

Research Summary

Sleep Positioning Systems for Children with Cerebral Palsy: what evidence is there that they are they effective?

This research summary was written by PenCRU and PenCRU Family Faculty

Key findings

- We looked for randomised controlled studies examining the effectiveness of sleep positioning systems for children with cerebral palsy.
- No randomised controlled studies have evaluated the effectiveness of sleep positioning systems to reduce or prevent hip deformity or their impact on physical functioning or quality of life.
- Two small randomised controlled studies found no difference in sleep quality, and one of these studies also found no difference in pain scores whether using or not using sleep positioning system.
- More rigorous research is needed to help families and professionals make informed decisions about the use of sleep positioning systems for children with cerebral palsy.

Who carried out this research and why?

This research was led by the Peninsula Cerebra Research Unit (PenCRU), a childhood disability research unit at the University of Exeter Medical School. The NIHR PenCLAHRC Evidence Synthesis Team also provided expertise for this work.

Parents of disabled children and physiotherapists working with these families need to know about the evidence for the effectiveness of sleep positioning systems to reduce or prevent hip deformity for children with cerebral palsy.

The research was supported by the charity Cerebra and the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care (CLAHRC) for the South West Peninsula – known as PenCLAHRC.

Background

Sleep positioning systems are prescribed to support body posture while lying. The systems are made from a variety of different materials, including special foams that conform to body shape or a series of straps that hold the body in one position. They are used with equipment to support sitting and standing, as part of 24-hour postural management programmes.

Children with cerebral palsy, particularly those who are unable to walk can be recommended sleep positioning systems to reduce or prevent hip migration and improve comfort.

Hip migration is where the top of the thigh bone gradually moves away from the pelvis. It affects a

substantial number of children with cerebral palsy who cannot walk, and it can be painful.

Families and health professionals need evidence as to whether sleep positioning systems reduce or prevent hip migration and improve comfort, and any potential harmful effects, so they can make informed decisions about their use.

What did we do?

This type of research is called a systematic review. Systematic reviews bring together the results of studies addressing a particular research question to provide a comprehensive summary of research evidence. This review was conducted for [The Cochrane Library](#), one of the best sources of high level evidence available.

Parent carers from [PenCRU Family Faculty](#) helped to develop the research question, set the criteria to decide which studies we should include or exclude and write this summary. As well as the impact on children's hips, we were interested in the impact of sleep positioning systems on physical functioning, pain, sleep quality and quality of life for the child and family. We also wanted to know if there were any harmful effects from using sleep positioning systems.

Cochrane reviews of the effectiveness of interventions tend to include only evidence from randomised controlled trials (RCTs), as the most robust evidence for treatments. This type of study involves two groups of people. One group receives the treatment and the other group does not, and the group a person is allocated to, is randomised.

In another type of RCT (a cross-over study), the same participants spend a period of time using a treatment, and then a period not using a treatment. The order of whether the treatment period first or second is randomised.

The process of randomisation means any difference found between the two groups or

treatment periods provides the most robust evidence of the effectiveness of a treatment.

Searching for evidence

We searched online libraries for all the research papers which have been written about sleep positioning systems for children with cerebral palsy. We also contacted manufacturers of this equipment and searched the Internet using Google for any unpublished studies. We looked at over 1,500 references and filtered out those that didn't meet the selection criteria.

What did we find?

- No RCTs were identified that have evaluated the effectiveness of sleep positioning systems to reduce or prevent hip migration for children with cerebral palsy.
- No RCTs were identified which explored the harmful effects of sleep positioning systems, or their impact on physical functioning or the quality of life of the child and/or family.
- Two RCTs compared children's quality of sleep when using and not using sleep positioning systems. No difference was found in the child's quality of sleep (time taken to fall asleep and time spent asleep) whether sleeping in the sleep positioning system or not.
- One of these RCTs also measured the impact of sleep positioning systems on children's pain. No difference was found between children's pain scores as reported by the parent when child was sleeping using or not using a sleep positioning system.
- The results of these two RCTs need to be interpreted cautiously as both were small studies. Only 21 children aged 5 to 16, with cerebral palsy [GMFCS Level](#) III to V took part in the studies and all were established users of sleep positioning systems.

- Overall our systematic review shows that there is little evidence for the effectiveness of sleep positioning systems for children with cerebral palsy, and the quality of evidence that is available is of low-quality.
- More rigorous research is needed to determine effectiveness of sleep positioning systems and risk of harmful effects. Such evidence is required to help families and

professionals make informed decisions about the use of sleep positioning systems for children with cerebral palsy.

Who reviewed our research to make sure it was done well?

The systematic review has been published by The Cochrane Library. Before it was accepted to be published, several independent experts checked whether it had been properly done.

The full version of the systematic review is published and FREE to access from the Cochrane library. If you would like to read it, please visit:

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009257.pub2/abstract>

The team that carried out the systematic review are: Sharon Blake, Stuart Logan, Ginny Humphreys, Justine Matthews, Morwenna Rogers, Jo Thompson-Coon, Katrina Wyatt and Chris Morris with support from Parent Carers of the PenCRU Family Faculty.

The research team are all part of the Peninsula Cerebra Research Unit and/or the NIHR Collaboration for Leadership in Applied Health Research and Care of the South West Peninsula (PenCLAHRC) at the University of Exeter Medical School.

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