Ankle sprain rehabilitation and prevention: Utilizing mobile Apps to improve outcomes

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Conflict of Interest

Naven Duggal, M.D.

My disclosure is in the Final AOFAS Mobile App. I have no potential conflicts with this presentation.
Introduction

• It has been estimated that approximately 25% of all injuries across all sports are ankle injuries.

• In addition, there is an up to two-fold increased risk for ankle re-injury during the first year post-injury.

• Research has shown that both externally applied supports (i.e. taping or bracing of the ankle), as well as neuromuscular training programs are clinically and cost effective interventions.
Introduction

- Mobile app development on the Android and iOS platforms has encouraged the creation of various medical apps including those for rehabilitation of ankle sprains.

- The objective of this novel study is to evaluate the implementation value of ankle sprain apps as compared to the usual practice of providing information and instruction from a standard society website.

- Our hypothesis is that the use of the apps will increase compliance to the prescribed neuromuscular training program and consequently will decrease ankle sprain recurrence incidence.
Methods

• This novel study examined information and instructions obtained from ankle sprain Apps and compared this to information available on the AOFAS and AAOS mobile website.

• Apps were searched under the term ‘ankle sprain’ in the Android (Google) and iOS (Apple) platforms.

• A fellowship trained orthopaedic foot and ankle surgeon and two certified physical therapists independently performed the evaluation and grading of the content.
Methods

10 Ankle Sprain Apps (Android, iOS)

2 Traditional Websites (FootCareMD – AOFAS OrthoInfo - AAOS)

12 samples for Analysis

Study Criteria (Rating Scale 1-5)

- Mechanism of injury explanation
- Quality of rehabilitation exercises
- Video demonstrations
- Taping and bracing instruction
- Return to sport recommendations
- Overall ease of use and site navigation
## Results

Comparison of Mobile Apps versus Traditional Orthopaedic Society Websites

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Apps vs Website - Average Rating Score</th>
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</thead>
<tbody>
<tr>
<td>Mechanism of injury explanation</td>
<td>3.3 vs. 4.0</td>
</tr>
<tr>
<td>Quality of rehabilitation exercises</td>
<td>4.3 vs. 3.3</td>
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<tr>
<td>Video demonstrations</td>
<td>4.7 vs. 1.0</td>
</tr>
<tr>
<td>Taping and bracing instruction</td>
<td>4.0 vs. 3.7</td>
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<tr>
<td>Return to sport recommendations</td>
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<td>Overall ease of use and site navigation</td>
<td>4.3 vs. 3.3</td>
</tr>
</tbody>
</table>
Results

- We found that content in ‘Explanation of mechanism of injury’ category was graded higher in the AOFAS and AAOS website in comparison to the mobile apps.

- Apps were however graded higher in the quality of rehabilitation exercises provided, video demonstrations, taping and bracing instruction, return to sport recommendations, and overall ease of use and site navigation.

- Mobile apps provided a higher Implementation Value than orthopaedic society websites for rehabilitation and prevention of ankle sprains.
Conclusions

• This study is the first to compare the effectiveness of an app for ankle sprain treatment in comparison to a traditional website.

• The demand for mobile medical apps is growing dramatically, by 2015 an estimated 500 million smartphone users worldwide will be using health-related apps.

• Mobile apps rather than traditional website information, such as that available on the AOFAS and AAOS sites, provide higher implementation value for ankle sprains and may decrease risk of re-injury.

• Limitations: small sample size, no interobserver analysis performed, study only included healthcare professional grading not patient based.
References


- FDA Website - http://www.fda.gov/MedicalDevices/ProductsandMedicalProcedures/ConnectedHealth/MobileMedicalApplications/ucm255978.htm