Assistive Movement Device with Adjustable Load Expedites Recovery of Lower Leg Injuries

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Technology description

Purdue Senior Design Project

Background

Studies conducted in 2011 show that approximately 864,000 people suffered from fractures requiring the use of crutches. Of those, approximately 319,000 occurred at or below the knee affecting the ankle, foot, tibia, fibula, and/or knee. It is known that the healing process can be made more efficient by gradually restoring load to an injured limb; however, there are no existing products that provide variable loading throughout the healing process. Therefore, there is a need for an assistive movement device that compliments the optimal recovery process below the knee injuries.

Technology Summary

Researchers at Purdue University have developed an innovative assistive movement device to aid those affected with lower limb impairments. This technology expedites the recovery process using variable weight adjustability on the injured limb. This device allows users to move freely in their everyday activities without the limitations of normal crutches. The total recovery time is further decreased by encouraging a stronger union through axial compressive dynamization of the limb.

Advantages

Reduces recovery time
Encourages a stronger union through axial compressive dynamization
Allows users to be more mobile during recovery period

Institution

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