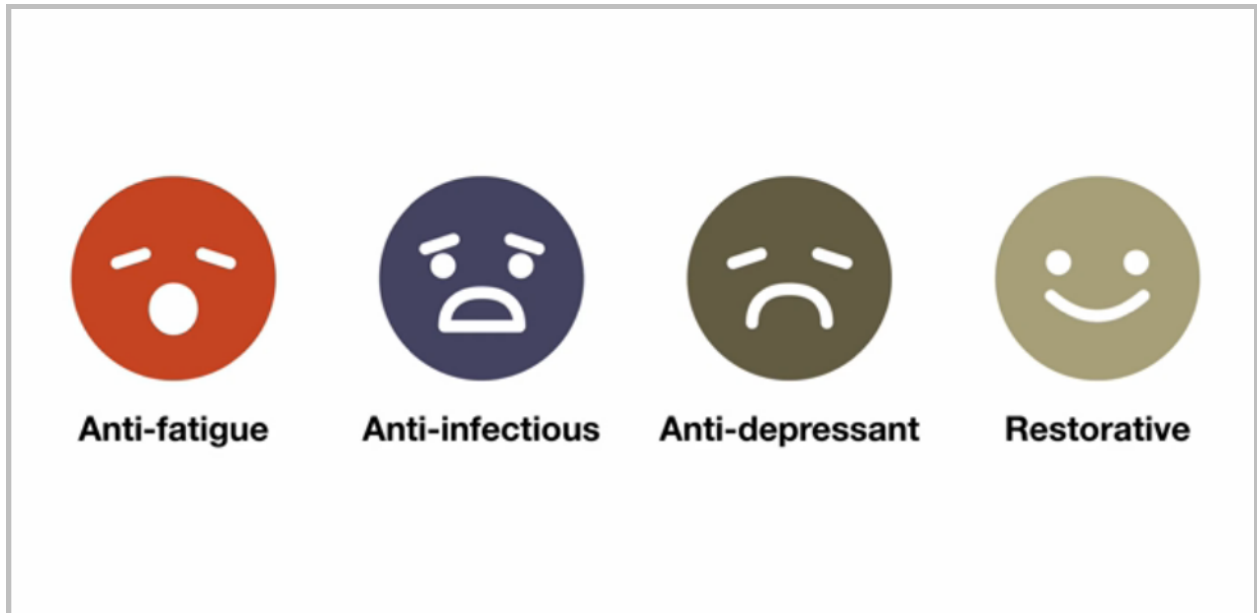


HPA-D 3-5 – Part 9

Let's talk a little bit more about botanicals, or adaptogenic botanicals, in particular. Adaptogens are loosely understood to be botanicals that increase resistance to physical or psychological stress, have a nonspecific immune-modulating effect, or increase energy. They are recognized to have a balancing effect, so they can upregulate or downregulate the same organ or system depending on the need. They are typically used in formulas rather than as single agents, although they can be used that way. This makes them more difficult to study, but the most common ones have been reviewed with Western scientific methods, and you can see Dr. Williams's book for a great review. It's worth pointing out that the quality of the research on adaptogens is not super-high, but these botanicals have been used empirically for hundreds or even thousands of years in some cases.



Adaptogens have four primary qualities. They reduce stress-induced damage, so they are anti-fatigue, anti-infectious, antidepressant, and restorative. They can have stimulating effects, leading to increased working capacity and mental performance. The stimulant effect is different from conventional CNS stimulants that deplete the energetic or plastic resources of organisms and cause side effects, though. Adaptogens should be innocuous and not disturb body functions from normal levels but have a normalizing influence in general. In short, adaptogens should increase resilience in metabolic reserve and improve stress tolerance and recovery.

Adaptogen mechanisms

Modulation of **heat shock protein expression**

Manage folding, affinity, nuclear transport, genomic signaling, and half-life of **cortisol receptors**

Increase in **neuropeptide Y** expression and release

Promotion of **genomic signaling of genes**

Recent research suggests the following mechanisms for the benefit of adaptogens, which were summarized by Dr. Williams in his book. These include modulation of heat shock protein expression. We discussed heat shock proteins earlier in the unit. They manage folding, affinity, nuclear transport, genomic signaling, and half-life of cortisol receptors, which are critical for the stress response. Adaptogens also increase neuropeptide Y expression and release. Neuropeptide Y is a stress-response hormone found in the CNS and the peripheral nervous system, or PNS. Adaptogens promote genomic signaling of genes within core metabolic pathways that affect cortisol metabolism.

Okay, let's talk about some specific adaptogens. Eleuthero, which is short for Eleutherococcus senticosus, was formerly known as Siberian ginseng.

It's been used in Russia and elsewhere to improve mental performance under stress and help with exercise recovery. Some studies have shown measurable improvements in chronic fatigue or quality of life. It has also been shown to relieve depression in bipolar teens. It's generally considered safe to use in both hypoadrenal and hyperadrenal states, so in either high or low cortisol states.

Next is schisandra, which is short for Schisandra chinensis. This has a long history of use in traditional Chinese medicine, but most studies on it come out of Russia. It has been shown to protect against stress and support energy production, cardiovascular, immune, respiratory, endocrine, and GI systems. Recent studies of schisandra used on its own are limited, but there are

quite a few studies of it used together with rhodiola and eleuthero. Like eleuthero, schisandra can be used in both high and low cortisol states.

Rhodiola is also known as roseroot, golden root, or Arctic root. There is much more published research behind it as a single agent than either eleuthero or schisandra. Several systemic reviews have recently been published, including 11 randomized controlled trials, and eight of 11 of them had positive effects. Endpoints typically include subjective measures of fatigue, burnout, and changes in saliva cortisol awakening response. As I mentioned before, there are more studies on the blend of rhodiola, eleuthero, and schisandra, which are typically referred to as RSE, and you can see Table 4 on page 116 in Dr. Williams's book for a good review of those studies.

Ashwagandha is another adaptogen that can be helpful. It is not related to ginseng botanically, but it is sometimes referred to as Indian ginseng because of its similar effects. It has shown some benefit in neurodegenerative conditions such as Alzheimer's. A systemic review of five trials showed improvement in anxiety or stress measurements, and one of those trials showed a dose-response effect. It tends to have a soothing or calming effect, and some use it as a sleep aide.

Sensoril ashwagandha is the most potent form available on the market. It is eight times the strength of standard ashwagandha. It's an extract derived from specially grown ashwagandha leaves and roots through a patented water-based process. It is supported by a double-blind, placebo-controlled, human clinical study, and it's the only ashwagandha on the market backed by an investigational new drug designation, which indicates rigorous safety and toxicity testing that meets FDA-approved safety guidelines. Having said that, ashwagandha has been used as a whole herb for thousands of years in India. It has a long history of safe and effective use that way, and there may be compounds in the whole plant that have effects that we don't fully understand yet.

There is an ongoing debate amongst herbalists on the use of the whole plant versus extracts, which are more common in the West where we tend to want to hone in on a particular active ingredient and amplify it. I'm not going to take sides on that or get into it in great detail here, but I've seen both the whole plant and the extracts work very well in the case of most of these plants, including ashwagandha and boswellia, when we talked about AKBA, the extract of boswellia before.

A therapeutic dose of ashwagandha extract, the sensoril, is 450 mg per day, standardized to 10 percent withanolides, which are other compounds in ashwagandha. A lot of other ashwagandha contains lower levels of withanolides like 2 to 3 percent. Note that ashwagandha contains iron, and some sources recommend avoiding it in people who have hemochromatosis. However, most plant-based forms of iron are not very well absorbed, so I'm not sure how necessary that is.

Cordyceps is a fungus that is traditionally grown in China on the bodies of caterpillars, and it's technically considered a mushroom. It has a long history of use as well in China and Tibet as a remedy for weakness and fatigue, and it is used as an overall rejuvenator for increased energy. It is believed to enhance athletic performance and improve aerobic capacity. Generally, the dose for

cordyceps is 5 to 10 g per day. Note that there is a really wide variety in the quality of cordyceps preparations, so make sure to get it from a reputable source. The highest quality you can afford is the best quality to get, and they can get quite expensive at the upper end of the scale.

Panax ginseng, also known as Korean or Asian ginseng, is the most widely known adaptogen around the world. Ginsengs are considered tonics, stimulants, and adaptogens. They are more stimulating than the other four adaptogens that we've talked about. For this reason, I don't recommend using Korean or Asian ginseng for nonspecific HPA-D or high cortisol situations. They may be useful as tonics or for their stimulating effects in hypocortisolism, but even there, I think they should be used cautiously and over the short term. If you don't have any experience with ginsengs, it is also best to learn more about them before you use them extensively in your practice because they can be really quite potent.