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Tapping spinal market

● Prize-winning entrepreneurs at CoreSpine Technologies are developing new tools for the booming market in back surgeries.

By THOMAS LEE • tlee@startribune.com

She could have cried. She could have pouted. She could have thrown chairs across the room.

But upon learning that spine firm Raymedica cut her job, Christine Horton pulled together and instantly set about the business of building a new future.

Well, not quite. "I was mad for about 10 minutes," Horton confessed.

Three years later, Horton and Britt Norton, another victim of Raymedica's cost cuts, are in a cheerier mood. Their start-up, CoreSpine Technologies Inc., was recently named winner of the Minnesota Cup, given annually to the most innovative new business idea in the state.

The Minnetonka-based firm is developing surgical tools to help doctors prepare patients for back surgery. Armed with \$50,000 in

seed capital, promising clinical data and support from top spine surgeons, CoreSpine will seek venture financing in early 2009. The company, which now is financed by private investors, has yet to generate revenue.

"This is the happiest I personally have ever been in a job," Horton said. "That whole story of taking something and really growing it to not only helping patients and doc-

Spine continues: Most surgeries today use clumsy tools that sometimes can pose a risk. **D6 ▶**



Dr. John Sherman, a back surgeon and medical director for CoreSpine Technologies, last month demonstrated a new surgical tool from CoreSpine. Some tools used in spinal operations were designed 80 to 90 years ago.

Photo provided by CoreSpine

inside track

Calling for a shift at Wells

Wall Street analyst Richard Bove believes that Richard Kovacevich needs to step down as chairman of Wells Fargo & Co. and let the next generation run the banking giant.



optimistic people.

The Pilgrims toughed out awful conditions, yet they found a way to coexist with Native Americans and celebrated their harvest not knowing what the coming winter would bring. The Civil War demonstrated just how divided a nation — or even a family — can be. Yet, somehow, we recovered and became the most powerful nation in the world.

As a business owner, I can't imagine this kind of success anywhere else. I bought a small, struggling envelope company, and now it's close to its 50th anniversary. Despite market turns and any number of threats to our survival, we have not only survived, but thrived. Why? Because we are also optimistic.

We have every reason to remain optimistic. American workers want to succeed as much as their employers do. They take pride in their work. They see hard work as a badge of honor. They are resilient. They are my heroes. They are the reason I can stay in business and prosper. When day is done, all is well.

Mackay's Moral: If we pause to think, we'll have cause to thank.

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2 Minnesota entrepreneurs tap booming business in spinal surgery

◀ **SPINE FROM D1**

tors but getting a return for our investors as well so far, it's worked out great."

CoreSpine designs instruments that remove diseased materials like cartilage and nucleus from patients' spines before doctors perform surgery to relieve chronic back pain, a condition that plagues a growing number of Americans.

An estimated 33.3 million adults in the United States reported spine problems in 2005 compared with 24.8 million in 2000, according to a February study published in the New England Journal of Medicine. Americans spent \$85.9 billion to treat spine-related back pain in 2005, up 65 percent from 1997.

Yet "there was no improvement over this period in self-assessed health status, functional disability, work limitations, or social functioning," the study said.

Huge potential market

The huge market has spurred a burst of innovation, especially in hospital operating rooms, where doctors implant devices to replace damaged discs, relieve nerve pressure, and strengthen the spine.

Thanks to the presence of major medical device makers

CORESPINE TECHNOLOGIES INC.

Headquarters: Minnetonka
Co-founders: Christine Horton, Britt Norton
Employees: 2
Website: www.corespinetech.com
Business: Developing surgical tools to cut diseased cartilage and nucleus from spine prior to surgery.
Revenues: None so far



Christine Horton



Britt Norton

like Medtronic Inc., a number of start-ups have emerged in the Twin Cities in recent years, including Annulex Technologies, Disc Dynamics Inc. and Spineology Inc., which raised \$9 million in venture financing in the third quarter.

CoreSpine won the Minnesota Cup because the company actually makes something that surgeons need to use these innovations, said Sima Griffith, founder and managing principal of Aethlon Capital, a Minneapolis-based investment bank.

"You often have entrepreneurs who come up with something that is quite cool but there isn't a need or demand for it in the marketplace," said Griffith, who helped judge the competition. "CoreSpine has

proprietary technology that was developed with the expertise of leading surgeons. With the graying of America, the number of people suffering from disc disease seems to be growing."

Spine doctors say it's important to remove diseased cartilage or nucleus between discs before implanting a device. Otherwise, operations like spine fusion will not work as well as it could or perhaps not at all.

"If you don't clean out the material, the risk of the spine not fusing is much greater," said Dr. John Sherman, a surgeon with Twin Cities Orthopedics who also serves as medical director for Disc Dynamics and CoreSpine. "You might displace the diseased materials or you can't get as big of a device into the spine."

Most surgeons today use clumsy tools that grab, pull and scrape. Sherman said that "frequently results in disruptions to other tissue." Given the delicate structure of the spine, surgeons need more precise devices that "minimize collat-

eral damage," he said.

In response, some companies are developing lasers, ultrasound and high-pressure water streams. CoreSpine's solution is an instrument with an extendable cutting tip that can also rotate 90 degrees, two advantages that allow surgeons to cut material from hard-to-reach areas in the spine, said Norton. Moreover, the company designed the instruments to suit the textures of materials being cut; nucleus, for instance, resembles soft crab meat, while cartilage is akin to hard plastic, he said.

CoreSpine will seek Food and Drug Administration approval for its devices by the end of the year. Horton said the company's prices will be "competitive" with other comparable surgical tools, which currently cost \$700 to \$1,400.

Scott Litman, managing director of SDWA Ventures in Minneapolis, said he was impressed with CoreSpine's progress despite its limited financial resources.

"The products [the company is] displacing are 80- to 90-year-old tools," said Litman, co-founder and judge of the Minnesota Cup. CoreSpine correctly concluded that "there's got to be a better way."

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The symbol, which will show up in mid-2009, will assure consumers that the product does not exceed standards for specific nutrients to limit things such as total fat, saturated fat, trans fat, cholesterol, added sugars and sodium.

Also, for most categories, they must provide positive attributes termed "nutrients to encourage" that include calcium, potassium, fiber, magnesium, plus vitamins A, C and E.

There was one important discord at the conference: Michael Jacobson, executive director of the Center for Science in the Public Interest, withdrew. He cited the absence of a symbol for products that have high levels of sodium, saturated fat, or sugar; allowing foods of questionable or negligible nutritional value, such as Sugar Free Popsicles (fortified with vitamin C), and allowing servings of food with as much as 12 grams of added sugars — such as General Mills' Reese's Puffs and Kellogg's Frosted Flakes and Cocoa Krispies, all cereals that have sugar content of 40 percent or more.

Jacobson continually reminds consumers that most of them need only about 2,000 calories a day. But don't expect to be reminded of that where you do your shopping.

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