A Comparison Study of Ankle Mortise and Saltzman Views

Authors: Candace Bailey, M.S. and Vinod Panchbhavi, M.D.

Affiliations: UTMB School of Medicine and UTMB Department of Orthopedic Surgery
No Conflict to Disclose

A Comparison Study of Ankle Mortise and Saltzman Views

Candace Bailey

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

- Accurate evaluation of the alignment of the calcaneus relative to the tibia in the coronal plane is essential in the diagnostic evaluation and clinical treatment of hindfoot pathologic conditions.
- The Saltzman view on X-ray radiography is the most studied method used to observe the tibiocalcaneal alignment; however, it is commonly used in conjunction with the standard AP Ankle view.
- No previous studies have analyzed the utility of the AP Ankle view versus the Saltzman view.
- The camera placement needed to obtain the Saltzman view is less than optimal for analyzing the true alignment angle between the tibia and calcaneus in the coronal plane.

PURPOSE

- This study will determine if the AP Ankle view is comparable to the Saltzman view for evaluating tibiocalcaneal alignment in the coronal plane.
- If the Saltzman view can be replaced with the AP Ankle view for measuring hindfoot alignment, the patient population will benefit from less expensive treatment and less exposure to harmful radiation.
- Our project aims to address the current gap in knowledge of the utility that routine radiographic views can serve for robust diagnostic evaluation of orthopedic patients.

METHODS

- This project studied retrospective radiographic images of AP Ankle and Saltzman views in order to determine a comprehensive comparison between the two projections.
- Patient sets were accessed via the UTMB PACS system, and the tibiocalcaneal alignment angle was measured using the PACS system software.
- **AP Ankle view**: the angle was taken between the weight bearing axis of the tibia and the long axis of the calcaneus as seen on the calcaneal shadow.
- **Saltzman view**: the angle was taken between the weight bearing axis of the tibia and the long axis of the calcaneus from the heel contact point (lowest point).

RESULTS

- Statistical Significance: Paired T-test reveals no difference between AP Ankle and Saltzman views on tibiocalcaneal alignment measurement, with p=0.88

<table>
<thead>
<tr>
<th>Patient #</th>
<th>AP Ankle</th>
<th>Saltzman</th>
<th>Patient #</th>
<th>AP Ankle</th>
<th>Saltzman</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14</td>
<td>14</td>
<td>11</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>14</td>
<td>12</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>14</td>
<td>13</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td>22</td>
<td>14</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>9</td>
<td>15</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>5</td>
<td>16</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>7</td>
<td>17</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>5</td>
<td>18</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>26</td>
<td>11</td>
<td>19</td>
<td>7</td>
<td>15</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- The Saltzman view is not necessary to evaluate the angular alignment between the tibia and calcaneus on radiograph, thus radiation exposure and cost expenses can be reduced for orthopedic patients.
- Limitations: Image quality and contrast on AP Ankle view
- Further Studies: Oblique Ankle views compatibility for evaluating tibiocalcaneal alignment

REFERENCES


CONTACT US

Please contact Candace Bailey (cambaile@utmb.edu) or Dr. Vinod Panchbhavi (vkpanchb@utmb.edu) for more info.
References


http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2939352/.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2939352/.