Is hand therapy more effective than usual care in maintaining function and improving coping in adults with hand arthritis?

Clinical Bottom Line
We were unable to determine whether hand therapy is more effective than usual care in maintaining function and improving coping in adults with hand arthritis

Criteria for Critically Appraised Topic

Population:
Male and female adults – 18 years and over

Intervention:
Hand therapy included:
- Massage
- Active/passive mobilisations
- Home exercise programme – stretching and strengthening
Any of the above used alone or in combination with splinting, joint protection, energy conservation or pacing

Comparison:
Usual care included:
- No treatment
- Global advice and education
- Joint protection, splinting

Outcomes:
Primary Outcomes:
- Maintenance/improvement of function
- Improved coping strategies

Secondary outcomes:
- Improved quality of life
- Reduction in pain/stiffness
- Improvement in grip strength
- Improvement in range of movement

Inclusions:
Rheumatology, Hand(s), Scleroderma, Rheumatoid Arthritis (RA), Osteoarthritis (OA), Polymyalgia Rheumatica, Systemic Lupus Erythematosus (SLE), Gout, multi-joint problems plus hand involvement, complex hand conditions of variable nature, chronic/ongoing problems

Exclusions:
Fractures, soft tissue injuries, surgical interventions e.g. Metacarpophalangeal joint replacement, Dupuytrens, Reflex Sympathetic Dystrophy (Complex Regional Pain Syndrome), acute conditions that improve/resolve, fibromyalgia, Carpal Tunnel Syndrome and Raynauds disease as single diagnoses
Search Terms used

Databases Searched:

<table>
<thead>
<tr>
<th>Cochrane</th>
<th>Pedro</th>
<th>PsychINFO</th>
<th>Medline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Evidence</td>
<td>Bandolier</td>
<td>NELH</td>
<td>Professional Websites</td>
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<tr>
<td>Clinical Guidelines</td>
<td>NICE</td>
<td>HTA</td>
<td>OT Seeker</td>
</tr>
<tr>
<td>Rehab Data</td>
<td>CINAHL</td>
<td>Embase</td>
<td></td>
</tr>
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</table>

Types of study included:
- Systematic reviews
- Randomised Controlled Trials (RCTs)
- Qualitative studies
- Patient satisfaction studies
- English language

Key words searched:

<table>
<thead>
<tr>
<th>Hand arthritis</th>
<th>Hands</th>
<th>Hand therapy</th>
<th>Occupational Therapy</th>
<th>Physiotherapy</th>
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<tr>
<td>Physical Therapy</td>
<td>Rheumatology</td>
<td>RCT</td>
<td>Systematic Review</td>
<td>Qualitative Study</td>
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<td>Patient Satisfaction</td>
<td>Coping</td>
<td>Function</td>
<td>Range of Movement</td>
<td>Grip</td>
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<td>Strength</td>
<td>Passive Movement</td>
<td>Active Movement</td>
<td>Splinting</td>
<td>Joint Protection</td>
</tr>
<tr>
<td>Energy Conservation</td>
<td>Pacing</td>
<td>Hand Rehabilitation</td>
<td>Pain</td>
<td>Stiffness</td>
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<td>Massage</td>
<td>Mobilisation</td>
<td>RA</td>
<td>OA</td>
<td>Scleroderma</td>
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<td>SLE</td>
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<td>Polymyalgia</td>
<td>Gout</td>
<td>CTS</td>
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<td>Raynaud’s</td>
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Time Frame:
Search for the past 10 years i.e. 1995 – 2005
Available Evidence

<table>
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<tr>
<th>Database Searched (Specific to CAT)</th>
<th>Number of abstracts</th>
<th>Number of Relevant Abstracts</th>
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<td>OT Seeker</td>
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<tr>
<td>Bandolier</td>
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</tr>
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<td><strong>Total</strong></td>
<td><strong>67</strong></td>
<td><strong>6</strong></td>
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</table>

**Results:**
The initial search identified 67 abstracts appropriate to the question. On review of these, only six papers were highlighted that could potentially answer the CAT. The six papers were then reviewed by the group using the identified search strategy and reduced to three papers. These three papers were then assessed for quality and appropriateness to the CAT using the CASP (Critical Appraisal Skills Programme) Checklist, group discussion and consensus.
Articles assessed:

1. Physical and Exercise Therapy for Treatment of the Rheumatoid Hand
   Buljina et al, 2001

   The objective of this study was to evaluate the short-term effectiveness of physical therapy (ice massage or wax packs, thermal baths, faradic hand baths and exercise therapy) on the rheumatoid hand.

   Although this paper included some of our primary and secondary outcomes there were limitations in the design, for example, it was unclear whether participants were randomised or whether allocation was concealed, which may have led to bias in the findings. Only short term outcome was assessed and this was at three weeks.

2. The Effectiveness of Hand Therapy Exercises for Persons with Rheumatoid Arthritis - A Systematic Review
   Wessel, 2004

   Although this review was eligible to answer our CAT, only two out of the nine studies reviewed addressed function as an outcome and the sample sizes in the majority of studies were small. The evidence described was conflicting regarding improvement in grip strength and range of movement. The review did not describe the criteria used to evaluate the quality of the included studies.

3. Joint Protection and Home Exercises Improve Hand Function in Patients with Hand Osteoarthritis: A Randomized Controlled Trial
   Stamm et al, 2002

   The objective of this RCT was to determine the effectiveness of joint protection and home exercises on the hand function of patients with hand OA over a 3-month period. The primary outcome was grip strength with secondary outcomes included the Health Assessment Questionnaire (HAQ) and self-reported Visual Analogue Scale (VAS) for pain and global hand function. The study had a small sample size (n=20 for each arm).

Implications for practice

From the analysis of the above papers we were unable to answer our question "Is hand therapy more effective than usual care in maintaining function and increasing coping in adults with hand arthritis?"

There is limited evidence to make a judgement on the effectiveness of hand therapy in arthritis. There is no evidence to suggest a benefit of hand therapy in increasing function in patients with RA. However, one paper (Stamm et al, 2002) seems to suggest increased function in relation to grip strength and improvement in self-perceived global hand function with joint protection and exercise in hand OA. The study by Stamm et al (2002) is however limited by its sample size and the effectiveness of joint protection and hand exercise in OA warrants further investigation. In collaboration with the research team in the Primary Care Musculoskeletal Research Centre, we are now developing a larger study to evaluate this. The group felt that the home exercise programme described by Stamm et al (2002) provides a useful general exercise programme to
use in clinical practice with patients with hand arthritis. This programme is described in appendix 1.

Since completing this CAT we identified a study demonstrating the benefits of brief joint protection advice and hand strengthening exercises in improving function in adults with hand problems and rheumatoid arthritis (RA) (O’Brien et al, 2005). This study was also limited by a small sample size (n<25 in any one treatment arm) however the exercise and advice programme described provides an additional useful approach in clinical practice with patients with rheumatoid arthritis (appendix 2).

References


Appendix 1

Exercises for Patients with Hand Arthritis

1. Make a fist

2. Make a small fist (flexing PIP and DIP joints only)

3. Flex the MCP joints whilst keeping PIP and DIP joints stretched (extended)

4. Touch the tip of each finger with the tip of the thumb whilst keeping each finger flexed

5. Spread the fingers as far as possible with the hand lying flat on a table

6. Push each finger in the direction of the thumb with the hand lying flat on a table

7. Touch the fifth MCP joint with the tip of the thumb

Appendix 2

MidStaffordshire General Hospitals Trust
Physiotherapy Department, CCH

Provided for: Hand exercises - Research
Provided by: Physiotherapy Department Date: 09/04/99

1. Begin with the palm of your hand flat on the table or over the edge of the table if this is not possible.
2. Keep palm on table but lift index finger up off table by 1 cm.
3. Hold for 5 seconds keeping the other fingers flat on the table.
4. Now lift the same finger towards your thumb without letting it rest back on the table and hold for another 5 seconds before resting.
5. Repeat for each finger of both hands as directed by the main instruction sheet twice per day.

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1. Rest your elbows comfortably on the table.
2. Bend knuckle joints of all your fingers down as shown.
3. Keep the other joints of your fingers straight.
4. Hold for 5 seconds.
5. Repeat as directed by your main instruction sheet twice per day.

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1. Bend first two joints of all your fingers down as shown until you feel a stretch.
2. Hold for 5 seconds then relax and straighten the fingers out again.
3. Repeat for each hand as directed by the main instruction sheet twice per day.

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1. Pinch your thumb and first finger together as shown making sure the joints stay slightly bent.
2. Hold for 5 seconds pressing firmly.
3. Repeat with other fingers starting with the middle, ring and then little fingers.
4. Repeat 10 times for each finger of each hand twice per day.

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1. Sit with your forearm supported as shown gripping the elastic tubing.
2. Hold the loose end of the elastic tubing with your other hand to apply resistance.
3. Curl wrist slowly upward as far as you can keeping your forearm still in contact with the table until you feel a comfortable resistance.
4. Hold for 5 seconds then slowly lower.
5. Repeat as directed by the main instruction sheet twice per day.

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Hand Exercises - Home Instructions

Name

The exercises are all described on the sheets. If you have any queries about how to do them, please contact Jill Spicer on 01543 576418.

**How often do I have to do the exercises?**

All exercises are to be performed twice a day.

**How many exercises do I have to do?**

The number of exercises to do may be stated on the sheet or may say refer to the instruction sheet. If so please follow this table:

<table>
<thead>
<tr>
<th>Week of Study</th>
<th>Number of repetitions of exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 0 to Week 4</td>
<td>Repeat x 5, hold for 5 seconds</td>
</tr>
<tr>
<td>Week 5 to Week 8</td>
<td>Repeat x 10, hold for 5 seconds</td>
</tr>
<tr>
<td>Week 9 to Week 12</td>
<td>Repeat x 20, hold for 5 seconds</td>
</tr>
<tr>
<td>Week 13 to Week 24</td>
<td>Repeat x 20, hold for 5 seconds</td>
</tr>
</tbody>
</table>

**Is there anything else I have to do apart from the exercises?**

Yes!
Complete your exercise diary every day and make a note if you have any difficulty or are unable to do an exercise for any reason.

**What do I do if I get any pain?**

If you experience any pain/discomfort you may wonder what to do.

- First check if you have done anything unusual with your hands over the previous day. Maybe you have over-strained them without being aware at the time. This should settle in a day.
• Do all the exercises within your limit of discomfort. All exercises are difficult at first because our joints and muscles may not be used to being stretched so far and may be weak, but decide if what you are feeling is discomfort (muscle ache from exercise and stretching of muscles) or joint pain.

• If it is joint pain or your joints feel more hot or swollen than usual take a rest from the exercises for that day.

• If you feel you can’t do an exercise one particular day, or all of them, please note this in your exercise diary for every day this may be applicable.

• If your hand/finger pains start during the exercises, rest for half an hour and then try again.

• If after 2 hours the pains still remain then leave the exercises until the next day.

• If the pains last until the next day, leave the exercises for that day, but try again the following day.

• If you are still in pain after 2 days since starting the exercises, stop the exercises, make a note in your exercise diary and contact your GP. Please also inform the investigator on Tel: 01543 576411 (Anne Chadwick).

• If the pain settles again restart the exercises.

If you still have questions relating to your exercises please contact either Jill or myself and we will get back to you as soon as possible.

Thank you once again for your help in this research.

Anne Chadwick - Investigator: - Tel No 01543 576411.