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Exclusive Sport Injury ward

Bend the knee: The game-changing procedure for athletes with ACL injuries

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For the best part of 15 years, Tom Cross stood alongside his famous father, Merv, as they reconstructed the knees of the country's best athletes.

If a player ruptured the anterior cruciate ligament in their knee, many ended up at Hunters Hill or the Mater private hospitals where father operated and son assisted.

Merv Cross (seated), his son Tom Cross and grandson, patient and doctor Matt Dowsett, with the new brace that aids recovery from ACL injuries. WOLTER PEETERS

Merv was already a legend, having pioneered keyhole surgery and arthroscopic ACL reconstruction of knees, prolonging the careers of cricket icons Dennis Lillee, Michael Holding, Clive Lloyd and Balmain hero Wayne Pearce among hundreds more.

His son followed him into sports medicine, and together they worked on the knees of Sydney Swans captain Paul Kelly, surfing icon Tom Carroll and rugby league international Justin Hodges.
“Watching Merv operate was like watching Federer play tennis,” Tom says. “Beautiful hands, every step quick but measured, the tissues don’t get hurt. I’m biased of course, but he was beautiful to watch.”

Now, the Crosses have “found another way”, unearthing a game-changing non-surgical procedure that allows the ACL to heal naturally, without invasive surgery, without ACL grafts made from the patient’s own hamstring or patella tendon, the tendon harvested from their parent, or the tendon from a dead person or animal.

Under the “Cross Bracing Protocol”, patients “bend the knee”, which isn’t a *Game of Thrones* reference but instead relates to the knee being set in a brace at 90 degrees for four weeks before being progressively straightened over a 12-week period.

The irony is too tantalising to ignore: the best-known surname in sports orthopaedic surgery has found a method to avoid the procedures that made them famous in the field.

In Australia, 90 per cent of ACL injuries lead to surgery. With the Cross Bracing Protocol, it is predicted this number may be reduced to 50 per cent.

“In 50 per cent of patients we believe it’s like getting in a time machine and giving you back your knee, untouched, like it was a millisecond before you injured it,” Tom explains. “No one’s taken your hamstring or your patella tendon. No one’s drilled tunnels through your knee. You don’t have a tendon trying to change its character and become a ligament. A healed ACL has its own beautiful, anatomical origin and insertion. Its own blood and nerve supply. All these things are important.”

Rugby player Kaipo Olsen-Baker ruptured her ACL in the first match of the 2020 season. She made her debut for New Zealand last year. GETTY

While more severe ACL ruptures are likely to require surgery, a study of 80 athletes found 90 per cent had evidence of the ligament healing after three months of bracing. About half achieve excellent anatomical healing.

The study, written and researched in conjunction with the University of Melbourne, was peer-reviewed in the *British Journal of Sports Medicine* this month and the response has been favourable.

Dr Stephanie Filbay, senior research associate in the Department of Physiotherapy at the university, says some surgeons are interested in taking part in a randomised clinical trial. "If the benefits of this treatment are supported by a clinical trial, this could result in a paradigm shift, whereby people aim to heal a ruptured ACL rather than reconstruct it with surgery," Filbay said.

The ACL – a three-centimetre ligament that runs through the knee linking the thigh and shin bones – is the most feared acronym in sport, particularly skiing, soccer, netball and Australian rules, which have the highest incidences of ACL ruptures.

'Your heart sinks for the athlete because he or she knows what's ahead ... Some come back within nine months, some unfortunately never.'

Tom Cross

Nevertheless, the unnerving “pop” when a leg is contorted in a way it should not, is common in many codes at all levels.

When ACLs rupture, it’s usually a 12-month recovery. Surgery is expensive, costing between $15,000 and 20,000. ACL surgery in children is challenging and the outcomes are not as reliable as in adults. About 30 per cent of patients under 20 who have ACL reconstructive surgery suffer another rupture.
As a former team doctor for the Swans, the Melbourne Storm, Duntroon military college and even Cirque du Soleil, Tom has seen many ACL ruptures but none worse than those suffered by retired Swans 2012 premiership winner Alex Johnson, who had five reconstructions on one knee and two on the other during his career.

“Your heart sinks for the athlete because he or she knows what’s ahead,” he says. More often than not, surgery and 12 months of physiotherapy rehabilitation. “Every month before 12 months you come back earlier increases the risk of re-rupture. Some come back within nine months, some unfortunately never.”

The genesis of the Crosses’ bracing protocol happened by chance, as many innovations do.

In 2014, Tom was at the Stadium Clinic at Moore Park, consulting 19-year-old Emma Rodger, who had ruptured her ACL playing netball. She was ashen-faced and crying, knowing two of her teammates had undergone ACL surgery on their knees, only for both procedures to fail.

“Is there another way?” she asked.

Merv, who was two years into retirement, was in the clinic doing rehab after – ironically – having his knees replaced. He heard the crying and pulled back the curtains.

“There is another way,” he said. “In the 1970s, we’d put plaster on patients that didn’t want surgery or who weren’t eligible. Some got better, others didn’t. If it doesn’t work, you haven’t burnt any bridges. You’ve just lost a bit of time. You can always have surgery.”

“I’m in,” she said.

Emma’s knee healed completely, and she was back playing sport unrestricted within a year. Since then, 373 patients have opted for the Cross Bracing Protocol with 90 per cent of ACLs healing.

Patient No.5 was Merv’s grandson Dr Matthew Dowsett, who had torn his ACL after being hit by a hip-drop tackle while playing rugby union for Sydney University in 2018. A 21-year-old medical student at the time, Matthew later became the second author of the research after making a full recovery.

Three generations of doctors, all former athletes, sharing a love of sport, a love of athletes, now on a mission to help them.

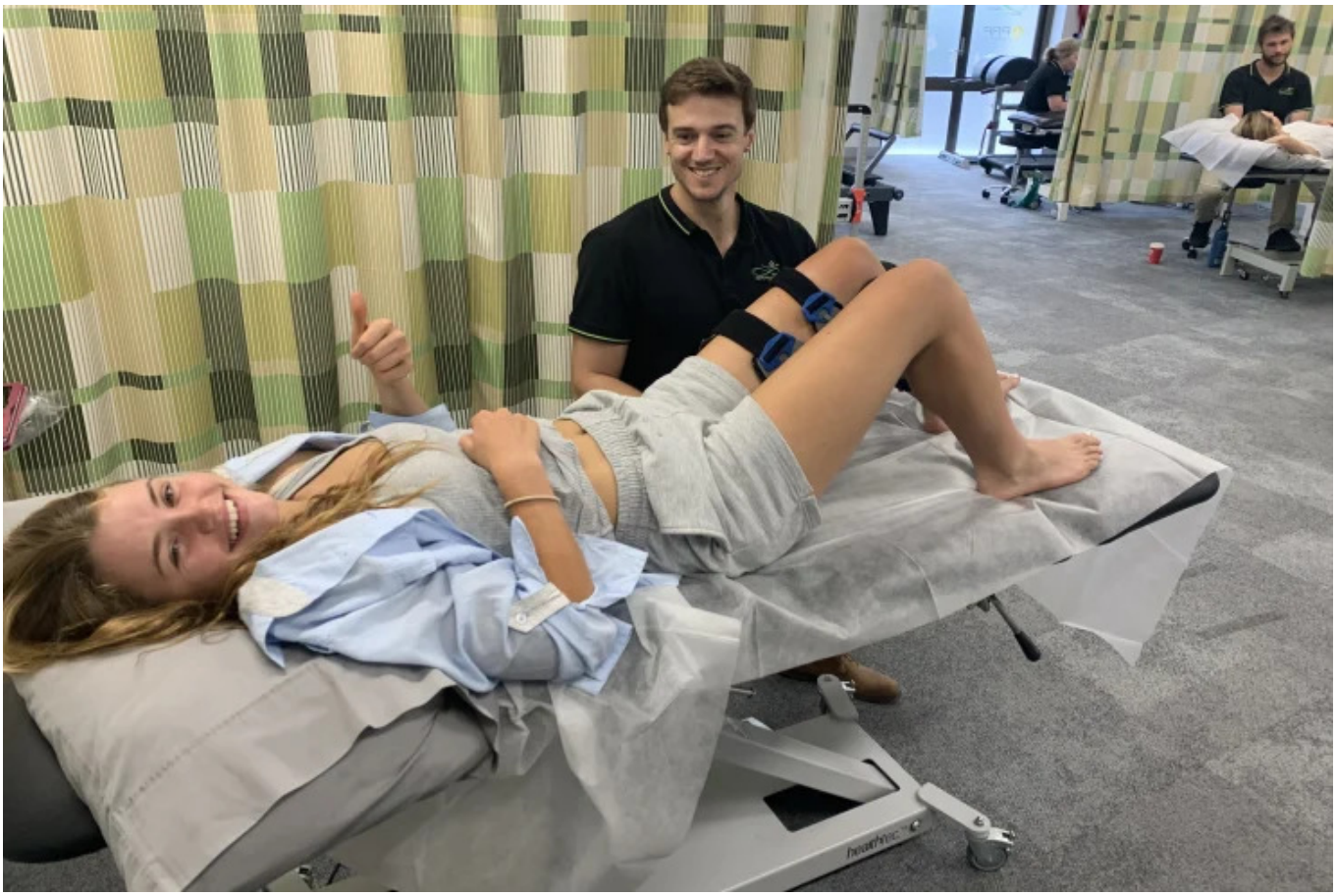
Tom, the senior author of the research, and his co-researchers have developed a classification for acute ACL injuries, believing indicators on an MRI scan can predict the success of bracing. “We still very much need the expertise of surgeons for those patients with profoundly injured ACLs that are unlikely to heal adequately or who have suffered other significant injuries to their knee that require immediate expert surgery,” Tom says.

Another key to ACL healing is timing. Ideally, knees are braced within four to seven days after the injury. The magic happens in the first month with the reattachment of the ligament ends

likened to the movie *Avatar,* when members of the Na'vi tribe connect their tails with a direhorse.

"If you get in early, and bend the knee at 90 degrees, that's where the ACL is shortest," Merv says. "Therefore, those two ruptured ends come together. Just like putting broken bones back in position. That gives you a chance to heal. The clock is ticking. If you don't do it early enough, you will have two capped or closed-over stumps incapable of healing."
Patient 42 was Gabriella Taylor – the teenage daughter of Olympian and athletics great Melinda Gainsford-Taylor – who ruptured her ACL in 2020 while playing netball.

Gainsford-Taylor had heard about the Cross Bracing Protocol on the grapevine. She was reticent about her still growing 15-year-old daughter having surgery, and not thrilled about donating one of her own overworked hamstrings as a possible graft.



Gabriella Taylor ruptured her ACL playing netball.

They met Tom, who took two hours to explain their options, including the science of the new pioneering treatment.

"It's the best thing we could ever have done," Gainsford-Taylor says. "We knew the risks going into it. If it didn't work, it was going to set her back 12 weeks but if you can heal an ACL without surgery, for someone that young, then I think you should."

Gabriella bent the knee, healed her ACL, abandoned netball and focused on her athletics career as a sprinter. She recently made a national team.

Patient 64 was women's rugby union forward Kaipo Olsen-Baker, who ruptured her ACL in the first match of the 2020 season while playing club rugby for Palmerston North in New Zealand.

“Two girls tackled me. One went high, another went low, and it was the worst pain I’d ever felt,” she says. “Dr Ra Durie suggested I call Tom Cross. I was back playing within eight months.”

Olsen-Baker made her debut for New Zealand last year. “I don’t even notice the knee now,” she says. “I don’t feel it.”
The study has received backlash from some quarters. *The Washington Post* this week quoted Timothy Hewett, a professor of orthopaedic surgery at the Marshall University Joan C. Edwards School of Medicine, who said it “does not seem plausible” that ACLs heal themselves. “The term ‘healing’ should not be used by the authors in this context,” he said.

Hundreds of successful recoveries suggest otherwise. “I can understand the scepticism from our colleagues,” Tom says. “That the healing ACL is just scar tissue. Our follow-up MRI and functional outcomes for patients suggest otherwise. What has motivated me the most pursuing this research is the young children who suffer this injury and those young athletes that cannot afford or have access to surgery. They now have another way; in many cases, we believe, a better way.”

The greatest challenge is convincing elite teams to take the same leap of faith. In the past four years, Tom has consulted numerous professional athletes whose ACL ruptures were perfect candidates for bracing instead of surgery.

“Two professional athletes wanted to do it but were talked out of it by their partner or player manager,” Tom says. “I truly understand it. The elite athlete wants to get operated on and get back as soon as possible. I would’ve been the same when I was head doctor at the Swans. It’s not just the athlete who makes the decision. The entire medical team, the coaches and the player manager all have their say. Professional codes simply need more data and longer follow-up before being convinced.”

Perhaps in a few years, when the long-term benefits of bracing are apparent, the club doctors at the country’s biggest clubs may adopt the protocol.

If Merv Cross can seek out and accept change, surely others can.

“It’s a huge paradigm shift for someone who’s devoted his life to pioneering ACL reconstructive surgery and doing it for 35 years to then say there’s another way and to not shut it down,” Tom says of his father. “But the real pioneers are the extraordinary young men and women who were prepared to take a risk on unpublished research.”

For more information: www.healacl.com.

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