Therapeutic Massage for Pediatric Burn Survivors: Camp Amigo & Central VA Burn Camp - Projects 2006 & 2010

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ABSTRACT

PROJECTIVE: These two projects were designed to 1) determine if therapeutic massage intervention produced statistically meaningful changes in ROM, muscle function, and limitation in children ages 6-18 in 2006 project and 2) determine if massage alone or massage with AIS produced greater changes in ROM (2010 project).

METHODS: Data collected at Camp Amigo 2006 and at Camp Amigo & the Central Virginia Burn Camp in 2010.

PARTICIPANTS: From an initial pool of potential participants, 8 children were eventually selected to participate in 2006. From an initial screening of 47 children in 2010, no children met the criteria for full protocol, and 24 children were given general therapeutic massage sessions. All were burn survivors living in the Southeast US and all had thermal burns ≥ 2 years.

RESULTS: Massage significantly increased ROM in participants when comparing the first day of measurement to the last day. Circumference for motion was significantly affected. When comparing pre versus post massage, the results were mixed. The mean effect of adding massage to the protocol was null. This may indicate that scar tissue does not easily change. The difference detected on day 5 may be due to an outlier, which displayed a sizeable increase in range of motion.

CONCLUSIONS: There was a significant difference in range of motion in massaged scar tissue between day 1 and day 5. Perhaps massage, over the 5-day period, decreased resistance in the scar tissue to allow greater motion. Therefore, the null effect of adding massage to the protocol may be attributed to the scar tissue not allowing the massage to be effective. This may also indicate that although massage improves ROM, additional research is necessary.

METHODOLOGY

INTRODUCTION

While preliminary research on burn-related scar tissue indicates that massage may hold great promise for increasing range of motion (ROM) of severe scar tissue, and decreasing the rate of existing scars (Paton, 1989), there has not yet been a conclusive study on massage in these areas. Massage has already been shown to decrease scar tenderness and increase comfort for young patients (Hernandez-Peit, 2011). Additionally, massage (Horr, 1999) holds promise for massage as part of an optimal scar modification technique. Therefore, the purpose of our 2006 research project was to examine (1) whether massage alters ROM, compared to non-massaged tissue, and (2) whether scar tissue scar was altered after massage, compared to non-massaged tissue. In 2010, we sought to compare massage alone and massage with AIS in improving ROM.

• Based on preliminary research done by local massage therapists, we hypothesized that massage would increase ROM and decrease scar area. In addition, we hypothesized that massage will increase mood based on the Wong's Brief Mood Scale (Wong, 1970).

• Based on previous research comparing massage and AIS in 2010, we hypothesized that massage combined with AIS would increase ROM more than massage alone.

RESULTS - 2006 Study

• Eight participants (2 males, 6 females; Mean age 13.5 ± 2.6, range 10-17 years); all had thermal burns present for more than one year.

• Independent Variables: Control (no-massage trial), Massage (massaged trial).

• Independent Variables: Mood (MDOOD), Circumference (MIRC), Range of Motion (ROM). Massage was compared to the pretest (PRETEST) and after massage (POSTTREAT).

TABLE 1: Measurements (MDOOD, MIRC, ROM)

<table>
<thead>
<tr>
<th>DAY</th>
<th>MDOOD</th>
<th>MIRC</th>
<th>ROM</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>1.00 (0.50)</td>
<td>1.00 (0.50)</td>
<td>3.00 (2.00)</td>
</tr>
<tr>
<td>D2</td>
<td>0.30 (0.50)</td>
<td>0.30 (0.50)</td>
<td>3.00 (2.00)</td>
</tr>
<tr>
<td>D3</td>
<td>0.30 (0.50)</td>
<td>0.30 (0.50)</td>
<td>3.00 (2.00)</td>
</tr>
<tr>
<td>D4</td>
<td>0.25 (0.25)</td>
<td>0.25 (0.25)</td>
<td>3.25 (1.50)</td>
</tr>
<tr>
<td>D5</td>
<td>0.15 (0.25)</td>
<td>0.15 (0.25)</td>
<td>3.25 (1.50)</td>
</tr>
</tbody>
</table>

* Indicates p < 0.05; A: Indicates significant main effect (positive number indicates gain)

• When comparing pre versus post massage, the results were mixed. The mean effect of adding massage to the protocol was null. This may indicate that scar tissue does not easily change. The difference detected on day 5 may be due to an outlier, which displayed a sizeable increase in range of motion.

• There was a significant difference in range of motion in massaged scar tissue between day 1 and day 5. Perhaps massage, over the 5-day period, decreased resistance in the scar tissue to allow greater motion. Therefore, the null effect of adding massage to the protocol may be attributed to the scar tissue not allowing the massage to be effective. This may also indicate that although massage improves ROM, additional research is necessary.

• Although significant differences were found, we are cautious to attribute the variability to massage therapy because of the small number of participants in the study. The results of this study indicate that massage may be altering scores to allow for greater range of motion however, additional research must be conducted.

• Lack of control group in the 2010 study remains a shortcoming.

• Results of work done outside the study suggest more research is needed on combining AIS and massage to increase ROM and scar pliability - particularly with adults.

REFERENCES


CONCLUSIONS

• No significant difference was found in mood in participants. This is likely due to the excitement and fun of therapy, interaction with the camp.

• No significant differences in circumference or range of motion were found in control scar tissue when comparing pre- and post-testing each day. No significant difference was found in range of motion when comparing day 1 to day 5. Perhaps the infrared responses to the participant’s body was massaged, this did not reflect on the瘢痕 tissue circumference or range of motion. Thus, it was not significant to whether the scar tissue circumference or range of motion, in itself, did not significantly increase flexibility in control scar tissue.

• No significant differences in circumference or range of motion were found in massaged scar tissue when comparing pre- and post-testing each day. This may be significant since the massaged scar tissue did not show a significant change. The difference detected on day 5 may be due to an outlier, which displayed a sizeable increase in range of motion.

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