An Analysis of Primorye and its Active Ingredients: Adaptogens

The following is a retrospective analysis of Primorye, including evaluations, clinical studies and an in-depth look at the clinical role Primorye adaptogens have on the human body.

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I. Introduction

These days, it seems, everyone is looking for a fountain of youth or some kind of miracle cure to resist aging and improve general overall health. It is not uncommon to hear about some therapy or nutrient that reverses aging or cures cancer. Sometimes it is difficult to separate fact from fiction. Confronting many of the life-shortening diseases that plague us, including cancer and heart disease, with the complexity of choices is a daunting prospect. Making sense of both holistic and conventional options can be even more overwhelming. Few are prepared to untangle the web of medical jargon and complicated decision making that accompanies a diagnosis and a long-term understanding of the disease they may have. Many people would do whatever it takes to “get rid of the disease,” regardless of the consequences and without a true understanding of what caused the state of health they are in and the impact on their quality or quantity of life. Clear, proven answers have been in short supply. There is promise, however, in the vast array of research on a complicated, yet very powerful, group of herbs called *adaptogens*. These unique plants, which have been used for centuries to promote health and wellness, are nature’s answer to stress — and the ills it wreaks.

A). The Story Behind Adaptogenic Products

Stress and stress-related disorders are a significant cause of disease, contributing to an estimated 75 percent of all illnesses. Western medicine has developed multiple approaches to coping with stress — including pharmaceutical drugs, exercise, and relaxation techniques like meditation. While these methods can provide some benefits, results are mixed and often unsatisfactory. In the Far East, researchers have also struggled to find solutions to stress-related problems. In Russia, after years of scientific investigation, scientists developed a unique approach to stress reduction and the prevention of stress-related symptoms.

One of the most challenging tasks for Soviet scientists was to support military personnel, cosmonauts and athletes. The goal was to have these elite members of their society perform effectively in demanding situations under prolonged and severe stress.

Leading Russian pharmacologist, professor and cosmonaut Vasili Grigoryevich Lazarev believed that the answer to improving resistance to great challenges in extreme situations lay not in conventional medicine, but rather in preventative systems based on plants and herbs. He was especially intrigued by a group of herbs called *elite* or *kingly*. Ancient Chinese classified this group as the most effective plants for increasing physical and mental capacity, reducing fatigue, improving resistance to disease, and promoting life extension. People discovered that using such herbs is vital during times of challenges. In China, these herbs were used by soldiers directly before a battle. In Siberia, they were used by hunters before long and dangerous journeys. Despite thousands of years of use by generations of people in China, Russia, Japan, Korea and finally in Europe, their effectiveness had never been scientifically confirmed.

Finally, as a result of extensive studies and massive clinical trials in the 1950s and 1960s, Soviet scientists proved the effectiveness of adaptogens. Extensive testing was performed on factory workers, truck drivers, sailors on long voyages, military personnel and athletes under prolonged and severe stress. The findings showed unequivocally that plants with adaptogenic properties:

- Increase energy
- Improve stamina
• Increase the capacity to carry out demanding activities
• Enhance resistance and adaptability to all kind of stressors

B). Soviets ‘Discover’ Adaptogens

The Soviet government realized that this new class of natural remedies — adaptogens — could give their people an advantage in sport, space and military programs. Consequently, they strongly supported this scientific project and its implementation in practice. Millions of dollars was spent on continued research to perfect the use of adaptogens to improve physical and mental challenges.

In the 1970s, information about these remarkable herbs with adaptogenic properties began to cross the Soviet border. Soon, scientists from Germany, Sweden, Japan and the United States confirmed their effectiveness through their own exhaustive studies.

C). Important Actions of Adaptogens

• As anti-stressors: To increase tolerance and endurance to stress, both physical and mental, as well as decrease the incidence of the harmful side effects of stress on the body.
• As a normalizing agent: To provide a regulatory effect on body functions, which tend to fluctuate. It has been shown that adaptogens normalize abnormalities of functions including adrenal, thyroid, blood pressure, cholesterol and blood glucose. Scientific data indicates that changes produced by adaptogens are the result of stimulation of the nervous system, endocrine system and immune system.
• As a prophylactic: To enhance a wide range of therapeutic action: influenza, acute respiratory disease, atherosclerosis, hypertension, diabetes, obesity, skin disorders and cancer.
• As an anti-toxic: To increase the body’s tolerance of many chemical, biological and radioactive toxins.

II. Oxyfresh Develops Breakthrough Stress Relief Tonic

Most of us experience some level of stress every day — traffic, bills, bosses. Even our spouses and children contribute to the inevitable stress in our lives. In America, over two-thirds of office visits to physicians are for stress-related illness.

True to its fashion of developing cutting-edge health and wellness products, Oxyfresh has formulated a premier anti-stress product called Primorye. This amazing tonic fights stress while improving mental clarity and delivering increased endurance and recovery. Thousands of loyal consumers — from professional athletes and endurance runners, to driver’s education instructors and retired couples — reap the benefits of Primorye every day.

Work on Primorye began in early 2001 when Oxyfresh put the wheels in motion to formulate a superior nutritional tonic extracted from a handful of rare and powerful adaptogens.

After painstaking research, Oxyfresh selected adaptogens that grow in remote regions of eastern Siberia called, fittingly, Primorye. The ability of adaptogens to fight stress is no secret; scientists substantiated their power decades ago. But Oxyfresh was convinced it could develop a superior adaptogenic formula. Unmistakably, it has.
A). Adaptogens: Nature’s Answer to Stress

Oxyfresh’s goal was to put together a special combination of adaptogenic plants that produce increased mental and physical performance and promote health at the cellular level. Millions of dollars in Soviet-sponsored research starting in the 1940s validate the effectiveness of adaptogens. This research includes more than 1,200 scientific studies on elite Soviet athletes, world-class chess players, cosmonauts and ranking government officials.

What the Soviet researchers discovered was that these botanical herbs lived through the Ice Age by adapting to — and thriving — in the most severe living conditions on earth. Because of this, the scientists correctly surmised that adaptogens might possess qualities that could help our bodies adapt to the stresses of modern life.

Armed with this Soviet data, Oxyfresh worked closely with nutrition experts and formulators from the United States, Canada and Russia to produce Primorye. Among the many amazing attributes of adaptogens is the herb’s ability to stabilize the much-talked-about stress hormone, cortisol.

High levels of cortisol literally feed the body’s central fat — weight around the belly. Central fat is particularly unhealthy because it is commonly associated with heart disease and diabetes. Shawn Talbott, Ph.D., an expert in health management and faculty member at the University of Utah, Department of Nutrition, agrees adaptogens help normalize cortisol levels, countering mid-section weight gain.

“There is very good scientific and medical evidence to show that chronically elevated cortisol levels are associated with obesity, hypertension, diabetes, moodiness and Alzheimer’s disease,” Talbott says. “Adaptogenic herbs provide a buffering or balancing action that counteracts an exaggerated adrenal response to stress and reduces cortisol secretion back down to normal levels.”

B). Developing the Breakthrough Primorye Formula

Once the formulators and nutrition experts identified the key adaptogens for Primorye, Oxyfresh began working on the rest of the formulation, says Tom Lunneborg, Oxyfresh’s Director of Production and Distribution. “We needed a perfect support blend to go along with these adaptogens,” Lunneborg says. “When we combined these highly effective adaptogens with Aloe Vera it was a perfect match because the Aloe promotes absorption of the adaptogens into the body. This in turn helped users feel the benefits much faster. In fact, people who start taking Primorye can usually feel the advantages in days.”

After the formulation passed successfully through exhaustive lab testing, Primorye was sent out for random customer sampling. The feedback was overwhelming as hundreds of customers said the results were amazing. Primorye sales exploded as word spread about an extraordinary product convincingly proven to take the edge off stress while providing general physical support and mental clarity.

Today, Oxyfresh continues its mission to perfect Primorye the fight the stress epidemic. The formula was recently modified to include powerful antioxidants (naturally occurring nutrients like
grape seed extract that help maintain health by slowing the destructive aging process of cellular molecules). A blend of 72 trace minerals was also added. The latest improvement was the reduction of sugar to just 1 gram per serving.

C). A Stress-Free Crusade

The goal at Oxyfresh continues to be to provide incredible nutritional support and stress relief, using Russian adaptogens that build your immune system and help protect you against free-radical damage. Primorye does just that — it actually feeds your mind and body at the cellular level, enabling you to perform at your peak and feel better doing so every day. Stress free.

D). Primorye’s 7 Adaptogens

- **Eleuthrococcus Senticosus** (*Acantho Root*): Called the King of Adaptogens. Counteracts stress, increases productivity and endurance and normalizes body systems.
- **Schizandra Chinensis** (*Chinese Magnolia Vine*): Counteracts stress, increases productivity, and combats fatigue.
- **Aralia Mandshurica** (*Manchurian Thorn Tree*): Enhances mental acuity.
- **Rhaponticum Carthimoides** (*Maral Root*): Enhances muscle development, improves performance, endurance and circulation.
- **Rhodiola Rosea** (*Russian Rhodiola*): Enhances mental and physical performance, normalizes heart rate, improves nervous system function and stabilizes mood.
- **Glycyrrhiza Uralensis** (*Licorice Root*): Neutralizes toxins and balances blood sugar levels.
- **Fresh Wild Oat Seed** (*Avena Sativa*): Strengthens the entire nervous system.

References


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American Institute of Stress

III. What Distinguishes Primorye From Other Adaptogen Formulas

Primorye was developed as a “new generation of adaptogenic products” by an international group of leading experts who participated in original research and practical implementation of adaptogens in sport, space and military programs in Russia.

These experts continue to actively work on improving the effect of adaptogens and bringing them to the next level. The necessity of developing new and more effective products reflects changes in modern society. At this moment, as society puts more and more demands upon us, we need more than ever to adapt quickly to rapid change in our living and working environments. Like the drugs that saved the world from numerous bacterial and viral epidemics that cost millions of lives in the past, adaptogens are needed to help man withstand the diverse stresses of today.

There are no other products on the market, including in Russia, that combine the best studied adaptogenic herbs and advanced technology to produce superior quality products. These factors result in effective, fast-acting, proven products like Primorye and its concentrated counterpart Primorye GOLD, which is designed as a fast-acting product to maximize the invigorating tonic effect of adaptogens and to address — in expedited fashion — the universal side effects of a
modern life — fatigue, tiredness, physical and mental exhaustion. GOLD activates the body’s metabolism, provides a rapid and sustained level of energy, alertness and concentration without the common side effects typically produced by caffeine and other stimulants (natural and synthetic).

Primorye is designed as a universal remedy that can be considered the foundation for any nutritional program — stress management, sports performance, longevity, weight control, disease prevention and promoting health and well being.

A). Biologically Active Compounds in Primorye

A combination of the most effective adaptogens and antioxidants enhance our capacity to adapt to all kinds of stressors and improve general resistance of the entire body by normalizing abnormalities of functions including the adrenal, thyroid, blood pressure, cholesterol and blood glucose. Changes produced by Primorye in the body are due to the stimulation of several systems: nervous system, endocrine system and immune system.

Such a non-specific action is decreasing the incidence of the harmful effect of stress on the body. As a result, adaptogens demonstrate a wide range of positive therapeutic action on conditions such as acute respiratory disease, atherosclerosis, hypertension, diabetes, obesity, skin disorders and cancer.

As we know, the best and more popular nutritional supplements on the market, as a rule, have a specific effect. For example, when one catches a cold the choice is usually such natural products as Echinacea, Goldenseal or Vitamin C. If one is depressed, St. John’s Wort is known to provide relief. To improve memory and blood circulation, Ginkgo Biloba is known to help.

However in all these cases, specific supplements may only help to reduce some symptoms — not to solve the problem. Very often, the root of many dysfunctions is non-specific because they are caused by chronic stress.

B). The Effects of Stress on Our Bodies

The long-term effects of stress alter our ability to maintain a healthy balance and harmony. This internal shift is due to a greater demand for stress hormones, namely cortisol, which is a major contributing factor that leads to the development of chronic illnesses, and hastens the aging process. All illnesses, to some extent, are a byproduct of our inability to adapt to changes and challenges of our life. The fast pace of life in modern times contributes to an increase in the production and sustained release of the stress hormones adrenaline and cortisol. Chronic activation of these stress hormones can cause deterioration of vital organs. Research has shown a close connection between high cortisol levels and serious health problems such as obesity, diabetes, hypertension, depression and osteoporosis.

One of the best and most powerful ways to lower excess cortisol levels, bring the body into a state of metabolic harmony and reduce the damaging effects of stress is to use adaptogens. Adaptogens positively change our stress response and help prevent many health problems.

IV. Special Biological Properties of Adaptogens in Primorye
A). Eleutherococcus Senticosus (Siberian Ginseng)

Known as the “King of Adaptogens,” this herb actually has as many beneficial properties as common Ginseng, but without being as stimulating. This herb has become very popular in Russia and in the United States. It has been extensively researched and tested on humans, and has proven to be very effective and safe. Eleutherococcus shrubs grow up to 9 feet tall; they have rough-edged arrays of leaves, and small white flowers which bear dark blue fruit. Siberian Ginseng contains seven active substances, referred to as eleutheroside A, B, C, D, E, F and G. Total eleutheroside content of the root is up to 2 percent. Certified potency of Siberian Ginseng extract is standardized for a minimum content of eleutheroside B of 300 mcg, and eleutheroside D — 400 mcg per 100 mg (One tablet may typically contain 100mg — 250mg of extract). These active ingredients are specific to Eleutherococcus and are not present in the Panax species (American, Chinese, Korean or Japanese Ginseng). Eleutherococcus has numerous clinically proven beneficial properties, such as relief of insomnia, various types of neuroses, hypertension, hypotension, acute pyelonephritis (kidney problems), chronic bronchitis, and even cancer. In numerous clinical trials it has been shown that Siberian Ginseng can increase the ability of humans to withstand many adverse physical conditions such as extra workload, motion, noise, or heat. It increases mental alertness and work output, improves the quality of work produced under stressful conditions, and improves athletic performance.

Distribution: northern China, Korea, Japan and southeastern Russia (Taiga region).

B). Rhodiola Rosea (Golden Root)

This is a perennial plant with red, pink, or yellowish flowers. One of the greatest things Rhodiola does is enhance mental and physical performance. It has been widely used by Russian athletes to increase energy. Rhodiola is cardio-protective, normalizing the heart rate immediately after intense exercise. It improves nervous system and mental functions such as memory by increasing blood-supply to the muscles and brain, and also increases protein synthesis (1,2,3). Rhodiola Rosea has extraordinary pharmacological properties as an anti-mutagen and anti-depressive agent. In this respect Rhodiola Rosea is much more powerful than other adaptogens. In one study done by O.M. Duhan and colleagues, the anti-mutagenic activity of Panax Ginseng and of Rhodiola Rosea was compared (4). It appeared that the extracts of Rhodiola Rosea have a higher capacity to counteract gene mutations induced by various mutagens (up to about 90 percent inhibition in some cases). The anti-depressive and anti-stress activity of Golden Root is higher than that of St. John's Wort, Ginkgo biloba and Panax Ginseng. In one clinical trial, 150 individuals who suffered from depression took Rhodiola Rosea extracts for one month. At the end of that period, two-thirds of them had full remission of clinical manifestations of depression, and had become more active and more sociable. Daytime weakness and general weakness disappeared. Furthermore, Rhodiola rosea is four times less toxic than Panax ginseng. The main active components that are responsible for the extraordinary potency of Rhodiola Rosea are rosavin, salidroside, rosin, and rosiarin. Quality Rhodiola Rosea extract should contain at least 2 percent rosavin and 0.8 percent salidroside.

Distribution: Originating in the mountainous regions of Southwest China and the Himalayas, botanists have established that various species of the genus Rhodiola naturally display a circumpolar distribution in mountainous regions in the higher latitudes and elevations of the Northern Hemisphere. In Central and Northern Asia, the genus is distributed from the Altai Mountains across Mongolia into many parts of Siberia. According to Hegi, its distribution in Europe extends from Iceland and the British Isles across
Scandinavia as far south as the Pyrenees, the Alps, the Carpathian Mountains and other mountainous Balkan regions.

References

C). *Rhaponticum Carthamoides* (Maral Root)

*Leuzea* is a perennial herb of the *Compositae* family, which grows mainly in mountain regions in Siberia, Altai, and Western Sayani. Its height is approximately 2-3 feet, and its single-headed flowers are purple. *Rhaponticum* derives its traditional name *Maral Root* from the famous Mongolian, Dzhamtsyn, who spoke about a plant that imparted strength to the maral deer who fed on it. *Rhaponticum* is an old folk medicine for fatigue. It has been traditionally used as a stimulant, for overcoming impotence, and to assist convalescence from long illness. Russian and Eastern researchers have found that *Rhaponticum* has a beneficial effect on memory and learning, and can help break addictive behaviors. It increases working capacity in tired skeletal muscles, relieves neurosis, and benefits anabolic and adaptogenic processes. It enhances speed, strength, and functioning of the muscle system. *Rhaponticum Carthamoides* has been used by Eastern Bloc athletes as a natural anabolic, adaptogen, and bio-stimulant. An important compound in *Rhaponticum carthamoides* is Ecdisterone.

Distribution: Europe, sub-alpine and alpine meadows.

References

D). *Schizandra Chinensis* (Chinese Magnolia Vine)

This is a creeping vine with small red berries that is native to Northern China. In ancient China, Schizandra was used as a staple food for hunting and gathering tribes. As a traditional medicinal herb, Schizandra, called Wu-wei-tzu in China, has been used as an astringent for treatment for dry cough, asthma, night sweats, nocturnal seminal emissions and chronic diarrhea. It is also used traditionally as a tonic for the treatment of chronic fatigue. During the early 1980’s, Chinese doctors began researching Schizandra as a possible treatment for hepatitis, based on its potential for liver-protective effects and the nature of its active constituents. As a result of that research, Schizandra is now a recognized adaptogen, capable of increasing the body's resistance to disease, stress, and other debilitating processes. Known active constituents include sesquicarene, lignans (*schizandrin, gomisin*), schizoandrol, citral, phytosterols (*stigmasterol, beta-sitosterol*), and Vitamins C and E. In Asia, this adaptogenic property is said to “stimulate immune defenses, balance body function, normalize body systems, boost recovery after surgery, protect against radiation, counteract the effects of sugar, optimize energy in times of stress, increase stamina,
protect against motion sickness, normalize blood sugar and blood pressure, reduce high cholesterol, shield against infection, improve the health of the adrenals, energize RNA-DNA molecules to rebuild cells and produce energy comparable to that of a young athlete.” Studies conducted on Schizandra’s effects have noted that the herb has a stimulating effect in low doses, but this effect disappeared with larger doses. The compounds thought responsible for the liver-protective effects of Schizandra are lignans composed of 2 phenylpropanoid. More than 30 of these have been isolated in Schizandra, some 22 of which were tested in 1984 by the Japanese scientist H. Hikino for their ability to reduce the cytotoxic effects of carbon tetrachloride and galactosamine on cultured rat liver cells.

Most lignans were found to be effective, and some were extremely active (schizandrins A and B, gomisin A, B-bisabolene). Subsequent Japanese studies have found that two of the lignans, wuweizisu C and gomisin A, exert their liver protective effects by functioning as antioxidants to prevent the lipid peroxidation produced by harmful substances such as carbon tetrachloride. Since lipid peroxidation leads to the formation of liver damage, the two compounds did indeed exert a protective influence. Western herbalists commonly recommend Schizandra as support for the lungs, liver and kidneys, and to help with depression due to adrenergic exhaustion. In Russia, Schizandra is used to treat eye fatigue and increase acuity.

**Distribution:** Native to Northern China.

**References**


E). Glycyrrhiza Uralensis (Licorice Root)

Licorice root is a sweet tonic herb that stimulates the corticosteroideal hormones, neutralizes toxins and balances blood sugar levels. It is also antibacterial, anti-inflammatory, antiphlogistic, antispasmodic, antitussive, cholagogue, demulcent, emollient, expectorant and laxative. It is used internally in the treatment of Addison’s disease, asthma, coughs and peptic ulcers. Externally, it is used to treat acne, boils and sore throats.

**Distribution:** Meadows, riparian woodlands and solonetzic slopes in Siberia, Mongolia, China and Japan.

**References**


F). Aralia Mandshurica (Manchurian Thorn Tree)

Aralia Mandshurica enhances a person’s ability for memorization and prolonged concentration. In proofreading tests, after taking Aralia Mandshurica, a decrease in the quantity of mistakes was observed in 88 percent of the experimental group, while an increase in the quantity of mistakes was observed in 54 percent of the control group. Those taking Aralia Mandshurica exerted a
strong stimulative influence among test subjects who displayed a great improvement in reading comprehension, aptitude and speed.

**Distribution**: Forests on rich well-moistened slopes, 900 to 2000 meters in N. Hupeh. Thickets and thin woods in lowland and hills in Japan.

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**G). Avena Sativa (Fresh Wild Oat Seed)**

An excellent remedy for strengthening the entire nervous system, oats are used in treating nervous debility, exhaustion when associated with depression, and stress. Fresh Wild Oat Seed has been used to treat nervous exhaustion, insomnia and “weakness of the nerves.” This plant is a nerve-tonic, stimulant, and antispasmodic. It ranks among the most important restoratives for conditions depending upon nervous prostration, and for the nervous system. It has been used to treat a weak heart, spermatorrhoea, and insomnia. In weak states of the heart muscle it may act as a good tonic to improve the energy of the organ. Studies suggest Wild Oat Seed provides a normalizing effect from the avena-seed extract. Spasmodic conditions of the neck of the bladder are said to also be relieved by avena-seed extract.

**Distribution**: Originating from Thailand.

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**V. Primorye/Adaptogens Studies, Use and Safety**

**A). Common Questions About Primorye**

- **What makes Primorye different from other supplements, herbs and vitamins?**
  There are no other products on the market, including Russia, which combine the best studied adaptogenic herbs and advanced technology that produces a superior quality product.

- **Will Primorye be as effective if I divide the recommended serving?**
  No. The serving size (1 oz.) has been set so you receive an adequate dose of adaptogens to be effective.

- **Should I use Primorye even if I am in good shape and have low stress?**
  Absolutely. The adaptogens will help support your immune system. It will also aid your body in dealing with the stress it is experiencing, even if you cannot “feel” the stress mentally.

- **If I anticipate an especially stressful, or physically demanding situation, can I safely increase the dosage? What do you recommend?**
  Keep the Primorye GOLD with you. This is a concentrated formula with the same powerful adaptogens as Primorye. Take the GOLD before or during your stressful events for extra support.

- **My teenage daughter experiences a lot of school-related stress. Can she take Primorye?**
Yes, this will be a great product for her. She’ll be able to focus better in school and manage her stress.

- **Will my bottle of Primorye expire? How long will it last?**
The shelf life is listed at 24 months. When refrigerated it will last longer.
- **How soon will I begin to notice the effects of Primorye?**
Some users notice results within hours. Most people will notice effects within 1-2 days of use.

**B). Russian Studies on Adaptogen**

Preliminary studies beginning in the 1950s were promising and soon led to a massive testing program with clinical trials being conducted across the USSR. Testing was performed on factory workers, long distance truck drivers, sailors on long voyages, and military personnel under severe stress. Stress studies included:

**Study:** Soviet Olympic teams and other sports teams during challenging training and competition.  
**Result:** Improved stamina and recovery, increased oxygen intake and better performance.

**Study:** 1,000 mining workers in Siberia.  
**Result:** Incidence of cases during influenza epidemic dropped by two-thirds.

**Study:** 1,200 long distance truck drivers.  
**Result:** Improved productivity; the number of influenza cases during an epidemic was reduced by 30 percent.

**Study:** 14,000 auto factory workers.  
**Result:** 30 percent decrease in total reported symptoms; 40 percent drop in symptoms of high blood pressure and heart disease.

**Study:** 107 patients receiving anti-cancer drugs for gastric cancer.  
**Result:** 50 percent less damage to immunity, 50 percent decrease in drug dosage.

**References**


**C). Why People Love Primorye**
“Being an athlete is about using your body under tremendous stress and tension. Once I started taking Primorye, I felt healthier, stronger, overall just better. Primorye has allowed me to accomplish my training goals and make the USA Triathlon Team. This product gives me an enormous edge over my competition.”
Daniel Clout
Member of the USA Triathlon Team
And 2008 Olympic hopeful
Palmerston North, New Zealand

“Endurance and recovery are why I love Primorye. For the most part, I’m an emotional guy on the mound. Sometimes, I get too pumped up. Mental clarity is a big part of the game when I’m out there. Primorye calms me down and keeps me focused and relaxed.”
Mike Gallo
Houston Astros Pitcher
Long Beach, California

“My first marathon was also my first race. I was nervous, but finished strong enough to qualify for the Boston Marathon. I started taking Primorye two weeks before the race, and I’m glad I did. After finishing, I walked 15 blocks to my hotel, had dinner out with a friend and was running the very next day. I’m sharing the Primorye “secret” with all my running friends!
Terry Rubinstein
Boca Raton, Florida

“My husband teaches drivers education to teenagers — talk about a stressful job! He takes Primorye everyday and the calming effects are amazing! Just as important, he shares the product with his drivers. He gives the students a dose one hour before a driving test and it works wonders. Every student driver who has taken Primorye has passed their road test!
Nile Costa
Cape Coral, Florida

“One of my main challenges is difficulty sleeping at night. With Primorye, I fall asleep faster. Besides that, I love the cran-raspberry flavor — delicious!”
Debbie Hopek
Nuevo, California

“My 82-year-old mother called to say she was out of Primorye and couldn’t stand it another day. She was run down, sleepy and had no pep or interest in her daily activities. I got some for her and a few days later, she said it made a huge difference. She’ll never be without Primorye again.”
Elaine Ferguson
St. Louis, Missouri

“I get stressed from sports tryouts, big tests, report cards and homework deadlines. Primorye has improved my skills in hockey, soccer and baseball and lets me feel calm about my school work.”
Nick DiPietro (5th grade)
Boxford, Massachusetts

VI. Adaptogens and Their Applications

A). Myths and Realities About Adaptogens
In the 1990s, the popularity of adaptogens as a commercial product was growing. Many companies were eager to use information about adaptogens to back up their marketing. But 80 to 90 percent of all publications had been written in Russian and very often the translation into English was not accurate or misleading. Furthermore, many claims were not based on fact.

**Myth #1**
The most popular myth is that the USSR kept the breakthrough of adaptogens, discovered by Israel I. Brekhman, M.D., known as The Father of Adaptogens, a secret from the rest of the world. It is not true that the USSR only used adaptogens for certain important influential citizens — elite athletes, astronauts, ballet dancers, military, key political leaders. Legends that the revolutionary discovery of adaptogens was a closely guarded secret — and that after years of secrecy wellness product formulators acquired these discoveries and for the first time made them available for Americans — are untrue.

**Reality**
The discovery of adaptogens and all research conducted by Soviet scientists was done without any secrecy and all publications were in the public domain.

Adaptogens were widely available to the general public from the beginning of the 1960s. Practically every drugstore in Russia has been selling adaptogenic products. In fact, Soviet authorities realized that huge research efforts involving hundreds of scientists could be converted in hard currency. The Ministry of Health Care of USSR formed a special commercial organization, MedExport, to be in charge of exporting herbal remedies. From the end of the 1960s, Dr. Brekhman, as a representative of MedExport, traveled all over the world to promote Russian adaptogens. He even wrote the special manuals, which were translated in many different languages and published by MedExport. The main goal of these publications was to establish credibility for the Soviet products. Thanks to such efforts, Russian adaptogens, and especially Eleutherococcus, became popular internationally — England, Germany, Switzerland, Japan and USA. As a result, the USSR has exported Eleuthero to many countries (including the United States) since 1969.

Only in one area of Soviet life — sports — were these major adaptogenic discoveries kept secret. All publications were retained as classified documents and available exclusively to an elite group of coaches, physicians and pharmacologists who were involved in preparation of Soviet athletes for the Olympic Games. Soviet sports programs were a major priority in Russia because the goal of such State programs were to achieve domination in the international arena to demonstrate the effectiveness of the Soviet political system.

As mentioned, all adaptogenic herbs (individually) were widely used by the general public as well as the elite groups — athletes, cosmonauts, and military. However, it was not until 1988 that a combination of adaptogenic herbs was introduced to Soviet athletes. In 1985, Dr. Ben Tabachnik, Senior Scientist and Head of the Experimental Group for the National Track and Field Team (sprinting), shared his findings regarding the effectiveness of different combinations of plants with his colleague Dr. Sergei Portugalov — Chief Adviser for the National Olympic Teams in pharmacology and nutrition.

Working together in 1986-1988, Dr. Tabachnik and Dr. Portugalov demonstrated that certain combinations of adaptogenic herbs were much more efficient for enhancing sports performance than any individual component. Their findings were published as confidential information for
top-level coaches and were retained as classified documents. Their formulas were implemented in preparation of the Soviet athletes for the Olympic Games in Seoul in 1988 and it was the most successful Games in their history. The Russian team managed to win 55 gold medals.

**Myth #2**
Side effects. In many publications, authors pointed out that there are adverse impacts for using adaptogens such as high blood pressure, insomnia, nervousness, high level of psychic excitement and fever.

**Reality**
In general, adaptogens are extremely safe — even for long-term consumption. Side effects are very rare and mostly related to individual sensitivity to some adaptogenic herbs. Consider:

1). According to scientific studies, from all adaptogenic herbs only Panax Ginseng may cause side effects (mostly sleep disturbances from over stimulation).
2). Based on clinical studies, Russian physicians don’t recommend the use of adaptogens for patients during hypertonic crises or in acute period of myocardial infarction.
3). Experimental data demonstrates effectiveness of adaptogens in normalizing high blood pressure and for sleep problems, as well as for:
   a. Functional nervous and psychic disorders, such as neuroses, dystonia, asthenic conditions, depression and symptoms related to menopause neuroses.
   b. Cardiovascular diseases — atherosclerosis, rheumatic heart affection, arrhythmia, ischemic insult.
   c. Diabetes, cancer.
4). Many Russian physicians prescribe adaptogens simultaneously with medicines for several reasons, including:
   a. To improve general well being, vitality, mood, energy level and to speed up rehabilitation;
   b. To reduce the dosage of strong-acting medicine;
   c. To decrease side effects caused by medicine, because of the significant anti-toxic effect of adaptogens.

**B. Who Can Benefit From Adaptogens**
A recent study on Cordyceps and Rhodiola showed significant improvement in VO peak and time to exhaustion, which are both effective measures of aerobic capacity in athletes and non-athletes. Anyone training at a high elite level or training for the first time will feel the benefits of adaptogens, although people who train simply to stay in shape or maintain a constant level may not see as much benefit. The reason is this: when training at an elite level, the body is pushed to and above its limit day in and day out. Similarly, anyone starting a new training program — perhaps someone training for their first 10k or marathon — puts added stress on the body. Additionally, athletes traveling to high altitudes have been shown to significantly adapt to the stress of reduced oxygen when using the adaptogen Rhodiola.

**References**
C). How Adaptogens Work Against Stress

Adaptogenic herbs, unlike stimulants, don’t produce excitation, jitteriness or tension. As a rule, using caffeine may provide a boost of energy (adrenaline rush) for a very short period of time. But that is followed with even more fatigue.

Millions of people could not get through the day without caffeine. They intentionally raise their stress hormones level, particularly adrenaline and cortisol. As a result, they experience tiredness and fatigue — the warning of metabolic energy debt and the accumulation of harmful wastes.

The principal myth about consuming caffeine is that it gives you energy. In reality, it gives you stress and stress-related problems. Massive clinical trials conducted across Russia have demonstrated that plants with adaptogenic properties increase energy, stamina, job productivity, physical and mental performance, tolerance and resistance to withstand prolonged and severe stress.

The mechanism by which adaptogens achieve such a unique action is well researched. When under stress, adaptogens help the adrenal glands mount immediate hormonal response; more stress hormones are released and manufactured. But when stress stops, the adaptogens help adrenals shut down more quickly. If stress is prolonged and severe, the glands reserve their resources by reducing the amount of hormones released. This conserved energy is available to respond to stressors efficiently.

Biological machinery that handles energy in the body is activated by adaptogens. As a result, during challenges more glucose is released into the blood from the body’s reserves. This glucose is quickly absorbed by cells to give them necessary energy to function. According to some researchers, adaptogens help glucose cross the cell membranes and get absorbed more easily. The result of such efficient cellular activity is that more energy is available to carry out difficult tasks to perform better without tiredness or fatigue. Therefore, our bodies seem to have better supply of fuel and less buildup of wastes, which is the cause of fatigue and poor function.

References

D). The Regulating Effects of Adaptogens

The first to be covered are Primary Adaptogens or ‘elite’ herbs. These herbs meet very specific criteria. They must have solid scientific research validating their use as adaptogens. They must enhance “general resistance” of the entire body. They must act in a “non-specific way” having a “normalizing effect” against all forms of stress. They must have an ability to maintain or restore homeostasis. The following are some of the primary adaptogens that will be identified and defined. Primary Adaptogens have two subcategories: General Primary Adaptogens and Primary Adaptogens exhibiting enhanced anabolic/anticatabolic actions.
E. An Overview of Possible Beneficial Effects and Actions of Adaptogens

1. Energize, tonify and balance the endocrine/hormonal system, specifically aiding in the overall enhancement of the HPA axis (build allostatic & vital energy)
2. Support the adrenal gland, thus counteracting the adverse effects of stress
3. Enable the body’s cells to have efficient access to “adaptive” energy
4. Assist cells’ ability to eliminate toxic byproducts of the metabolic process by providing ATP for cellular waste removal, and by activating free radical enzymes systems
5. Provide an anabolic (building-up), anti-catabolic effect
6. Improve the ability to utilize oxygen more efficiently
7. Enhance the proper regulation of bio-rhythms
8. Enhance adaptation: Improve the body’s ability to “adapt and respond” to various forms of stress, helps withstand and recover from stress
9. Reduces the accumulative effects of stress, making them less damaging, sparing “life force.”
10. Improve exercise performance and recovery: enhances ATP production and improves mitochondrial energy transfer, providing more efficient oxygen, glucose and nutrient utilization and waste (lactic acid) disposal.
11. Enhance Protection: Potent antioxidant effects (much greater then any vitamins or minerals), improves redox cycling: protects & vitalizes the liver, cardiovascular system, kidneys, lung, immune system and brain — can be a specific tonic for any of these organ systems
12. Relieve mental fatigue, learning and memory enhancement
13. Improves quality and quantity of work
14. May decrease depression, anxiety and general nervousness
15. Provide an overall anti-aging benefit
16. Offer deep immune support by increasing resistance to a wide range of immunological stresses, reduces acute infections and provides quicker recovery
17. Anabolic/anticatabolic — builds lean muscle and regenerates catabolic organ tissues such as muscle, bone, heart, liver
18. Strengthen specific endocrine glands, (adrenal, thyroid, pancreas, thymus etc.)
19. Promote more efficient cellular detoxification
20. Improve glucose and insulin control, utilization, and disposal
21. Assist in drug and alcohol withdrawal & recovery
22. Reduce fatigue and jet lag
23. Reduce altitude sickness
24. Enhance job productivity, mental performance, concentration, alertness and creativity
25. Improve metabolism, helps control proper body weight
26. Anticancer: anti-proliferate, anti-angiogenic, DNA repair and protection
27. Radiation protective
28. Chemo-protective including all vital organs and immune system, as well as chemo-enhancing
29. Increases libido, in both men and woman, may benefit male and female infertility
30. Protects GI tract — regulates stomach acids, inhibits ulcers (stress induced)
31. Improve eyesight and hearing
32. Improve blood health (anemia, leucopenia etc.)
References
McEwen BS, Wingfield JC. The concept of allostasis in biology and biomedicine. Laboratory of Neuroendocrinology, The Rockefeller University, Box 165, 1230 York Avenue, New York, NY 10021, USA. mcewen@rockvax.rockefeller.edu

VII. Understanding Herbs as Adaptogenic Agents

A). ‘Medicinal’ Properties of Adaptogens

Although, generally speaking, adaptogens are not considered “medicinal” in the normal sense of the word, they can and should be implemented into any holistic protocol when treating disease. They should be used especially following illness, post surgery, and/or trauma to assist in recovery. Adaptogens combat the negative effects of stress, improve health and well being, and enhance athletic performance capacity. They increase the body's vitality and reserve, a key component to any comprehensive longevity program. These are revered because they enhance the life force, encourage natural harmony, enhance one’s adaptability, and as a result generate “radiant health.” Humans, like all living things, are in a constant flux, adapting to harmonize within and around their environment. We are constantly adjusting to a multitude of slight or very large changes, some of which are obvious while others go unnoticed. Good health can be measured by our ability to adapt. A healthy, adaptive person will survive and/or maintain good health where an unhealthy person, less adaptive, will fall, become ill, or even perish. Darwin said that the fittest will survive. The “fittest” are those that “fit” into their environment most perfectly and can adapt to change so as to assure their state of good health. Adaptability is probably the most distinctive characteristic of life. Our over or under adjustment will lead to disharmony. Adaptogens are a “new” class of therapy, which has been used for generations that first and foremost enable us to adapt more easily and more effectively. Adaptogens come recommended by long-term use in traditional cultures, sometimes with hundreds of years of positive experience.

It seems apparent that most of us have been ingrained in our thinking to only seek out a health care practitioner after becoming ill. Most physicians seldom see someone that does not already have some sort of illness. Even in the case of cancer, the person that calls upon a doctor’s help is usually someone that has had one or more reoccurrences and been through many conventional treatments, often involving surgery, chemotherapy and radiation therapy. In this case, it is even more critical to build their vitality using adaptogens because of the state of debility they are in. Cancer has an energy itself that takes advantage of their awakened state and is therefore essential to strengthen their entire system.

All of us can improve our general state of health and researchers who have studied adaptogens believe these powerful herbs will provide a foundation to assist in facilitating a harmonious flow of energy, optimizing our state of wellness. Adaptogens can help bolster our innate resistance to disease and help prevent stress from taking such a devastating toll on our nervous, hormonal and immune systems. Dr. Brekhman’s work for over 40 years has clearly shown that while most of us are in a state somewhere between health and disease, we can benefit from a group of nature’s gifts called adaptogens, which work by helping us to move towards true health and stay there.

B). Adaptogens as Herbal Medicines

In the development of our breakthrough concept, researchers like Dr. Tabachnik have found that not all, but most of the studies on adaptogens have been done using the isolated herb (adaptogen)
as opposed to an amalgamation of several herbs. In creating a model using adaptogens as the foundation of health and healing researchers believe, both from a conceptual point of view and based on years of subjective clinical usage, that combining several adaptogens along with other complementing herbal remedies offers superior results. Overuse of any one thing; whether it be food, or even a great herbal remedy like an adaptogen, by itself could lead to a health state that is improved but still short of optimal. Your body can become adjusted to the herb and that can lead to a plateau effect, rather than continuing to improve our health to peak levels. For example, Traditional Chinese Medicine (TCM) cautions against improper application of Panax ginseng (Bensky, D. and A. Gamble — 1986). Chinese Herbal Medicine. Seattle, Eastland Press). Panax ginseng, as good as it is on paper, as a single tonic herb for the average American, is simply too stimulating, or too heating to use alone, especially the red Panax. When a very small amount of Panax is combined with other adaptogenic herbs, it works to enhance the body in a general sense but is much cooler. Dr. Tabachnik often gives the analogy of creating a balanced meal. If you only eat some great foods but exclude others, you would be missing very important nutrients critical for health and vitality. For example, if you were on a non-fat diet, or even a very low fat diet, you would be missing fatty acids, which are essential and vital for good health. Another example is if you lived on a raw foods diet for too long, eventually, you could gain some beneficial effects from the diet but become very deficient as a result. If you just included more vegetable and fruits in your diet, a percentage of them raw, as well as cooked, along with enough protein, you may still gain the benefits yet not become deficient. You can even detoxify and build the body up at the same time if your diet is balanced enough to supply all kinds of foods providing complete nutrition. This is the way a combination of adaptogens work. They would build, protect and energize without being specific for any one thing. This new and innovative concept of combining a broad spectrum of multiple adaptogenic herbs is much like creating a healthy colorful, gourmet entrée filled with vegetables, raw and cooked, olive oil, a piece of fish, a touch of aromatic culinary herbs etc. As healthy as any one food is, you wouldn’t think of making it the only food you eat. As wonderful as any one herb may be, the same concept should apply. This concept of herbal compounding, creating a harmonizing adaptogenic formulation, can be applied for both prevention and treatment of disease as well as to improve general health.

Another important consideration is the complementing effects of combining certain herbs together. For example, two different herbs have shown a beneficial effect at inhibiting cancer. Both herbs, as single agents, have limitations. But when combined, these herbs act synergistically to enhance their beneficial effects and also go beyond the effects either herb has alone. This has been scientifically proven with regards to several adaptogens. Green tea and turmeric (companion adaptations) when combined possess cancer-inhibiting capability beyond either one as a single agent. Both green tea extract and curcumin extract prevent cancer in animal models. They also inhibit lipid peroxidation and cyclooxygenase-2 (COX-2) expression and induce glutathione S-transferase (GST) enzymes. What is interesting is the synergetic effect of both herbal remedies possess when combined. The combination of green tea extract and curcumin has shown to be more effective combined than either agent alone in decreasing the proliferation of squamous cell carcinoma, inhibiting oral carcinogenesis at post-initiation, and inhibiting the invasion of B16F-10 melanoma cells by inhibition of metalloproteinases, thereby inhibiting lung metastasis.

Traditional Chinese Medicine has practiced the art and science of herbal combining for thousands of years understanding the synergy of creating a formula. Another example, Rhodiola Rosea, has recently gained popularity in the United States. Many companies are selling this herb, or what they are claiming is Rhodiola Rosea, as a single product, either in capsule or extract. Dr. Tabachnik feels the herb should not be used as a single adaptogen because it is extremely
astringent and drying. Of course, Oxyfresh combines Rhodiola Rosea with six additional adaptogens. Adaptogens are much more suited to use in a formulation where it can be balanced with other harmonizing herbs.

As a result of extensive research, clinically experienced researchers like Dr. Tabachnik have seen the need to compartmentalize many herbs with wide range health benefits, being multi-factorial, into categories of adaptogens.

References

VIII. Categories of Adaptogens

A). Primary Adaptogens

• Have solid scientific research validating their use as adaptogens.
• Enhance ‘general resistance’ of the entire body.
• Act in a non-specific way, having a ‘normalizing effect’ against all forms of stress.
• Have an ability to maintain or restore homeostasis.
• Are safe and have no side effects, even with prolonged consumption.

One of the ways adaptogens work is by lending a helping hand to the neuroendocrine system, feeding all the neuroendocrine hormonal systems and vital organ systems of the body, making them stronger, better organized, and with optimal communication between each of them. They are capable of either toning down hyper-functioning systems or toning up hypo-functioning systems, thus having a normalizing effect. Adaptogens enable the cost of optimal homeostasis to be less, thus preventing, or delaying any damaging effects caused by system overdrive (stress) and/or aging. With less cost going towards homeostasis/allostasis, you have more probability of success for disease prevention and treatment, along with an increased quality and quantity of health and life. By helping us maintain a state of balance throughout the entire body, adaptogens hold the key to vitality.

B). Secondary Adaptogens

• Meet most of the qualifications of primary adaptogens.
• Demonstrate some normalizing activity, especially on the immune, nervous, and hormonal systems.
• Have yet to be studied extensively for their adaptogenic qualities or may not support the adrenal system in particular.
• May offer a full range of non-specific protective effects to all organ systems when taken regularly, thus complementing and lending attributes beyond the benefits of primary adaptogens alone.

C). Companion Adaptogens

These herbs have demonstrated enormous general health benefits such as toning the entire body, protecting vital organs and assisting in the body’s ability to protect against or withstand many forms of stress. Their general actions will also enhance or synergize the effects of primary and
secondary adaptogens. They are non-toxic and their benefits are accumulative over long periods of time. Many culinary herbs and spices used in traditional cuisine including rosemary, turmeric and beverages such as green tea fall under this classification.

IX. Stress Research and Adaptogens

The mechanism by which adaptogens achieve their stress-protecting, normalizing action is well researched (mostly in the USSR and Japan). When under stress, adaptogens help the adrenal glands to mount an immediate hormonal response, by manufacturing and releasing more stress hormones. But when stress stops, the adaptogens help the adrenal glands shut down more quickly. If stress is prolonged and severe, the glands reserve their resources by reducing the amount of hormones released due to adaptogenic restoration of hypothalamic receptor sensitivity. This conserved energy is available to continue the body’s response to stressors, thereby delaying adrenal exhaustion.

A). Biological Considerations

A very large amount of biochemical work was carried out in the USSR by Brekhman’s colleague, Dr. I.V. Darymov. Darymov has given further clues as to how the body becomes more efficient, and especially, how we can achieve the extra stamina and energy that results from the use of adaptogens. He showed that the biological machinery that handles energy in the body is stimulated by adaptogens. Consequently, during challenge or stress, more sugar (glucose) is released into the blood from the body’s storehouses. This glucose is quickly taken up by the tissues to carry out their work. Adaptogens help glucose to cross the cellular membranes more easily. In the blood, the levels of sugar return more quickly to normal, confirmed by studies in Professor Farnsworth’s laboratory at the University of Chicago.

In addition, adaptogens have been shown to help our bodies tolerate stressful stimuli (including hard athletic training) by normalizing the body's metabolism and stimulating the body’s own immune system.

References

B). Specific Results of Adaptogens

1. An increased and steadier flow of energy throughout the day
2. Much lower feelings of stress
3. Increased endurance
4. Greater mental alertness
5. More restful sleep

Further, certain adaptogens have a profound anabolic effect. This means they help the body re-build damaged muscle tissue rapidly and thoroughly following strenuous training. This occurs by facilitating the body’s synthesis or formation of protein.
This anabolic effect is the same performance “advantage” gained by using synthetic anabolic steroids. However, steroids are not only banned substances, they are associated with liver disease, infertility, elevated cholesterol, edema, adrenal cortex malfunctions and other health problems.

Natural adaptogenic substances, on the other hand, are safe plant derivatives with profound anabolic-enhancing capacities but with none of the harmful side effects that are linked to synthetic anabolic steroids.

C. Cellular Adaptation

When the body is working close to its maximum capacity as a result of stress, the whole organism is engaged. If the strain lasts for a longer duration, or is repeated, the cells must adapt to work at a higher level, and the capacity to manufacture cell fuel must be built up.

1. More specifically, adaptogenic substances increase the capacity of the cells to build “energy factories” by activating certain “workers,” including mRNA (messengers) and tRNA (transporters), and the mitochondria. Adaptogens also act as powerful redox/antioxidants and assist in scavenging free radicals that adversely effect all cellular activities.
2. Adaptogens, by normalizing our bodily responses, help maintain the stable internal environment known as homeostasis and more importantly allostasis. In order for our body parts to work efficiently, the concentrations of water, food substances, and oxygen (as well as the conditions of heat and pressure) must remain within certain very narrow limits. By helping body parts remain in balance, adaptogens can help us have more energy and much greater health.
3. Combinations of this class of plant-based medicines have been perfected and prescribed to elite athletes by Russian and German sports physicians in order to continually assist them in anabolic activity, replenishing the depleted organism’s suppressed immune systems, and psychological reserves that result from the hard training necessary to reach elite levels.

Adaptogens have been observed to significantly accelerate the recovery processes after intense training and to increase the body’s resistance to stressful conditions.

Adaptogens are not vitamins, nor are they isolated constituents of a plant. They are safe, unique whole-plant extracts that work at the cellular level to help the body overcome the harmful side effects of stress. They increase the health and vitality of the cells, thus increasing the health and vitality of the entire organism.

With stress as the root of most illnesses, dysfunctions, diseases, and even performance limitations, adaptogens can be a very important piece of the overall health and fitness puzzle. Adaptogens build immunity as well as increase endurance and strength, improve mental focus, speed recovery, and enhance athletic and work performance.

These adaptogens have an amazingly wide range of uses as preventive medicines, rehabilitative medicines, therapeutic medicines, and as sports medicine for significantly enhancing health, recovery, fitness, and performance.
Although still relatively unknown to Western athletes, coaches, and scientists, Western researchers have begun to study the positive impact of adaptogens on athletes as well as sleeping disorder, chronic fatigue, allergy, cancer, and psychiatric patients. And while we continually seek out any means for increasing our health, fitness, longevity, and performance, adaptogens will increasingly become an important part of our everyday lives.

**D. Adaptogens and Aging**

A question should begin to arise as to whether or not adaptogenic remedies, in fact, ameliorate or prevent allostatic-related pathologies and delay age-related disease and/or premature aging. As you will read, there is substantial evidence that appears to suggest it to be the case. By definition, an adaptogen increases resistance to a wide range of stressors in a non-specific manner and normalizes hypo- and hyper- conditions caused by allostatic overload.

The mediators of allostatic load are the neurotransmitters and hormones of the three main systems involved in allostasis: the central nervous system, endocrine, and immune systems. The predominant neurotransmitters and hormones involved are catecholamines (primarily epinephrine), glucocorticoids (primarily cortisol), and cytokines. However, cytokines are usually activated downstream from or are peripheral to the initial stress alarm mediators, catecholamines and glucocorticoids. You see prolonged stress can cause a negative release of cytokines leading to inflammation, immune suppression and accelerated free radical damage.

Continued release of allostatic mediators prolongs the effects on target cells producing a cumulative allostatic load that has been linked to a myriad of pathological conditions. (McEwen, B. S. and J. C. Wingfield (2003). “The concept of allostasis in biology and biomedicine.” Hormones and Behavior 43: 2-15.)

Adaptogen remedies have been shown to lower plasma corticosterone level (Kim, Y.-R., S.-Y. Lee, et al. (1999). “Panax ginseng blocks morphine-induced thymic apoptosis by lowering plasma corticosterone level.” General Pharmacology 32: 647-652.), thus reducing the damage caused by excess cortisol. Adaptogens in other situations, potentiate cortisol and ACTH, sparing the breakdown of cortisol delaying the exhaustive state. (Al-Qarawi, A. A., H. A. Abdel-Rahman, et al. (2002). “Liquorice (Glycyrrhiza glabra) and the adrenal-kidney-pituitary axis in rats.” Food and Chemical Toxicology 40: 1525-1527). Cortisol helps the body maintain homeostasis in the face of stressors, counteracts inflammatory and allergic reactions and controls the metabolism of protein and carbohydrates. Cortisol is a very misunderstood hormone. Balance is the key. In naturally low doses it stimulates the immune system and in high doses, as prescribed in synthetic drug form, it can be immune suppressing. Remember that cortisol plays a role in counteracting inflammatory responses in the immune system and when cortisol is not available because the adrenal glands have become exhausted from too much stress, inflammation is allowed to continue unchecked and fatigue sets in. Adaptogens can in some way recognize the need to aid in providing more cortisol, or recognize cortisol is being overproduced for no apparently good reason and needs to be suppressed. All of this over time strengthens and preserves our adaptive energy preventing stress from causing disruptions, illnesses and premature aging.

Dysregulation of neurotransmitters and hormones can result in deficient or excessive amounts that potentially cause damage or lead to pathological conditions and/or premature aging. Increasing a deficient amount, or reducing an excessive amount, of corticotropin-releasing factor (CRF), adrenocorticotropin (ACTH) or cortisol can produce a beneficial response, depending on
the dysregulation and this is the amazing ability adaptogens possess. Being able to modulate either deficient or excess condition is characteristic of a true adaptogen.

References
Adaptogens and Human Stress Responses, September 1999, Lane Lenard, Ph.D

X. Adaptogens for a Healthy, Long and Disease-Free Life

Adaptogens are essential for everyone regardless of health conditions. Adaptogens assist the body by acting as stress protectors which harmonize all body systems, normalize homeostasis, optimize metabolism, revitalize exhausted organ systems, improve the resistance to a variety of adverse factors and reduce fatigue. Almost every ailment can be contributed to an accumulation of various stressors along with a lack of reserve or vitality. The reader will understand how these unique herbs can prevent common ailments such as anxiety, fatigue, insomnia, and depression, which often precede chronic illness. Consider adaptogens for the following:

- Improved physical performance, strength and recovery
- Promotion of muscle tone: maintain optimal ratio between muscle tissue and fat increasing physical appearance
- Effective weight management: Adaptogens regulate body metabolism
- Improved mental performance and productivity
- Enhanced mood (prevent anxiety and depression)
- Improved immune system protection and for acute illness prevention (cold and flu prevention)
- Building blood

A). Building Red Blood Cells While Under Stress

Researchers have studied the effects of adaptogen extracts of Siberian Ginseng, Rhodiola Rosea, Bergenia, Ginseng and Pantohematogen on erythropoiesis after paradoxical sleep deprivation. Adaptogens stimulated bone marrow erythropoiesis in the early stage, but decreased the count of bone marrow erythrokaryocytes 3 to 7 days after treatment. The effect of adaptogens on erythropoiesis is associated with modulation of the state of brain neurotransmitter systems followed by changes in functional activity of cells in the hemopoiesis-inducing microenvironment.

B). Combating Oxidative Stress

Adaptogenic plants — as well as what Dr. Tabachnik refers to as companion adaptogenic nutrients including high quality amino acids, vitamins, minerals, proteins and fats — support and enhance mitochondrial function, thus improving efficiency of energy transfer which is critical for detoxification, as well as liver and cellular regeneration. In addition, adaptogens directly protect the body from oxidative stress in manners that are independent from this mode of action. Adaptogenic plants include a wide range of botanical compounds that contain an array of phytosterols, flavonoids and carotenoids, all of which have been shown to exhibit a wide range of beneficial functions on the human body including anti-inflammatory, anti-neoplastic, anti-pyretic,
anti-catabolic, anabolic, antioxidant, age-inhibiting and immune modulating effects. The ability of flavonoids to inhibit cancer appears to be similar to many of the other natural food phytonutrients — via the liver and its detoxifying enzyme systems: induce Phase II xenobiotic detoxification, quinone reductase, and inhibit ornithine decarboxylase (ODC), an enzyme involved in cancer synthesis and tumor promotion. Proanthocyanidin and anthocyanin inhibited all the phases of the lipid peroxidative cascade and the induction initiated by hydrogen peroxide. Proanthrocyanin has shown antioxidant ability to be 10X greater than vitamin E.

C). Summarizing the Studied Benefits of Adaptogens

- Adaptogens for liver, kidney, lung and GI tract protection and regeneration
- Adaptogens for inflammation
- Adaptogens for sexual enhancement
- Adaptogens for Longevity: Slowing down biological aging; how adaptogens are the key anti-aging compounds
- Adaptogens to restore wellness and delay aging

References