

Safe Lifting Research

Holder et al 1999, Maffeo et al 2000, Bork et al 1996. Surveys of PT's regarding occupational musculoskeletal injuries. Most frequent MOI reported: transferring, lifting (1,2,3)

Yassi et al 2001. RCT evaluating safe transfer training and mechanical lift use in a hospital-based setting. Those in the group using a mechanical lift reported more satisfaction in performance of patient transfers(4)

Daynard et al 2001. This substudy looked at the peak and cumulative loads on the spine during patient transfers. Use of equipment increased compliance with safe-lifting techniques, but transfers took longer and increased the cumulative spinal loads in some tasks. Concluded that each task should be evaluated to determine best transfer technique(5)

Laflin K et al 1995. Recommend 3 ways to reduce injury during lifting and transfer tasks: 1. use of lifts
2. education in body mechanics 3. implementing assistance programs(6)

1. Holder N, Clark H, Di Blasio J et al. Cause, prevalence, and response to occupational musculoskeletal injuries reported by physical therapists and physical therapist assistants. *Phys Ther.* 1999;79:642-652.

2. Bork B, Cook T, Rosecrance J et al. Work-related musculoskeletal disorders among physical therapists. *Phys Ther.* 1996;76:827-835.

3. Maffeo L, Vida K, Murray B, Harrison F. Danger on the Job. *Rehab Management.* 2000

4. Yassi A, Cooper JE, Tate RB et al. A randomized controlled trial to prevent patient lift and transfer injuries of health care workers. *Spine.* 2001;26(16):1739-46.

5. Daynard D, Yassi A, Cooper JE, Tate R, Norman R, Wells R. Biomechanical analysis of peak and cumulative spinal loads during simulated patient-handling activities: a substudy of a randomized controlled trial to prevent lift and transfer injury of health care workers. *Appl Ergon.* 2001;32:199-214.

6. Laflin K, Aja D. Health care concerns related to lifting: an inside look at intervention strategies. *Am J Occup Ther.* 1995;49:63-72.

Mobility Research

BWSTT

Dodd et al 2007. Improved walking speed and endurance in children with CP after participating in BWSTT(7)

Harvey 2009. In neurorehabilitation there is a shift away from traditional compensatory strategies to a task-oriented approach (BWSTT)(8)

Willoughby et al 2009. Children with CP show greater improvements in over-ground gait training as compared to BWSTT(9)

Physical activity and strengthening in children with CP

Mockford et al 2008. Strength training improves strength and functional gait without adversely effecting spasticity(10)

Palisano et al 2009. Children and young adults with CP show increased community involvement and social participation when performing physical and skill-based activity(11)

Using tricycles for exercise in children with CP

Williams et al 2007. Significant functional improvements after completing static bicycling program(12)

7. Dodd K, Foley S. Partial body-weight supported treadmill training can improve walking in children with cerebral palsy: a clinical controlled trial. *Dev Med Child Neurol.* 2007;49:101-105.

8. Harvey RL. Improving poststroke recovery: neuroplasticity and task-oriented training. *Curr Treat Options Cardiovasc Med.* 2009;11:251-9.

9. Willoughby K, Dodd KJ, Shields N. The effectiveness and efficacy of treadmill training for children with cerebral palsy- a randomised controlled trial. *Mac Keith Press Developmental Medicine & Child Neurology.* 2009;51 (Suppl. 2): 1-90

10. Mockford M, Caulton JM. Systematic review of progressive strength training in children and adolescents with cerebral palsy who are ambulatory. *Pediatr Phys Ther.* 2008;20:318-333.

11. Palisano R, Kang LJ, Polansky M, Orlin M, Chiarello L, Maggs J. Social engagement and community participation among children and youth with cerebral palsy. *Mac Keith Press Developmental Medicine & Child Neurology.* 2009;51 (Suppl. 2): 1-90.

12. Williams H, Pountney T. Effects of a static bicycling programme on the functional ability of young people with cerebral palsy who are non-ambulant. *Dev Med Child Neurol.* 2007;49(7):522-527.

Standing Research

Pin TW, 2007. Literature Review

Studies showed most conclusive results for increased bone mineral density and temporarily decreased spasticity. Further research is needed to support other hypothesized benefits of standing (14)

Taylor K, 2009. Descriptive survey on prescription and implementation of standing programs in schools. Ambulatory status, ease of transfer, and a child's specific needs determined choice of stander and choice was not restrained by cost. Perceived benefits of standing were pressure relief, bone strengthening, and enhancement of social and educational opportunities. Standing sessions generally lasted 30-45 minutes daily(15)

Stuberg WA 1992. To facilitate bone growth, standing should occur for 60 minutes/day and 4-5 times/week(16)

14. Pin TW. Effectiveness of static weight-bearing exercises in children with cerebral palsy. *Pediatr Phys Ther.* 2007;19:62-73.

15. Taylor K. Factors affecting prescription and implementation of standing-frame programs by school-based physical therapists for children with impaired mobility. *Pediatr Phys Ther.* 2009;21:282-288.

16. Stuberg WA. Considerations related to weight-bearing programs in children with developmental disabilities. *Phys Ther.* 1992;72:35-40.

Adaptive Seating Research

Chung et al 2008. Literature review which shows a growing support for the use of adaptive seating, but emphasizes the need for further research(17)

Stavness 2006. Literature review. Evidence supports the positive effects of a neutral to anteriorly tilted seat orientation on upper-extremity function(18)

Holmes et al 2003. Demonstrated the use of adaptive seating for patients with scoliosis(19)

Myhr et al 1991. This study involved the photography of and evaluation of 23 children with CP in 6 different seating positions. These children demonstrated the best control over their environment when seated in an anteriorly inclined seat with a firm back, trunk, and arm support (20)

17. Chung J, Evans J, Lee C, Lee J, Rabbani Y, Roxborough L, Harris SR. Effectiveness of adaptive seating on sitting postures and postural control in children with cerebral palsy. *Pediatr Phys Ther.* 2008;20:303-317.

18. Stavness C. The effect of positioning for children with cerebral palsy on upper-extremity function. *Physical and occupational Therapy in Pediatrics.* 2006;26: 39-53.

19. Holmes KJ, Michael SM, Thorpe SL, Solomonidis SE. Management of scoliosis with special seating for the non-ambulant spastic cerebral palsy population—a biomechanical study. *Clin Biomech.* 2003;18:480-487.

20. Myhr U, von Wendt L. Improvement of functional sitting position for children with cerebral palsy. *Dev Med Child Neurol.* 1991;33:246-256.