WEBVTT Kind: captions Language: en

00:00:01.126 --> 00:00:04.045 - The nervous system is the information network that's necessary

00:00:04.045 --> 00:00:06.589 to make all of the body work together.

00:00:13.596 --> 00:00:16.266 Muscles don't contract until they get the message to contract,

00:00:16.266 --> 00:00:18.601 which comes from the brain going through the spine,

00:00:18.601 --> 00:00:20.895 out through the peripheral nerves and then to the muscles.

00:00:22.355 --> 00:00:23.565 We have the central nervous system,

00:00:23.565 --> 00:00:26.901 which is the brain, the spinal cord and the optic nerves.

00:00:27.610 --> 00:00:30.405 And then you have what we call the peripheral nervous system,

00:00:30.697 --> 00:00:33.074 and that's attached to the central nervous system,

00:00:33.575 --> 00:00:35.994 its smaller nerves as they leave the spine

00:00:35.994 --> 00:00:38.496 and go out to the edges of the bodies at the fingertips

00:00:38.496 --> 00:00:40.415 and the toes and basically everywhere.

00:00:41.916 --> 00:00:45.211 Multiple sclerosis happens to attack just the central nervous system.

00:00:45.211 --> 00:00:47.380 So the brain, the spinal cord or the optic nerves.

00:00:48.006 --> 00:00:49.507 But obviously, that can

00:00:50.967 --> 00:00:53.970 impact pretty much any part of your body.

00:00:59.142 --> 00:01:03.897 Multiple sclerosis is an autoimmune disease

00:01:04.230 --> 00:01:06.399 where the immune system,

00:01:06.399 --> 00:01:08.818 which is supposed to be your body's armed forces,

00:01:08.818 --> 00:01:12.030 protecting you from infections and things on the outside.

00:01:12.530 --> 00:01:15.492 But in the case of MS, it gets its orders confused

00:01:15.492 --> 00:01:17.869 and instead of attacking germs and things like that,

00:01:17.869 --> 00:01:21.039 it attacks the brain, the spine and the optic nerves.

00:01:22.248 --> 00:01:27.712 So because the central nervous system have connections to the entire body,

00:01:28.338 --> 00:01:32.550 the symptoms that are caused by multiple sclerosis are very different

00:01:32.550 --> 00:01:34.969 depending on what part of the central nervous system

00:01:34.969 --> 00:01:38.681 is being attacked by the immune system at any given time.

00:01:39.849 --> 00:01:45.647 Initially, for most people, it presents as a sudden, relatively sudden onset of neurologic symptoms.

00:01:45.647 --> 00:01:49.275 That could be loss of vision, it could be trouble walking, it could be numbness

00:01:49.275 --> 00:01:54.114 and that's very much a change from what normal should be.

00:01:54.864 --> 00:01:58.076 When we look at the person's MRI, we find inflammation.

00:01:58.785 --> 00:02:00.453 That's the immune system causing damage.

00:02:02.288 --> 00:02:05.708 If left to itself, MS tends to just become what we call progressive,

00:02:05.708 --> 00:02:08.128 which just means people slowly get worse over many years

00:02:08.169 --> 00:02:10.672 and that is something we want to avoid.

00:02:16.845 --> 00:02:22.433 In the early 1990s, there were no treatments for multiple sclerosis.

00:02:22.433 --> 00:02:24.727 Zilch, nada, not a thing.

00:02:25.061 --> 00:02:30.191 Now we have over 20 different immunotherapies that can control the disease

00:02:30.483 --> 00:02:36.197 and while they're not cures, they can effectively put the disease into remission for many, many years

00:02:36.197 --> 00:02:41.995 and so the first changes in MS are most likely immunologic changes

00:02:41.995 --> 00:02:44.622 and Yale, as a immunologic powerhouse,

00:02:44.622 --> 00:02:49.294 is uniquely suited to do this kind of deep inquiry

00:02:49.294 --> 00:02:51.045 into these patients immune systems

00:02:51.045 --> 00:02:53.256 and tease out what's gone wrong.

00:02:55.508 --> 00:02:57.677 The frontier for multiple sclerosis is on both ends.

00:02:57.719 --> 00:03:00.180 First, find it earlier, treat it earlier.

00:03:00.763 --> 00:03:02.265 Maybe we can prevent it.

00:03:02.265 --> 00:03:05.476 But also for the patients who have lived with the disease for many years,

00:03:05.602 --> 00:03:09.272 how can we improve their lives, improve their level of function?

00:03:09.606 --> 00:03:12.942 And so I think both on both ends of the spectrum, there's room for improvement.