Could NASA help paraplegics walk?

Kasey Panetta, Associate Editor

NASA has been known to make pretty large contributions to society. But they might have outdone themselves on this one.

The agency is currently in the research and development phase for a powered armor suit that could one day allow paraplegics to walk.

The suit, called X1, is a robotic exoskeleton designed to be worn over the body to assist in leg movements. It's a collaboration between NASA, The Florida Institute for Human and Machine Cognition of Pensacola in Florida, and the Oceaneering Space Systems of Houston.

The original intent of the exoskeleton was actually the opposite of it's earthly applications. The engineers wanted to design something that would actually supply resistance against walking movements. The suit was designed so that astronauts could use it for exercise on deep space missions. The key was to design something that wouldn't add weight and doesn't take up a ton of space. The final product in research and development weighs in at 57 pounds.

According to NASA [1], the suit contains four motorized joints at the hips and knees, plus six passive joints that allow a range of motion so the wearer can sidestep, turn, and pivot the body, plus flex the foot. The suit itself includes a harness that sits on the wearer’s shoulders and hips, with leg extensions.

The other advantage to the X1 is it wills stream-back, real-time health updates from astronauts, allowing doctors to track the health of the scientists and adjust exercise programs accordingly.

Back on earth, the suit could act as an assistive walking device for people with ambulatory issues preventing them from walking under their own power. The suit could even allow the user to climb stairs and because part of its original intent was to allow astronauts to walk on the surfaces of varying planets and places, earthbound users won't be limited by rough terrain.

Though it's not the first of its kind--we've talked about Raytheon [2] and Lockheed Martin [3]'s versions--designers are saying the X1 is the lightest, most user-friendly of the exoskeleton designs. Plus, they plan on adding to the 10 existing joints to allow for even more flexibility and application options.

Photo courtesy of NASA [4]

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