A new body armour for arborists moves into the prototyping and testing phase with a WorkSafeBC Innovation at Work grant.

Shawn Michaels almost lost his leg to a chainsaw when he was 16 years old. It was his third day cutting down trees for a transmission line right-of-way — essentially, clearing the way for electric power lines. A co-worker’s chainsaw flew back unexpectedly and ended up cutting into Michaels’ left leg, leaving him with 18 stitches. Luckily, Michaels was wearing protective leg gear at the time of the accident, which prevented him from losing his limb.

“I realized how valuable chainsaw armour is,” says the now 52-year-old.

Michaels’ dream is to create similar protection for the upper body, which would add to an arborist’s protective gear contingent of head, eye, hearing, hand, leg, and foot protection. It would also bring to market something that is virtually unavailable for purchase in North America.

Moving from concept to prototype

Michaels — who has worked with trees for most of his life and as an arborist for more than 20 years — started developing his design in his garage. He then enrolled in the Wilson School of Design at Kwantlen Polytechnic University (KPU) to get help turning his concept into a reality. In 2018, his supervisor received a WorkSafeBC Innovation at Work grant, which is being used to support his research.

“Shawn is one of the few students who came to the program knowing exactly what he wanted to work on,” says Dr. Dan Robinson, a kinesiologist, Canadian Certified Professional Ergonomist, and faculty member at the Wilson School of Design at KPU. He’s the principal investigator of Michaels’ research project.

Michaels’ design — which looks like a high-tech safety jacket — uses similar technology to what is currently found in chainsaw leg protection. The jacket includes layers of chainsaw blade–stopping Kevlar yarns, a synthetic fibre that is five times stronger than steel.

The goal is to block kickback, says Robinson. “That’s when the end of the chainsaw makes contact with wood and flings the saw back and upwards into the operator’s body.”

Blazing new trails for tree work

A multitude of factors go into creating technical apparel like Michaels’. Urban foresters need adequate
Reducing workplace incidents by inspecting and maintaining your equipment at frequent intervals.

Find health and safety resources for steep slope harvesting at worksafebc.com/forestry and search for “traction assist.”