

## Spinal cord injuries associated with increased risk of heart disease

October 24 2011

---

New research from the Heart and Stroke Foundation and the Christopher and Dana Reeve Foundation may help explain why people with spinal cord injury (SCI) have a higher risk of developing heart disease.

Damage to the [autonomic nervous system](#) is a key predictor of cardiovascular risk, researcher Rianne Ravensbergen told the Canadian Cardiovascular Congress 2011, co-hosted by the Heart and Stroke Foundation and the Canadian Cardiovascular Society.

Heart disease after a SCI is the leading cause of morbidity and mortality in this population. It is well known that regular exercise is beneficial for [cardiovascular health](#). However, for people with SCI, says Ravensbergen, a PhD candidate supervised by Dr. Victoria Claydon in the cardiovascular physiology laboratory at Simon Fraser University, exercise is only part of the story. "In this specific group we should also be looking at whether they have autonomic dysfunction, because this causes a higher risk for heart disease."

The autonomic system controls functions of the body that are automatic, or involuntary – such as activities of the bladder, bowel, gastrointestinal tract, liver, heart, and blood vessels. After SCI the autonomic nerves in the [spinal cord](#) can be damaged, leading to widespread abnormalities in autonomic function, and, of particular relevance to Ravensbergen's work, abnormal control of the heart and blood vessels.

Cardiovascular disease accounts for 30 percent of all deaths in Canada.

For those with spinal cord injury – almost 85,000 Canadians – heart disease tends to develop earlier in life, even in those with a healthy lifestyle. "In people with autonomic dysfunction due to SCI, they may remain at high risk of cardiovascular disease, even if they maintain a healthy lifestyle and exercise regularly," says Ravensbergen, adding that her findings may help explain this disconnect.

In her study, Ravensbergen assessed 20 people with spinal cord injury and 14 able-bodied controls to determine their risk for cardiovascular disease, including measurements for glucose tolerance, body mass index (BMI), body fat and abdominal fat. Those with SCI had decreased glucose tolerance and increased total and abdominal fat.

Ravensbergen then divided the SCI group into two subgroups: people with autonomic dysfunction and those without. While both groups had high cholesterol, she was surprised to find that those with autonomic dysfunction had problems with blood sugar. "These people are in a pre-diabetic state, which elevates their risk for heart disease," she says.

This study indicates that after the recovery period, there is value in screening the autonomic system to evaluate the cardiovascular system of spinal cord patients. Whether an increased risk of heart disease is truly due to the spinal cord injury or related to patient characteristics after such injury remains to be sorted out.

"This made-in-Canada research will aid people with spinal cord injury both in this country and across the globe," says Heart and Stroke Foundation spokesperson Dr. Beth Abramson. "It will be exciting to pursue this entirely new avenue, which will hopefully allow clinicians to streamline efforts to prevent heart disease in this group of patients."

People with spinal cord injury are normally tested for motor and sensory damage, but not for damage to the autonomic pathways, which run along

the spinal cord, says Ravensbergen. "SCI in humans is never clear-cut. We never exactly know which pathways are affected. We don't really take into consideration how control of the cardiovascular system is affected," she explains.

Further studies are necessary to investigate the role that autonomic nerves play, how to better measure and improve autonomic function and, ultimately, the best ways to prevent [heart disease](#), she adds.

Ravensbergen says this research could further help inform other autonomic dysfunction disorders and their relationship to heart health.

Provided by Heart and Stroke Foundation of Canada

Citation: Spinal cord injuries associated with increased risk of heart disease (2011, October 24) retrieved 27 April 2024 from <https://medicalxpress.com/news/2011-10-spinal-cord-injuries-heart-disease.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--