

# Powered stretchers could reduce injuries, keep paramedics on the job

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Moving from manual to powered stretchers could reduce the number of injuries to paramedics by 78 per cent, a University of Waterloo study has found.

The study, published in *Applied Ergonomics*, found that [paramedics](#) who had access to stretchers with a battery-powered hydraulic system and an assisted ambulance-loading feature experienced significantly fewer musculoskeletal injuries on the job.

"In many cases, paramedics face spine compression that is well above the threshold limit. A manual stretcher alone can weigh nearly 100 pounds. Add on a 200-pound patient and a paramedic team is handling 300 pounds every time they raise, lower, lift or load the stretcher," said Steven Fischer, assistant professor of kinesiology. "We estimate that a paramedic is lifting more than 1,700 pounds per shift on average, approximately the same weight as moving all of the furniture in a one-bedroom apartment."

The study compared injury rates at Niagara Emergency Medical Service, which had implemented powered stretchers at the time of the study, with Hamilton Paramedic Services, which used manual stretchers.

One year after introducing powered stretchers, stretcher-related injuries among Niagara paramedics dropped from 20 injuries 100 workers per year to 4.3. In Hamilton, injuries increased from 17.9 injuries per 100 workers to 24.6 over the same period.

Each unit can cost approximately of \$40,000 , and their availability varies among health regions.

"Although the units may seem expensive, they appear to offer a significant return on investment," said Daniel Armstrong, the study's lead author and a graduate student in the Department of Kinesiology. "We found that the added cost to purchase power stretchers and load systems would be recovered within their expected seven-year service life due to the reduction in injury-related costs."

Paramedics experience the highest incidence of work-related [injury](#). Data from the Ontario Workplace Safety and Insurance Board indicates the incidence rates among paramedics are nearly five times higher than rates in any other sector.

"For paramedics, lifting and loading is a common element to almost each and every call," said Fischer. "Knowing that initial costs can be recovered should help ease the concerns of decision makers considering a transition to powered stretcher and load systems.

"Without them, it's not a question of if injuries will happen, but when and how many."

Provided by University of Waterloo

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