Device for Maxillomandibular Fixation Following Facial Fractures

Week – September 30 - October 6

Client: Jeremy Warner, MD
Plastic Surgery, UW Medical School
Phone: (608) 262-2122 or (608) 829-2161
E-mail: jp.warner@hosp.wisc.edu or warner@gwu.edu

Advisor: William Murphy
Assistant Professor, Department of Biomedical Engineering
Phone: (608) 262-2224
E-mail: wlmurphy@wisc.edu

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
• Continue working on report
• Finalize three designs
• Figure out exact prices of magnets, screws, brackets and the materials for the current arch bar method
• Do further research on jaw forces

Accomplishments
• All group members met on Monday night (Oct 2) to begin PowerPoint and complete written report
• Decided on the final three design options
• Continued research into prices of materials
• Nina and Ashley continued research of jaw forces
• Nina called an orthodontist to obtain prices on bracket design
• Joe revised problem statement and compiled PowerPoint
• Emily continued research into magnet design
• Sara compiled references and began possible solution section of paper
• Ashley compiled written report and completed motivation and final design sections

This Week’s Goals
• Finish PowerPoint presentation
• Split parts amongst members for the presentation
• Continue research into jaw forces and material pricing
• Obtain current technique materials

Difficulties
• Obtaining prices for materials has been difficult
• It continues to be a problem to calculate forces exerted by the jaw

Activities/Accomplishments

<table>
<thead>
<tr>
<th>Group Member</th>
<th>Weekly Accomplishments</th>
<th>Time (hrs)</th>
<th>Running Total (hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashley Phillips</td>
<td>Group meeting; class time; written report: motivation, final decision, client requirements; progress report; research on jaw forces</td>
<td>5.0</td>
<td>20.5</td>
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<tr>
<td>Nina Lewis</td>
<td>Group meeting; class time; written report: bracket design, background information; progress report; powerpoint; research on jaw forces</td>
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<tr>
<td>Name</td>
<td>Task Details</td>
<td>Score 1</td>
<td>Score 2</td>
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<td>Sara Karle</td>
<td>Group meeting; class time; written report: magnet design, background information, references; powerpoint</td>
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<td>19.5</td>
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<td>Emily Maslonkowski</td>
<td>Group meeting; class time, written report: magnet design, background information, powerpoint</td>
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<td>20.0</td>
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<tr>
<td>Joe Ferris</td>
<td>Group meeting; class time; e-mails to client &amp; group, written report: problem statement, background information; formatted powerpoint</td>
<td>4.5</td>
<td>19.0</td>
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