

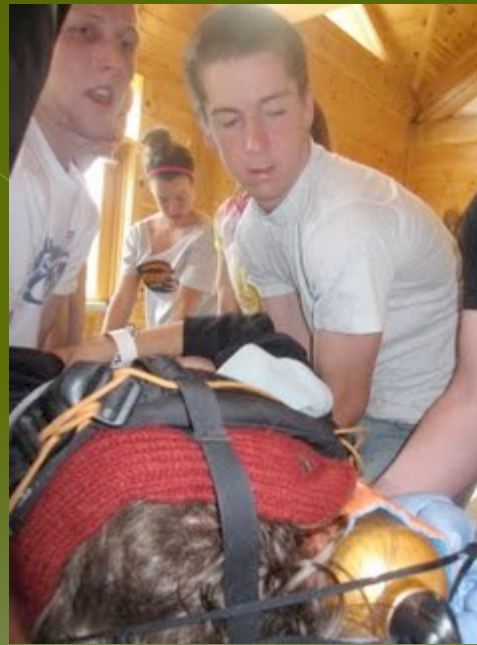
Sketch Model Review

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

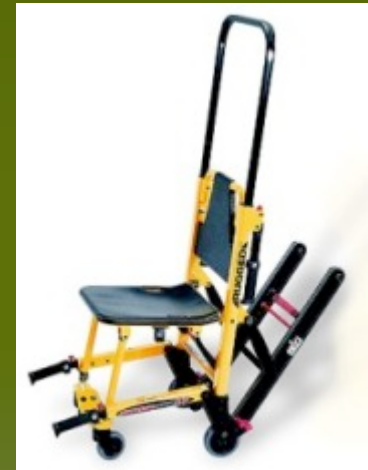
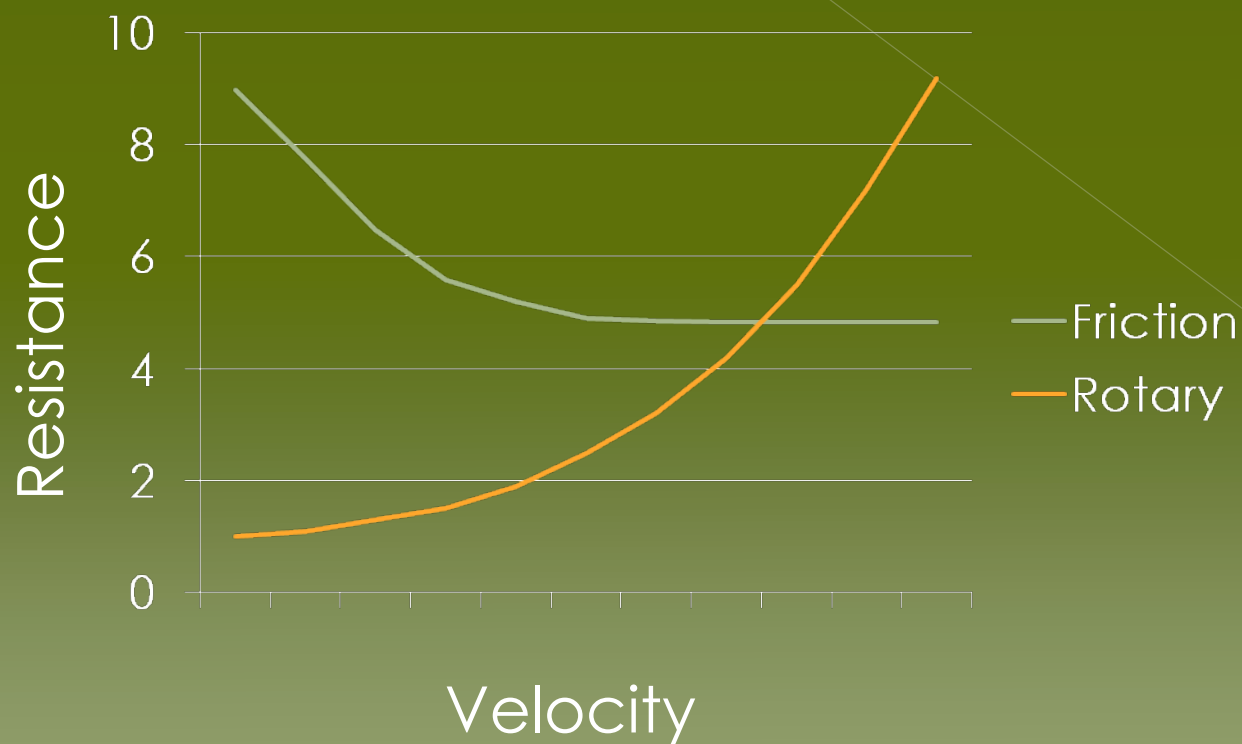
Critical Modules

- Stair-engaging treads
- Gear damping method

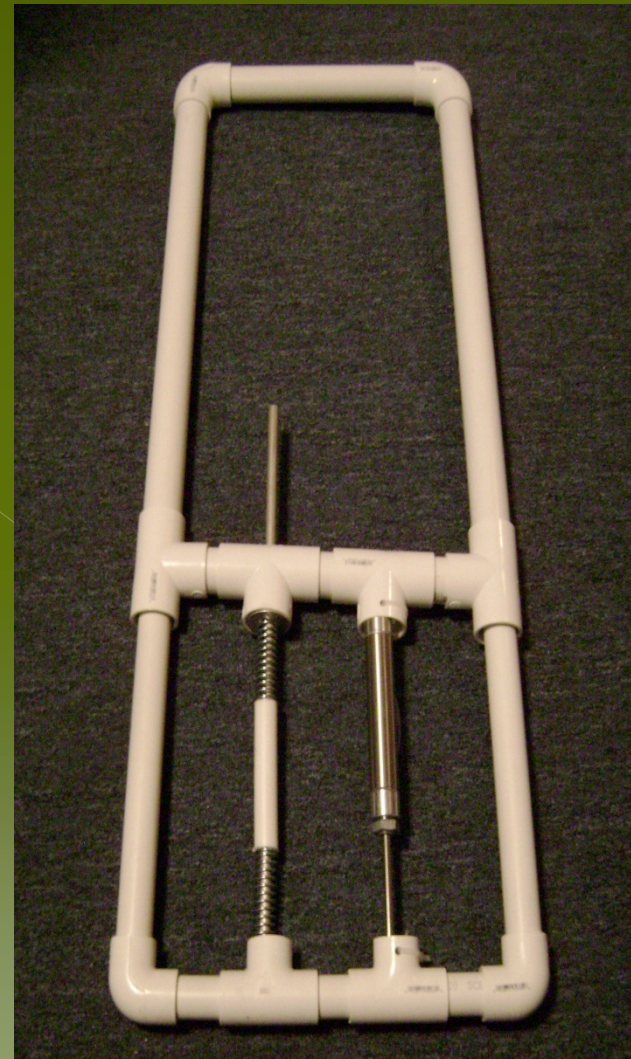
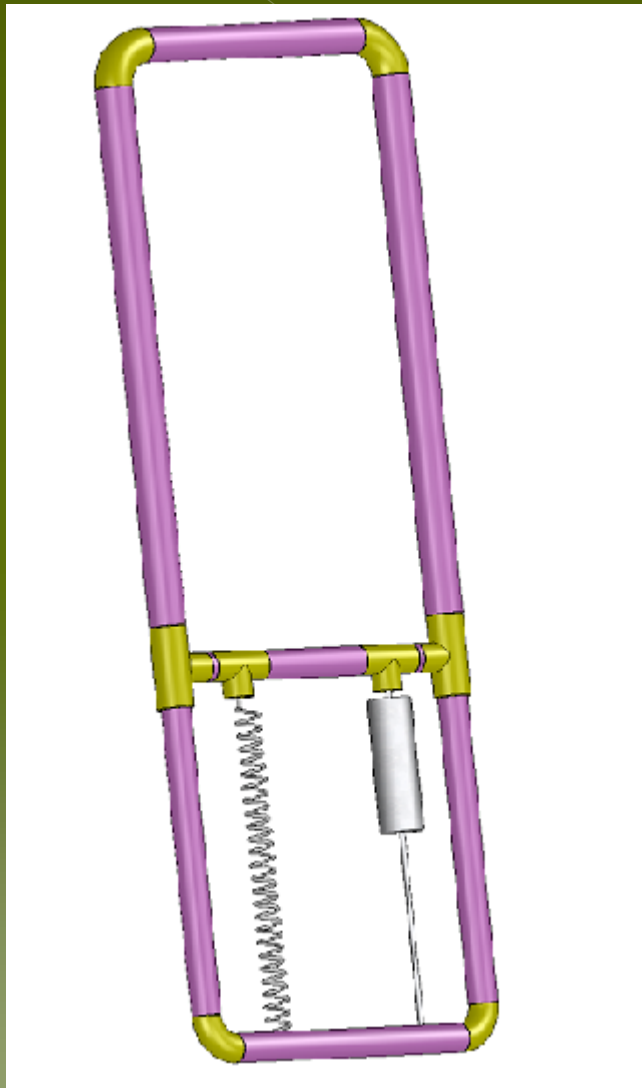


Gears and Treads: Inspiration

Inspiration from Stryker Stair Chair



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

Market

- 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.