Sketch Model Review

Stair Descending Stretcher

Team Green A
The Problem

- Patients with neck and back injuries.

- “Almost one in two workers (47%) have sustained a back injury while performing EMS duties”
Solution: Stair Descending Stretcher

- Practical
- Safe
- Integrated with existing equipment

Biggest challenge:
- System for slow controlled descent
Concept 1: Gears and Treads

Parts
- 4 Gears
- 2 Treads
- Support frame

Critical Modules
- Stair-engaging treads
- Gear damping method
Gears and Treads: Inspiration

Inspiration from Stryker Stair Chair

![Graph showing resistance and velocity with lines for friction and rotary forces.]

- Resistance
- Velocity
- Friction
- Rotary
Concept 2: Compression Spring and Damper
Compression Spring and Damper

Step 1

Step 2

Step 3
Compression Spring and Damper: Conclusion

Necessary improvements/considerations

- Improved damper system
- Varying patient weights
- Varying step heights
Number of ambulances in US: 50,000

Number of spinal cord injuries in US:
- 11,000 new injuries each year

Stryker - Charleston County EMT worker related back injuries dropped to 0.