



UM Researchers Dominate Special Journal Issue on Neurogenic Obesity Among People with Spinal Cord Injury

It's a little understood phenomenon – that people with spinal cord injury (SCI) who appear underweight or normal weight can in fact be harboring a high-risk body composition, one made of up to 50% body fat.



Part of the reason is, “It’s really difficult for folks to know when they’re full. They end up taking in many more calories than they are burning,” said David Gater,

M.D., Ph.D., professor and chair of the Department of Physical Medicine & Rehabilitation at the University of Miami Miller School of Medicine.

But the scarcity of data on neurogenic obesity after spinal



cord injury could soon be a thing of the past. The American Spinal Injury Association recently asked Dr. Gater to serve as guest editor of a special edition of its *Spinal Cord Injury Rehabilitation* journal focusing on this condition.

After reaching out to potential authors nationwide and getting little response, Dr. Gater tasked colleagues at the Miller School and The Miami Project to Cure Paralysis to write 11 of the 13 articles to appear in the journal.

Silver lining

People with spinal cord injury can have higher fat mass composition than in any other population, Dr. Gater said. The silver lining for researchers is that this unique presentation provides insights into how obesity manifests in able-bodied people, as well.

“Neurogenic obesity is unique to spinal cord injury because of the tremendous loss in muscle and bone, the autonomic dysfunction, and the decrease in anabolic hormones,” said Dr. Gater, who is also chief medical officer at the Christine E. Lynn Rehabilitation Center for The Miami Project to Cure Paralysis at UHealth/Jackson Memorial.

People with this condition can experience metabolic problems such as hypertension, insulin resistance, and dyslipidemia, as well as upper extremity overuse and pain, sleep apnea, disordered breathing, and other consequences.

The research explains the mechanisms, or pathophysiology, that cause people with spinal cord injury to develop neurogenic obesity. It also provides evidence for dietary, exercise and behavioral interventions that could improve outcomes and quality of life.



Measuring obesity

The higher accuracy of body composition assessment compared to body mass index or BMI classifications of obesity is another focus. Through a number of rigorous assessments, Dr. Gater and colleagues show that BMI “is a very poor indicator of obesity in persons with SCI.”

Typically a person with a BMI of 25 kg/m² or more is considered overweight and someone with a BMI of 30 kg/m² or higher is considered obese. By contrast, he said, “individuals with a BMI of 22 can still be very obese in our SCI population.”

“Part of what allows us to move forward with this research is the new rehabilitation center that Christine E. Lynn donated for The Miami Project to Cure Paralysis,” Dr. Gater said. The center fosters interdisciplinary collaboration and features clinicians who treat people with spinal cord injury and researchers looking to advance the field, all in one setting.

“We have the research laboratories, the inpatient facility, and the outpatient clinics all together in the same building,” Dr. Gater said. “This is a very unique set of circumstances that you really don’t see anywhere else across the country.”