

PREVIEW_ Bourdua-Roy - Lahlou - Presentation (Breckenridge 2018) 2

Dr. Hala Lahlou: This is one of my favorite topics. I'm going to try to be quick, but I can't. So what are AGEs? AGEs are these funky products that happen when glucose binds two proteins. It can either happen when we ingest food or it can happen within our own bodies.

So if you eat a highly processed food that contains carbs and proteins and bad fats and you cook it at a very high temperature, there is a cross-linking that happens between the glucose molecules and the proteins.

And those are ingested, go through your gut, and they bind to receptors that are called the AGE receptors or the RAGE. Anyhow those will trigger inflammatory cascades, apoptosis and create havoc not only in your gut, but also get across the gut and do the same in multiple organs.

So those are AGEs that come from food. But AGEs are also made by our own bodies. And when you have a high level of circulating blood glucose, blood glucose just doesn't sit there. It tries to make friends with other molecules, to make friends with proteins across links to come through a reaction called the Maillard reaction and this is how we get something called hemoglobin A1c.

That's a glycation product, but it doesn't only happen in the blood, it happens in all tissues, it happens in the brain, it happens in the kidneys, in the eyes and those have a bad reputation. We think about Alzheimer's, or diabetic neuropathy and we think about AGEs.

And how does that relate to chronic pain? Very simple, it happens in nerves. It damages nerves and causes diabetic neuropathy.

It happens in small vessels, it makes them very stiff, it makes them very narrow and then the blood cannot circulate, the oxygen doesn't get to tissues and you end up having ischemic pain. It happens in the muscles and makes them stiff and not functional, it happens in all our joints and causes inflammation and premature aging that we call osteoarthritis.