

iCAHE JC Critical Appraisal Summary

Journal Club Details

Journal Club	Community Physiotherapy
JC Facilitator	Penny Brodribb
JC Discipline	Physiotherapy

Clinical Scenario

What is the effectiveness of therapeutic ultrasound in improving symptoms in patients with low back pain?

Review Question/PICO/PECO

- P** adults with low back pain
- I** Therapeutic Ultrasound
- C** other conservative interventions for back pain
- O** pain, function, quality of life

Article/Paper

Durmus D, Durmaz Y, Canturk F (2010) "Effects of therapeutic ultrasound and electrical stimulation program on pain, trunk muscle strength, disability, walking performance quality of life, and depression in patients with low back pain: a randomized controlled trial" *Rheumatol Int*, 30(10):901-910.

Please note: due to copyright regulations CAHE is unable to supply a copy of the critically appraised paper/article. If you are an employee of the South Australian government you can obtain a copy of articles from the [DOHSA librarian](#).

Article Methodology: Randomised Controlled Trial

Journal Club Meeting on: 10 March 2011



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Ques No.	Yes	Can't Tell	No	Comments
1	✓			<p>Did the study ask a clearly focused question?</p> <p><i>Participants:</i> Patients with low back pain for at least three months were recruited for this study. Excluded were patients with acute radicular symptoms; those with evidence of inflammatory disease affecting the spine, tumor, spondylolysis, spondylolisthesis, sacroilitis; conditions for which exercise is contraindicated; neuromuscular or dermatological disease in the lumbar and abdominal area; had been involved in an exercise program that may have increased muscle strength within the last 6 months (prior to the study); cardiac pacemaker or defibrillator; contracture; previous trauma; history of spinal surgery, pregnancy, and presence of severe structural deformity.</p> <p><i>Intervention:</i> Three groups—Group 1: ES program plus exercises; Group 2: US plus exercises; Group 3 (control): exercises alone</p> <p><i>Outcomes:</i> pain, disability, walking performance, endurance, mobility, quality of life, depression</p>
2	✓			<p>Was this a randomised controlled trial and was it appropriately so?</p> <p>This study was a randomised controlled trial which was an appropriate study design given the objectives of the study. Is it worth continuing: YES</p>
3	✓			<p>Were participants appropriately allocated to intervention and control groups?</p> <p>Participants were randomly allocated into one of three groups. The authors however, did not report how randomisation was undertaken.</p> <p>The groups were well matched at baseline (in terms of demographic characteristics and outcome measure scores) which may indicate that randomisation was successful.</p>
4		✓		<p>Were participants, staff and study personnel 'blind' to participants study group?</p> <p>The authors did not report whether there was blinding—for participants, assessors and those who administered the interventions.</p>

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5	✓		<p>Were all of the participants who entered the trial accounted for at its conclusion?</p> <p>Nine participants did not complete the study, either they were out of contact or did not come to the assessment. It seems that only those participants who finished the study were included in the final analysis. Intention-to-treat analysis was not reported. It doesn't seem likely though that this has resulted to attrition bias.</p>
6	✓		<p>Were the participants in all groups followed and data collected in the same way?</p> <p>Outcomes were measured and collected in the same way for all participants. All participants were examined at baseline, third week and sixth week of the therapy.</p>
7	✓		<p>Did the study have enough participants to minimise the play of chance?</p> <p>No power calculation was carried out. Hence, it would be difficult to determine whether the sample size was adequate.</p>
8			<p>How are the results presented and what is the main result?</p> <p>Results were presented using means & standard deviations, and p values</p> <p><i>Results</i></p> <ul style="list-style-type: none"> All groups showed statistically significant improvements in pain, disability, muscle strength, endurance, walking, mobility, quality of life and depression. Greater improvement for ES group and US group than the controls in terms of: pain, isometric muscle force (EMS) and some parameters of quality of life.
9			<p>How precise are these results?</p> <p>Differences between groups were determined based on p-value computation alone. P-values fail to provide clinicians and patients with the information they most need, i.e., the range of values within which the true effect is likely to reside.</p>
10			<p>Were all important outcomes considered so the results can be applied?</p> <p>Journal club to provide answers</p>