INTERVENTIONS FOR IMPROVING GAIT SYMMETRY POST STROKE

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Purpose: Evidence shows that improving gait after stroke is associated with normalizing gait symmetry parameters. The purpose of this systematic review was to investigate clinically applicable methods for improving gait symmetry for patients with hemiparesis/hemiplegia.

Methods: Article searches were performed in June and July 2015 using multiple search engines including The College of St. Scholastica's SOLAR, Medline and PEDRO. Key words included: hemiparesis or hemiplegia or stroke; gait symmetry or parameters or timing; step symmetry or step length or walking efficiency; and gait outcome or walking ability or gait speed. Searches were limited to recent, peer-reviewed works. Inclusion criteria included interventions studies that attempted to modify gait symmetry parameters, that measured gait parameters during data collection, and that used some aspect of gait skill (e.g. symmetry, speed, endurance) as an outcome measure. Once data was gathered the information demonstrated that each researcher had investigated a unique type of intervention. The decision was thus made to compare those interventions that closely matched the criterion, that were clinically useful, and that used similar outcome measures. Based on those characteristics, four researcher's works (8 articles published between 2009 and 2015) were chosen for detailed review.

Conclusions/Implications: Based on the reviewed studies, differences were noted in intervention strategies that show potential to be effective in acute vs. more chronic phases post injury. Physical therapists hoping to treat gait symmetry post stroke may have the most impact by using kinematically correct task practice, suggesting that use-dependent cortical change may be a primary contributor to decreasing the development of asymmetry. Once asymmetry is present, determining underlying contributors to the asymmetry and applying appropriate error-based learning strategies may be the more effective mechanism for altering gait motor planning.