CAHE JC Critically Appraised Article Summary

Journal Club Details

Date of submission	May 2008
Journal Club location	Western District Health Service
JC Facilitator	Robert Webb

Clinical Scenario

What is the effectiveness of a weight-bearing strengthening program compared with that of a non-weight-bearing strengthening program for older inpatients undergoing rehabilitation?

Review Question/PICO/PACO

P Older people (>60 y/o) admitted to inpatient rehabilitation

I Weight bearing strengthening exercises

C Non weight bearing strengthening exercises

O Muscle strength and Mobility

Article/Paper

Olivetti L, Schurr K, Sherrington C, et al. A novel weight-bearing strengthening program during rehabilitation of older people is feasible and improves standing up more than a non-weight-bearing strengthening program: a randomised controlled trial. *Australian Journal of Physiotherapy*. 2007;53:147-153.

Article Methodology:	Randomised Controlled Trial
Returned JC on:	30 May 2008
By CAHE staff member:	Lucylynn M. Lizarondo

research NEWS
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Ques No.	Yes	Can't Tell	No	Comments
1	✓			Population Older patients > 60 y/o admitted to the inpatient rehabilitation wards at three hospitals in Sydney, Australia Intervention Intervention, which consisted of weight-bearing strengthening exercises such as lateral step-ups to a block, standing up and sitting down and stepping up onto a step, was clear and well-described. The non-weight-bearing exercise, to which the intervention was compared, was likewise clear and straight-forward. Outcomes • Isometric knee strength as measured by a "make test" with a hand held dynamometer (Primary outcome measure) • Mobility measures such as standing up rate, walking, standing and overall mobility as measured by the Physical Performance and Mobility Examination; time to walk; strength measures such as isometric hip extensor, hip abductor and knee flexor force of both legs (Secondary outcome measures)
2	✓			The study was a randomised controlled trial; it was suitable to compare weight bearing strengthening exercises with non-weight bearing exercises. Is it worth continuing? YES
3	✓			The paper mentioned that participants were randomly allocated to weight-bearing or non-weight-bearing strengthening groups using numbered sealed opaque envelopes. This randomization technique is ideal and could have possibly explained the similarity of baseline characteristics between the 2 study groups, which is one of the most important considerations when conducting clinical trials.
4	✓			Final assessment of participants was performed by a physiotherapist who was blinded to treatment group allocation. Blinding, however, of participants and therapists administering the exercises would not have been possible in this study. Non-blinding of the therapists who gave the exercises would not have likely affected the results as they were asked to record in a training log the training volumes and loads as well as variations from the protocol. After the intervention, the average total number of repetitions was similar for both groups, which may indicate that the therapists did not modify the exercise protocol to favour the treatment. It is not also likely that non-participant blinding could have changed the results of the study as the outcomes were all measured objectively instead of just having self-report measures.

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Ques No.	Yes	Can't Tell	No	Comments
5	✓			There were 10 participants who did not undertake the final measures. This loss to follow up was addressed by doing the intention-to-treat analysis, where the authors analysed all available data according to the group to which they were originally allocated.
6	✓			Outcomes were measured and collected in the same way for both groups.
7	✓			A power calculation was done indicating that the number of participants included in this study is sufficient to detect group differences.
8				Main results were presented using mean (95% Confidence Interval) difference within groups and between groups for all outcomes. For both groups, there were significant differences before and after the 2-week intervention for all outcomes (within group comparison). However, there were only 2 outcomes (chair height and hip extensor strength) that showed significant differences when the results for the weight bearing group was compared with the non-weight bearing group (between group comparison). The weight-bearing strengthening group had decreased their minimum chair height by 5.5 cm and increased their hip extensor strength on the weaker leg by 9 N more than the non-weight-bearing strengthening exercises. Bottom line result: The novel weight-bearing strengthening program had some additional benefits over the traditional non-weight-bearing strengthening program.
9				The results appear to be precise as shown by generally narrow confidence intervals.
10	✓			The sample was fairly varied which increases the applicability of the intervention to rehabilitation settings with similarly varied clients. The most important outcomes were considered, as well as the feasibility and safety of both interventions. There were no adverse events from either forms of exercise.

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