Device for Maxillomandibular Fixation Following Facial Fractures

Week – November 11 – November 17

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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, the most common technique of fixating the jaw after a facial fracture is called maxillomandibular fixation (MMF), which requires wiring the mouth shut with the use of arch bars and wires. It has been proposed to us to design a device which will mimic the function of MMF, but be easier and faster to apply while maintaining an adequate cost of application. Our design needs to securely hold the lower jaw tight to the upper jaw, but also needs to have an emergency quick release system. The device should also be safe for the patient during application and for the 4-6 weeks of healing.

Last Week’s Goals
- Obtain an adhesive in order to test it on wet surfaces and on our bracket design
- Create a method to measure jaw forces experimentally
- Meet with a professor to figure out how exactly to analyze the forces in the elastics
Accomplishments
- Nina and Ashley began revision of the mid-semester report
- Joe, Emily, and Sara began work on final report
- Nina and Ashley scheduled an appointment to meet with Prof. Tyler about jaw forces
- Everyone continued research on wet adhesives, namely the one found by Emily
- Sara found articles on alternative treatments that have been investigated
- All members attended the Human Subjects Lecture and completed online certification

This Week’s Goals
- Obtain an adhesive in order to test it on wet surfaces and on our bracket design
- Create a method to measure jaw forces experimentally
- Meet with a professor to figure out how exactly to analyze the forces in the elastics (Tue. Nov. 22)
- Split up final report
- Begin poster presentation

Difficulties
- We would like to find a more cost effective way to use the braces design, since this is the only con to this design
- Calculating the forces of the jaw
- If the arch bars were to be used we need to figure out a method in which to connect them laterally as well as add texture to the back in order to create a stronger bond for the adhesive

Activities/Accomplishments

<table>
<thead>
<tr>
<th>Group Member</th>
<th>Weekly Accomplishments</th>
<th>Time (hrs)</th>
<th>Running Total (hrs)</th>
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</thead>
<tbody>
<tr>
<td>Ashley Phillips</td>
<td>Class time; individual research on adhesives; progress report; Human</td>
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<td>46.5</td>
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<tr>
<td>Name</td>
<td>Work Description</td>
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<td>Nina Lewis</td>
<td>Individual research on the forces in the elastics; progress report; Human Subjects Lecture and certification; report revisions</td>
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<td>Emily Maslonkowski</td>
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<td>Joe Ferris</td>
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