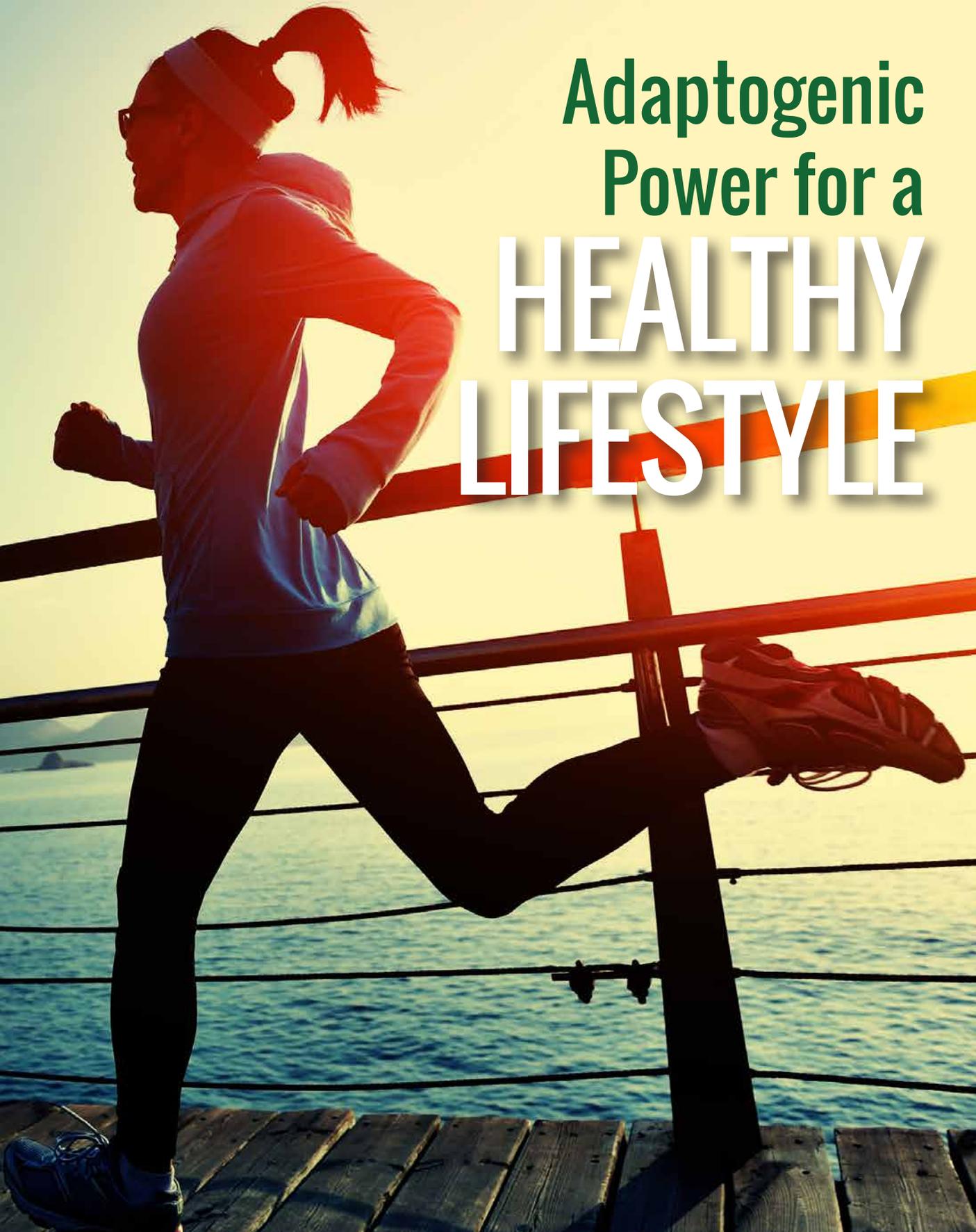


# ASHWAGANDHA ADVANTAGE

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## Adaptogenic Power for a HEALTHY LIFESTYLE



# ASHWAGANDHA ADVANTAGE

February 2017

## 3 Viewpoint

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Historically, ashwagandha has been used to improve vitality in young children, mitigate the effects of aging and enhance the Ayurvedic principle of vata—the movement of mind and body—which governs blood flow, elimination, breathing and movement of thoughts. **Danielle Rose** cites the growing body of research bringing the adaptogen to the forefront of an expanding range of health and wellness applications.

## 15 Ashwagandha in America: Ayurveda Meets the New Millennium

In the 52 weeks between January 2015 and January 2016, overall U.S. sales of products containing ashwagandha jumped 63 percent, reaching more than US\$13 million in sales by the end of 2016, per SPINScan data. **Brenda Porter-Rockwell** explains that although product sales and consumer awareness are on the rise, the ashwagandha market still has plenty of room to grow.

## 20 Takeaways



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# Discovering the Ashwagandha Advantage

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In an increasingly stress-filled world, we're all looking for ways to live healthier and manage our daily lives. It's therefore not surprising that we're seeing increasing interest in adaptogens, which have been used for millennia to address physical and mental stresses. One of the most powerful adaptogens is ashwagandha (*Withania somnifera*), which saw sales growth of 40 percent year over year in 2015, according to the American Botanical Council. SPINS data showed a 57 percent increase in sales of ashwagandha at retail in 2015; as we know, popular products in the natural channel often have great crossover potential.

And while ashwagandha is quite new—or even unknown—to many in the United States, it has a long history of safe use and a well-developed body of science. It is a perfect answer for the consumer demand for healthy, natural products, offering benefits in a range of key areas from stress and fatigue to mental alertness and physical performance. Through the Ashwagandha Advantage, we will be exploring not only the market potential and science, but also formulation issues, traceability and quality control (QC) considerations, and much more.

In this issue of the Ashwagandha Advantage Digital Magazine, we explore the state of the science around this botanical, as well as the market growth. We have also been seeing a lot more types of products with ashwagandha; not only dietary supplements—including capsules and tablets—but beverage and food applications from snack bars and teas to confectionery and baked goods. That's not to mention its use in pet products and even personal care items.

We invite you to stay in touch with us as we offer expert columns, videos, reports and infographics, all focused on helping you take advantage of the opportunity in ashwagandha. This is just the beginning of the market potential for this botanical, and we are here to help you understand and capitalize on the opportunity.

Namaste.



**Heather Granato**  
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# Understanding Ashwagandha

## Research and Mechanisms of Action

by Danielle Rose

**A**shwagandha is one of the world's best-known adaptogens, used for millennia to help support the body's natural balance. In today's stress-filled environment, the benefits of such an adaptogen are numerous. Current research examines many of the processes by which this ancient herb works to support myriad health issues.

Known by many names, ashwagandha, or *Withania somnifera*, a member of the Solanaceae family, is a commonly used Indian Ayurvedic Rasayana, or tonic, used to promote mental health and alleviate stress. In fact, in Latin, somnifera means "sleep inducer," one of ashwagandha's many uses. This is also one of the many ways ashwagandha is comparable in use to Siberian Ginseng (*Eleutherococcus senticosus*) and Chinese/Korean Ginseng (*Panax Ginseng*), thus providing its other moniker, Indian Ginseng. "Indian winter cherry" is another of ashwagandha's common names, as it comes from a shrub whose berries, leaves and roots are used in various forms, including churna, a fine-sieved powder that can be mixed with water, ghee or honey.<sup>1,2</sup>

### Ashwagandha: Then & Now

As an Ayurvedic Rasayana, ashwagandha is used to "promote physical and mental health, defend against disease and adverse environmental factors, and arrest the aging process."<sup>3</sup> It belongs to a sub-group of Rasayanas known as Medhyarasayanas, which improve mind and intellect, and speak to ashwagandha's memory-enhancing properties.<sup>4</sup>

Historically, ashwagandha has been used to improve vitality in young children, mitigate the effects of aging and enhance the Ayurvedic principle of vata—the movement of mind and body—which governs blood flow, elimination, breathing and movement of thoughts. Hence its traditional role in a number of conditions, including constipation, insomnia and nervous breakdown. Ayurvedic preparations of ashwagandha have also been used to treat hysteria, anxiety, memory loss, hypotension and fainting, and to enhance overall brain and nervous system function. The root is traditionally used in its powdered form, and is considered a tonic, aphrodisiac, narcotic, diuretic, antiparasitic, astringent and a stimulant that also raises metabolism. Meanwhile, the bitter leaves are known to reduce fever and swelling, and the flowers work similarly to the root as an astringent, detoxifier, diuretic and aphrodisiac.<sup>2</sup>



### The root is traditionally

used in its powdered form, and is considered a tonic, aphrodisiac, narcotic, diuretic, antiparasitic, astringent and a stimulant that also raises metabolism.



Recent studies have found ashwagandha promotes healthy sexual and reproductive activity in both women and men. Its use as a stimulant that increases stamina—and as an adaptogen that can improve immunity, prevent certain stress-induced conditions, and correct imbalances in the neuroendocrine and immune systems—has been proven time and again. The herb has also been found to have anti-tumor, anti-stress and rejuvenating properties, while improving sleep quality, reducing cholesterol and body fat, and increasing muscle strength.<sup>5</sup>

### **Anxiety and Stress**

Studies have found ashwagandha can improve stress and anxiety by decreasing inflammation and infection, allowing the body to adapt to stress-inducing conditions, and modulating the adrenals, including hormones and neurotransmitters such as serotonin and cortisol.<sup>6,7</sup>

Chronic stress conditions such as hyperglycemia, glucose intolerance, sexual dysfunction, immunosuppression and mental depression were also found to be mediated through use of ashwagandha,<sup>8</sup> particularly in chronic stress-inducing, and physical endurance situations.<sup>9</sup> Studies have further shown ashwagandha extract not only decreases stress levels, but can also improve an individual's sense of well-being,<sup>10</sup> making it a highly desirable herb for psychological and physiological stress-related conditions, anxiety and depression.

### **Weight Management**

Chronic stress is closely linked to a number of diseases and conditions, including obesity. Ashwagandha can benefit a weight management program by addressing this stress and balancing cortisol levels. A study conducted in India found that regular use of the herb provided improved scores on Perceived Stress Scale and Food Cravings Questionnaire, Oxford Happiness Questionnaire, and Three-Factor Eating Questionnaire; it also positively affected serum cortisol, body weight and body mass index (BMI).<sup>10</sup> Human trials found ashwagandha may benefit those undergoing resistance training by increasing muscle mass and strength.<sup>11</sup>



### **Sleep**

Considering stress and anxiety can significantly impact sleep, the effects of sleep disruption—as measured through EEG, motor and metabolic processes—can be mediated with ashwagandha, particularly when used in conjunction with diazepam. For example, one study determined sleep-deprived rats had better electrocardiac activity following administration of ashwagandha.<sup>12</sup>



### Tumors and Cancer

Long-term treatment with ashwagandha has been found effective in controlling certain skin cancers, and in not only reducing the bleeding associated with uterine fibroids, but eliminating them completely over time. Ashwagandha offered a significant anti-tumor effect on hamster ovary cell carcinoma, and lung adenoma in mice.<sup>2</sup>

Additional animal studies have shown significant delay of cancer growth and improved survival rates when ashwagandha was used in conjunction with local radiation therapy. Heat therapy enhanced these effects and improved overall tumor cure.<sup>13</sup> In addition to improving the results of radiation and heat therapy, ashwagandha also mitigated and reduced the occurrence of the side effects of chemotherapy and radiation therapy without reducing their efficacy.<sup>14</sup>

Another potential benefit of ashwagandha is improving the white blood cell count of those with cancer. Combined with the herb's immunomodulatory properties and overall high safety and tolerability profile, ashwagandha can be considered for use in conjunction with chemotherapy or radiotherapy.<sup>2</sup>

### Arthritis

Another traditional use for ashwagandha is in the treatment of muscular-skeletal conditions such as arthritis and rheumatism. A recent study found that an extract of ashwagandha decreased inflammation and provided arthritic relief comparable to that of the pharmaceutical methotrexate when used for this purpose.<sup>15</sup> A paste formed from crushed roots and water can be applied topically to reduce joint inflammation common with arthritis.<sup>2</sup> Use of the powdered root has also been found to improve overall motor activity and reduce arthritis symptoms through its anti-inflammatory and antioxidant properties.<sup>16</sup>

Additionally, its use as an analgesic contributes to its supporting role in conditions of the muscular-skeletal system.<sup>2,17,18,19</sup>

## A paste formed

from **crushed roots** and water can be applied topically to **reduce joint inflammation common with arthritis.**



### Cognition/Memory/Focus

Historically, Medhyarasayanas like ashwagandha have been used to promote cognition in children suffering from memory deficits, such as those caused by head injury or following prolonged illness, and for memory loss in aging adults.<sup>4</sup>

Recent human studies have found ashwagandha offered significant improvement in memory and cognition as measured by Wechsler Memory Scale III subtest scores and Eriksen Flanker task, Wisconsin Card Sort Test, Trail-Making Test Part A and Mackworth Clock Test scores<sup>20</sup> and can reverse the progression of neurodegenerative disorders such as Parkinson's disease, Huntington's disease and Alzheimer's disease,<sup>21</sup> while protecting against neurotoxins and enhancing memory.<sup>22</sup>

It has also been found to aid in the control of symptoms of obsessive-compulsive disorder (OCD).<sup>23</sup> Ashwagandha is also highly effective in reducing reaction time and improving attention spans in those with attention deficit hyperactivity disorder (ADHD),



when used alone and as part of the Ayurvedic therapy of Shirodhara (gently pouring liquids over the forehead).<sup>24</sup> Additionally, when given to alcoholic mice, ashwagandha decreased alcohol intake and withdrawal symptoms by increasing levels of serotonin and the amino acid/neurotransmitter, gamma-aminobutyric acid (GABA).<sup>25</sup>

### Sexual Function

In Ayurvedic medicine, ashwagandha is revered as an aphrodisiac and is used to treat sexual dysfunction and infertility in men. Current research indicates the herb increases low sperm counts.<sup>26</sup>

Although recent studies have not found ashwagandha to be effective in treatment of erectile dysfunction stemming from psychological factors,<sup>27</sup> it has been effectively used to treat erectile dysfunction and performance anxiety in men, and it may improve all forms of sexual desire in women, particularly in situations where the nervous system is in need of support.<sup>28</sup>

### How Ashwagandha Works

The genus *Withania* includes more than 23 species with distinct genetic variants. Based on chemical composition, *Withania somnifera* has been classified into different varieties. Steroidal alkaloids and lactones comprise a class of chemicals known as withanolides. Ashwagandha found in Israel contains the predominant chemical components of withaferin A, withanolide D and withanolide E; those in South Africa are strong in withaferin A and withaferin D; while the Indian variety boasts strong levels of withanone and withaferin A. Hybridization has also occurred among these varieties,<sup>22</sup> and the cultivated species of Nagori ashwagandha is believed to be the most beneficial of all, particularly when the freshly powdered root is used.<sup>2</sup>

More than 35 individual chemical constituents of ashwagandha have been identified among the varieties, each falling into the following predominant groups: alkaloids (isopelletierine, anaferine), steroidal lactones (withanolides, withaferins), saponins (sitoindoside VII and VIII), and withanolides (sitoindoside IX and X). Ashwagandha is also rich in iron.<sup>29</sup>



### Regional Distinctions

#### Ashwagandha found in:

**Israel** contains the predominant chemical components of withaferin A, withanolide D and withanolide E.

**South Africa** is strong in withaferin A and withaferin D.

**India** boasts strong levels of withanone and withaferin A.



## Cortisol Effects

Ashwagandha is considered a nervine tonic with adaptogenic and anti-stress properties. Studies show it supports cortisol by preventing typical stress-related adrenal gland changes, reducing stress levels, and increasing stamina and endurance.<sup>2</sup> In one study, a two-month regimen of ashwagandha intake significantly reduced the cortisol levels of 64 subjects with a history of chronic stress.<sup>30</sup>

In addition to positively affecting cortisol levels, ashwagandha has also been found to regulate insulin sensitivity. It accomplishes this through adrenal support and the reduction of corticosterone and other adrenal and hormone-related biochemicals.<sup>31</sup>

## Neurotransmitter Effects

Ashwagandha performed similarly to lorazepam in standard tests for anxiety, reducing levels of the monoamine oxidase inhibitor (MAOI) marker tribulin. It had an antidepressant effect, comparable to the drug imipramine, as determined by “behavioral despair” and “learned helplessness” tests, as well as the “elevated plus-maze,” “social interaction” and “feeding latency in an unfamiliar environment” tests.<sup>3,32</sup> It mimics the amino acid neurotransmitter GABA,<sup>33</sup> increasing the formation of neurons, and inducing relaxation and sleep.<sup>22</sup> It also balances dopamine and norepinephrine,<sup>24</sup> and can improve cholinergic neurotransmitter function in certain brain disorders.<sup>34</sup> This effect, in combination with increased levels of serotonin and GABA, are believed to offer ashwagandha’s benefit for those with alcoholism.<sup>25</sup>

Destruction of neurological networks, and the inability of the body to spontaneously regenerate these networks, is believed to be the cause of functional impairment in neurodegenerative conditions such as Alzheimer’s, Parkinson’s and Huntington’s diseases. For example, deposits of the amino acid amyloid-beta causes neuron and synapse degeneration in Alzheimer’s disease. Withanolide A, withanoside IV and withanoside VI, found in the methanol extract of ashwagandha, promote neuron and dendrite growth. It increases the density of axons and synapses in the brain, and improves spatial memory. In spinal cord injuries, deposits of connective tissue proteins interfere with neuron regeneration; however, studies found withanoside IV induced regrowth of spinal cord neurons and recovered animal motor function.<sup>35</sup>

Sitosterols and acylsterylglucosides in ashwagandha have been found to reduce the chemical toxicity indicative of Alzheimer’s





disease,<sup>36</sup> and to treat stress-induced conditions such as premature aging, arthritis, diabetes, ulcers, anxiety and hypertension by promoting the formation of nerve cells and synapses.<sup>37,38,2</sup> It improves the health of cellular mitochondria, and slows, stops and reverses neurological atrophy, offering further use in the treatment of neurodegenerative diseases, regardless of the stage of progression.<sup>2</sup> Glycowithanolides, withaferin A and sitoindosides VII–X were also found to reverse the cognitive defects of Alzheimer's by regulating the secretion of ibotenic amino acids.<sup>39</sup>

### Antioxidant and Anti-Inflammatory

The antioxidant properties of ashwagandha were found to protect nervous system cells from oxidative stress.<sup>40</sup> It may also be able to increase nerve growth factors and connections between neurons.<sup>41</sup> This is, at least in part, due to ashwagandha's ability to block N-methyl-D-aspartate (NMDA) receptors in nerve cells and prevent cellular damage from glutamate and other events of excitotoxicity.<sup>42</sup> It regulates immune cell production and the antioxidant proteins in nervous system cells, protecting against disease and aging, and resulting in less inflammation and higher levels of antioxidants.<sup>43,44</sup>

When used in conjunction with diazepam on sleep-deprived mice, ashwagandha significantly decreased lipid peroxidation, and improved catalase and glutathione levels, positively affecting the behavioral effects of sleep loss as an alternative to benzodiazepine<sup>12,45,15</sup> by reducing inflammatory and immune response markers and slowing cellular death, reducing the stress and functional impairment of sleep deprivation.<sup>41</sup>

Steroidal and methanol constituents of ashwagandha, such as those found in withaferin A and sitoindosides VII–X, inhibit the formation of granulation tissue that forms in response to infection or inflammation, similarly to the use of hydrocortisone sodium succinate.<sup>47</sup> These constituents also increase levels of antioxidant enzymes. Results were compared with antioxidant effects of the antidepressant deprenyl, which is used to treat Parkinson's disease. These antioxidant abilities inherent in ashwagandha are believed to play a role in the herb's powerful immunomodulatory, cognitive, anti-stress, anti-inflammatory and anti-aging properties.<sup>48</sup>

### Immunomodulator

Ashwagandha's immunomodulation properties can be traced to five constituents. These constituents regulate 16 proteins, affecting 15 different immune system pathways.<sup>49</sup>

In animal studies, immunomodulatory properties were evaluated in the glycosides or alkaloids (glycowithanolides and sitoindosides IX and X) found in ashwagandha. These alkaloids increased hemoglobin, iron and proteins,<sup>29</sup> as well as white blood count, bone marrow cells, antibody concentration, macrophages and phagocytic activity, representing an enhanced ability to fight infection.<sup>50</sup>

## Ashwagandha

may also be able to **increase nerve growth factors and connections between neurons.**





The immunomodulatory ability of ashwagandha also allows it to inhibit the growth and viability of specific biochemicals that support cancerous growths. For example, Hsp90 is important for protein function within the body, but it is also essential in tumor growth, which is why Hsp90 inhibitors are used in cancer treatment. The withanolides in ashwagandha have been found to inhibit the formation of Hsp90 in breast cancer cells. These withanolides also reduced the viability and occurrence of MCF-7 cancer cells. NF- $\kappa$ B immune cells are believed to contribute to the resistance of cancer to chemotherapy and radiotherapy, however the withanolides in ashwagandha inhibit the activity of these cells in cancerous growths as well.<sup>51</sup>

Additionally, ashwagandha stimulates stem cell growth, increasing bone marrow cells, and normalizing red blood cells after radiation exposure,<sup>52</sup> all inherent processes by which the body improves immune system function.

As a powerful contributor of healing and wellness, ashwagandha's adaptogenic and whole-body approach promotes an overall feeling of well-being regardless of the health concern it's being used to support. In light of its myriad uses, and comparability to other pharmaceuticals on the market that offer similar benefits, numerous studies and clinical trials have shown ashwagandha makes for an interesting addition to any holistic or nutraceutical supplement or regimen. ●

*As a health writer and journalist, Danielle Rose's columns with North Jersey Media Group are best known for down-to-earth recipes, and for following foods from farm to table, discussing the processes and local and federal protocols along the way.*

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# Ashwagandha in America

## Ayurveda Meets the New Millennium

by **Brenda Porter-Rockwell**

**T**rying to juggle the demands of an always-on life can cause a fair amount of stress. Or a one-time event could trigger a very emotional reaction. However stress finds its way into daily lives, the question is how to manage that stress? The answer for more people is to skip the prescription drugs in favor of all-natural products like ashwagandha.

Best known for its adaptogenic effects, ashwagandha has become popular as a dietary supplement for stress relief. However, its inclusion in food and beverage products offers a growth opportunity for brands looking to offer unique market solutions. In addition, evolving research suggests ashwagandha shows promise for health benefits in sports nutrition, memory and aging, immune support and more.

### What is Ashwagandha?

There was a time when ashwagandha was practically unheard of. But a quick Google trends search finds a lot of people are searching for this herb, which has its roots in Indian Ayurvedic healing. The worldwide upward trend shows no signs of slowing any time soon.

**Ashwagandha** (*Withania somnifera* Dunal) has been colloquially recognized as Indian ginseng, poison gooseberry and winter cherry. It's an adaptogen known primarily for its stress-reducing properties.

From Sanskrit, ashwagandha is translated as “the smell of a horse,” figuratively linking its restorative properties to being “as strong as a horse.” Of course, this literal translation of the Sanskrit does not accurately reflect the herb’s true benefits.

### Strong Growth

In the United States, specifically, per insight from the Google trends search, there was a clear spike in the number of online inquiries about “ashwagandha” in the last few years. There has been a significant upward trend in the last year alone. That search, combined with additional search terms such as “health” and “stress,” still shows increased interest.

In the real world, people aren’t just searching for ashwagandha; they’re buying it, too. In the 52 weeks between January 2015 and January 2016, overall U.S. sales of products containing ashwagandha jumped 63 percent, reaching more than US\$13 million in sales by the end of 2016, per SPINSscan data. Dietary supplements are a leading sales driver, with more than 170 percent growth in the last year. What this growth suggests is that consumer awareness is on the rise, but the market hasn’t reached the pinnacle to where there is widespread acceptance.



“This is strong evidence that more and more consumers are interested in ashwagandha,” said Kartikeya Baldwa, director, Ixoreal Biomed Inc., makers of KSM-66®, a top-selling, branded ashwagandha root extract. “Ixoreal, in particular, has seen even more continued interest than most other companies in the market, largely because Ixoreal itself has been a major force in popularizing this herb.” Baldwa said there are more than 500 finished products containing KSM-66 on the market today, with scientific research to back up its efficacy. Baldwa said this feat is a true indicator of the necessity for quality herbs that fill a need for consumers.

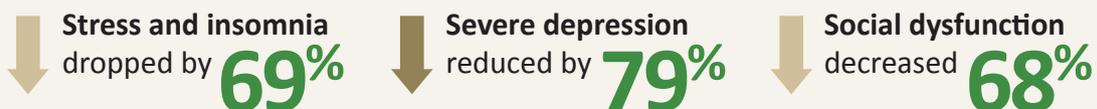
“While there has been interest in adaptogens for thousands of years ... more consumers are starting to have an awareness of these rare and powerful herbs,” said Cheryl Myers, EuroPharma’s chief of scientific affairs and education. “Clinical studies are verifying its health benefits, and consumers are interested in what this herb has to offer.”

Myers said it’s not difficult to see why ashwagandha has garnered the interest it has. She believes there’s always an interest in stress-reducing and energy-boosting supplements—particularly when life leads to more compressed schedules and a feeling of energy being spent in all directions.

“The beginning of college semesters, holidays and any ‘end of year’ deadlines qualify perfectly for the need for ashwagandha,” she explained, adding that consumers trust there are clinical studies to prove the benefits of the herb.

And with ashwagandha, there are. In one 60-day, double-blind, placebo-controlled trial, participants were separated into ashwagandha and placebo groups. Each individual completed surveys relating to stress, depression and fatigue. Levels of cortisol—the “fight or flight” hormone—were also noted. Throughout the test, researchers measured the differences between the ashwagandha group and the placebo group. By day 60, they were dramatic.

### In each survey, the ashwagandha group showed clear reductions in symptoms:



“Those are impressive statistics. And ... they were seen with the same ashwagandha (KSM-66) we include along with rhodiola in our Adaptra® supplement,” Myers said.

David Winston, president and founder of Herbalist & Alchemist, pointed to two more



reasons for the increased interest in ashwagandha: the public's growing knowledge about adaptogens and, specifically, knowledge about Ayurveda and ashwagandha itself.

"Each adaptogen has unique properties that make it appropriate for some people, but perhaps not others," he said. "Ashwagandha is calming, [anxiety-reducing] ... it helps relieve muscle spasms, it is rich in iron, enhances male and female libido, promotes thyroid function, is an immune amphoteric and, like all adaptogens, re-regulates HPA axis and SAS function."

Covering multiple health categories, Herbalist & Alchemist offers a half-dozen organic liquid supplements containing ashwagandha root extract, including drops to promote a balanced endocrine function and healthy immune balance.

"Because of increased interest and awareness, we're expanding the H&A line of adaptogenic formulas specifically developed with herbs selected to address the different needs of women, men, stressed-out and fatigued individuals," Winston said.

### Expanding the Market

Ashwagandha's use as a stress reducer has propelled it to the forefront of consumers' minds. But additional studies have linked ashwagandha to other areas of health and wellness.

Myers added: "We also emphasize that, like so many botanicals, ashwagandha supports many health concerns. It has been shown to boost physical endurance, and in scientific research, it reduced blood sugar levels, symptoms of depression, gastric ulcers and immune deficiencies induced by chronic stress."

In sports nutrition, ashwagandha has been studied and shown improved physical performance/endurance. Those findings are creating a renewed interest in the ingredient, building on its traditional use as an adaptogen that supports resistance to physical, biological and chemical stresses, said Sky Garmon, marketing associate at Jarrow Formulas.

Jarrow Formulas has incorporated ashwagandha into multiple sports health formulas, including its Adrenal Optimizer, GABA Soothe and Tribulus Complex, as well as selling it as a stand-alone product featuring KSM-66.

### New Category Opportunities

Although ashwagandha is most frequently seen in the U.S. market as a dietary supplement, there is strong growth potential in food and beverage applications. Next to supplements, another notable category of growth recorded by SPINS is grocery products, where sales hit nearly \$3 million.



## Market Overview

Consider the 2016 product launch by functional beverage company REBBL—a line of Protein Elixirs with ashwagandha. The line combines a synergistic blend of plant proteins from sunflower, pea and pumpkin mixed with a blend of maca, ashwagandha and reishi. The Ashwagandha Chai is targeted at individuals seeking help with sustained physical endurance, improved cognitive function, quick recovery and enhanced relaxation.

Other recent food and beverage launches include Santosha's chocolate bar with a combination of goji berries, ginger and ashwagandha; and Spice Pharm's Golden Goddess Turmeric Chai Elixir and Chocolate Elixir, in which the stress-relieving, cortisol-balancing effects of ashwagandha are delivered in drink mixes for weight management.

### Future Growth

Manufacturers urge that before talk turns to “what’s next,” it’s important not to lose sight of what’s here now. It might not be that additional uses are developed per se; but, specific supplements could potentially be developed with ashwagandha as a central ingredient based on current research.

“The factor that will contribute to the success of ashwagandha will be the continued promotion as an Ayurvedic remedy with a long tradition of use that is now being supported by clinical studies,” said Garmon, who predicts an uptick in use based on the sports endurance data.

Myers emphasized the importance of ongoing consumer education. “The more we discuss the benefits of ashwagandha with retailers and consumers, the healthier our responses to stress will be overall,” she said. “Once people try adaptogens, I think they are amazed by how well they work. So getting to that point of trial is key.”

Right now, EuroPharma is realizing great responses to Adaptra, which is provided in a capsule form, she said. “I have no doubt that we’ll see even more food-based delivery systems in the future, like powder mixes or teas, but the fact is that capsules and tablets are easy to fit into your regimen,” she added. “They don’t take up much room and you can carry them anywhere.”

As far as delivery systems are concerned, Garmon said it is key to remember the clear majority of the research is conducted with root extracts, and it would take strong scientific evidence to support the use of an alternative delivery method.

“Often delivery systems are touted to increase the benefits of a given ingredient, but those systems would ideally have scientific backing,” he said. “Our staff is always on the lookout for data that supports improved product efficacy, and we would then update our products accordingly.”



## Ashwagandha

is most frequently seen in the U.S. market as a dietary supplement; however, there is strong growth potential in food and beverage applications.



Winston said he'd like to see a better understanding of what adaptogens are—and are not—before taking steps to reformulate or offer new delivery systems. This, he said, “will help the entire category.” Supplements, he added, “are not a replacement for adequate sleep, good nutrition and healthy lifestyle choices. When people learn about the ‘personality’ of each herb and whether it is appropriate for them, it helps consumers to make better choices and get better results.”

To this end, Winston shares H&A's library of educational support materials with its retail partners, including his educational recordings and books on adaptogens. The company also hosts a monthly online herbal “salon” for retail and practitioner customers that covers subjects such as fitness, athletic performance, men's health and other areas ashwagandha might be applicable.

Brands looking to break into the market may find that promoting ashwagandha across multiple use categories and offering innovative ways to incorporate it could help claim their portion of this rapidly increasing market. ●

*Brenda Porter-Rockwell has a diverse background writing about nutraceuticals and healthy foods for a variety of trade and consumer publications, both print and online. She lives in North Carolina and can be reached at [brenda@writeonporter.com](mailto:brenda@writeonporter.com).*



## Takeaways for Your Business

**A**shwagandha (*Withania somnifera* Dunal) has been colloquially recognized as Indian ginseng, poison gooseberry and winter cherry. It's an adaptogen known primarily for its stress-reducing properties. However, its inclusion in food and beverage products offers a growth opportunity for brands looking to offer unique market solutions. In addition, evolving research suggests ashwagandha shows promise for health benefits in sports nutrition, memory and aging, immune support and more.

As just one example, chronic stress is closely linked to a number of diseases and conditions, including obesity. Ashwagandha can benefit a weight management program by addressing this stress and balancing cortisol levels. A study conducted in India found that regular use of the herb provided improved scores on Perceived Stress Scale and Food Cravings Questionnaire, Oxford Happiness Questionnaire, and Three-Factor Eating Questionnaire; it also positively affected serum cortisol, body weight and body mass index (BMI). (*J Evid Based Complementary Altern Med.* 2017;22(1):96-106.) Human trials found ashwagandha may benefit those undergoing resistance training by increasing muscle mass and strength. (*J Int Soc Sports Nutr.* 2015 Nov 25;12:43.)

The genus *Withania* includes more than 23 species with distinct genetic variants. Based on chemical composition, *Withania somnifera* has been classified into different varieties. Steroidal alkaloids and lactones comprise a class of chemicals known as withanolides. Ashwagandha found in Israel contains the predominant chemical components of withaferin A, withanolide D and withanolide E; those in South Africa are strong in withaferin A and withaferin D; and the Indian variety boasts strong levels of withanone and withaferin A. Hybridization has also occurred among these varieties. (*Ayu.* 2011 Jul-Sep;32(3): 322-328.)

Regardless of the varietal, sales are rising. In the 52 weeks between January 2015 and January 2016, overall U.S. sales of products containing ashwagandha jumped 63 percent, reaching more than US\$13 million in sales by the end of 2016, per SPINSscan data. Dietary supplements are a leading sales driver, with more than 170 percent growth in the last year. What this growth suggests is that consumer awareness is on the rise, but the market hasn't reached the pinnacle to where there is widespread acceptance.

As a powerful contributor of healing and wellness, ashwagandha's adaptogenic and whole-body approach promotes an overall feeling of well-being regardless of the health concern it's being used to support. In light of its myriad uses, and comparability to other pharmaceuticals on the market that offer similar benefits, numerous studies and clinical trials have shown ashwagandha makes for an interesting addition to any holistic or nutraceutical supplement or regimen. ●

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