Everything in Moderation... Including Pain

An Interview with **David Julius**, Biologist, University of California San Francisco
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We're interested in understanding how you sense painful stimuli, which I think is an important thing because if you don't have a normal pain pathway, you injure yourself, and you have decreased life expectancy, et cetera. I think of all the sensory systems that we have - vision, hearing - I would say your ability to sense pain and other sorts of tactile stimuli may be the the most important for your survival. And of course there's a lot of chronic pain syndromes that we deal with, so we want to understand the mechanisms for all those kinds of things.

People who have chronic pain syndromes, their lives can get really turned upside down. They can become immobile. They might take a panoply of drugs that make them unable to drive, or decrease their function. They can become socially isolated, stop being active. Persistent chronic pain can be quite debilitating.

In the area of pain research, there are probably two areas that I think are really promising for the future, and where I hope things will go. One is understanding signals. There's a lot known now about how we detect different types of stimuli at the periphery, like at our fingertips. And then the question is, how are those signals sent into the central nervous system, like our spinal cord and brain, and how is all that information integrated? I think there are tons of questions to ask about how those signals are now routed, how they're integrated, and how, eventually, those signals are perceived by the brain, and how the brain sorts out different types of stimuli.

Using sophisticated imaging techniques, et cetera, those kinds of questions, which are very complex, I think can now be addressed. In the next five to ten years I see that there will be a lot of progress there.

And the other place I hope there's progress is developing new types of drugs that target molecules that might have some more selective actions in ameliorating pain syndromes than, say, opiates. And this has of course become a very important thing with this opiate epidemic, and I think that just underlines the whole idea that we need more drugs that can attack the pain pathway at different levels. Because pain is not really just one disease - it's like cancer - you know, it should be called pains. Because there's many different types of pain, and I think that we need more options to treat those different types of pain, because they'll respond to different types of therapies.