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 9, 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

• Talk to Dr. Brooks regarding peer review article  
• Create new prototypes  
• Schedule capstone outreach

Summary of Team Role Accomplishments

• Created new prototype – waiting for 3-D print  
• Finished outreach application  
• Further developing testing methods

Summary of Design Accomplishments

• Created new prototype

This Week’s Goals/Individual Goals

• Test new prototype  
• Test insertion method

Project Difficulties

• Sealant/sealing three adjacent inflatable devices together  
• Decrease bubble composition throughout the silicone  
• Insertion method is our biggest challenge at the moment
### Activities

<table>
<thead>
<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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</thead>
</table>
| 2/9/16 and 2/5/16 | Ellis    | Write progress report
Team Meetings                         | 1 2          | 3            | 8             |
| 2/5/16     | Herman    | BSAC meeting
Team and Client Meetings             | 1 1          | 2            | 7             |
| 2/5/16     | Joshua    | Communication Outreach
Team Meetings                         | 0.5 1 2      | 3.5          | 8.5           |
| 2/9/16     | Joaquin   | Update website
Team Meetings                         | 0.5 2        | 2.5          | 7.5           |

### Project Schedule

![BME Design - IVBD](image)

### Expenses
- Pump: $100.00