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Viewpoint: Attention-Grabbing Adaptogens



Adaptogens for Adrenal Fatigue: Using Herbs to Balance the Effects of Long-Term Stress

Problems with adrenal function may contribute to chronic fatigue. While drugs can target isolated symptoms of adrenal fatigue, **Steve Myers** explains the use of adaptogenic herbs may bring a more systemic balance to the underlying issues.



Adaptogens for Stamina, Strength and Stress

Research supports the potential benefits of adaptogens across several categories, including skin, brain, heart and sexual health. New studies have implicated additional areas of benefit, such as weight management and sports nutrition. **Rachel Adams** explores the latest findings on herbs such as ginseng, holy basil, astragalus and *Rhodiola rosea*—a handful of adaptogens rich with opportunity.



Takeaways for Your Business



All About Ashwagandha

Ayurvedic medicine has a long history of using ashwagandha to aid in achieving overall well-being. However, as **Rachel Adams** discovered, a growing library of clinical research has brought widespread recognition of the herb for use in a variety of targeted formulations.

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Attention-Grabbing Adaptogens



Sheryl O'Loughlin is a woman to watch in the natural products industry, and she has her eye on adaptogens.

As reported by [Fortune Magazine](#), in late 2015, O'Loughlin became CEO of REBBL, a San Francisco-based startup that makes juices with adaptogenic ingredients such as maca, ginseng and ashwagandha.

She's good at picking winners—she was CEO at Clif Bar (where revenue doubled under her leadership) and she co-founded the popular organic baby food company Plum Organics.

So, when O'Loughlin starts to focus on products that contain ashwagandha, turmeric and reishi, it's a sign that these herbs are likely to get a lot more in vogue.

Of course, adaptogens—herbs that help the body adapt to stress—have been helping people for centuries. Recent research has backed what traditional healers have known about the power of herbs such as ginseng, astragalus and holy basil (turn to [page 5](#) of this Digital Magazine to learn what the specific studies show).

Ashwagandha is a stand-out adaptogen, so we dedicated an entire article showcasing its research ([on page 11](#)).

Lastly, we took the time to explain how adaptogens affect adrenal fatigue—a syndrome based on the theory that long-term stress affects the ability of the adrenal glands to produce sufficient hormones. A term coined in the late 1990s, adrenal fatigue is increasingly discussed among consumers, thanks to the frazzled population, overworked athletes and drained professionals. As the article on [page 16](#) explains, the botanicals rhodiola, schisandra, maca and more may help reduce symptoms associated with adrenal fatigue.

As O'Loughlin's attention focuses on adaptogens, it may be time for other brands to take a look at how these powerful herbs can help ease the stress of choosing ingredients in new product formulations.

Sandy Almendarez

Sandy Almendarez

Editor in Chief

(480)281-6745

sandy.almendarez@informa.com



[@SandyAlmendarez](#)

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Adaptogens for Stamina, Strength and Stress

by Rachel Adams

INSIDER's Take

- Adaptogens are herbs or herbal products that help the body adapt to stress—both physical and mental.
- Research supports the benefits of adaptogens across several health categories, including skin, brain, heart and sexual health.
- Research is opening the door to new areas of health for certain herbs, such as potential for weight management applications.

The term “adaptogens” refers to herbs and herbal products used to normalize body functions and strengthen systems compromised by stress.

Basically, adaptogens help the body adapt to stress.

Though stress is often perceived as relating to mental and emotional well-being, stress can occur any time the body or mind is pushed beyond its “normal” measures, or any time the body or its processes are imbalanced. Athletes create physical stress when engaging in activities such as running, sprinting, weight training, etc. Physical and mental stress can result when sickness, such as a cold or flu, occurs. Bacteria can interfere with the skin or oral tissue, causing stress to the tissues. Improperly functioning adrenal glands can affect excretion of cortisol, pushing several processes within the body beyond normal function—another example of stress.

The list goes on.

For adaptogens such as ashwagandha, ginseng, holy basil, astragalus and more, the lengthy list of stressors presents opportunity for researchers (and for natural products manufacturers looking to provide the benefits of adaptogens to consumers).

Though many adaptogens are well researched, new studies continue to explore the mechanisms behind the benefits of these powerful herbs, and in some cases, research is opening doors for certain herbs in new areas of health.

Holy basil (*Ocimum tenuiflorum*, also known as **tulsi)** has gained recognition for a range of positive effects, among which are antimicrobial properties that could make the herb beneficial—when applied topically—against skin conditions such as acne and certain skin infections.

A recent study published online in 2016 in *Frontiers in Microbiology* examined the antimicrobial properties of essential oils distilled from tulsi, and used broth micro-dilution to determine the minimum inhibitory concentration (MIC) of tulsi essential oil against selected microbial pathogens.¹ Researchers found three oils in tulsi (camphor, eucalyptol and eugenol) inhibited growth of the pathogens *Staphylococcus aureus* (including MRSA), *Escherichia coli* and *Pseudomonas aeruginosa*, and concluded, “Tulsi essential oil could be a valuable topical antimicrobial agent for management of skin infections caused by these organisms.”

An in vitro study examined the effects of holy basil essential oil on *Propionibacterium acnes*—the bacterium linked to acne, and found a 3 percent concentration of holy basil oil is most effective against the bacterium.²

New in vitro research expanded the antimicrobial benefits of tulsi to oral health, according to a new study published in 2016 demonstrating tulsi's effective antimicrobial property against *Aggregatibacter actinomycetemcomitans*—a bacteria known to cause periodontitis.³ Researchers suggested tulsi offered “possible use as an effective and affordable ‘adjunct’ along with the standard care in the management of periodontal conditions.” A different in vitro study published in 2016 showed similar antimicrobial effects of tulsi extract against *Actinobacillus actinomycetemcomitans*—another bacteria associated with periodontal disease in humans.⁴

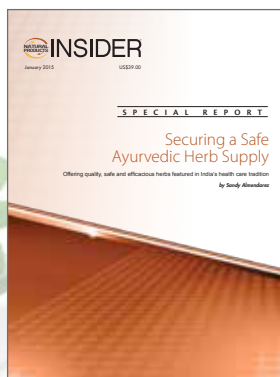
Tulsi offered anti-inflammatory and immune-boosting properties shown to make consumers of the herb less susceptible to developing cancer cells,⁵ and has been shown to control blood glucose levels in diabetic rats⁶ and humans.⁷

Research published in 2015 sought to evaluate the antioxidant and anti-inflammatory effects of tulsi leaves on rats experiencing isoproterenol (ISP)-induced myocardial infarction (MI), and determined the methanolic extract of tulsi leaves decreased inflammation in the cardiac tissue of ISP-induced MI in rats.⁸ Researchers suggested downregulation of oxidative stress and arachidonic acid pathway may be responsible for the effect. Further, “This cardioprotective effect may be due to the high phenolic content of methanolic extract of tulsi leaves,” they concluded.

Further supporting the antioxidant and anti-inflammatory benefits of tulsi on heart health, a study published in 2015 determined tulsi extract may act as an inhibitor of myeloperoxidase (MPO), an oxidative enzyme linked to the development of atherosclerosis (hardening of the arteries).⁹

Ginseng is a traditional herbal product known for its adaptogenic properties. Ginseng is from the genus *Panax* and includes two primary species: Asian or Korean ginseng (*Panax ginseng*) and American ginseng (*Panax quinquefolius*).

Ginseng has been used for its array of benefits, including its ability to improve calmness and working memory,¹⁰ attenuate stress (and for its potential in treatment of stress-induced disorders),¹¹ improve cognitive performance in Alzheimer's disease patients,¹² benefit sexual health,¹³ control blood glucose levels¹⁴ and mitigate cancer via its “anti-inflammatory, antioxidant and apoptotic mechanisms,”¹⁵ among other benefits.



Ayurvedic Herbs Buyers Guidebook

Modern research has shown the clinical benefits of many of the herbs used in India's traditional Ayurvedic medicine, but natural product brands need to ensure they carefully monitor ingredient suppliers and testing methods. Download **INSIDER's** Ayurvedic Herbs Buyers Guidebook to get best practices in purchasing Ayurvedic herb ingredients.

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Though recent research on ginseng evaluates its effects in multiple areas of health, several new studies have explored its roles in cognition and sexual health.

American ginseng extract (as Cereboost™ from Naturex) recovered the cognitive function of mice challenged with an amyloid-beta1 (Aβ1)-42 peptide and the underlying mechanisms in an in vitro study published in 2016.¹⁶ In Alzheimer's disease, Aβ peptides induce the degeneration of presynaptic cholinergic system, which decreases activity of enzyme choline acetyltransferase (ChAT) responsible for synthesis of acetylcholine, a neurotransmitter responsible for muscle activation. Results showed Cereboost administration recovered the cognitive function of Alzheimer's disease model animals by enhancing acetylcholine level via ChAT gene expression and neuroprotection. Another study published in 2016 found ginseng significantly improved the memory ability of Alzheimer's disease rats.¹⁷

An animal study published in 2016 evaluated the effects of red ginseng on neurobehavioral deficits displayed in mice with autism spectrum disorder (ASD), including social interaction capacity, locomotor activity, repetitive behaviors, short-term spatial working memory, motor coordination and seizure susceptibility. Researchers concluded, "Remarkably, long-term [Korean red ginseng] treatment in both dosages [100 or 200 mg/kg/d] normalized all the ASD-related behaviors in [valproic acid]-exposed mice, except motor coordination ability."¹⁸

Two new animal studies further support the role of ginseng in men's sexual health. One study found long-term administration of Korean red ginseng extract restored aging-induced testicular ineffectiveness in rats by modulating redox proteins and oxidative defense mechanisms,¹⁹ while another found ginsenoside Rg3 (an active ingredient isolated from *Panax ginseng*) improved erectile function in diabetic rats.²⁰

A review of herbal therapy in experimental colitis published in 2016 suggests ginseng may be an effective therapy for inflammatory bowel disease, where "herbal therapy reduced the inflammatory activity of experimental colitis and diminished the levels of many inflammatory indices, including serum cytokines and indices of oxidative stress."²¹

Used to alleviate depression and fatigue, ***Rhodiola rosea*** has been shown to improve serotonin levels and repair injured neurons.²² *Rhodiola* garners its powers from its active constituent, salidroside, which treats depression via its anti-inflammatory effects on the hypothalamic-pituitary-adrenal (HPA) axis.²³

Salidroside from *rhodiola* has also been considered for treating cerebral ischemic and neurodegenerative diseases,²⁴ and it offers neuroprotective properties that may help with degradation associated with Alzheimer's disease²⁵ and other age-related diseases.²⁶

New research published in 2016 shows salidroside from *rhodiola* may offer benefits to weight management;²⁷ the compound decreased food intake, body weight and hepatic



Jump to page 11 of this
Digital Magazine
to read the latest research
supporting adaptogen
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triglyceride content in obese mice, while significantly improving glucose and insulin tolerance. In addition, salidroside markedly ameliorated hyperglycemia in treated mice.

Looking to new avenues for rhodiola, a paper published in 2016 suggested rhodiola be investigated for use as a potential selective estrogen receptor modulator (SERM) in the prevention and treatment of menopause-related fatigue, stress, depression, cognitive decline, memory impairment, cardiovascular disease (CVD), osteoporosis and cancer.²⁸ Researchers reviewed evidence supporting the herb's positive role as it relates to the "relationship between estrogen decline and menopause-related health risks."

Another herb known for its adaptogenic properties, **astragalus (*Astragalus membranaceus*)** is known for anti-inflammatory and immune-boosting benefits.²⁹ Astragalus owes its health benefits to three compounds within the plant: saponins (anti-inflammatory, immunoregulatory, anti-tumor and antioxidant activities), flavonoids (anti-tumor, cardioprotective and antioxidant activities) and polysaccharides (anti-inflammatory, anti-tumor, anti-diabetic and anti-aging activities).³⁰

One area of extensive research on astragalus relates to its antidiabetic effects. While all three compounds have been studied on both type 1 and type 2 diabetes, researchers concluded the total polysaccharides fraction is the only one to demonstrate significant activity to type 1. There it protected pancreatic beta cells from intracellular (autoimmune) cell death via the immunomodulation of several inflammatory and apoptotic cytokines, enzymes and proteins, and also demonstrated the potential to modulate T helper cells 1 and 2, reduce inflammatory response and promote antioxidant activities toward antiapoptotic protection of pancreatic beta cells.³¹ All three compounds (polysaccharides, saponins and flavonoids) demonstrated activity to type 2 diabetes by inducing hypoglycemic effects through various insulin sensitizing pathways, among other benefits.

Further, astragalus polysaccharides protected mitochondria by scavenging reactive oxygen species (ROS),³² while other compounds within astragalus have demonstrated wound-healing³³ and cardiovascular benefits.³⁴

The benefits of adaptogens are wide-reaching, and continue to grow as researchers continue exploring these powerful herbs and their health effects. 

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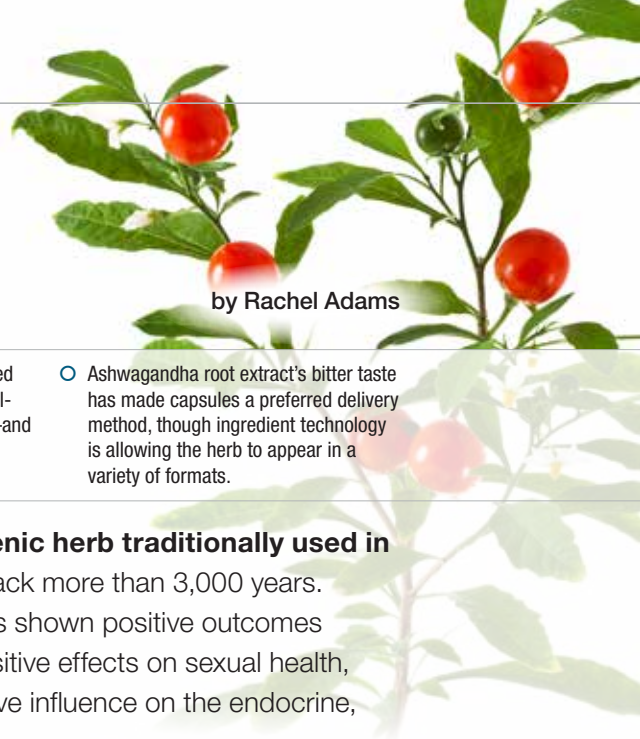
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by Rachel Adams

All About Ashwagandha

INSIDER's Take

- Ashwagandha's broad range of applications contributes to its reputation as "the flagship of Ayurveda."
- Though ashwagandha has been used traditionally to promote "overall well-being," new research is targeting—and increasing interest in—the herb's specific, varied benefits.
- Ashwagandha root extract's bitter taste has made capsules a preferred delivery method, though ingredient technology is allowing the herb to appear in a variety of formats.

Ashwagandha (*Withania somnifera*) is an adaptogenic herb traditionally used in

Ayurvedic medicine, the Indian medical system dating back more than 3,000 years. Living up to its reputation as an adaptogen, this herb has shown positive outcomes across a wide range of health applications, including positive effects on sexual health, stress, inflammation and rejuvenation, as well as a positive influence on the endocrine, cardiopulmonary and central nervous systems.¹

According to Kartikeya Baldwa, director, Ixoreal Biomed, ashwagandha's broad range of applications contributes to its reputation as "the flagship herb of Ayurveda" and is also a primary driver of its popularity among consumers.

While the herb has gained widespread recognition in recent years for its variety of targeted benefits—attributable to a growing library of clinical research—the herb was once used primarily to achieve overall well-being, Baldwa explained, adding naturopaths and holistic health practitioners prescribed the herb during its early use in the United States to achieve homeostasis, where the body's regulatory processes and hormones are in balance.

"Things started to change after the recent surge of modern clinical studies on ashwagandha," he said. "Clinical studies are typically narrow and specific in scope. After this surge, consumers and practitioners started using ashwagandha for more specific applications, rather than just 'overall well-being.'"

Among the specific applications for ashwagandha, Baldwa pointed to improvements in "stress response, brain function, stamina, muscle performance and recovery, and finally, sexual function."

True to Baldwa's statement, several studies in recent years have evaluated the effects of ashwagandha in numerous areas.

Stress

Ashwagandha root extract (as KSM-66 Ashwagandha by Ixoreal Biomed) significantly reduced cortisol levels and stress on all measures in a recent study.² The study was a randomized and placebo controlled trial with 64 participants who were normal and healthy, but each had a history of chronic stress. An extensive battery of psychometric scales assessing different measures of stress were applied, along with the effects each had on a participant. The study concluded ashwagandha can be used to increase resistance to stress and improve the quality of life through enhancing sleep quality, productivity and mental calmness and relaxation.

Ashwagandha (300 mg) was also included as part of a naturopathic care regimen (NC) used in a study evaluating the effectiveness of NC versus standardized psychotherapy intervention (PT) on anxiety.³ For the study, 81 participants were randomized to NC or PT treatments, where participants in the NC group received dietary counseling, deep breathing relaxation techniques, a standard multivitamin and 300 mg ashwagandha, while the PT intervention participants received psychotherapy, matched deep breathing relaxation techniques and placebo. The primary outcome measure was the Beck Anxiety Inventory (BAI); final BAI scores decreased by 56.5 percent in the NC group and 30.5 percent in the PT group. Significant differences between groups were also observed in mental health, concentration, fatigue, social functioning, vitality and overall quality of life, with the NC group exhibiting greater clinical benefit.

A double-blind, randomized, placebo-controlled trial published in 2016 showed ashwagandha (300 mg twice daily, as KSM-66) may help individuals with chronic stress manage weight.⁴

Sports Nutrition

Research published in 2015 found ashwagandha root extract improved muscle building while decreasing muscle damage in adult males who lifted weights for eight weeks, compared to placebo.⁵ The randomized, prospective, double-blind, placebo-controlled clinical study involved 57 males aged 18 to 50 years who had little experience with resistance training. They were randomized to take either 300 mg capsules of ashwagandha root extract (as KSM-66) or 300 mg of starch twice daily. Researchers determined those taking ashwagandha had significantly more muscle strength for both the upper (75 percent more) and lower body (50 percent more) compared to those taking placebo, had greater muscle size increases, and also experienced greater decreases in body fat (nearly doubling fat loss relative to muscle gain in the treatment group), higher testosterone levels and improved recovery—lower creatine kinase levels—after eight weeks in subjects taking ashwagandha.

KSM-66 also enhanced the cardiorespiratory endurance and improved the quality of life in a prospective, double-blind, randomized and placebo-controlled study conducted in 50 healthy athletic adults.⁶

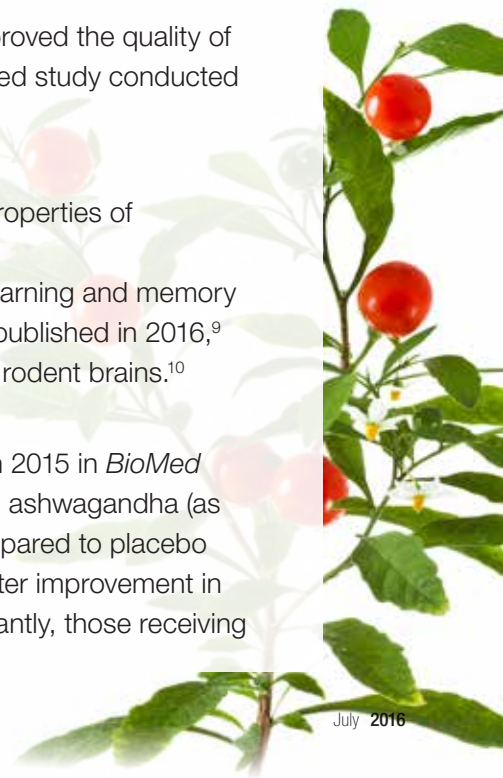
Brain Health, Cognition

Multiple in vitro studies have demonstrated the neuroprotective properties of ashwagandha.^{7,8}

Ashwagandha may suppress the acute effects of sleep loss on learning and memory impairments, according to results of a study conducted in rats and published in 2016,⁹ and may inhibit neurological abnormalities due to oxidative stress in rodent brains.¹⁰

Sexual Function, Reproductive Health

A double-blind, randomized, placebo-controlled trial, published in 2015 in *BioMed Research International*, examined the effect of supplementation with ashwagandha (as KSM-66) in 50 women between the ages of 21 and 50 years.¹¹ Compared to placebo subjects, the group consuming ashwagandha had significantly greater improvement in sexual interest, arousal, lubrication and in achieving orgasm. Importantly, those receiving



ashwagandha also had significantly greater improvement in sexual satisfaction and emotional closeness during sexual activity. Moreover, ashwagandha supplementation caused a marked reduction in sexually related distress in women during the study.

Supplementation with ashwagandha (as KSM-66) in adult males demonstrated significant improvement in testosterone level and other metrics related to male sexual function in a clinical study published in 2014.¹² The study found KSM-66 supplementation increased testosterone levels by 17 percent, semen volume by 53 percent, sperm concentration by 167 percent, luteinizing hormone by 34 percent and sperm motility by 57 percent. The double-blind, randomized, placebo-controlled trial looked at 46 males between the ages of 22 and 44. All participants were healthy, but had oligospermia, a condition that causes low sperm count. Based on the study, Health Canada approved KSM-66 for the claim “helps promote healthy testosterone production in males.”

A prospective study conducted in 75 healthy, infertile men found ashwagandha root extract improved semen quality in men by regulating reproductive hormone levels and oxidative stress in seminal plasma of infertile males.¹³

Other benefits

Ashwagandha normalized hyperglycemia in fructose-fed rats by reducing inflammatory markers and improving insulin sensitivity in a study published in 2015,¹⁴ has exhibited anti-tumor activity against various cancer cells,^{15,16} and may benefit osteoarthritis.^{17,18}

Managing Quality, Delivery

Baldwa noted several factors that could be driving use of ashwagandha, including “people feeling more stressed, jobs being more demanding, greater interest in natural products rather than chemicals, greater interest in physical fitness, and finally, the increasing life span.”

Regardless the reasons driving usage, ashwagandha isn't exempt from consumer demand for more variety, especially when it comes to delivery methods.

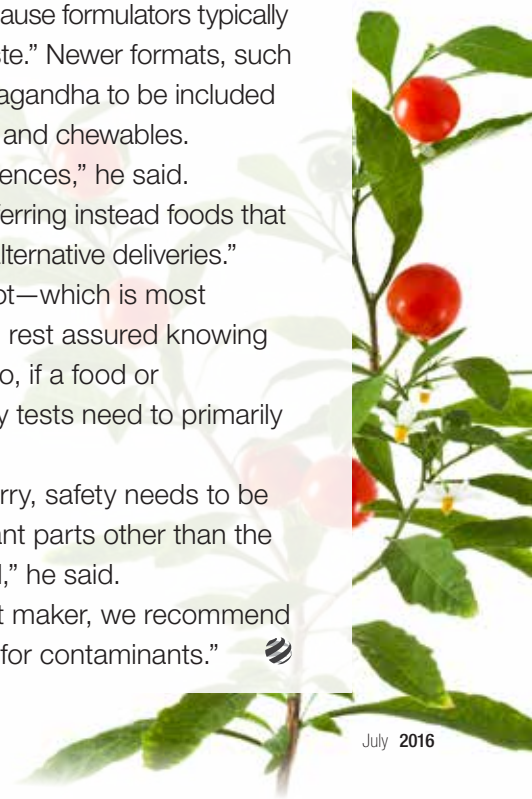
Baldwa noted ashwagandha was taken primarily in capsules, “because formulators typically used hydro-alcoholic-extracted ashwagandha, which is bitter in taste.” Newer formats, such as full-spectrum, water-based KSM-66 extract, have allowed ashwagandha to be included in a range of delivery systems, including beverages, bars, powders and chewables.

“Delivery forms are driven to a large extent by consumer preferences,” he said. “Consumers are increasingly averse to taking pills or capsules, preferring instead foods that are more functional, which in turn makes manufacturers try these alternative deliveries.”

Considering quality, manufacturers using the ashwagandha root—which is most common—to create supplements and other healthy products can rest assured knowing the safety of the root has been evaluated in numerous studies. “So, if a food or supplement maker is using the ashwagandha root, then the safety tests need to primarily focus on contaminants seeping in,” Baldwa said.

When using plant parts beyond the root, such as the leaf or berry, safety needs to be evaluated more closely, as “internal ingestion of ashwagandha plant parts other than the root has a less established history and safety there is less studied,” he said.

Instead, Baldwa advised, “For the cautious food or supplement maker, we recommend using ashwagandha extracts that use only the root and checking for contaminants.”



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Adaptogens for Adrenal Fatigue

Using herbs to balance the effects of long-term stress

by Steve Myers

Persistent fatigue has many possible explanations. Among the diseases and conditions that can make a person chronically feel tired, problems with adrenal function have formed another possible reason. The idea is that adrenal glands overproducing the hormone cortisol in the face of continuous stress trigger a cascade of hormonal imbalances that lead to ongoing fatigue. While drugs may well target isolated symptoms of adrenal fatigue, the use of adaptogenic herbs is thought to bring a more systemic balance to the underlying issues fueling this fatigue.

Adrenal fatigue syndrome is based on the theory that long-term stress affects the ability of the adrenal glands to produce sufficient hormones, namely cortisol. The body's metabolism and immune response are affected by cortisol, as the hormone can stimulate the use of blood sugar for energy and can support an anti-inflammatory response. In a long-term stressed state, the body cannot meet its demands for cortisol—which helps counter stress—and negative consequences result.

Adrenal fatigue syndrome is different from adrenal insufficiency, also known as Addison's disease, in which adrenal gland dysfunction due to injury or pituitary malfunction results in insufficient hormone production. The Endocrine Society has noted adrenal insufficiency is not caused by mental or physical stress. Addison's can be diagnosed by blood and other tests, whereas adrenal fatigue syndrome is diagnosed by assessing a series of non-specific symptoms including problems sleeping, heart palpitations, low libido, blood pressure inconsistency and anxiety. Some naturopathic and integrative doctors use saliva to test for hormone levels, as part of the overall diagnostic process, but many have reported salivary testing is useful for cortisol, but not for other hormones also involved in adrenal fatigue.

Adrenal fatigue is neither widely understood nor recognized by the mainstream medical community, and the use of adaptogens on this controversial syndrome has been based mostly on traditional use and the known health properties of individual herbs. The research on the use of adaptogens in adrenal fatigue is scant.

Adaptogen herbs work to bring homeostasis (internal equilibrium among physiological processes), which helps the body to adapt to different health environments, including stress. According to Israel Brekhman, Ph.D., the Russian scientist credited as coining the term “adaptogen,” these herbs enhance the state of non-specific resistance to stress but must be innocuous to the body.

Along with a Russian colleague, Brekhman found many native Asian plants—especially from the Araliaceae family—that include ginseng, are adaptogenic.¹ Some of these adaptogenic botanicals have been used to address adrenal fatigue syndrome.

In their 2009 review published in *Alternative Medicine Review*, Kathleen Head, N.D., and Gregory Kelly, N.D., outline several such herbs with researched adaptogenic benefits, especially in areas relevant to theorized adrenal fatigue mechanisms.²

Panax ginseng, also known as Korean ginseng, has multiple mechanisms, some of which appear contradictory, but shows a clear ability to influence adrenal function and the hypothalamic-pituitary-adrenal (HPA) axis. “Ginseng saponins appear to stimulate ACTH [adrenocorticotrophic hormone] and subsequent cortisol production, suggesting ginseng might help potentiate an acute stress response,” the reviewers reported.

Eleutherococcus senticosus, also known as Siberian “ginseng,” can help the body adapt to adverse conditions, improving mental performance and boosting the ability to work under stressful conditions. This herb can decrease the testosterone:cortisol ratio by elevating cortisol. In fact, eleuthero may both increase and decrease stress response depending on the level of stress experienced.

Glycyrrhiza glabra/uralensis, also known as licorice, has shown an ability to mildly mimic endogenous steroid hormones by binding to glucocorticoid and mineralocorticoid receptors. It is also thought to curtail enzymatic activity that could otherwise shorten the life of cortisol.

Withania somnifera, also known as ashwagandha, may help counter the effects of stress on the adrenal glands, blood sugar levels and cortisol production. The end benefit may be improvements in several symptoms associated with adrenal fatigue, including depression, anxiety, ulcers, sexual dysfunction and immunosuppression. The reviewers noted ashwagandha is similar to *P. ginseng* in anabolic and anti-stress activity, but does not appear to result in the negative effects associated with *Panax ginseng* abuse, such as high blood pressure, water retention, muscle tension and insomnia.

Rhodiola rosea, also known as arctic or golden root, can influence the biogenic monoamine neurotransmitters serotonin, dopamine and norepinephrine in the cerebral cortex, brain stem and hypothalamus. It also appears to address cardiopulmonary stress. To the end user, the reviewers suggested rhodiola could help manage stress-related symptoms such as decline in work performance, sleep disturbances, poor appetite, irritability, hypertension, headaches and fatigue.

Beyond the adaptogens highlighted in the review article, several other such herbs have been indicated for use in adrenal fatigue and have shown some researched benefits to stress management.

Schisandra chinensis, also known as five flavor fruit, is a native Asian berry that can help manage both cortisol and blood sugar levels, as well as protect the adrenal cortex and counter the negative impact of psychological and physical stress that can suppress immune function.³ Paired with rhodiola, schisandra may offer adrenal fatigue patients help by balancing the HPA axis and reducing gene-related hormonal changes in the hypothalamus.⁴

Ocimum sanctum, also known as holy basil or tulsi, contains numerous constituents with anti-stress activities including normalization of blood sugar, corticosterone and adrenalenlargement.⁵



As a benefit to adrenal fatigue sufferers, holy basil may help improve cognitive health⁶ and counter oxidative stress.⁷



Lepidium meyenii, also known as maca or “Peruvian ginseng,” is a root used traditionally to provide strength and virility. In fact, maca may help reproductive health in both males⁸ and females.⁹ There is some evidence maca constituents activate noradrenergic and dopaminergic systems to offer antidepressant effects in the face of unpredictable mild stress.¹⁰

Addressing adrenal fatigue often involves a combination of adaptogenic herbs that target different mechanisms and symptoms of the non-specific syndrome. While there are numerous botanicals identified as adaptogenic, only a handful have published research on their abilities to counter stress and the hormonal changes involved in adrenal fatigue.



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Takeaways for Your Business

The term “adaptogens” refers to herbs and herbal products used to normalize body functions and strengthen systems compromised by stress.

Although stress is often perceived as relating to mental and emotional well-being, stress can occur any time the body or mind is pushed beyond its “normal” measures, or any time the body or its processes are imbalanced. Athletes create physical stress when engaging in activities such as running, sprinting or weight training. Physical and mental stress can result when sickness, such as a cold or flu, occurs. Bacteria can interfere with the skin or oral tissue, causing stress to the tissues. Improperly functioning adrenal glands can affect excretion of cortisol, pushing several processes within the body beyond normal function—another example of stress.

Adrenal fatigue syndrome is based on the theory that long-term stress affects the ability of the adrenal glands to produce sufficient hormones, namely cortisol. The body’s metabolism and immune response are affected by cortisol, as the hormone can stimulate the use of blood sugar for energy and can support an anti-inflammatory response. In a long-term stressed state, the body cannot meet its demands for cortisol—which helps counter stress—and negative consequences result.


While drugs may well target isolated symptoms of adrenal fatigue, the use of adaptogenic herbs is thought to bring a more systemic balance to the underlying issues fueling this fatigue.

Many adaptogens are well researched; however, new studies continue to explore the mechanisms behind the benefits of these powerful herbs, opening doors for new areas of health.

Ginseng, holy basil, astragalus and *Rhodiola rosea* (also known as arctic or golden root) are but a handful of adaptogens rich with opportunity for researchers, as well as natural products manufacturers.

One of the best known adaptogens, ashwagandha (*Withania somnifera*), is an herb used in Ayurvedic medicine—a traditional Indian medical system dating more than 3,000 years that emphasizes use of herbs, special diets and other unique health practices. Living up to its reputation as an adaptogen, this herb has shown positive outcomes across a wide range of health applications, including positive effects on sexual health, stress, inflammation and rejuvenation, as well as a positive influence on the endocrine, cardiopulmonary and central nervous systems (*Altern Med Rev.* 2000;5(4):334-46).

While the herb has gained widespread recognition in recent years for its variety of targeted benefits—attributable to a growing library of clinical research—the herb was once used primarily to achieve overall well-being.

The benefits of adaptogens are wide-reaching and continue to grow as researchers further explore these powerful herbs and their health effects. 



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3300 N. Central Ave. Ste 300, Phoenix, AZ 85012
Tel. 480-990-1101 • Fax 480-990-0819
Website: naturalproductsinsider.com

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Managing Editors

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