Design & Control of Exoskeletons for Rehabilitation

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Outline

The Exoskeleton

Motivation

Design of an Exoskeleton

- Design requirements
- Design features

Demo/Q&A

Exoskeletons: Helping People Move



Indego Parker.com



Rexbionics.com



ReWalk Argomedtec.com

Ekso



Who can benefit?

- Spinal cord injury
- Traumatic brain injury
- Stroke
- Multiple sclerosis
- Etc.

Why exoskeletons?

- Gait training
 - Repetitive stepping
 - Varied assistance
 - Balance training
- Long-term use
 - Bone density?
 - Bowel & bladder function?
 - Pain?
 - Circulation?
 - Emotional

Ekso on the Market

- For sale in hospitals
 - New Model: Ekso GT
- FDA clearance
- Studies

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Design Requirements

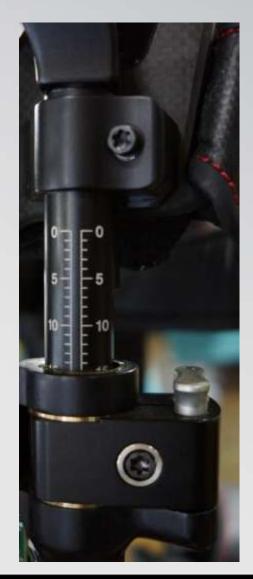
Brainstorm time!

Size Adjustment

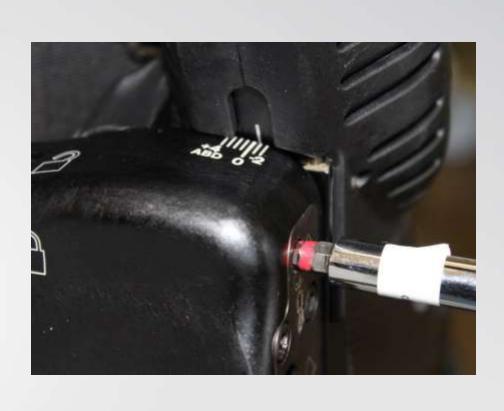








Size Adjustment



Fit Kit & Padding



Donning / Doffing





Safe Motion / Fail Safe

- Hard stops & soft stops
- Adjustable settings for SW joint limits
- Normally-on brakes

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Thank You

