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

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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.
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>
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</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