

A medical milestone

Having conducted 10,000 successful operations means the hospital has a great database of information

An orthopaedic surgeon who contributed to the revolution in arthroscopic knee ligament reconstructive surgery, Dr Leo Pinczewski, last month reached a rare medical milestone when he conducted his 10,000th such operation at the Mater Hospital in Sydney. In 1993, Dr Pinczewski developed a new technique to repair the anterior cruciate ligament by replacing the use of the patellar tendon with a hamstring tendon autograft and interference screw fixation.

Designed to enhance knee strength, limit pain and morbidity from the donor site and reduce the possibility of future osteoarthritis, his technique has become a mainstream procedure adopted by the rest of the world.

Dr Pinczewski has travelled through the US and Europe teaching the technique, has won multiple awards for his research and has been invited to present the 15-year follow-up results of his surgical method to the prestigious American Academy of Orthopaedic Surgeons next year. Speaking of his contribution to surgical science and innovation, Dr Pinczewski said he had been fortunate to have graduated at a time of rapid technological advance.

"When I first began doing this work, knee reconstruction was an open surgery with perhaps an arthroscope used to have an initial look. That procedure required patients to spend up to a week in hospital and up to six months in plaster and on crutches with many people unable to straighten the leg fully for another six months, if ever," he said.

"Then when we began using the arthroscope to operate and using the patellar tendon, that hospital time was reduced to two days but many patients were experiencing pain from

the donor site which in effect fixed one problem while giving them another. We knew that using the hamstring tendon could possibly solve that problem but they were not as stable as the patella tendon so the break-through came when we decided to use a screw."

Yet while that seemed like a classic eureka moment, Dr Pinczewski said he could find no appropriate screw already designed and no medical device company willing to make one. Instead, he sat down with an engineering acquaintance and designed it himself.

"Then we had to find someone, some company to make them for us and we approached the Small Arms Factory in Lithgow which had originally been established to manufacture military weapons but which had since been virtually closed down. They said they would, they began hiring people again for the first time in years and at one stage we were exporting the device to 17 countries. Now the surgery is conducted in less than an hour and on a walk-in-walk-out basis."

Dr Pinczewski has spent the vast majority of his working life at the Mater Private Hospital helping to establish its strong reputation for orthopaedic surgery and is a clinical director of the North Sydney Orthopaedic and Sports Medicine Centre.

He has been awarded the Evelyn Hamilton Trust Memorial Prize for Best Paper at the Australian Orthopaedic Association Annual General Meeting three times, has won the Research Excellence Award for his new technique from the Australian Conference of Science and Medicine in Sport and has won a number of travelling Fellowships to advance his research.

Dr Pinczewski said his 10,000th ACL had been conducted to repair the knee of a 15-year-old elite netballer via the use of her mother's hamstring tendon.

"Girls that age tend to have tiny tendons while at the same time we are not sure how important the hamstrings are in preventing further injuries in young people," he said.

"So her mother very kindly offered to donate her tendons. This was the second set of tendons she had given because the year before her son, who was about to break into elite soccer in England, had ruptured his cruciate ligament requiring the

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same reconstruction surgery. However, the family had been so pleased with his recovery that she was prepared to do the same for her daughter."

Dr Pinczewski has not stopped thinking, designing and improving methods of knee repair surgery since his first leap forward. A few years ago, while cycling across the Nullarbor from Sydney to Perth with all that time to think, he devised a set of instrumentation to dynamically balance the ligaments during partial knee replacement surgery. He has also designed cement removal blades for the revision of cemented total hip replacements and an interlocking hip prosthesis for revision total hip replacement with proximal femoral bone deficiency.

Yet despite the recent surgical milestone and the career-long interest in innovation and development, Dr Pinczewski said his greatest satisfaction came from limiting patient's pain and morbidity.

"Most importantly, having conducted 10,000 such operations now means that we have a great database of information and from that we can say that patients who have the hamstring and screw reconstruction surgery don't seem to be developing osteoarthritis to anywhere near the severity or consistency they did with the older methods," he said.

"That is hugely satisfying because one of the driving goals of my research was to reduce morbidity and the possible need for future joint replacement – both to benefit the individual patient and the health system in terms of reducing future costs.

"Any advances that I have made have all been done in small steps and with the support of my co-workers. One does not set out to do 10,000 of anything, but the struggle to achieve the perfect result and understand how that is accomplished leads one on and on."