

**Physiotherapy interventions evidence table – Electrophysiological agents and acupuncture**

The following table provides a summary of level I or II evidence (according to the NHMRC evidence hierarchy) for physiotherapy-relevant interventions in RA published between January 2012 and June 2015. Interpreting the evidence can be complex. RAP-eL users should consider the following:

- There are no current studies investigating the effects of electrophysiological agents or acupuncture on early versus late rheumatoid arthritis.
- Further research is needed into the optimal parameters (dose, frequency, intensity and time) for the use of electrophysiological agents and acupuncture treatment in patients with RA.
- There is no current evidence to support longer-term benefits of the use of electrophysiological agents and acupuncture in patients with RA.
- In general, research quality in this area is noted to be poor with limited numbers of studies available in the Cochrane Systematic Reviews included in the table below.
- It is important to note that the interventions studied are done so in isolation, so the evidence refers to the effect of the single intervention, and not the effect of a multimodal intervention.

Physiotherapy-related intervention(s)	Sources of evidence (see key below)	Results	Making sense of the evidence								
Acupuncture and electro-acupuncture	<table border="1"> <tr> <td>RCT</td> <td>SR</td> <td>MA</td> <td>CSR</td> </tr> <tr> <td></td> <td></td> <td></td> <td>✓</td> </tr> </table> <p>Casimiro et al (2005) Acupuncture and electroacupuncture for the treatment of RA <a href="#">[link]</a></p>	RCT	SR	MA	CSR				✓	<ul style="list-style-type: none"> <li>• There is a low number of good quality clinical trials in this area (only 2 met the criteria for this Cochrane review).</li> <li>• Electroacupuncture may reduce symptomatic knee pain at 24 hours and 4 hours post treatment.</li> <li>• There is no evidence for an effect on disease activity, general health, ESR, CRP, or analgesic intake.</li> </ul>	<p>There is no current evidence to support the use of acupuncture in the management of patients with RA to improve:</p> <ul style="list-style-type: none"> <li>- Function</li> <li>- analgesic uptake</li> <li>- general health, or</li> <li>- disease activity.</li> </ul> <p>Very short term symptomatic joint pain relief may be observed, although this is unlikely to be clinically meaningful.</p>
RCT	SR	MA	CSR								
			✓								

<p><b>Electrical stimulation and effects on muscle strength/function in RA</b></p>	<table border="1"> <tr> <th>RCT</th> <th>SR</th> <th>MA</th> <th>CSR</th> </tr> <tr> <td></td> <td></td> <td></td> <td>✓</td> </tr> </table>	RCT	SR	MA	CSR				✓	<ul style="list-style-type: none"> <li>• Only one study fit the inclusion criteria.</li> <li>• This assessed the effects of electrical stimulation on strength of the 1<sup>st</sup> dorsal interosseous muscle and hand function in patients with RA.</li> <li>• Improvements were seen in grip strength and fatigue resistance of the 1<sup>st</sup> dorsal interosseous muscle when compared with controls.</li> </ul>	<p>Although one study has shown improvements in grip strength and fatigue resistance of the 1<sup>st</sup> dorsal interosseous with electrical stimulation, conclusions about the efficacy of this treatment are limited due to poor methodological quality and a lack of other studies in this area. See <a href="#">Pelland et al (2010)</a> for details regarding the parameters used in this study.</p>
RCT	SR	MA	CSR								
			✓								
<p><b>Thermotherapy for RA</b></p>	<table border="1"> <tr> <th>RCT</th> <th>SR</th> <th>MA</th> <th>CSR</th> </tr> <tr> <td></td> <td></td> <td></td> <td>✓</td> </tr> </table>	RCT	SR	MA	CSR				✓	<ul style="list-style-type: none"> <li>• There were no significant benefits observed for heat or ice packs, cryotherapy or faradic baths on disease activity, function or pain when compared to active treatment (e.g. ultrasound, exercise or NSAIDs) or controls.</li> <li>• Superficial moist heat and cryotherapy may be used for symptomatic treatment of joint pain.</li> <li>• Paraffin wax baths plus exercise can give short term benefits in range of movement and grip strength for RA of the hands.</li> <li>• There were methodological limitations of the seven studies included in the Cochrane review.</li> </ul>	<p>Thermotherapy can be used as an adjunct to treatment on a case-by-case basis if the patient reports relief from these modalities. No claims can be made regarding altering disease process or function. There are no reported risks/adverse events with these treatments so the risk profile is low.</p>
RCT	SR	MA	CSR								
			✓								

<p><b>TENS for the treatment of RA in the hand</b></p>	<table border="1"> <tr> <th>RCT</th> <th>SR</th> <th>MA</th> <th>CSR</th> </tr> <tr> <td></td> <td></td> <td></td> <td>✓</td> </tr> </table>	RCT	SR	MA	CSR				✓	<p>Brosseau et al (2010) Transcutaneous electrical nerve stimulation (TENS) for the treatment of RA in the hand <a href="#">[link]</a></p> <ul style="list-style-type: none"> <li>• Reductions in resting pain and improved muscle power were found of Acupuncture-like TENS (AL-TENS = low frequency, high intensity based on patients tolerance level) 15 minutes per week for 3 weeks compared to placebo.</li> <li>• No benefits were seen for Conventional TENS (C-TENS = high frequency, low intensity) versus AL-TENS or a placebo on joint pain or tenderness.</li> <li>• There are a limited amount of studies in this area.</li> </ul>	<p>There is some evidence of reduced resting hand pain and increased muscle strength with the use of AL-TENS (See <a href="#">Brosseau et al, 2010</a> for more information). There is no current evidence to support C-TENS over AL-TENS or placebo TENS for joint symptoms. Due to no reported adverse effects of this treatment it can be considered as an adjunct to treatment depending on the individual patient’s preference, although is unlikely to offer clinically-meaningful improvements in outcomes when used as a single treatment modality.</p>
RCT	SR	MA	CSR								
			✓								
<p><b>Therapeutic ultrasound (US) for the treatment of RA</b></p>	<table border="1"> <tr> <th>RCT</th> <th>SR</th> <th>MA</th> <th>CSR</th> </tr> <tr> <td></td> <td></td> <td></td> <td>✓</td> </tr> </table>	RCT	SR	MA	CSR				✓	<p>Ultrasound to the hand (10 mins, continuous, 0.5Wcm<sup>2</sup>, alternate days for 10 sessions) compared with placebo ultrasound may have beneficial effects on:</p> <ul style="list-style-type: none"> <li>• grip strength, and to a lesser extent:</li> <li>• reduced morning stiffness</li> <li>• reduced numbers of swollen and painful joints</li> <li>• Only 2 studies met the inclusion criteria</li> </ul>	<p>There is limited research that continuous ultrasound may improve in grip strength and possibly numbers of swollen and painful joints and reduced morning stiffness with ultrasound to the hand. No studies were found of sufficient quality to review on the effects of US in other body areas (other than the hand) in patients with RA.</p>
RCT	SR	MA	CSR								
			✓								

- Included studies had low participant numbers and methodological limitations.

## **Key To Evidence Sources:**

Randomised Controlled Trial (RCT)

Systematic Review (SR)

Meta-Analysis (MA)

Cochrane Systematic Review (CSR)

## **List of Table Abbreviations:**

ADL's – Activities of Daily Living

AL-TENS – Acupuncture-like TENS

C-TENS – Conventional TENS

CRP – C reactive protein

DAS28 – Disease activity score calculator for Rheumatoid arthritis [[click here for link to PDF](#)]

DASH – “Disabilities of the Arm Shoulder and Hand” outcome measure

ESR – Erythrocyte Sedimentation Rate

HEP – Home Exercise Programme

HRQ – Health Risk Questionnaire

JP – Joint Protection

LBP – Lower Back Pain

OA – Osteoarthritis

OT – Occupational Therapy

QOL – Quality Of Life

RA – Rheumatoid Arthritis

RCT – Randomised Controlled Trial

TENS – Transcutaneous Electrical Nerve Stimulation

US - Ultrasound

1<sup>st</sup> MTPJ – 1<sup>st</sup> Metatarsophalangeal Joint