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## Skin tight suits feel like 'Superman'

By **Grant Robertson and Paul Waldie**, The Globe and Mail Posted Sunday, February 14, 2010  
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As **Chad Hedrick** stood in the bowels of the Richmond Olympic Oval this week, his top-secret speed-skating suit clung to him as though shrink-wrapped onto his legs.

"We did a body scan," the Texan said. "This is made for my body personally. We put these on and you go out there and you feel like Superman."

Talk long enough with athletes here and the conversation turns inevitably to the new suits they are wearing. Almost every country has developed some form of high-tech, physics-defying uniform for the Vancouver 2010 Games.

How fast the suit feels, where the seams are located, where it wrinkles, the degree of rub between the thighs - they believe all these elements are crucial to shaving milliseconds in a race.

"Our suits are high-tech," Canadian coach Marcel Lacroix said of the red-and-black suits Canada has unveiled. "We've been working with the fabric, the way they are sewn, the way they

fit, for the last three years."

Until recently, Canada's gear had been kept locked up like a state secret.

"We know we have a fast suit," Lacroix said. "We're not confident we have a fast suit. We know."

But the suit hype may boil down to trash talk. Countries are playing mind games, touting their suits as faster than their opponents'. Coaches want their athletes to believe they have an edge, and competitors to feel they are outfitted with inferior suits. Some coaches call it the placebo effect, others admit it's a form of psychological warfare.

U.S. skater **Shani Davis** said he had been switching back and forth between so-called slower suits and faster suits to mix up his training and prepare for Vancouver.

"I'm an athlete," Hedrick said. "I don't know all the bells and whistles. I know there's a lot of seams on this suit that don't get caught up in the air, I know that they are all positioned in the perfect spot, and they are all different materials. It's crazy what goes into these things."

Hedrick's suit was designed by Canadian Len Brownlie, a Vancouver-based researcher at the forefront of design for nearly 20 years. He did the body scan on Hedrick and helped design the U.S. suits for Nike.

The part-time gold hunter became interested in the subject of wind resistance in 1982 while doing postgraduate work in kinesiology at Simon Fraser University. Formerly a distance runner, he titled his doctoral thesis Aerodynamic Characteristics of Sports Apparel.

He designed a series of special suits as part of his research, drawing interest from Nike, but the shoe giant later backed away, and "my kids started using the suits for Halloween."

Nike called back in 1998. They were putting together a team to supply running gear for the 2000 Summer Games in Australia and Brownlie jumped at the opportunity. When Australian Cathy Freeman blew away the field to win the 400-metre race wearing a full-body suit he helped to design, Nike kept him on and expanded his consulting work.

His real breakthrough came in 2002 at the Salt Lake City Games. His new skintight speed-skating suit, called Swift Skin, eliminated seams and made the suit as tight as possible to cut friction and drag. The suits were smooth except for parts of the sleeves that were wrinkled slightly to enhance the skaters' ability to swing through the air without causing drag.

Brownlie tested 150 fabrics before settling on a material coated with polyurethane. Months of research and hours spent in wind-tunnel testing helped the U.S. and Dutch speed skaters to win 18 medals and set eight world records. Post-Games analysis showed the suits cut times by 1 per cent.

Nike thereafter outfitted Norway, South Korea and China. Brownlie was hired as a consultant for Canada's Own the Podium program and worked on suits for a multitude of sports, including

downhill skiing, snowboarding, biathlon, cross country skiing, luge and ski cross.

But his connection to Nike meant he could not work on the speed-skating program. Canada stuck with Descente, which has designed its own super-fast suits for Vancouver.

Canada won't let athletes trade them after the Games - a tradition in speed skating - to prevent other countries from going home and trying to create a version.

The Dutch skaters broke with Nike just before the Games because the company couldn't match the requested colour, according to Brownlie. The Dutch are reputed to be using sleek, skin-hugging technology similar to swimsuits that set records in the pool at the Beijing Olympics.

Not all skaters feel the suits make a difference, though. Canadian sprinter Jeremy Wotherspoon likes Canada's new garbs, but doesn't put much stock in the thought that it will win or lose a race for him.

"The differences they do make aren't massive," he said. "It's hard to feel a difference between a couple of tenths of a second in a lap. I think it's good to try some things, but there is a limit to how much stuff is positive for you. Sometimes you've just got to skate."

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