



The Science Behind the Service

HONOURARY LT.-COL. BRINGS HIS SKILLS TO 39 SIGNAL REGIMENT

He has the name, and bearing, of a Norse God

Six-foot-four Geoffrey Thor Desmoulin, Honourary Lieutenant-Colonel to 39 Signal Regiment, has even dabbled in mythology – co-hosting Spike TV’s popular show *Deadliest Warrior*, which pitted history’s best fighters against one another in theoretical contests.

But there is nothing mythical about Desmoulin’s career of non-stop achievement, articulated in a 16-page résumé whose highlights include award-winning CISM athlete, inventor, karate black-belt, double Master’s degree holder and doctor, with a PhD in Mechanical Engineering.

Indeed, the hammer this Thor wields

is simply the unrelenting application of hard science in his chosen field, injury biomechanics.

“There is real power in the quantification of injury,” Desmoulin says, describing the focus of GTD Engineering, the company he founded in 2009. “We look through the eyes of the engineer at the forces applied to the body, how those forces result in injury and how we can go about preventing them. We hope to save lives and prevent injury, that’s as simple as it gets.”

That credo has been motivating Desmoulin ever since, as a 20-something, he enrolled with the Calgary Highlanders as an infanteer. Later he joined Canmore Emergency Services as a firefighter and emergency medical responder, where he learned how to treat and stabilize injuries. But after suffering a career-ending injury, Desmoulin became fascinated in the

mechanism of injury itself.

He went on to pursue a Bachelor’s degree in Kinesiology at Simon Fraser University. He followed that with a Master’s of Science in Kinesiology specializing in biomechanics then through Biomedical Engineering at Michigan’s Wayne State University, achieved a second Masters, specializing in injury biomechanics before earning his doctorate at the University of Calgary in Mechanical Engineering also with a specialization in biomechanics.

The long path through academia has earned Desmoulin and GTD, with its 13 associates, a true niche position in industry.

Half of the company is geared towards Research and Development, studying the causes of injury in the hopes of developing new protective equipment and devices.

DEADLIEST WARRIOR

For instance, a 2012 paper, Blast Mitigation Status of Police Crowd Management Ensembles, saw Desmoulin's team load crash-test dummies with accelerometers and over-pressure sensors, then subject them to blasts from plastic explosives. The aim was to determine the limitations of riot gear in protecting officers from explosive blasts.

GTD's other half is dedicated to litigation support. Using injury biomechanics, incident reconstruction and a term Desmoulin has trademarked, the "Science of Violence®", GTD aims to discover causal links in the interplay between accidents, injuries and protective equipment.

That means acting as an expert witness in cases involving car accidents, falls, sports injuries, aircraft crashes, etc. Specific to the Science of Violence®, Desmoulin has developed a unique capability understanding human conflict interactions in domestic abuse cases, home invasion defence, and the injury potential of weapons or objects.

It was this latter area of study that helped Desmoulin become a celebrity. For three years, he lent his engineering and biomechanical skills to Deadliest Warrior. Each of the 33, 1-hour episodes, still in repeats around the word, were essentially experiments, hypothesizing whether Genghis Khan could defeat an Apache warrior, or predicting who would prevail should a Shaolin Monk have ever crossed paths with a Maori.

But for Desmoulin there remains a firm distinction between the fun and games of Deadliest Warrior and the gravity of his current appointment at 39 Signal Regiment. He has a true leader's commitment to the men and women he represents.

"Politicians make decisions, senior officers and NCOs give orders, and soldiers carry them out, even though doing so could put their lives in grave danger," Desmoulin says. "That to me shows the biggest heart I could ever imagine in a personality. That deserves care, and that's what I wanted to give back."

He hopes during his tenure to be an advocate for his soldiers, drawing on his own experience with causality to help connect them with the public they serve.

"People see a uniform and their understanding stops there," he says. "But soldiers, Reservists, they're people, too. They could be sitting beside you at work. They have lives, families, responsibilities like everyone else, as well as this enormous commitment to their country. People need to see that human connection. When they do, the general population will support them. And then voting, funding, all those decisions that affect soldiers will start to change for the better."

