TITLE: Power Mobility Technologies for Children Aged Six Years and Under with Disability or Mobility Limitation: Clinical Effectiveness and Guidelines

DATE: 20 August 2015

RESEARCH QUESTIONS

1. What is the clinical effectiveness of early power mobility use for children aged six years and younger with disability or mobility limitation?

2. What are the evidence-based guidelines regarding early power mobility introduction, prescription, training, and use for children aged six years and younger with disability or mobility limitation?

3. What are the evidence-based guidelines regarding testing or assessing skills in power mobility use for children aged six years and younger with disability or mobility limitation?

KEY FINDINGS

One randomized controlled trial and one non-randomized study were identified regarding the clinical effectiveness of early power mobility use for children aged six years and younger with disability or mobility limitation. One evidence-based guideline regarding power mobility introduction and use was identified.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2010 and August 10, 2015. Internet links were provided, where available.
The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

SELECTION CRITERIA

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

<table>
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<th>Table 1: Selection Criteria</th>
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<td><strong>Population</strong></td>
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<td>Children aged 6 years and younger, with mental or physical disability or mobility limitation, or undergoing post-surgical rehabilitation</td>
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<td><strong>Intervention</strong></td>
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<td>Power mobility technologies (e.g., ride-on cars or other ride-on toys, “smart” wheelchairs, etc.)</td>
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<td><strong>Comparator</strong></td>
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<tr>
<td>No early power mobility technology; No comparator</td>
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<td><strong>Outcomes</strong></td>
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<td>Q1: Clinical effectiveness</td>
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<td>Q2, Q3: Guidelines</td>
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<td><strong>Study Designs</strong></td>
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<td>Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines</td>
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RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One randomized controlled trial and one non-randomized study were identified regarding the clinical effectiveness of early power mobility use for children aged six years and younger with disability or mobility limitation. One evidence-based guideline regarding power mobility introduction and use was identified. No relevant evidence-based guidelines were identified regarding power mobility prescription and training or regarding testing or assessing skills in power mobility use. In addition, no relevant health technology assessments, systematic reviews, or meta-analyses were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

One randomized controlled trial,\(^1\) and one non-randomized study\(^2\) were identified regarding the clinical effectiveness of early power mobility use for children aged six years and younger with disability or mobility limitation.

The randomized controlled trial\(^1\) reported significant improvements in developmental and disability scales following the use of power wheelchairs in children aged 14 to 30 months with severe motor impairments. The non-randomized study\(^2\) reported that in children aged 18 months to 6 years with physical disabilities, a power wheelchair intervention was associated with some benefits and some concerns. Improved parental perception of social skills was
observed in younger children after receiving the wheelchair, whereas older children showed improvements beforehand. However, parents observed that patients had greater difficulty remaining engaged in tasks after receiving a wheelchair. A greater volume of mobility activities during indoor free play and a qualitative improvement in the level of outdoor interactive free play was observed, but there was no difference in interaction with toys or objects, verbal interactions. No negative social changes were recorded.

One evidence-based guideline was identified regarding the introduction and use of power mobility by children aged six years and younger with disability or mobility limitation. The guideline stated that for children lacking independent mobility from 12 months onward (including those who may never gain driving competency and those with transient mobility issues), power mobility interventions are “effective and appropriate”.

No evidence-based guidelines were identified regarding testing or assessing skills in power mobility use or power mobility prescriptions and training for children aged six years and younger with disability or mobility limitation; therefore, no summary can be provided.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses
No literature identified.

Randomized Controlled Trials


Non-Randomized Studies


Guidelines and Recommendations


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APPENDIX – FURTHER INFORMATION:

Systematic Reviews and Meta-analyses – Alternative or Unclear Age Range


Non-Randomized Studies – Alternative Age Range


Case Series


Qualitative Studies - Alternative Age


Review Articles


Additional References