

Postural management to reduce or prevent hip migration in children with cerebral palsy: a systematic review

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Background

Hip migration is a common problem in children with cerebral palsy (CP), which ultimately can lead to hip dislocation. Conservative approaches to the management of hip migration have become popular over the last decade, particularly the use of postural management equipment. Postural management is defined as all non-surgical approaches like postural management equipment, orthosis or individual therapy sessions. An in-depth evaluation of the evidence of postural management is necessary to reach a unified approach in managing hip migration in children with CP.

Objective

The aim of this review is to evaluate the existing literature on the effects of postural management on hip migration in children with CP.

Methods

Pubmed, EMBASE, Cochrane, Cinahl, PEDro

N=655

Inclusion criteria

Children (0-18 years) diagnosed with CP
Postural management to reduce or prevent hip migration
Migration percentage (MP) as outcome

Exclusion criteria

Focus on surgical or pharmacological interventions
Not available in English

N=8

Methodological Quality Assessment (MQA) and appraisal according to the AACPDM Systematic Review Methodology

Results

	LoE	MQA score	GMFCS	n	Position	Dose	Results
Picciolini et al., 2016	III	12/17	III-IV-V	32	Sitting	Siege moulé: 5h/day NDT: 45min, 2x/week	Significant difference between groups with stability of MP in treatment group and marked worsening of MP in controls
Macias-Merlo et al., 2016	III	9/17	III	13	Standing	70-90min/day in 60-65° abduction Weekly physiotherapy	MP remained significantly within stable limits in children who stood in abduction in comparison to children who did not stand in abduction
Martinsson et al., 2011	III	9/17	III-IV-V	11	Standing	0,5-1,5h/day max abduction	Significant correlation between straddled weight bearing ≥1 hours per day and reduction of MP
Pountney et al., 2009	IV	8/17	III-IV-V	39	Standing Sitting Lying	Recommended: Lying at night + seating ≈6h/day + standing 1h/day	Significantly less chance of both hips being subluxated in recommended-group. No significant differences in MP between the historical controls and the intervention groups at 5 years
Dalén et al., 2010	IV	6/17	IV/V	18	Standing	4-164min/day	Significant and negative association between standing time and hip dislocation
Hankinson et al., 2002	IV	4/17	?	11	Lying	9-9,4h/night	Significant improvement of MP in comparison to the baseline period, but only for one side
Pountney et al., 2002	IV	4/17	?	59	Standing Sitting Lying	24h lying, sitting, standing or less use	Significantly more hip integrity in 24h-group than other groups
Picciolini et al., 2009	V	3/17	?	2	Standing Sitting	Case 1: Sitting: 5h/day Case 2: dose not described	MP reduction of 5-39%, no statistics

LoE = Level of Evidence
 Cohort study with concurrent controls
 Cohort study without concurrent controls / case serie
 Case Report

Reporting positive results on MP
 Reporting conflicting results on MP
 Reporting negative results on MP

Conclusion

The evidence for postural management to prevent or reduce hip migration in children with CP is limited by the lack of high-quality studies. Considering the reported results, there is a positive trend for the use of hip abduction in postural management. Solid recommendations for clinical practice are not possible. Future high-quality research is crucial to improve our understanding of the effects of postural management to prevent hip migration in children with CP.