

Lite Run wins innovation award for 'spacesuit' pants

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A St. Paul, Minn., company's invention that uses air-powered "spacesuit" pants to train people to walk normally has won an innovation competition at an industry conference in Dallas.

St. Paul-based Lite Run Inc. won the LaunchPad technology innovation competition at this year's American Congress of Rehabilitation Medicine conference in Dallas for its LiteRun System.

Lite Run President John Hauck, a longtime Minnesota med-tech engineer who left St. Jude Medical to join Lite Run, said winning the LaunchPad contest was an important recognition from industry experts.

"As a startup, you are always looking for validation among the users and the people in the rehabilitation industry. So we were very pleased," Hauck said.

The most common use of the device is with people who are relearning to walk after having a stroke. Others include people learning to walk again after partial spinal cord injuries or traumatic brain injuries. The Minneapolis VA Health Care System recently completed a positive study for adult [patients](#), while Gillette Children's Specialty Healthcare is working on a study of kids who have cerebral palsy.

The LiteRun System is designed for "unweighting" therapy. Unweighting involves using harnesses or other mechanical support to lift a person's body weight so they can get used to walking again, and then slowly decreasing the support over time until they are comfortable handling the pressures of their full weight.

"It's a fairly well-known objective, when you have people who can't stand or walk, to take off some of their weight so they can start to move forward," Hauck said.

The LiteRun System includes a motorized walker that physical therapy patients can hold on to as it moves forward at walking speed. The device has straps that keep the patient from falling backward and a set of moving arms that help a patient move from sitting to standing positions.

The pants themselves include a bladder that inflates with pressurized air, supporting the patient in the standing position. The pressurization in the air pants can counteract as much as half a person's weight, allowing rehabilitation to start sooner after the initial injury.

The system also lightens the burden on physical therapists by reducing the need to lift a patient and freeing them to focus more attention on a patient's therapy objectives during treatment. A screen on the walker lets the clinicians select the amount of weight they want to remove from the patient during therapy.

"Initially you might remove half their [body weight](#), and later you might want to go down to 10 or 20 percent," Hauck said.

Patients retain mobility in their legs when the suit is fully pressurized, because the pants are made from multiple layers of specialized fabric that control "tensile forces" while maintaining pressure in the suit, similar to the technology used in spacesuits worn by astronauts, the company said.

Hauck said the system has a list price of less than \$80,000—a cost that is borne by the hospital or clinic. The cost to patients depends on their insurance and their [health care](#) provider. Lite Run said the device addresses medical needs in a \$500 million U.S. market that also includes traditional harnesses and costly robotic exoskeleton suits.

Judges with the LaunchPad technology competition in Dallas said the LiteRun System won because of the enthusiastic response it generated.

"LiteRun was an audience favorite, receiving the most audience votes. The judges also scored LiteRun as the best overall," said Atlanta speech-language pathologist Tracey Wallace, who chaired the LaunchPad Task Force. "All judges gave high marks to LiteRun as a new and unique way to address a rehabilitation problem with technology."

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