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No blood, no glory.

Toronto figure skater Patrick Chan has expended some of his own blood for the cause.

It is all part of a cutting-edge procedure used by athletes to jump-start healing of their injuries. Called platelet-rich plasma therapy – or PRP – an athlete's blood is withdrawn, spun and concentrated in a centrifuge before being re-injected into the injured area.

Chan had the procedure done last week, when Dr. Tony Galea used PRP on Chan's injured left calf.

Galea treated Steelers star receiver Hines Ward with PRP before he helped Pittsburgh win the Super Bowl last year, has used it on former Maple Leaf Gary Roberts and employs it extensively with the Toronto Argonauts.

There's a growing trend toward using PRP to treat athletes at all levels. The process is non-invasive and usually takes under an hour. While the science is not definitive, there's a growing belief it is very effective.

"Its role is evolving as we continue to do research on it," said Dr. Bob McCormack, chief medical officer for the Canadian Olympic team, who uses PRP as team doctor with the B.C. Lions.

To start the process, blood is extracted from the athlete, and after the blood is spun in the centrifuge, it has a concentration of platelets more than four times the normal level.

Platelets move toward the injured area and initiate a healing response. The idea is that by concentrating them and putting them into the injured area, the healing process will be accelerated.

Galea said there are four phases of healing when tissue gets hurt: acute, inflammatory, proliferation and maturation.

"When the platelets get into the tear they do what they do best," said Galea. "You're taking those four phases of healing and shortening them, cutting them in half."

Galea, who works out of the Institute of Sports Medicine in Etobicoke, said Chan made the right call in deciding to bypass this week's Cup of Russia in Moscow.

"Had he gone to Europe, he could have ruptured his whole calf and that would have cost him his Olympics," said Galea, adding there was nothing complicated about the skater's treatment. "It was a pretty straightforward, simple small tear. It was not complex."

There were initial concerns about PRP at the World Anti-Doping Agency, which feared it to be a form of blood doping.

It's still banned by WADA, but an application can be made to use it under a therapeutic use exemption (TUE).

"They've kind of come around after a number of people and a number of different countries have made representations to WADA and said: 'This is used by a lot of soccer teams, this is used by different athletes not to boost performance but to treat illness and injury,'" said McCormack. "They have softened their approach."



Patrick Chan, of Toronto, Ont., skates during a Skate Canada training camp in Vancouver, B.C., on Friday, September 11, 2009.

DARRYL DYCK/TORONTO STAR

Galea said they submitted a request to WADA under the protocol and received permission to give Chan the injection. As of Jan. 1, WADA is changing the rules so PRP can be injected anywhere on the body, except into muscles, although as in the case of Chan a TUE will still be able to be requested.

Galea said he has been using the procedure for about six years, but it didn't receive much attention until Ward sprained his medial collateral ligament in the AFC championship game and was able to come back and start in the Super Bowl two weeks later.

Ward was treated by PRP in conjunction with extensive rehab. He later credited PRP as playing a critical role in his ability to play with the knee injury that was expected to sideline him.

"We injected him, it wasn't perfect," said Galea. "But it was enough that he could play. But the nice thing about doing PRP is the type of tissue that heals, you minimize the fibrotic scar tissue and you get as close as possible to normal tissue."

Among the ongoing studies is one involving injecting PRP during rotator cuff surgery to help facilitate healing, as well as injecting it during meniscal repairs, because there's not a great blood supply in that area of the knee.