NTT Data smart shirt keeps what's driving IndyCar's Tony Kanaan on track

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Speeding over 200 miles an hour around a race track may seem like a lot to handle, but IndyCar racer Tony Kanaan is in control.

Drivers like him experience gravitational forces that tax the body, causing cramps, high heart rates and other symptoms. Thanks to a smart shirt called Hitoe, produced by Japanese information technology company NTT Data and Toray Industries, Kanaan can monitor his heart rate and breathing.

When he gets too tense during a race, his team of engineers can calm him down.

"Your heart says everything," Kanaan said in a phone interview earlier this month during preparations for the Firestone 600 race at Texas Motor Speedway.

Last year, NTT Data approached Kanaan with the idea of making him a conductive fiber shirt. It has since changed his approach to training and competing.

"I used to cramp a lot in the car," he said. "I was wasting effort just because we didn't have the right information. (The shirt) shows me the muscles I use the most, so I can concentrate more in my workouts."

NTT Data, which moved its U.S. headquarters to the Dallas area from Boston last year, is developing a line of products that use early detection

to promote good health. The shirt Kanaan is testing is the only one for extreme sports, but it's developing a line of athletic products with similar features.

NTT Data and Toray Industries have already made a fitness compression shirt and a shirt for workers to monitor their bodies. Both are available commercially. Next up will be a line of medical garments.

Adam Nelson, NTT Data vice president for health care and life science, said the company wants to mass produce its high-tech fabric in the U.S. for hospitals and other health providers.

"We're looking at this from a health care perspective, cut the costs and provide a better experience when they undergo care," he said.

Nelson said the medical line could include hospital gowns, an outfit for babies and other wearable medical devices.

By 2019, NTT Data's North American services market will be worth $487 million, according to company data backed by research from Gartner Inc. Globally, NTT Data employs 60,000 people in more than 35 countries and is the sixth-largest IT services firm in the world.

NTT Data is dramatically growing its Texas presence, doubling the size of its facility in the Dallas area. In March, it bought Dell's information technology services division (formerly Perot Systems) for $3 billion.

With a value of $148 billion, the United States is already the largest medical device market, according to the U.S. Department of Commerce. Analysts estimate that wearable tracking devices will reach $53 billion in sales by 2019, according to Statista.

The field is already getting crowded. Since 2011, U.S. health care has

become more digital after the Health Information Technology for Economic and Clinical Health Act was enacted by Congress in 2009. The law, part of President Barack Obama's plan to rebound from the 2008 recession, mandates that health care providers digitize their health records with federal incentives.

Tech companies outside the health care industry are moving into the health care IT market. Apple, for example, has already pushed into health care with its Apple Watch, which comes with exercise and health apps.

But with all the hype about wearable medical devices, some professionals say health care providers should be wary of faulty data. Dr. Benjamin Levine, director of the Institute for Exercise and Environmental Medicine at Texas Health Presbyterian Hospital Dallas and the University of Texas Southwestern, said these devices could yield skewed results if the devices aren't used properly.

"My concern with widespread use is the decimation of bad data," said Levine, a leading researcher on wearable devices. "People can back bad decisions with bad data."

The Food and Drug Administration has guidelines for medical apps, but there are none for so-called general wellness devices, such as NTT Data's smart shirt. But that doesn't mean they aren't regulated.

FDA spokeswoman Angela Stark said the agency is reviewing its guidelines for these devices. Consumers are encouraged to give their feedback to the proposed policy. In the meantime, all medical devices must meet the FDA's standards for consumer safety.

Kanaan said his father died of cancer, so when the NTT Data team approached him with the smart shirt, he jumped at the opportunity to

test a technology with the potential to help people.

"Sometimes it gets depressing to spend time in a hospital just to be monitored," Kanaan said. "I know how hard that can be. In the future, the doctor will be given a live feed. You'll be at home while still getting treatment."

Kanaan hopes his smart shirt will give him an advantage over other drivers.

"It's something they don't have," he said, "so I can brag about it."