

What is autophagy?

Autophagy is a process that's been described as an intracellular recycling system. What it is, is when you don't eat for a certain period of time, your body activates this process called autophagy. So in your cell there are certain organelles like mini-organs, for example. And what the body does is break down those organelles that are sort of old and junky or broken down and it burns it for energy. So you're breaking down some of these proteins for energy and that might sound like a very bad thing, but autophagy is about recycling. When you break down those proteins and then you eat again, you're going to rebuild those proteins, so that's actually a rejuvenation cycle. Because the first thing you need to do when you're trying to renovate, for example, is throw out stuff. If you're trying to renovate your bathroom, you're going to take that old toilet and you're going to throw it out, before you can put a new toilet in.

So you can't put in new stuff if you have old cabinets, an old bathtub sitting in the way. It's the same for the body. So the first thing you need to do is get rid of it. And it turns out that this is a very, very important process that's seen in virtually all animals, especially all multicellular animals and also in humans. We have this very widely conserved process of autophagy of getting rid of these old proteins under circumstances where we're not eating a lot of protein because we're preparing ourselves to build new proteins. If there's no energy available, if there's no protein, then the body wants to get rid of the excess proteins and getting rid of the excess is a good thing. It's basically like a spring cleaning for the body.