

iCAHE JC Critical Appraisal Summary

Journal Club Details

Journal Club	AHRRTS 2
JC Facilitator	Damian Coe and Jennifer Algie
JC Discipline	Physiotherapy

Clinical Scenario

In patients of any age with Parkinson's disease, is cycling an effective choice of treatment to management strength and balance by having an effect on muscle tone?

Review Question/PICO/PECO

- P** individuals with Parkinson's disease
- I** cycling
- C** other interventions
- O** muscle tone, strength, balance

Article/Paper

Ridgel AL, Peacock CA, Fickes EJ, et al 2012 'Active-assisted cycling improves tremor and bradykinesia in Parkinson's disease' *Archives of Physical Medicine and Rehabilitation*, [Epub-ahead of print]

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Article Methodology: Before-and-after pilot study

Journal Club Meeting on: 13 July 2012



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Ques No.	Yes	Can't Tell	No	Comments
1	✓			<p>Was the purpose stated clearly?</p> <p>The aims of the study were:</p> <ul style="list-style-type: none"> To develop a rapid cadence cycling intervention (active-assisted cycling) using a motorised bike and to examine physiological parameters during this activity in clients with Parkinson's disease To examine if a single session of active-assisted cycling at a high cadence would promote improvements in tremor and bradykinesia similar to the state when clients are taking their medications
2	✓			<p>Was relevant background literature reviewed?</p> <p>Yes and appropriate justification for conducting this study was demonstrated.</p>
3	✓			<p>Describe the study design. Was the design appropriate for the study question? (e.g., for knowledge level about this issue, outcomes, ethical issues, etc.)</p> <p>This pilot study used a before-and-after research design.</p> <p>A pilot study is a small study intended to test the feasibility of methods and procedures for later use on a large scale or to search for possible effects and associations that may be worth following up in a subsequent larger study (Thabane et al 2010).</p> <p>A before-and-after study is most useful in demonstrating the immediate impacts of short term programs (similar to the one tested in the current study). Although it suffers from many threats to internal validity (i.e. methodological biases which can make us less confident that the results are actually due to the intervention), it can, in many cases, provide preliminary evidence for intervention effectiveness. Therefore, it can still be considered appropriate to address the aims of this study.</p>

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4	✓		<p>Sample size N= 10</p> <p>Was the sample described in detail?</p> <p>This study recruited individuals with idiopathic Parkinson’s disease (PD), from community support groups. The demographic characteristics of the participants were presented in Table 1.</p> <p>Inclusion criteria: diagnosis of idiopathic PD and Hoehn and Yahr stages 1-3</p> <p>Exclusion criteria: those with contraindications to exercise such as musculoskeletal injuries, cardiovascular disease, stroke or dementia</p> <p>Informed consent was obtained prior to enrolment.</p> <p>Was the sample size justified?</p> <p>No. However, in general, sample size calculations may not necessarily be required for a pilot study. It is important that a sample for a pilot be representative of the target study population. It should also be based on the same inclusion/exclusion criteria as the main study (i.e. the larger scale study in the future). As a rule of thumb, a pilot study should be large enough to provide useful information about the aspects that are being assessed for feasibility (Thabane et al 2010).</p>
5	✓	✓	<p>What outcome measures were used and what is the frequency of them being used?</p> <p>KINESIA was used to measure tremor and bradykinesia of the affected upper limb. Tremor assessments were carried out immediately before and within 10 minutes of each session.</p> <p>Were the outcome measures reliable?</p> <p>unknown</p> <p>Were the outcome measures valid?</p> <p>Kinesia scores on resting, postural and kinetic tremor were previously compared with scores obtained from Unified Parkinson's Disease Rating Scale (UPDRS), which is the current standard in evaluating PD. Kinesia scores were found to be highly correlated with clinical scores on UPDRS.</p>
6	✓		<p>Was the intervention described in detail?</p> <p>The protocol used for active-assisted cycling was clearly described in the methods section (p.6).</p> <p>Contamination was avoided?</p> <p>N/A</p> <p>Co intervention was avoided?</p> <p>N/A</p>

7	✓		<p>Were the results reported in terms of statistical significance?</p> <p>Yes, statistical significance was set at $p \leq 0.05$. The following statistical tests were used, ANOVA and paired t-test. All data were analysed using SPSS 16.0.</p> <p>Clinical importance was reported?</p> <p>Journal club to answer</p> <p>Drop outs were reported?</p> <p>There were no drop-outs in the study; however, data from one subject were unavailable due to computer error.</p>
8	✓		<p>The conclusions were appropriate given the study methods and results?</p> <p>A single session of active-assisted cycling was well-tolerated and resulted to immediate reductions in tremor and bradykinesia in most individuals with PD. The results of this study are useful in informing larger scale studies that will examine effectiveness of interventions similar to the one investigated in the current study.</p>

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