

**CHRISTOPHER** So we're here at the Fourth Annual Symposium on Regenerative Rehabilitation and with me is Dr. Tony  
**H. EVANS:** Windebank who's a Professor of Neurology at the Mayo Clinic and who's just delivered a spectacular talk on spinal cord regeneration. And I'm going to ask Dr. Windebank just to summarize what he said during his presentation.

**ANTHONY J.** Thanks very much, Chris.

**WINDEBANK:**

**CHRISTOPHER** Thank you.

**H. EVANS:**

**ANTHONY J.** First of all, it's very exciting to be here at the Regenerative Rehabilitation Symposium. It's particularly exciting  
**WINDEBANK:** because we've been working in this field of spinal cord repair for about 10 years. And we're just starting to get the point now where we're actually restoring function using strategies with scaffolds and stem cells, using a tissue engineering approach. And now that we're starting to get some restoration of function, the incorporation of rehabilitative strategies into the research is going to be incredibly important. So the timing of this is really good.

The basis of our studies is using rat models and collaborating with others at Mayo who are involved in tissue engineering, like Dr. Mike Yaszemski to build biodegradable scaffolds that we can use to support cells, different kinds of cells, that we put into the injured spinal cord. And we've used lots of different cell types and lots of different scaffold materials. And now, using biodegradable hydrogel scaffolds, which have very much the same mechanical properties of the spinal cord, incorporated into the scaffolds are microspheres that release drugs that prevent the body having negative foreign body reaction to the scaffold. And then incorporating cells that have different and secrete different neurotrophic growth factors, we're actually starting to see restoration of function.

And during the talk I was able to demonstrate and show videos of rats that had sort of minimal levels of treatment, which have no function at all. And now with scaffold cells antifibrotic agents, we're actually getting a response where the rats can make coordinated movements of their hind limbs. So as I said at the beginning, the exciting part now is to start to collaborate with other strategies here, such as electrical stimulation, which is clearly very important in this area and combined with rehabilitative strategies. I think we're really beginning to make some strides forward here.

**CHRISTOPHER** Dr. Windebank, thank you very much for that insight, which brings hope to the hundreds of thousands of people  
**H. EVANS:** with spinal cord injuries, who might one day be walking again through these regenerative strategies. And thank you all for watching.