

Back on his feet



Gary Juntunen is aided by VA physical therapist Zach Hodgson while walking with the use of a robotic exoskeleton inside the atrium at Lambeau Field in Green Bay. The Milwaukee VA is studying the use of exoskeletons that allow some people with paralysis to walk. MARK HOFFMAN / MILWAUKEE JOURNAL SENTINEL

**For 27 years, paralyzed Air Force veteran could not walk.
Now a robotic exoskeleton has him moving around.**

Meg Jones Milwaukee Journal Sentinel
USA TODAY NETWORK - WISCONSIN

GREEN BAY - In 1991 Dean Juntunen broke his back when he fell 30 feet from a rope swing.

Doctors told him he would never walk again. For the last 27 years, their words were correct.

But in November the paralyzed Air Force veteran stood up for the first time since the accident and walked with the help of a robotic exoskeleton.

Juntunen travels from his home in Michigan's Upper Peninsula to visit Milwaukee's Zablocki Veteran Affairs Medical Center's spinal cord injury clinic for his annual check-up. Last year Milwaukee VA officials asked if he wanted to participate in research that may someday allow paralyzed veterans like Juntunen to walk again.

Juntunen said: Sign me up.

Training in Lambeau atrium

On Tuesday, he met with Milwaukee VA researchers at Lambeau Field's atrium to continue training on the 51-pound device.

"It's actually easier for me to get around in my wheelchair," Juntunen, 59, said while resting between sessions. "I'm kind of committed to the robot at this point. I'm actually liking it.

"The act of standing up is great. I hadn't stood up for 27 years."

Juntunen is the first Milwaukee VA patient to train on the robotic exoskeleton.

Fifteen VA clinics around the country are participating in the research, which offi-

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The device fits on the outside of Juntunen's legs with foot plates inside aptly named "New Balance" sneakers.

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Juntunen

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cials hope will eventually include 160 participants — 80 training to use exoskeletons and another 80 paralyzed veterans in a control group who will go through similar testing. Researchers want to know how, if at all, using the exoskeleton affects users' lives, including sleep patterns, weight gain or loss, cholesterol and blood glucose levels, quality of life and other health issues.

Juntunen is part of a group of about 50 veterans in the U.S. being trained to use the technology.

'Riding the machine'

"They call it 'riding the machine,'" said Zach Hodgson, a Milwaukee VA physical therapist who is part of the exoskeleton training team. "He likens it to walking on stilts because he's paralyzed and he can't feel his legs. The computer walks for him."

Exoskeleton technology has been around for several years and the VA study is using the only power suit approved by the FDA for home use. Juntunen straps himself into a computer and battery pack inside a flat plastic case attached to his lower back and standard orthotics powered by small motors to move hips and knees.

The device fits on the outside of his legs with foot plates inside aptly named "New Balance" sneakers.

When he's ready to walk or sit down, he regulates the device through a FitBit-type band on his right wrist. Juntunen uses two crutches and must always have an assistant next to him. Milwaukee VA officials were in the Upper Peninsula on Monday to train two of Juntunen's kayaking buddies to be assistants when he eventually takes the device home to use.

"Dean has discovered it's more of a workout than he expected and he loves workouts," said Cheryl Lasselle, a research physical therapist at the Milwaukee VA and the co-lead exoskeleton trainer.

91 marathons

Juntunen was an active guy before his accident and he's still an active guy. He has participated in 91 marathons and is currently paddling all of Lake Su-



Green Bay Packers president Mark Murphy (left) greets Gary Juntunen during a break inside the atrium at Lambeau Field in Green Bay.

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perior's shoreline in his kayak. He has only four days of paddling left to complete his quest.

After earning an engineering degree at Michigan Tech University, Juntunen had difficulty finding a job during a downturn in the economy and decided to join the Air Force in 1986. He was an ICBM missile launch officer at Malmstrom Air Force Base in Montana and was home on leave in the U.P.'s Ontonagon County before transferring to Wright-Patterson Air Force Base in Ohio to earn a master's degree in nuclear weapons.

He was sitting on a rope swing and untying the rope to bring down the swing when a tree branch broke and he fell, breaking five vertebrae and damaging his spinal cord in two locations. He was medically retired at the rank of captain.

To qualify for the VA's exoskeleton study, participants should be between 5-foot-3 and 6-foot-3, cannot weigh more than 220 pounds and must meet bone density requirements. Not everyone who makes it past those requirements qualifies for the study — they must be able to master the device during basic training, which means being able to take five continuous steps with

assistance within five training sessions.

On Tuesday Juntunen completed his 18th training session. He travels to Milwaukee — a 12-hour round trip — every few weeks to practice walking over a variety of surfaces and up and down ramps and doorways. During the three days he's in Milwaukee he has five training sessions with the goal of completing as many as 30 sessions before he's ready to take home the exoskeleton.

"The sky is literally the limit," said Joe Berman, Milwaukee VA project manager. "We're excited about helping veterans get up and sometimes tower over us."

After walking around Lambeau Field's indoor atrium Tuesday morning, with Berman following behind pushing a wheel recording the distance traveled, Juntunen sat down to remove the exoskeleton as Lasselle attached a monitor to his finger to record his heart rate.

Clad in a Wakefield, Mich., marathon T-shirt, gray slacks and a blue headband, Juntunen said in his dreams he still runs and jumps. His waking dream is to someday go hiking again, this time in an exoskeleton, probably in the U.P.'s picturesque Porcupine Mountains.