

Cable-Driven Body Weight Support for Gait Rehabilitation

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- Biomedical Engineering
- Mechanical Engineering

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Millions of individuals in the United States suffer from walking disabilities caused by stroke. Gait rehabilitation training is an important part of retraining the legs for proper walking, but is challenging given the inability of the disabled legs to support the patient's body weight, particularly in the early stages. To compensate for this issue, body weight support (BWS) systems have been developed to reduce the patient's body weight, so the patient can walk with disabled legs during training without the burden of carrying the entire body weight. Normal walking undergoes 3D motion. Unfortunately, cable-suspended BWS systems balance the patient's body weight in the vertical direction only; there is no support in the other two dimensions.

A Purdue University researcher has developed a new cable-driven body weight support system for use in gait rehabilitation training. The BWS system is expected to have the ability to compensate for any amount of a patient's body weight in all three dimensions during gait rehabilitation training. This BWS system is also expected to provide larger workspace, lower equipment cost, ease of assembly and disassembly, and superior reconfigurability.

Advantages:

- Improved gait rehabilitation training
- Efficient and effective body weight support in all three dimensions
- Cost-efficient

Potential Applications:

- Gait rehabilitation training for stroke or trauma victims

People:

- Diao, Xiumin (Project leader)

Intellectual Property:

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