Exposome: HPA-D - Part 2

When it comes to physical activity, as I mentioned earlier, not getting enough is a problem, but too much is another problem, especially in my patient population. Overtraining can be a major cause of HPA axis dysregulation, and it's really important to assess patients for this. Ask patients if they have difficulty recovering from their workouts or if they've experienced plateaus or decreases in performance, fat gain around the midsection or under the chin, in the viscera, insomnia, restlessness, anxiety, fatigue, muscle and joint pain, frequent illness or depression; these can all be signs of overtraining. Those with HPA axis dysregulation typically do better with lower-intensity exercise like walking, cycling, swimming, yoga, etc., rather than high-intensity sports like CrossFit or weightlifting. Moderate-intensity strength training can be beneficial, but you just need to be very careful and monitor them for signs of overtraining, which I just mentioned, things like difficulty recovering or decreases in performance.

It's important to encourage contact with nature in people with HPA axis dysregulation. There's a large body of evidence showing that spending time outdoors and in nature can have rejuvenating and restorative effects, and so you want to encourage your patient to exercise outside whenever possible and spend as much time as nature as they can.

Pleasure, play, and social connection are also vital to our well-being, especially for those with HPA axis dysfunction. These activities are deeply nourishing and restorative for those who are feeling exhausted or disconnected or flat or burnt out. There's again a very large body of evidence connecting all of these things, pleasure, so things like receiving massage or listening to music, spending time with pets, play, playing games, laughter, and then spending time with friends or loved ones. These all have a profound effect on the nervous system, and we are hard-wired to have these things in our life, so the absence of these things can provoke HPA dysregulation, and encouraging them or cultivating them in our life can be an important part of treating it.

Image credits: store.chriskresser.com/collections/a-z/products/pantethine

We're going to go into a lot more detail on therapeutic supplementation in the functional medicine track for HPA axis dysregulation, but there are some basic nutrients we can talk about here that support the HPA axis. First is pantethine, which is an active form of B5 that's converted into coenzyme A, and coenzyme A is required to produce cortisol and aldosterone. It's also essential to the metabolism of protein, fat, and carbohydrate, the latter two being the primary substrates for energy production. Pantethine's also the precursor for adrenal steroids, cholesterol, bile, and hemoglobin, which is the oxygen-carrying protein in the blood, and pantethine has significant cardiovascular benefits: it reduces total cholesterol and triglycerides and increases HDL and long-chain omega-3 fats. So, the dose of pantethine for HPA axis support is quite high; it's 450 milligrams twice a day with food.

Image credits: http://store.chriskresser.com/collections/a-z/products/optimal-liposomal-vitamin-c

The next nutrient is vitamin C. The adrenal glands contain the highest amount of vitamin C in the body, the highest concentration. It's a key catalyst for hormone production, especially cortisol. It helps to protect against oxidative damage; in times of stress, vitamin C demand multiplies by severalfold. It prevents catabolism, which is tissue breakdown, boosts immune function, and produces anti-inflammatory hormones. Sodium ascorbate is preferred for HPA axis dysfunction, because many patients need more sodium relative to potassium. You can use a liposomal form of vitamin C for maximal absorption. If you're using a liposomal form, about a teaspoon, which is 1,000 milligrams, all the way up to two to three teaspoons a day, two to three thousand milligrams, is a good therapeutic dose. If your patient is taking oral forms of vitamin C, you have to be careful with very high doses, as that can cause diarrhea, so you'd start small and have them work their way up and monitor for bowel tolerance.

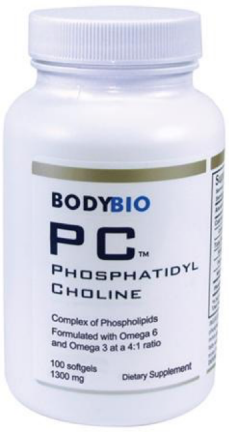


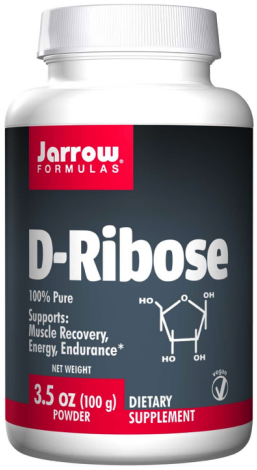
Image credits: www.bodybio.com/storeproduct356.aspx

The next supplement that can be helpful is phosphatidylcholine, or PC. It's a component of cell membranes, protects the cells against oxidative stress, it's essential to form acetylcholine, which is an important neurotransmitter in the autonomic nervous system. When HPA axis dysfunction becomes advanced, it almost always leads to dysregulation of the ANS, autonomic nervous system, and PC helps to buffer that. Most PC is made from soy; it's probably not an issue for most patients, the amount of it's very small, but if your patient's sensitive to soy, you can get forms of PC that are not made with soy, like this BodyBio product here. If you're concerned about GMO, most soy is of course GMO, so that's also a consideration. You can also take phosphatidylcholine in the form of sunflower or lecithin; the good brands would be BodyBio and Seeking Health. It can be taken as a liquid gel or capsules. The liquid is a bit more economical, but it tastes like rubber shoe soles according to one of my patients, not a very pleasant experience. The dose of PC varies from 2,000 milligrams per day up to 6,000 milligrams per day or more. It can be mildly stimulating, so generally PC should be taken in the morning or at lunch, not in the evening.

Image credits: http://www.amazon.com/Ecological-Formulas-Annatto-Tocotrienols-Health/dp/B003TVEXUA

Another nutrient to consider is vitamin E, but a specific form of vitamin E called tocotrienols. Tocotrienols have a variety of benefits: they have been found to promote new artery formation after a stroke, lower homocysteine levels, improve insulin sensitivity, protect vital brain circuitry, and even prevent bone loss. More specifically for HPA-D, it protects against oxidative stress in the brain and central nervous system. It can also reduce DNA damage in brain cells. One study found that elderly people with higher levels of tocotrienols in their blood had a 64 percent reduced risk of having Alzheimer's, for example.

I recommend annatto tocotrienols. There are several brands out there. One at the time of this recording is Ecological Formulas, or Cardiovascular Research. Make sure that you choose a formula that only has tocotrienols and not also tocopherols, which are another form of vitamin E that don't provide this benefit and can even interfere with the benefits of tocotrienols.



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Finally, D-ribose is another nutrient that can be helpful. It's a naturally occurring sugar in the body, regularly produced by the liver, adrenal glands and fat tissue, plays a significant role in the pentose-phosphate pathway, which is important for cellular energy production. Most patients with HPA axis issues have some level of fatigue or exercise intolerance or muscle fatigue or soreness; D-ribose has been shown to improve energy and function of the heart and other muscles. The recommended dose is one to 10 grams daily; it's available in powder form, it's easier to get this higher dose, and it should be taken with food, and possibly other cofactors like CoQ10 and L-carnitine can make it more effective.

Okay, let's talk about a case study: M.L., who's a 55-year-old female, 5'3", 145 pounds, with significant symptoms of HPA axis dysregulation like fatigue, exercise intolerance, low blood sugar. She had worked with a dietician prior to coming to see me, and the dietician had got her to eat more regularly to help control her blood sugar. Prior to that, she would eat very sporadically, sometimes she would skip breakfast and even lunch and just have dinner; she had a really irregular eating schedule. But despite her more regular meals, she was still having problems preventing hypoglycemia and still suffered from severe fatigue, and it had gotten to the point where it was so severe that she couldn't exercise anymore.

This was back when I was primarily doing saliva testing for adrenals, prior to DUTCH, so I had her do a saliva test, and she had low cortisol at three out of four points during the day, which is not uncommon with chronic fatigue. She also had a history of yeast or fungal overgrowth showing up on her stool samples. She'd brought several of those in, and she suffered from acid reflux.

First thing we did was focus on her diet. I had her increase her protein intake overall, and particularly in the morning, and she was eating kind of a lower-carb approach and probably low in calories overall, so I bumped up her carbohydrate intake and I made sure she was getting at least 1,800 calories a day, which is an appropriate level for a woman who's 145 pounds and 5'3" with little physical activity. So with these diet changes alone, a lot of her symptoms improved and her blood sugar was much more stable.

Obviously, stress is a big issue with HPA axis dysfunction, as we've seen, and behavior and lifestyle changes are crucial. She had been dealing with some family issues that were bringing a lot of stress into her life, and I referred her to a therapist so she could get some support, because she felt pretty isolated and dealing with a lot of pressure and responsibility in dealing with an aging parent. I also recommended that she implement mindfulness-based stress reduction program and gave her some different options, and she found deep breathing to be particularly helpful.

For supplements, we started with the basic nutrients, pantethine, vitamin C, tocotrienols and D-ribose. She did really well with all of these, and I decided also to add some adrenal glandulars; in the past, she had taken licorice and it had given her heart palpitations, and she didn't do well with adaptogenic herbs, so I just added some adrenal glandulars to these basic nutrients.

M.L. started feeling better as soon as we made some of the dietary changes, and these improvements only continued the longer she stuck with the diet, and then we added the supplements. As I mentioned, she got a lot out of working with the therapist; she was doing body scan mindfulness-based stress reduction and deep breathing on a daily basis, and after about six weeks, she noticed significantly improved energy. She was able to start exercising, at first it was very gentle, just things like walking; she had some experience swimming, so she did some gentle swimming, and that exercise gave her even more energy, and she was able to start increasing her physical activity a little further. She was very happy with the progress that she made, and she continues to improve as she kept up with the recommendations.

Okay, that's it for now, thanks for watching. In the next exposome presentation, we'll talk about skin conditions like acne, eczema, and psoriasis. See you then.