## To Predict To Design To Perforn

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

November

Engineering analysis

and design revision

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**Objective Statement** 

Background	
Cervical Collar Purpose: ¾Immobilize the neck ¾Properly heal and fuse the cervical spine for postoperative patients	
Engineering Specifications	
Tracheostomy Opening	<ul> <li>13.8mm diameter opening i front of the neck</li> </ul>
Monitor Compliance	<ul> <li>Battery life of 6 weeks without recharging or replacing between doctor visits</li> <li>Record and store the time th collar is worn with 98% accuracy</li> </ul>
Immobility	<ul> <li>Flexion/Extension: 20% decrease in ROM compared to Aspen</li> <li>Lateral Flexion/Rotation: 253 decrease in ROM compared to Aspen</li> </ul>
Adjustability	<ul> <li>Fits the 5<sup>th</sup> percentile of female head &amp; necks to the 95<sup>th</sup> percentile of male head &amp; necks in the US</li> </ul>
Comfort, Fit, Aesthetics	<ul> <li>15% greater than the average rating for Miami-J and spen Vista (competitor's collars)</li> </ul>
Weight	Less than 3 lbs.
September	October Kinesiology

Sponsor: Dr. Abhishek Kumar

Department meeting

and IRB application

subm

Project kickoff and IRE

training



February Continued manufacturing and volunteers recruited



Advisers: Dr. Hunter Gilbert & Linda Cro