**INTRODUCTION**

- Following amputation, an amputee must re-learn how to walk using a prosthesis.
- A goal of prosthetic rehabilitation is to reduce asymmetries between the prosthetic and sound leg to potentially decrease the negative effects of long term exposure to increased force and work demand on the sound leg.
- An amputee-specific physical therapy program provides structured motor learning to aid in developing proper gait mechanics, yet it is not standard due to limited evidence showing improved gait.
- The purpose of this study was to determine whether amputees receiving physical therapy that has been structured towards amputee rehabilitation have better gait mechanics than those that do not.

**METHODS**

<table>
<thead>
<tr>
<th>n</th>
<th>Age</th>
<th>Mass</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapy</td>
<td>12</td>
<td>56.67±11.14 years</td>
<td>107.57 ± 14.65 kg</td>
</tr>
<tr>
<td>No Therapy</td>
<td>11</td>
<td>48.64±11.01 years</td>
<td>94.94 ± 21.08 kg</td>
</tr>
</tbody>
</table>

Table 1: Patient demographics

- A retrospective analysis was performed on a group of individuals previously recruited to a larger study [2,3].
- Individuals all had transtibial level amputations. Individuals were split into therapy/ no therapy groups based on previous participation in an amputee-specific therapy program.
- The therapy group received 2-3 sessions per week for 3 months.
- Subjects walked overground at a self-selected pace while kinetic and kinematic data were collected.
- Asymmetries were determined through dependent t-tests ($\alpha$=0.05) comparing sound and prosthetic leg kinetic variables [1].

**RESULTS**

- Of the 23 kinetic variables tested, 17 variables showed significant difference between the sound leg and the prosthetic leg for the group that did not receive the amputee-specific physical therapy (Fig. 1).
- For the group that had previously received therapy, only 4 variables showed differences between the sound and prosthetic leg.

**DISCUSSION**

- Individuals that underwent an amputee-specific physical therapy program have a more symmetrical gait.
- Increased symmetry means less force and energy demands on the sound leg in order to effectively walk.
- An amputee-specific physical therapy program designed to improve lower limb strength, core strength, range of motion, and static and dynamic balance leads to improvements in gait compared to traditional amputee therapy models that focus more on walking.
- If a symmetrical gait is considered better, then it is possible to deem that amputees undergoing an amputee-specific physical therapy program walk better with likely decreased long term complications to the sound leg [4].

**REFERENCES**


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