

Device for Maxillomandibular Fixation Following Facial Fractures

Week – September 16 - September 22

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Team Members: Ashley Phillips – Co Team Leader
Nina Lewis – Co Team Leader
Joe Ferris – Communications
Sara Karle – BWIG
Emily Maslonkowski – BSAC

Problem Statement

Currently, patients with specific and common types of facial fractures are treated with "maxillomandibular fixation," known as MMF, which entails holding the upper and lower jaw together using metal arch bars wired around the teeth in conjunction with a series of rubber bands. This technique achieves its goal of holding the two parts of the jaw together until the fracture heals, but involves the time consuming process of wiring the metal bars around the teeth as well as the time-consuming process of placing multiple rubber bands to hold the upper and lower jaws together. In addition, the rubber bands can often come loose and need to be replaced. We propose a project to develop a new and innovative device that will achieve the same goals as the standard type of MMF, yet make the process less time consuming and more reliable.

Last Week's Goals

- Begin PDS—have a rough draft done by next week
- Continue to research our design possibilities
- Talk over our design ideas with our client
- Brainstorm a few more design possibilities

Accomplishments

- Ashley compiled the first draft of PDS
- Nina contacted local orthodontists to research design possibilities and materials
- Sara updated our web-site by attending BWIG meeting
- Joe contacted our client in order to meet with him and discuss our three designs
- All group members met Monday night (Sept. 19) to decide on three possible designs
- Ashley met with a physics professor to do further research on the “magnet design”
- Nina, Joe, Emily and Sara researched possible adhesives that could be incorporated into our design
- Emily did further research into current method and possible improvements
- Nina and Ashley met with Prof. Tyler for information on forces in the mouth

This Week’s Goals

- Begin work on written report
- Meet with client in order to view materials and discuss designs
- Do further research on forces in the jaw

Difficulties

- We would like to have a visual of the current materials used for fixation so we must wait until the next meeting with our client.
- We are having difficulty with our “magnet design” due to safety requirements of a quick release

Activities/Accomplishments

Group Member	Weekly Accomplishments	Time (hrs)	Running Total (hrs)
Ashley Phillips	Compiling PDS; meeting with Prof. Timbie; class time; group	6.0	12.0

	meeting; progress report; meeting with Prof. Tyler		
Nina Lewis	Class time; researching adhesives; calling orthodontists; progress report; group meeting; meeting with Prof. Tyler	6.0	12.0
Sara Karle	Class time; group meeting; BWIG training; individual research; PDS	5.5	11.0
Emily Maslonkowski	Class time; individual research; group meeting; PDS	5.0	10.5
Joe Ferris	Class time; individual research; group meeting; PDS; e-mails to client	4.5	10.5