

Report shows CIMT may improve arm use in children with hemiplegic cerebral palsy

December 2 2009

Constraint-induced movement therapy (CIMT) is a potentially effective form of intervention for children with hemiplegic cerebral palsy, but more research is needed, according to a new systematic review published in the November issue of *Physical Therapy* (PTJ), the scientific journal of the American Physical Therapy Association (APTA).

The review, which analyzed 21 intervention studies and 2 systematic reviews, concluded that further research should focus on the frequency, duration, and type of constraint used to treat the affected limb. Similar gains may be achieved when both arms are used together during therapy, but there have not as yet been sufficient studies that compare these two types of [physical therapy](#). Moreover, the review concluded that there is insufficient research on the impact of CIMT on a developing child's undamaged [brain regions](#) and that more investigation is needed.

Hemiplegic cerebral palsy affects one arm and leg on the same side of the body. CIMT forces the use of the affected side, specifically the upper extremity, by gently restraining the unaffected side in a mitt, sling, or cast. The patient then practices moving the affected arm for varying durations of time and intensity. Previous studies showed support for the use of CIMT to improve the frequency of use of the affected arm for children with hemiplegia. In most studies, positive effects were demonstrated 6 to 8 months after intervention.

"Although previous studies reveal a marked increase in function of the affected limb, there is a strong need for more rigorous studies to

determine what constitutes an adequate dose of CIMT for pediatric patients with hemiplegia," said physical therapist Linda Feters, PT, PhD, FAPTA, the holder of the Sykes Family Chair in Pediatric Physical Therapy, Health and Development in the Division of Biokinesiology and Physical Therapy, and a professor in the Department of Pediatrics at the Keck School of Medicine at the University of Southern California.

This systematic review specifically focused on research involving children younger than 18 years of age, as the central nervous system in these young children is still in the early stages of development. One of the theories behind the success of CIMT in children is that the developing brain has the capacity to reorganize learning.

"What we don't yet know is the impact of prolonged restraint on a child's developing nervous system," said first author Hsiang-han Huang, MS, OT, a ScD student in the Department of Physical Therapy and Athletic Training at Boston University. "Depending on the stage of development during which CIMT is applied, its potential impact may differ."

Source: American Physical Therapy Association ([news](#) : [web](#))

Citation: Report shows CIMT may improve arm use in children with hemiplegic cerebral palsy (2009, December 2) retrieved 25 April 2024 from <https://medicalxpress.com/news/2009-12-cimt-arm-children-hemiplegic-cerebral.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--