this double-blind, randomized, placebo-controlled study between November 2004 and October 2006. The study was conducted at the Central Research Institute (Ayurveda), Ministry of Health and Family Welfare, Bidhan Nagar, Kolkata, India. ...

The authors conclude that all doses tested support traditional claims of an antistress-adaptogenic effect. In this study, the cortisol levels declined over the course of the study in patients treated with ashwagandha. This indicates that ashwagandha may be working through the hypothalamic-pituitary-adrenal axis. Cortisol also regulates blood sugar levels. Patients in the 250 and 500 mg/day groups had reductions in fasting blood glucose. Also, chronic stress reduces serum DHEAS, a marker of stress. Patients in this study treated with ashwagandha had increased concentrations of DHEAS at study end compared with the placebo group. Chronic stress is associated with high levels of serum C-reactive protein, a systemic marker of inflammation associated with various chronic diseases. All doses of ashwagandha decreased levels of serum C-reactive protein. The authors conclude that daily use of ashwagandha may help people with chronic stress with no adverse side effects. Long-term safety and efficacy need to be determined. —Heather S. Oliff, PhD

SLEEP

Low Dog T. Building resiliency: A strategy to cope with stress. Altern Complement Ther. August 2012;18(4):177-180. Herbalgram.org /herbclip/465/091245-465.html 2013-01-31 [14.577 KB]

In her column, Low Dog discusses issues of stress and coping. Stress is neither good nor bad; like many biological processes, it is necessary and neutral. However, when poorly managed or out of control, it is a factor in many mental and physical conditions.

...Low Dog relies on three adaptogens to help overstressed patients. Rhodiola (Rhodiola rosea) is for those who are "burned out." They may have more physical and somatic issues, chronic fatigue or fibromyalgia, and low cortisol levels. Asian ginseng (Panax ginseng) benefits patients who have strong constitutions but are getting more colds or flus, feeling less alert, etc. She recommends ashwagandha (Withania somnifera) to patients who cannot sleep, despite being tired, due to thinking about their waking concerns. All three herbs help regularize the hypothalamic-pituitary-adrenal axis... —Mariann Garner-Wizard

STUDY REVIEW

The review of therapeutic use of Withania somnifera indicates that it possesses anti-inflammatory, antitumor, antistress, antioxidant, immunomodulatory, hemopoietic, and rejuvenating properties. Mishra 2000

Altern Med Rev. 2000 Aug;5(4):334-46.
http://www.ncbi.nlm.nih.gov/pubmed/10956379?dopt=Abstract

Scientific basis for the therapeutic use of Withania somnifera (ashwagandha): a review. Mishra LC1, Singh BB, Dagenais S.

...RESULTS:
Studies indicate ashwagandha possesses anti-inflammatory, antitumor, antistress, antioxidant, immunomodulatory, hemopoietic, and rejuvenating properties. It also appears to exert a positive influence on the endocrine, cardiopulmonary, and central nervous systems. The mechanisms of action for these properties are not fully understood. Toxicity studies reveal that ashwagandha appears to be a safe compound.