


HOCKEY TECHNOLOGY

Fixing foot faults

Toronto firm's custom orthotic helps maximize performance for those who log a lot of miles in their skates



The busiest NHL players can log up to four miles a game or close to 400 by playoff time, while referees and linesmen cover a lot more.

Add in morning skates, pre-game warmup and off-day practices and that's a lot of distance in the constraints of a boot, balanced on an eighth of an inch of steel. Which is why Toronto-based pedorthist Michele Peters, of Ortho Dynamics, developed "a GPS for the skate and foot" a custom orthotic to maximize performance for the world's fastest sport, whether you make millions or just make time an hour a week for recreational hockey.

Peters and partner Doug Pitkin don't just dispense advice to a growing client base of officials, minor leaguers and now NHL training staff. They visit scouting combines, training camps, hockey schools and, in mere hours, can produce a detailed analysis of a player's foot faults, then use 3D laser technology to make orthotics on site in their shop — the venerable Johnson Brothers Shoe Company in Scarborough.

NHL zebras, including Jonny Murray, who worked the lines at the 2018 Stanley Cup final game, have flown in for assessment and been back at Pearson Airport with a pair of ethylene vinyl orthotics made in half a day, a pair for their skates and training shoes.

"I was surprised to see there weren't any custom



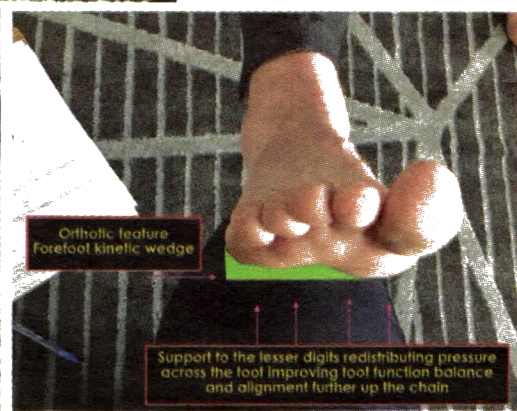
skates with custom orthotics," Peters said. "I've never actually gone to each skate company to ask, but I know from research that there is very limited information on insoles and the real time data we can provide here.

"Of all the people I assessed at camp (for example a gathering of referees last summer), only one was wearing custom orthotics."

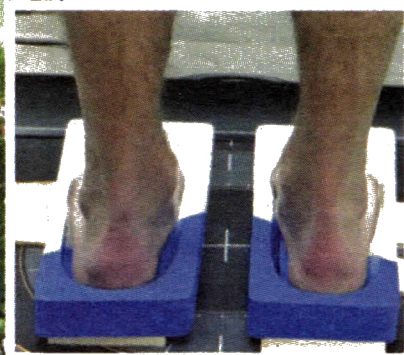
The stress levels on a skater's foot, with quick acceleration, stop-on-a-dime

and crossovers, are taxing. Skating/skills coach Joe Quinn, who worked with Connor McDavid, told *The Hockey News* the average NHLer does a crossover every 12 to 14 strides.

"We do a body scan," Peters says, "seeing how shoulders and knees are working, gauge pressure points and comfort levels and do insole pressure mapping. We have clients get on the same pressure plate that draft picks use for their vertical jumps at the NHL combine and are used for



Michele Peters of Ortho Dynamics and two photos illustrating their process in creating a custom apparatus to be worn inside the skate boot.



concussion protocol to assess balance. You can't fake how you stand."

She first checks posture alignment, scanning the person from behind and bisecting the torso. Using a random picture of an NHL official who came to her for help, she demonstrates how his trunk was subtly shifting too far left.

"I put land markers for his PSIS joint (sacroiliac) to see the right sits higher than the left and showing he has a high arch foot. The ground reactive force pushes up and

the whole foot rolls out. So, I want to fill up the space to have equal pressure distribution.

"I'd then put his skate on him to make sure everything lines up, horizontally and vertically, then position him for duties such as dropping the puck. We have them walk in their orthotic to get comfortable and then translate the data to the skate. It takes about six minutes to mill the orthotics. The last thing would be my written report, in language that hockey people understand."

There is individual scanning technology, insole pressure mapping, software design and manufacturing in the wider world, but Peters says Ortho Dynamics offers the only service where each form 'talks' to each other, fully integrated to use all the info in one to grade outcome.

Peters began in the field helping diverse customers — diabetics, ballerinas, salsa dancers and elder members of an electricians union. She first met Doug, a minor-hockey referee, as a diabetic seeking relief from skate-related pain.

"Diabetes causes reduced circulation in your feet, which can crumble and calcify, so it's important to off-load the weight," Pitkin said. "She took away my skates for six months and didn't give them back until I was healed.

When you get up to the NHL level of playing or officiating, every centimetre of support you can gain helps you."

The couple was invited to Germany for what they like to call the Orthotic Olympics, a seminar hosted by the Paromed company which founded much of the technology and challenges teams from around the world

to solve complex foot issues. Last year, they went to a power-skating school in Quebec run by Murray and put him through the exam process.

"I never really believed it until I tried them," Murray said. "But when you're standing up in a game for 2½ hours, it makes a difference. I had back surgery and missed an entire season, now I have no pain. I had about 500 kids at the camp and (Peters and Pitkin) helped about 20 to 25 of them, some with even the smallest misalignments. There are about 15 of us in the NHL/OA wearing the insoles now."

Referee Tim Peel was delivered a pair before a March game in Dallas and used them to correct reduced use of his arch from a previous ankle surgery. Peters and Pitkin also hooked up with ex-NHLer Troy Crowder, whose own frustration with lack of speed led him to

create the Flex 55 skate to reduce lace bite.

"We had very similar views," said Crowder. "The skates you buy are only about length and width, but if you have a high arch or you're bowlegged, a minute change helps. They're on the right path."

Pitkin and Peters also travelled to the University of Pittsburgh Medical Center in March to visit sports science personnel who

work with the Penguins.

"They're doing research there on such things as better helmet styles to prevent concussions and safer hockey-board technology," Pitkin said. "It was a doorway for what we're trying to do.

"Troy reminded us that hockey players don't want to change their habits. It's like them using the same lucky socks that helped them get to the NHL. But the ones who are more apt to seek additional training are looking for that edge that will give them the jump on others."

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Ref Jonny Murray

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