Extra physical therapy reduces patient length of stay and improves functional outcomes and quality of life in people with acute or subacute conditions: a systematic review

Peiris CL, Taylor NF, Shields N

CRD summary
The authors concluded that extra physical activity decreased length of stay in an acute or rehabilitation setting and significantly improved mobility, activity and quality of life in people with acute or subacute conditions. While this conclusion reliably summarises the broad findings of the meta-analysis, it may not apply to all conditions in all settings.

Authors' objectives
To investigate whether extra physical therapy interventions reduced length of stay in an acute or rehabilitation setting and improved patient outcomes in people with acute or subacute conditions.

Searching
CINAHL, PubMed, AMED, PEDro, PubMed, and EMBASE databases were searched up to May 2010. Search terms are available on request. Further relevant studies were identified from reference lists and citation tracking.

Study selection
Randomised controlled trials (RCTs) that compared extra physical therapy to a standard amount of physical therapy in adults (18 years or older) after an acute event or acute exacerbation of a chronic condition treated in an acute or rehabilitation setting. Experimental treatments had to consist of an increased amount of the same physical therapy intervention (delivered or supervised by a physical therapist) as delivered in the comparison group.

In the included studies, participants in the experimental groups received extra and/or longer physical therapy sessions for a range of conditions that included neurologic conditions (such as stroke and traumatic brain injury), multiple sclerosis, cardiovascular conditions and orthopaedic conditions. The weighted mean age of participants across trials was 69.8 years.

Two reviewers independently selected studies for inclusion. Disagreements were resolved by discussion or recourse to a third reviewer.

Assessment of study quality
Included studies were scored out of 10 points using the PEDro assessment scale of eligibility criteria, randomisation, concealed allocation, baseline similarity, blinding of participants, therapists and assessors, loss to follow-up, intention-to-treat analysis, statistical comparisons and measures of variability.

Quality was assessed independently by two reviewers, with disagreements resolved by consensus or recourse to a third reviewer.

Data extraction
Key characteristics of the included studies were extracted by one reviewer and checked by a second. Standardised mean differences (SMDs) and related 95% confidence intervals (CIs) were calculated for outcomes based on postintervention means. Where the time of measurement differed between the intervention and comparison groups, data were transformed to change per day.

Methods of synthesis
Standardised mean differences and 95% confidence intervals were pooled using a random-effects model. Pooled values were calculated for the outcomes: length of stay, walking ability, activity, self-care and quality of life. Statistical inconsistency was assessed using the I² statistic. Subgroup and sensitivity analyses were conducted. Publication bias was assessed using funnel plots for meta-analyses that contained 10 or more RCTs.

Results of the review
Sixteen RCTs (1,699 participants) were included in the review. The mean PEDro quality score was 6.5 (range 4 to 8).

Compared with standard physical therapy, extra physical therapy significantly reduced length of stay (SMD -0.22, 95% CI -0.39 to -0.05; I²=32%, eight RCTs) and improved walking ability (SMD 0.37, 95% CI 0.05 to 0.69; I²=71%, seven RCTs), activity (SMD 0.22, 95% CI 0.07 to 0.37; I²=4%, nine RCTs) and quality of life (SMD 0.48, 95% CI 0.29 to 0.68; I²=0%, four RCTs). There were no statistically significant differences in self-care.

Subgroup analyses were reported.

Authors' conclusions
Extra physical activity decreased length of stay in an acute or rehabilitation setting and significantly improved mobility, activity and quality of life. An extra 19 minutes per day per in-patient are required to achieve these benefits.

CRD commentary
This review was based on a broad review question supported by appropriate inclusion criteria. Attempts were made to identify all the relevant trials and efforts were made to minimise bias in the selection, extraction and quality assessment of the relevant evidence.

While the review methods were well-reported and reflected standard practices, the authors acknowledged that the included trials reported a diverse group of conditions and settings with a substantial degree of statistical heterogeneity for some outcomes. Subgroup analyses suggested that the size and significance of the effects may have depended on settings and other characteristics.

The authors’ conclusions reliably summarised the broad findings of the meta-analysis, but a precise statement such as “an extra 19 minutes per day per in-patient are required to achieve these benefits” may not be reliable.

Implications of the review for practice and research
Practice: The authors stated that providing extra physical therapy services in acute or rehabilitation settings may be beneficial for patients with a variety of acute or subacute health conditions.

Research: The authors stated that further research could address the most cost-effective ways of providing extra physical therapy and investigate the possible benefits of providing services from other allied health disciplines in addition to physical therapy.

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