

## Ergonomic re-design of a surgical stapling device

**Client:** Dr. Amy Liepert, [liepert@surgery.wisc.edu](mailto:liepert@surgery.wisc.edu)

**Advisor:** Beth Meyerand, [memeyerand@wisc.edu](mailto:memeyerand@wisc.edu)

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### **Team:**

- Andrew Fugate - [afugate@wisc.edu](mailto:afugate@wisc.edu), Team Leader
- Albert Anderson - [afanderson2@wisc.edu](mailto:afanderson2@wisc.edu), Communicator
- Therese Besser - [tmbesser@wisc.edu](mailto:tmbesser@wisc.edu), BSAC
- Ellen Restyanszki, [restyanszki@wisc.edu](mailto:restyanszki@wisc.edu), BWIG & BPAG

### **Problem Statement:**

Surgical staplers have undergone many design modifications including the recent addition of powered devices. Stapling devices are used both for intestinal resections and anastomoses as well as for vascular control. The users of these devices have also changed overtime with both the increase in female surgeons as well as an aging surgeon population.

Opportunities for improvements in device design for the increasingly diversified surgeon users are multiple. This project provides the opportunity for lab based and field study investigation of the ergonomic implications for the device users as well as potential for novel design modifications and/or solutions.

**Restatement of Team Goals:** n/a

### **Summary of Team Role Accomplishments**

Andrew - Client meeting, PDS

Albert - Client Meeting. Researched competing designs and researched products similar to what our client has suggested.

Therese - Client meeting, anthropometric database and competing design research, PDS

Ellen - Organized project timeline. Met with team from last semester to gain insight and collect supplies.

### **Summary of Design Accomplishments**

- We had our first client meeting with Dr. Liepert on Monday and established the goals and expectations for the semester.
- Developed a project timeline

**Activities:**

Person	Task	Weekly Total	Semester Total
Andrew	<ul style="list-style-type: none"><li>• Client meeting</li><li>• PDS</li></ul>	2	3
Albert	<ul style="list-style-type: none"><li>• Client Meeting</li><li>• Competing Design Research</li></ul>	2	3
Therese	<ul style="list-style-type: none"><li>• Client meeting</li><li>• anthropometric database and competing design research</li><li>• PDS</li></ul>	2	4
Ellen	<ul style="list-style-type: none"><li>• Organize Gantt chart</li><li>• Prepare questions for client meeting</li><li>• Client meeting</li><li>• PDS</li><li>• Meeting with previous semester team</li><li>• Brainstorming design ideas</li></ul>	3	5.5

**Statement of Team Goals:**

- Establish the product design specifications
- Define the limitations of existing devices on the market
- Begin brainstorming design ideas

**Individual Goals:**

Andrew - Continue research, begin brainstorming and sketching rough ideas

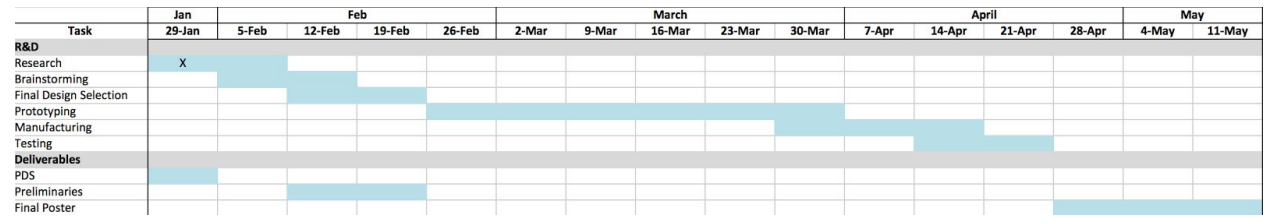
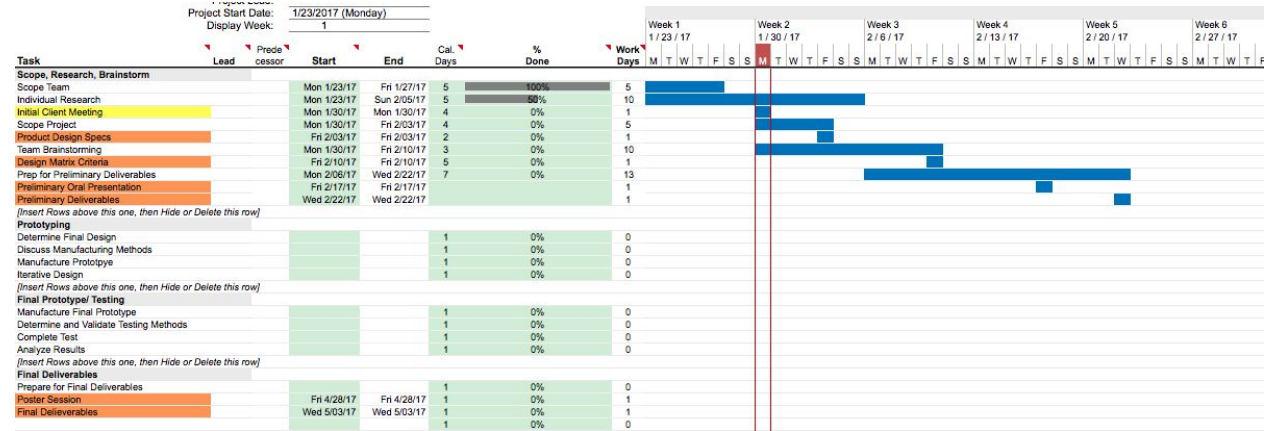
Albert - Continue research, begin brainstorming ideas.

Therese - began brainstorming design ideas, preliminary research

Ellen - Pull together at least three design ideas to present by Friday

**Difficulties:** We foresee issues with the design of the mechanism inside the stapler.

# Project Schedule/Timeline:



Expenses: None