CRITICALLY APPRAISED PAPER (CAP)

FOCUSED QUESTION
Are encompassing multimodal treatment interventions more effective in improving quality of life than separate modalities alone in the rehabilitation of individuals with acute or subacute low back pain?


CLINICAL BOTTOM LINE:
The researchers investigated the utilization of a multimodal intervention prescription for individuals experiencing low back pain. The results of this study indicate that subjects in all of the treatment groups improved; however, those who received an individualized treatment plan that included preparatory, purposeful, and occupation-based activities had higher health-related quality of life. Although the professionals providing the interventions in this study were physiotherapists and orthopedic surgeons, occupational therapists can certainly use these interventions when working with clients who have low back pain. Specifically, provision of an intervention plan that combines best treatment practices for low back pain and includes an interprofessional team is useful in promoting client health and enhances the range of interventions at the disposal to occupational therapists. Furthermore, the implications of the results of this study provide the opportunity for occupational therapists to prescribe effective occupation- and evidence-based interventions for clients with low back pain in clinical practice. In summary, by finding “best” practice methods for individuals with low back pain, occupational therapists can help this population reduce pain to maintain important life roles and improve participation in meaningful activities of daily life.

RESEARCH OBJECTIVE(S)
List study objectives.

To identify and evaluate the effectiveness between stretching programs, manual therapy, and daily exercise for acute or subacute low back pain.

DESIGN TYPE AND LEVEL OF EVIDENCE:
Level I: Factorial randomized, controlled trial
Limitations (appropriateness of study design):
Was the study design type appropriate for the knowledge level about this topic? Circle yes or no, and if no, explain.

YES/NO

SAMPLE SELECTION
How were subjects selected to participate? Please describe.

A convenience sampling was used to recruit subjects from 1994 to 1998 from nine primary health care centers by general practitioners and two orthopedic surgeons.

Inclusion Criteria
Inclusion criteria included a medical examination from a general practicing physician to determine if all criteria was fulfilled. This included: “acute or subacute low back pain for no more than three months, with or without pain radiation to one or both legs, not requiring immediate surgery” (Grunnesjö, Blomberg, Strender, & Svärdsudd, 2011, p. 1002).

Exclusion Criteria
Exclusion criteria included “pregnancy, malignant tumors, alcohol abuse and severe psychiatric disorders” (Grunnesjö, Blomberg, Strender, & Svärdsudd, 2011, p. 1002).

SAMPLE CHARACTERISTICS
N = 160

<table>
<thead>
<tr>
<th># Dropout</th>
<th>While this does not technically constitute a “dropout,” 56 referred patients did not participate due to not meeting inclusion/exclusion criteria and/or declined participation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>#/ (%) Male</td>
<td>#/ (%) Female</td>
</tr>
<tr>
<td>#/ (%) Male</td>
<td>#/ (%) Female</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>NR</td>
</tr>
<tr>
<td>Disease/disability diagnosis</td>
<td>Acute or subacute low back pain</td>
</tr>
</tbody>
</table>

Check appropriate group:

<table>
<thead>
<tr>
<th>&lt; 20/study group</th>
<th>20–50/study group</th>
<th>51–100/study group</th>
<th>101–149/study group</th>
<th>150–200/study group</th>
</tr>
</thead>
</table>

INTERVENTION(S) AND CONTROL GROUPS
Add groups if necessary

Group 1

Brief Description | Group 1 (n = 35), “Stay Active”/basic standard treatment. This group included active physical therapies, such as medical training therapy, sequential training, ergonomic advice, and other similar therapies. |
<table>
<thead>
<tr>
<th>Setting</th>
<th>Hospital (institutional setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who Delivered?</td>
<td>Two orthopedic surgeons and eight physiotherapists</td>
</tr>
<tr>
<td>Frequency?</td>
<td>No standardized treatment protocol was reported; the treating physician or physiotherapist was free to choose the most relevant treatment modalities and exercises according to the patients’ needs. However, researchers indicated all study groups received approximately the same amount of active biomedical treatment.</td>
</tr>
<tr>
<td>Duration?</td>
<td>10 weeks</td>
</tr>
</tbody>
</table>

Group 2

| Brief Description | Group 2 (n = 36), “Stay Active and Muscle Stretching.” This group received muscle stretching, matching home exercises, or both in addition to the specific treatment list for Group 1. |
| Setting | Hospital (institutional setting) |
| Who Delivered? | Two orthopedic surgeons and eight physiotherapists |
| Frequency? | No standardized treatment protocol was reported; the treating physician or physiotherapist was free to choose the most relevant treatment modalities and exercises according to the patients’ needs. However, researchers indicated all study groups received approximately the same amount of active biomedical treatment. |
| Duration? | 10 weeks |

Group 3

| Brief Description | Group 3 (n = 42), “Stay Active, Stretching, and Manual Therapy.” This group included the specific treatment list from Group 2 in addition to receiving full manual therapy services allowing for specific mobilization, lumbar thrust techniques, and stretching of specific pelvic ligaments. |
| Setting | Hospital (institutional setting) |
| Who Delivered? | Two general practitioners and nine physiotherapists, trained in manual therapy |
| Frequency? | No standardized treatment protocol was reported; the treating physician or physiotherapist was free to choose the most relevant treatment modalities and exercises according to the patients’ needs. However, researchers indicated all study groups received approximately the same amount of active biomedical treatment. |
| Duration? | 10 weeks |

Group 4

| Brief Description | Group 4 (n = 47), “Stay Active, Stretching, Manual Therapy, and Steroid Injections.” This group received the specific treatment list from Group 3, in addition to receiving steroid injections to the pelvic area. |
Setting | Hospital (institutional setting)
---|---
Who Delivered? | Two general practitioners and nine physiotherapists, trained in manual therapy.
Frequency? | A total of 19 injections were given to 17 subjects; two patients received two injections each. No standardized treatment protocol was reported; the treating physician or physiotherapist was free to choose the most relevant treatment modalities and exercises according to the patients’ needs. However, researchers indicate all study groups received approximately the same amount of active biomedical treatment.
Duration? | 10 weeks

**Intervention Biases**: *Circle yes or no and explain, if needed.*

**Contamination**

**YES/NO** | No members of the control group received any other forms of intervention.

**Co-intervention**

**YES/NO** | No additional interventions at the time of study were noted.

**Timing**

**YES/NO** | Frequency of the treatment interventions was not reported. This may cause noticeable effect on improvements made between all four treatment groups.

**Site**

**YES/NO** | Intervention location was consistent among all four treatment groups.

**Use of different therapists to provide intervention**

**YES/NO** | The treating physician and physiotherapist were free to choose the intervention according to the patients’ needs from the specific treatment list. The interventions varied, as no standardized treatment protocol was administered. The intervention choice was dependent on each physician or physiotherapist’s expert opinion.

**MEASURES AND OUTCOMES**

Complete for each relevant measure when answering the evidence-based question:

Name of measure, what outcome was measured, whether the measure is reliable and valid (as reported in article – yes/no/NR [not reported]), and how frequently the measure was used. The Well-being and Complaint score subscales of the Gothenburg Quality of Life Instrument were utilized to assess the outcomes in this study. This instrument’s results were listed and responses were given on a 100 mm visual analogue scale. Specific emphasis was given to the areas of patience, energy, mood, family situation, perceived health, and sleep. Data and initial outcome measurements were recorded at baseline, with follow-up outcome measurement data after 5 and 10 weeks of treatment. All data entry was performed with no knowledge of group allocation.
Name of measure, what outcome was measured, whether the measure is reliable and valid (as reported in article – yes/no/NR [not reported]), and how frequently the measure was used.

The Well-being and Complaint score subscales of the Gothenburg Quality of Life Instrument were reported to have good reliability and validity. This instrument was delivered at baseline and 5 and 10 weeks post intervention to all four treatment groups.

Measurement Biases
Were the evaluators blind to treatment status? Circle yes or no, and if no, explain.

YES/NO

Recall or memory bias. Circle yes or no, and if yes, explain.

YES/NO

Others (list and explain):

NR

RESULTS
List results of outcomes relevant to answering the focused question
Include statistical significance where appropriate (p<0.05)
Include effect size if reported

Data were analyzed with Statistical Analysis System software, version 9.1.
The result outcome, using the Well-being and Complaint score subscales of the Gothenburg Quality of Life from baseline to 10-week follow-up was significant across all groups (P < 0.0001 to 0.02). The total Well-being score increased consistently across the treatment groups (P = 0.02), as did the patience score (P = 0.005), energy (P = 0.02), mood (P = 0.03), and family situation (P = 0.04). The compliant scores decreased steadily in all treatment groups.

Was this study adequately powered (large enough to show a difference)? Circle yes or no, and if no, explain.

YES/NO

Were appropriate analytic methods used? Circle yes or no, and if no, explain.

YES/NO

Were statistics appropriately reported (in written or table format)? Circle yes or no, and if no, explain.

YES/NO
CONCLUSIONS

State the authors’ conclusions that are applicable to answering the evidence-based question.

The results of this randomized clinical trial indicate significant improvements of health-related quality of life measures in rehabilitation of individuals with acute or subacute low back pain. The results report a greatest improvement from Group 1 (Stay Active/Basic Standard Treatment) to Group 2 (Stay Active and Muscle Stretching). Additionally, the subjects in Group 3 (Stay Active, Muscle Stretching, and Manual Therapy) and Group 4 (Stay Active, Muscle Stretching, Manual Therapy, and Steroid Injections) made improvements. Treatment Group 4 (Stay Active, Muscle Stretching, Manual Therapy and Steroid Injections) was the most successful regarding pain reduction and improved functional ability. Therefore, the wider the choice of manual treatment modalities, the better the effects on health-related quality of life. This indicates multimodal treatment interventions can be more effective in the rehabilitation of individuals with acute or subacute low back pain than the standard-based treatment protocol.

This work is based on the evidence-based literature review completed by Jared Q. Zimmerman, MOTS, and Anne M. Haskins, PhD, OTR/L, Faculty Advisor, University of North Dakota, Grand Forks, ND.


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