

More importantly, flex gives a stick something Mr. Reily refers to as "puck feel," a qualitative touch that allows the stick to behave like an extension of a player's body, increasing precision and releasing the puck with greater speed, spin, and accuracy.

In order to bend a 100-flex stick by one inch, a player needs to apply 100 pounds of force behind it. A good rule of thumb for finding the right stick is to look for a flex rating that's a little less than half your body weight.

Junior sticks typically begin at 50-flex, a rating that may work for a solid, well-fed 12-year-old, but isn't going to provide much control for a seven-year-old. At least that's what Mr. Reily discovered when he started combing the racks to pull the right size for his 40-pound son.

"I asked the clerk where I could find a 20-flex and he said, 'we don't have that. The lightest we have is 50-flex.' When you cut that it turns into 75-to-80-flex. This is what a pro uses. It's what Alexander Ovechkin, a 225-pound Neanderthal, uses. So I realized I was going in the wrong direction."

With a career in sales, Mr. Reily saw an opportunity to fill a surprisingly wide gap in the market.

"Kids always buy based on what their heroes played with and that's what sells. Because that's worked in the past, no one was motivated to change the process."

Sean Reily, founder of Raven Hockey

He took his thoughts to fellow hockey dads, Guillermo Salazar and Dan Pilling, who saw the potential.

Mr. Salazar, an analytics consultant, had a connection to the biomechanical research department at the University of Calgary, a lab that happens to do the research for top sports manufacturers like Nike, Adidas, and TaylorMade-Adidas.

Through a \$15,000 Alberta Innovates Technology Grant and a series of prototype tests with six-to-eight-year-olds, the team discovered that the key to a proper kid-sized stick was achieving the correct height and flex combination.

"The kids started shooting properly. They weren't just trying to flick pucks anymore they were loading up and firing," Mr. Reily says of the trial results.

While this sounds like a discovery straight out of the Captain Obvious handbook, the right ratio was only half the process. Creating a truly disruptive junior stick relied as much on materials and craftsmanship as it did on engineering.

The material part was easy enough. It was simply a function of sourcing the high-quality carbon fiber and fiberglass weave to build the layers that make up the stick's lightweight foundation.

The craftsmanship part was harder to get right. That's where Mr. Reily and his two partners, now operating under the brand name Raven Hockey, feel they hit the jackpot.

"How you cut, roll, and manufacture the stick all dictates how it's going to flex, how strong it's going to be and how it's going to feel. This is where the art beats the science," Mr. Reily explains.

"We partnered with a small manufacturer who's a bit of an industry hermit, but an absolute legend. The level of expertise he has is far superior to almost anything in the industry."

Interestingly, the partners had to sign a confidentiality agreement with their manufacturer, with a promise they wouldn't disclose his name.

Dad enlists 'Willy Wonka' manufacturer to design perfect junior hockey stick - The Globe and Mail

"He's basically Willy Wonka, but he's known to players. European players are known to be incredibly finicky with their sticks. If you took the top 10 European players over the last five years, he's built sticks for every single one of these guys."

At the end of the manufacturing process, Mr. Wonka had produced a line of junior sticks on a graduated scale, ranging from 20-flex to 40-flex. A 50-flex stick, the fourth size in the series, will hit the market in May.

Raven Hockey's products start at \$99 for the 20-flex and go up in price by \$20-per-flex increase based on the amount of carbon fiber used. Mr. Pilling explains why they feel the price point is a fair one.

"Our stick specs, from material perspective, don't exist in the marketplace. The size of the blade, the shaft, is not matched by another product. The length is lighter than any other stick because they're made by a craftsman," he says.

The real test came in May 2014, when Raven Hockey's first product run was ready to hit the retail level. Mr. Reily approached a contact at Professional Skate Service, one of Calgary's biggest sporting goods stores, and offered him first dibs.

All 100 sticks sold out in three days.

That year, Raven Hockey became the top-selling junior stick in the store, moving more units than all the other brands combined, Mr. Reily says, noting their sticks are now sold in 19 stores across Canada.

"Our first worry in business is can we sell the product? But our issue quickly became can we manufacture them fast enough? Do we have enough materials to ramp up scalability?"

While they're still firmly entrenched in start-up mode, with each partner keeping his day job and storing product in their basements, their sales figures give them hope for a move to bigger spaces.

"When we sat down last year, we said in our first year let's see if we can sell 600 sticks by the end of the year. Now we're doing 300 a week. We quickly learned how horrible at forecasting we are," Mr. Reily laughs.

In terms of strategic weaknesses, it's a pretty good one to have.

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