

Case ID:M19-265L

Published: 1/31/2020

Inventors

Abhishu Patel

Ryan Borneman

Omik Save

Yashaswy Govada

Saivimal Sridar

Contact

Jovan Heusser
jovan.heusser@skysonginnovations.com

Soft Wearable Device to Aid in Hemiparetic Gait

Hemiparesis, which is muscle weakness or partial paralysis on one side of the body, affects about 8 out of 10 stroke survivors, resulting in reduced motor performance which can include difficulty walking or grasping items. Gait training has been found to improve muscular strength and movement coordination. While there are many devices to help with lower-limb assistance and gait training, they tend to focus on bilateral applications to the leg and use a pulling motion which limits their efficacy.

Researchers at Arizona State University have developed a soft wearable device which assists hemiparetic patients with their gait cycle. This device can detect when a patient is loading on their affected limb and propels the hip forward providing a more secure support to the affected leg of a patient. Actuators are used to position the hip joint under the body while walking to prevent forward tipping of the upper body. This easy to wear device helps patients maintain a symmetric gait at walking speed.

This soft wearable device provides a secure and conformable support to assist hemiparetic patients during rehabilitation and hopefully accelerate functional recovery.

Potential Applications

- Hemiparetic gait assistance/training
- o Standalone assistance platform
- o Aid or tool used during physical therapy

Benefits and Advantages

- More effective - does not use a pulling motion
- Creates symmetric gait cycle at walking speed
- Can reliably detect load on affected limb

- Soft, comfortable and conformable
- Ease of manufacturing
- Easy to don and doff – less than a minute

For more information about the inventor(s) and their research, please see

[Dr. Sugar's departmental webpage](#)