

# New pain relief technique for ACL knee surgery preserves muscle strength

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Anesthesiologists can significantly reduce loss of muscle strength in ACL knee surgery patients using a new pain management technique, according to a new study by Dr. Faraj Abdallah, an anesthesiologist at St. Michael's Hospital in Toronto. Credit: St. Michael's Hospital

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ACL knee surgery patients using a new pain management technique, a new study has found.

Anterior cruciate ligament, or ACL, repair is one of the most common orthopedic procedures, with more than 3,000 procedures performed in Ontario every year. Patients go home the same they have surgery so they need to be able to move, with the support of crutches, and have adequate pain relief.

Current pain relief standards for ACL repair include a femoral nerve block, where anesthesiologists inject freezing around the nerve in the groin to interrupt pain - similar to a dental freeze. The new technique, called an adductor canal block, freezes nerves at the mid-thigh instead.

Researchers at St. Michael's Hospital and Women's College Hospital found the new method provided the same, effective pain relief as the current standard while also preserving strength in the quads muscles around the knee - only a 22 per cent loss of strength compared to 71 per cent for the femoral block. This weakness of the knee joint muscles can last up to two days after surgery.

The study, published today in the Online First edition of *Anesthesiology*, the official medical journal of the American Society of Anesthesiologists, compared the two pain relief methods in 100 patients to determine which method is more suited for this outpatient surgery, does not compromise effective pain management and improves patient safety.

Researchers assessed [muscle strength](#) in patients for 45 minutes after receiving a nerve block using a dynamometer, a device that measures muscle power. They then followed patients for 24 hours after surgery to gauge their pain severity and pain medication needs and recorded any incidences of falls or readmissions.

"These patients are young, active and usually go home on the same day of surgery with a frozen knee, weakened leg muscles and an expectation to walk as soon as possible," said Dr. Faraj Abdallah, lead author on the study and an anesthesiologist at St. Michael's. "With minimal knee pain after surgery, patients sometimes have a false confidence in the stability of their knee joint and attempt to walk unaided. The muscle weakness can lead to falls outside of hospital, potentially requiring follow-up surgery, causing further damage or longer rehabilitation."

The group who received the new mid-thigh adductor block reported no falls or accidents requiring readmission, compared to three falls or near-falls in the other group. Patients who received the new adductor block were also discharged from the recovery room an average 18 minutes earlier than those who received the standard method. Requirements for patients to leave recovery include having weight-bearing ability and adequate pain relief.

"There is a systemic push to improve patient care and make health care more efficient, but this should not happen at the expense of the patient's comfort and safety," said Dr. Abdallah. "We successfully showed that the adductor canal block provides effective pain relief and actually improves patient outcomes - both by lowering the risk of falls and getting patients to the next step of recovery quicker."

This new technique has also been widely adopted in knee replacement surgeries, becoming the new practice standard and replacing the femoral block in recent years. While there has been previous research on ACL surgery, this new study looks at how both muscle strength and [pain relief](#) post-surgery can be improved.

Dr. Abdallah said this research contributes to existing literature that this technique is better for knee [surgery](#) patients, reducing risk of injury and potentially lowering costs. He hopes the standard of care will begin to

shift worldwide for ACL repair, much like it has with total [knee](#) replacement surgeries.

Provided by St. Michael's Hospital

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