

# CAHE JC Critically Appraised Article Summary

## Journal Club Details

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Date of submission	February 2009
Journal Club location	Australian Physiotherapy Association
JC Discipline/s	Physiotherapy
JC Facilitator	Shylie MacKintosh

## Clinical Scenario

Is there evidence that repeated passive movement of the knee decreases spasticity among stroke patients?

## Review Question/PICO/PACO

- P** Stroke patients
- I** Repeated passive knee movements
- C**
- O** Degree of spasticity

## Article/Paper

Nuyens et al. 2002, 'Reduction of spastic hypertonia during repeated passive knee movements in stroke patients', *Archives of Physical Medical Rehabilitation*, vol. 83, pp. 930-935.

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<b>Article Methodology:</b>	Between-groups design with repeated measures
<b>Returned JC on:</b>	19 February 2009
<b>By CAHE staff member:</b>	Luke Perraton

Ques No.	Yes	Can't Tell	No	Comments
<b>Study purpose:</b> Was the purpose stated clearly?	✓			The structured abstract alone allows the reader to understand the purpose of the study. More detailed hypotheses in the introduction helps put the study into perspective.  The purpose of this study was not to test the effectiveness of an intervention (passive movements), but rather to compare hypertonic muscles to healthy muscles to quantify a known treatment effect.
<b>Literature:</b> Was relevant background literature reviewed?	✓			No study published prior to this study has quantitatively reported the effect of repeated passive movements on hypertonic muscles. However, literature relating to the proposed mechanism of reduction of muscle tone by passive movement was reviewed.
<b>Study design:</b> Was the design appropriate for the study question?	✓			A between-groups design is appropriate because it addresses the objective of the study (see study purpose). A between groups design can be used to measure a known treatment effect rather than just testing whether the intervention is effective.
<b>Bias:</b> Was there any potential for bias?	✓			Physiotherapists as authors using physiotherapy interventions. No random recruitment, so there is risk of selection bias.  Small sample size (N=20), majority male. No power analysis reported. Despite this, the groups were matched for gender and age, which should reduce bias.  Transparent reporting of methodology –low risk of measurement or intervention biases.
<b>Sample:</b> Was the sample described in detail?			✓	N=20  Sampling was done by recruiting available stroke patients from university hospitals and providing a clinical assessment and a score on a clinical scale by a Physiotherapist.  Clinical details of sample were listed.  Demographic details: Only age and gender were provided. No other baseline details provided.
Was sample size justified?	✓			Sample size was limited by multiple exclusion criteria and refusals, which reduced final number included in study.  Informed written consent and ethics approval from hospital committee were obtained.

Ques No.	Yes	Can't Tell	No	Comments
<b>Outcome measures:</b> Were the outcome measures reliable?		✓		Outcome measurement: 1) Strain gauge bridge torquometer 2) Electromyography Provided good detail on measurement procedure.
Were the outcome measures valid?		✓		Good face validity/reliability of outcome measures - seem appropriate in addressing the research question.
<b>Intervention:</b> Was intervention described in detail?	✓			Intervention aimed to replicate a Physiotherapy intervention consisting of passive joint movement at progressively increasing speeds.
Contamination was avoided?	✓			NA: Subjects in both groups received the same standardised treatment
Co-intervention was avoided?	✓			
<b>Results:</b> Results were reported in terms of statistical significance?	✓			Torque: Statistically significant differences were found between hypertonic and healthy limbs in the middle to end phase of the passive movements. When the first 3 movements were excluded from analysis there was no significant difference between hypertonic and healthy limbs. Electromyography: Torque changes did not parallel electromyographic measurements.
Were the analysis method(s) appropriate?	✓			
Clinical importance was reported?	✓			The clinical implication of the results was discussed. It was stated that further research is required to quantify the effects of passive mobilization in the long term.
Drop-outs were reported?	✓			All drop outs occurred prior to the collection of data
<b>Conclusions:</b> Conclusions were appropriate given study methods and results	✓			Concluded that their study results support the practice of using passive mobilization to treat spastic hypertonia. Commented on the likely mechanisms of passive movements in reducing hypertonicity.