Enzyme Series 10: Superoxide Dismutase

Michael:

All right. The next one is superoxide dismutase, or SOD. I've heard this discussed a lot in discussions involving detoxification, and oxidative damage, or things of that nature. Why might one find superoxide dismutase in a systemic enzyme product, or what does it do? Why would we want to take it, possibly?

Kiran:

Yeah. So, SOD is really important. So, our body produces SOD as well to some degree, our cells do. SOD is a enzyme that actually breaks up superoxide. Superoxides are a byproduct of respiration. Respiration is the metabolic activity that our cells do where we use oxygen to create ATP. Oftentimes, what you get as a byproduct are these superoxides. These superoxides are very oxidative, they're very corrosive, they can create cancers, they can damage tissue. In fact, you increase your superoxide levels when you exercise, so exercise, for example, is something that increases superoxide and what we call oxygen free radical damage.

Superoxide dismutase is there specifically to quench these superoxides and reduce the tissue damage, so it becomes very important for somebody who has a lot of inflammation, joint damage especially, or is just coming back from an injury of some sort where you had a joint injury surgery where this repair going on in your body. Superoxide is very important for helping with the repair and eliminating the oxidative stress that happens in result.

Michael:

Okay. That makes sense. And that's why people that have been over-training for years, they tend to look more aged.

Kiran:

Yeah.

Michael:

That's the oxidative damage, oxidative stress, so it could potentially help with that type of situation?

Kiran:

Absolutely, yeah. I know training is very important, but training without the proper nutrition also then doesn't help your body replenish what it needs. Oxidative stress goes way up when you exercise and put your body through a lot of stress, and you need the SOD to bring it down.

Michael:

Would that work with or apply to the SOD any type of … 'Cause exercise and training is definitely one source of oxidative damage or stress, but what about things like smoking, or chemical exposures, and thing. Would this be something that would help with all forms or sources of oxidation?

Kiran:

Yeah, and even just normal existence, even just normal breathing creates superoxides within the body. It's all part of cellular metabolism, and so low SOD levels will lead to chronic inflammation and chronic

tissue damage. Certainly, exposure to chemicals, like people who smoke or drink quite a bit will have a lot of superoxide production in their livers. Any time you're stressing an organ, you'll get superoxide production, and the SOD becomes critical in disrupting that.