Background
Chronic pain is a frequently described consequence of spinal cord injury (SCI). It can occur above, at, or below the level of injury and in both complete and incomplete injuries. Neuropathic pain occurring below the level of the injury is the most common type of chronic pain in SCI, but also shoulder and musculoskeletal pain have been described. Most people with SCI describe more than one source of pain. Little is known about the perceived benefits of physical activity on pain post-SCI and the ways people with SCI manage their pain post-injury.

Aim
To examine the role of physical activity in modulating chronic pain after spinal cord injury.

Method
Procedure
20 working-age adults (18 years and over) – 13 Exercisers; 7 Non-Exercisers – were randomly selected from a pool of US survey respondents (n=592); semi-structured interviews were conducted over the telephone. The survey was based on a snowball sample recruited with support of the National Spinal Cord Injury Association (NSCIA), the Midwest Center for Health Services & Policy Research/Veteran’s Administration, Illinois and the Independent Living Research Utilization, Houston, TX.

Data Analysis
Descriptive data analysis, included thematic coding of telephone interview data using a framework analysis (Fitchie & Spencer, 1994) approach

Results

<table>
<thead>
<tr>
<th>Participant Characteristics</th>
<th>Exercisers (%)</th>
<th>Non-Exercisers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female gender</td>
<td>4 (30.8%)</td>
<td>4 (57.1%)</td>
</tr>
<tr>
<td>Age</td>
<td>51 (23-74)</td>
<td>46 (34-51)</td>
</tr>
<tr>
<td>Education</td>
<td>10 (76.9%)</td>
<td>7 (100%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (7.7%)</td>
<td>0</td>
</tr>
<tr>
<td>SCI Level</td>
<td>3 (23.1%)</td>
<td>1 (14.3%)</td>
</tr>
<tr>
<td>Age at Injury</td>
<td>7 (53.8%)</td>
<td>5 (71.4%)</td>
</tr>
<tr>
<td>Complete Injuries</td>
<td>5 (38.5%)</td>
<td>5 (83.3%)</td>
</tr>
</tbody>
</table>

Pain reported among Exercisers and Non-Exercisers
11 (85%) of the Exercisers reported pain since their injury; four (57%) of the Non-Exercisers reported pain

\[
\text{Data from wave } I \text{ of the national sample supports this difference}
\]

\[
\text{Differences between individuals with complete and incomplete injury}
\]

Five respondents (38.5%) had complete injuries in the exercise group; eight had incomplete injuries (62.5%). Four respondents with complete injuries and eight with incomplete injuries experienced pain on a regular basis. Two respondents with complete injuries indicated that exercise helped them to manage their pain better, which seven respondents with incomplete injuries indicated a beneficial effect of exercise on pain.

\[
\text{Perceived positive impact of exercise on pain (perspectives of Exercisers only)}
\]

Eight (62%) felt that exercise had a positive impact on the pain they experienced; one (7.5%) said it had no beneficial effect, three (23%) said they did not know whether it had a beneficial impact, and one respondent (7.5%) indicated that it made the pain actually worse.

References

Conclusions

Regular physical activity and exercise yield perceived benefits in terms of reducing the negative impact of chronic pain post-SCI, especially for individuals with incomplete injuries. Contrary to other disabling long-term conditions the potential of pain self management programs that are based on psychological, and especially cognitive and behavioral strategies has not been sufficiently recognized for people with SCI. Professionally supported pain self management programs that incorporate both exercise and psychological elements should be developed and evaluated for people with SCI.

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Positive impact in terms of:
- Reduction of pain intensity
- Reduction of pain-related spams
- Balanced muscle development
- Enhanced mobility through pain reduction
- Improved sleep
- Greater upper body flexibility
- Enhanced sense of well-being

"The exercising definitely helps control the pain. It doesn't cause anymore pain. Your body was made to be movable and workable. Wans't made for me to sit in this wheelchair. I lost most of my left arm in a surgery one time and now my left arm is back to the way it used to be. I built it back up."

"...So stretching really helps with upper body flexibility, I find anytime when I move more, whether it be walking or the few times I've done upper body exercises it definitely makes my spasms go down and the pain go away."

"It [Exercising] has yeaht because I had a lot of shoulder pain because pushing the wheelchair is not a normal thing for the body and I was developing muscles...making them over strong and so exercising brings balance."

Cognitive and behavioral strategies of exercise-related pain management

Cognitive
- Distraction
- Fighting

Behavioral
- Medication prior to exercise (ibuprofen)
- Moving more
- Wearing bicycle gloves

Motivation

"Your body was made to be movable and workable. Wasn't made for me to sit in this wheelchair. I lost most of my left arm in a surgery one time and now my left arm is back to the way it used to be. I built it back up."