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: January 25, 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

• Assign new team roles
• Prepare for new semester

Summary of Team Role Accomplishments

• Went to the introduction class of BME 402
• Updated website
• Assigned new team roles
• Attended meeting with Dr. Brooks on 1/25/16 at 7am.

Summary of Design Accomplishments

• No new design accomplishments at this point

This Week’s Goals/Individual Goals

• Create new molds that are smaller, easing insertion method
• Order new pump
• Improve sealant between pump and inflating device
• Begin developing ways to test our design performance
• Test the Jam Shidi insertion method

Project Difficulties

• Must decrease size of design
• Decrease bubble composition throughout the silicone
• Insertion method is our biggest challenge at the moment

Activities
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**Project Schedule**

- 1/26 – 1/29
  - Make multiple prototypes of different sizes with different molds
  - Order new pump
  - Development insertion method
- 2/1 – 2/5
  - Test design performance (compression tests)
  - Test insertion method
  - Begin thinking about preliminary report and presentation
- 2/8 – 2/12
  - Continue making more prototypes and testing the performance
  - Continue testing the insertion method
- 2/15 – 2/19
  - Make sure tests are completed to discuss in our preliminary report and oral presentation
  - Complete Preliminary oral presentation and report

**Expenses**

- None yet