Inflatable Vertebral Body Distractor (IVBD)

Client: Dr. Nathaniel Brooks  
Advisor: Mitch Tyler  
Team: Ellis Cohen (Leader), Herman Feller (BSAC), Joaquin Herrera (BWIG, BPAG), Joshua Plantz (Communicator)  
Date: February 23, 2016

Problem Statement

In some cases of spine surgery, the intervertebral disc is removed and the vertebral bodies are distraction to help with alignment of the spine. This is often done with metal spatula shaped tools or with mechanical jacks. Both of these tools have two problems. One, they have a narrow surface area so they can easily fracture the bone with the distractive forces. Two, they work along a linear trajectory so they cannot be manipulated easily to different regions of the intervertebral space to allow working space for graft placement. The goal of this project would be to develop an inflatable vertebral body distractor.

Last Week’s Goals

• Preliminary presentation
• Finish preliminary report
• Create more prototypes
• Test prototypes

Summary of Team Role Accomplishments

• Created new prototypes using multiple different molds
• Finished preliminary presentation and report
• Developed multiple testing protocols

Summary of Design Accomplishments

• Created multiple new prototypes

This Week’s Goals/Individual Goals

• Finish preliminary report
• Create more prototypes
• Begin completing testing protocols

Project Difficulties

• Sealant/sealing three adjacent inflatable devices together
• Decrease bubble composition throughout the silicone
• Small molds make it hard to fill completely with silicone
• Insertion method
### Activities

<table>
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<tr>
<th>Date</th>
<th>Person(s)</th>
<th>Task</th>
<th>Time (hours)</th>
<th>Weekly Total</th>
<th>Semester Total</th>
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<tr>
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<td>Ellis</td>
<td>Write progress report Team Meetings</td>
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<td>2/18/16</td>
<td>Herman</td>
<td>BSAC meeting Team and Client Meetings</td>
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<td>13</td>
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<td>2/18/16</td>
<td>Joshua</td>
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### Project Schedule

![BME Design - IVBD Schedule](image)

### Expenses

- Pump: $100.00