

Team#5: Improving Outcomes in Cervical Spine Trauma – Building a Better Cervical Collar

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Objective Statement

Background

Cervical Collar Purpose:
 %Immobilize the neck
 %Properly heal and fuse the cervical spine for postoperative patients

Engineering Specifications

Tracheostomy Opening	<ul style="list-style-type: none"> 13.8mm diameter opening in front of the neck
Monitor Compliance	<ul style="list-style-type: none"> Battery life of 6 weeks without recharging or replacing between doctor visits Record and store the time the collar is worn with 98% accuracy
Immobility	<ul style="list-style-type: none"> Flexion/Extension: 20% decrease in ROM compared to Aspen Lateral Flexion/Rotation: 25% decrease in ROM compared to Aspen
Adjustability	<ul style="list-style-type: none"> Fits the 5th percentile of female head & necks to the 95th percentile of male head & necks in the US
Comfort, Fit, Aesthetics	<ul style="list-style-type: none"> 15% greater than the average rating for Miami-J and Aspen Vista (competitor's collars)
Weight	<ul style="list-style-type: none"> Less than 3 lbs.

