WE BUILD TRANSLATION

Advanced Platform Technology Center

A VA Research Center




Self-Leveling Walker

Problem

•Walker-dependent patients often confront curbs, steps, and ramps that they are unable to negotiate.

•Mobility is an important rehabilitation goal. Many individuals cannot be discharged to their home if they fail to master the physically demanding strategies for stair ascent/descent, forcing admissions to skilled nursing facilities or costly home adaptations.

•No walker currently on the market is safe and effective at negotiating stairs, ramps, and steps of continuously varying heights.

For more information please use the QR code

https://www.aptcenter.research.va.gov/Innovation/Self-Leveling-Walker/Self_Leveling_Walker.asp

Solution

• Our Self-Leveling Walker (SLW) addresses the limitations of conventional walking aids and the lack of options for teaching efficient stair ascent/descent maneuvers during rehabilitation.

• The front and rear legs are coupled such that the front legs shorten and the rear legs lengthen by the same amount when a simple control button is held down.

• When the button is released, the legs are locked in the new configuration for continued stair or ramp ascent/descent.

• In the default state where the legs are level and locked, the **device performs exactly like a standard walker on level surfaces, making it the only walker a user will ever need regardless of the environment.**

	SLW	BH	SH+C
Perception of Safety	“moderately safe”	“very safe”	“barely safe”
Ease of Use	“moderately easy”	“moderately easy”	“neither”

The SLW was tested with 37 patients and compared to bilateral handrails (BH) and single handrail + cane (SH+C).

2015

- Initial prototype
- US Patent #US9119757

2017

- VHA Innovators Award
- Hydraulic prototype

2018

- VHA Innovators Award
- Clinical testing
- Non-hydraulic patent filed

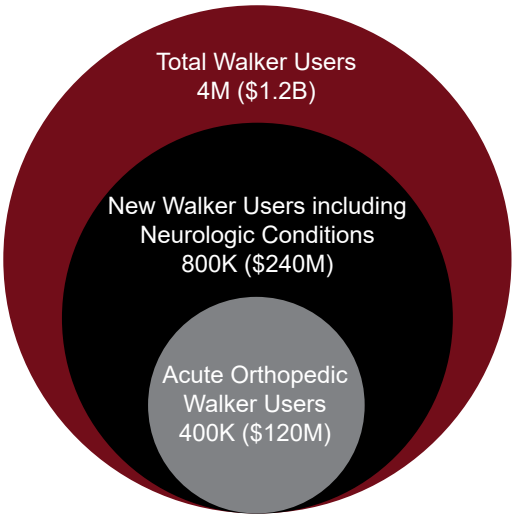
2019

- Ohio TVSP Phase1
- I-Corps@Ohio
- Non-hydraulic prototype

2021

- VA TTAP BRAVE award
- Redesigned for manufacturability

To remove several barriers to commercializing the device, we optimized the design of the non-hydraulic prototype, which has a purely mechanical implementation of the self-leveling action. Eliminating all hydraulic components simplifies manufacturing, reduces production cost, increases reliability, and reduces the weight of the device, making it more attractive for potential licensees and ready for the growing market (right). By the end of 2021, we will have a small batch of the design-updated walkers ready for clinical testing and larger scale production.



Market opportunity for our walker.

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