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The DynamAssist

Dynamic Assistive Walking Device for Non-Weight-Bearing Injuries

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Medical Need

Non-Weight Bearing Injuries in Patients 50+

1. **FOOT DEFICIT FROM DIABETES** — 50% of 50+ diabetic patients
2. **ANKLE FRACTURE/SPRAIN** — 680,000 patients between 2012 - 2016
3. **ACHILLES TENDON TEAR** — 106 per 100,000 patients

Best Current Solution

Kneeler Limitations

- Lack of hip mobility
- Lack of padding = discomfort & pain
- No normal hip ROM

Objective

Design an assistive walking device for patients over the age of 50 with the aforementioned **non-weight-bearing** injuries that allows the user to ***maintain normal controlled mobility***.

Requirements

R1

230.4 lbs
Hold patient pop. weight

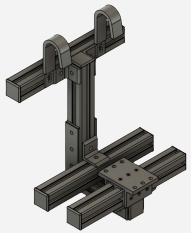
R2

< 0.242 MPa
Pressure less than Kneeler

R3

40° Total
Hip ROM

Design



Final Design

In Use

Results

#	Test	Result
R1 Load	Hook Tensile	270 lbs **PASS**
R2 Pressure	Pressure Distribution	0.562 MPa **FAIL**
R3 ROM	Gait Analysis	40° Total ROM **PASS**

Revisions

- Curved rails
- More support under cushion
- Different material than T-bars

Impact

- Non-weight-bearing capabilities
- Maintain mobility while walking
- Assist **~14 million** patients/year