
From activity to participation – occupational therapy intervention for CP children

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Abstract. For children, participation in day-to-day formal and informal activities is a vital part of their development. Participation in activities is the context in which children form friendships, develop skills and competencies, express creativity, achieve mental and physical health, and determine meaning and purpose in life. Children with cerebral palsy receive a variety of long-term physical and occupational therapy interventions to facilitate development and to enhance functional independence in movement, self-care, play, school activities and leisure. The issues presented by cerebral palsy children and their families are complex and require understanding of multiple levels of performance. Successful occupational therapy intervention of these multiple layers of function requires the use of multiple frames of reference, theories and models. Occupational performance and participation in different activities, is the main goal of occupational therapy intervention.

Key words: Cerebral palsy, occupational therapy, occupation, participation

1. Introduction

Cerebral palsy comprises a complex, multi-dimensional group of non-progressive movement disorders resulting from damage of the brain prenatally, perinatally, or early in childhood. Incidence of cerebral palsy has remained constant over the past two decades at 2.0 to 2.5 per 1000 live births (1,2).

From the viewpoint of the International Classification of Functioning, Disability and Health (ICF) (3), cerebral palsy presents with »impairments« in body function and structure such as muscle tone, strength, reflexes and range of motion. Significant »activity« limitations can also be present (e.g., dressing, feeding, functional mobility) as well restricted »participation« (e.g., playing, participating in school) in social and community roles for the child. In the ICF, participation and its domains are defined as »involvement in life situation« (3). Participation is conceptually viewed as functioning at the societal level, and a problem is called

participation restriction. Participation represents a dynamic interaction between personal and contextual factors.

Neurodevelopmental treatment is the most commonly used treatment technique by the therapists in their care of children with diagnosis of cerebral palsy (4). This approach acknowledges functional independence as an important goal of treatment (5,6), that means to obtain function focuses on remediation of the child in the ICF component of body function and structure. The therapists attempts to inhibit abnormal posture and movement to improve the child's quality and efficiency of movement by encouraging typical patterns of movement (7,8). It is assumed that »typical« patterns of movement will lead to functional movements and reduce activity limitations and participation restriction.

As a new paradigm in occupational therapy intervention, some therapists and researchers are questioning in this emphasis on »normality« because it may not explore all options for functional success (12-16). Compensatory movements and environmental adaptations may be more efficient solutions to the motor challenges encountered by children with cerebral palsy (7,17,18). From this latter perspective, performing the functional task, rather than attainment of normal patterns of movement, is the important goal of treatment.

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An array of factors has influenced this philosophical shift including the current models of health status, family-centred service delivery, and the application of dynamic systems theory (DST) to motor behaviour.

2. Models of health status

Occupational therapists are now using models of health status, such as the ICF (3), as frameworks to identify primary goals and to evaluate treatment effects. These models have provided a framework by which to discuss and question the assumption of a cause and effect relationship between impairments and functional restrictions (3,18). Functional performance is the result of the dynamic interaction of a myriad of factors, not just those at the level of impairment within the child. The new component of contextual factors in the ICF model encourages therapists to consider the influence of personal and environmental attributes on function simultaneously with the physical abilities of the person. The concept that many factors both internal and external to the child influence functional motor success has caused a re-evaluation of current treatment approaches based on a hierarchical neuromaturational model focused primarily on changing the child's abilities (5).

3. Family-centred practice

Occupational therapists providing service delivery to pediatric populations have long understood the value of having client-centred, family-based approaches to the intervention needs of children and families. The development of the family-centred philosophy in rehabilitation practice has also influenced attitude changes in the management of children with motor dysfunction. Family-centred service principles clearly articulate that parents know their children best (5). Family-centred service acknowledges that families are different and unique, and that optimal child functioning occurs within a supportive family and community context (21). Within this framework, the therapists are viewed as a collaborator, not an expert. Goals of treatment are identified collaboratively with input from the family, child and therapist. This change in service delivery has created an environment conducive to the identification of functional goals at the level of activity and participation rather than exclusively at the level of impairment.

Participation is »the nature and extent of a person's involvement in life situations« (3). It includes activities of personal maintenance,

mobility, social relationships, education, leisure, spirituality, and community life.

Children grow and develop through participation in many different activities. There are many factors surrounding a child, the family and the environment in which they live that have the potential to influence participation in everyday activities. Participation in activities is the context in which children form friendships, develop skills and competencies, express creativity, achieve mental and physical health, and determine meaning and purpose in life.

4. Dynamic systems theory

Dynamic System Theory (DST) is a recent framework to explain motor development (19,20). DST suggests that the most efficient motor behaviour results from the spontaneous self-organization and interaction of many subsystems to achieve a functional goal. These subsystems derive from three sources: the child, the task and environment (7). Within the child, subsystems include not only the central nervous system, but also factors such as biomechanics, anthropometric measures, temperament, and cognition.

DST theory challenges traditional treatment perspective that »typical« patterns of movements are the optimal solution for all children. New treatment models are emerging that consider functional success the goal of treatment with less concern about the »normality« of the movement strategy (13,15).

From the DST perspective, adaptation of the environment and/or task is acceptable as a solution to a motor problem, rather than immediately focusing on changing the abilities of the child. Ecological task assessment is based on matching the task and environment with the abilities of the child in order for the child to achieve success, instead of trying to change the child to conform to an existing environment.

5. Occupational therapy models for intervention with cerebral palsy children and families

During the past two decades, changes in occupational therapy theories and practice have led to greater consideration of the transactional relationships between children and youth; the occupations in which they engage; and the environments in which they live, play and learn. Although occupational therapy assessment and intervention with children and youth remains more weighted in the direction of the person, there is an increased focus on elements of the

environment that influence participation in occupations (7). Within the past decade, literature in occupational therapy regarding practice with children and families has mirrored professional advancement to more occupation-centred trends.

The emergence of occupational science in the 1990s has also had an impact on the profession's view of what is meaningful for individuals and their families. The study of occupations in family life is extremely valuable for understanding how individuals participate in their everyday lives.

Three models depict the interaction of person, occupation, and environment: Canadian Model of Occupational Performance and Engagement (CMOP-E) (21) the Person – Environment – Occupation (PEO) Model (6); and the Person – Environment – Occupation – Performance (PEOP) Model. Although the three are similar, each is composed slightly differently.

The Person-Environment-Occupation (PEO) Model is an example of a model that is effective for consideration of a more holistic viewpoint in occupational therapy. The PEO model guides an occupational therapist to consider a person's skills and abilities, the tasks and activities that are meaningful to an individual, and the environmental aspects that could influence occupational performance at any of these levels include cultural, institutional, physical, economic and social factors. Occupational performance is the »result of a dynamic, interwoven relationship between person, environment, and occupation over a person's lifespan, the ability to choose, organize, and satisfactorily perform meaningful occupations that are culturally defined and age appropriate for looking after oneself, enjoying life, and contributing to the social and economic fabric of a community«.

The PEO Model allows the occupational therapists to intervene from multiple perspectives with children and families, gives an opportunity to intervene in occupational and environmental domains that have not been readily considered in component-oriented treatment (22).

General PEO considerations for evaluation and treatment of a CP child or adolescent include the following major points:

- Support a family-centred approach in which the values and perceptions of the family unit are respected.
- Recognize the influence of culture and values in the evaluation process.
- For evaluation and intervention of older children, support their values and perceptions as individuals as well as the context of family and community.

- Consider the environment as an area of evaluation, as well as change elements for intervention.
- Appreciate the complexity of the transaction between person, environment, and occupation elements in the evaluation and treatment process.
- Recognize the variations of perceptions regarding health, wellness, illness, and disability among individuals with special needs and their families.
- Consider alternative roles, including consultant and advocate, for addressing issues related to occupational performance.
- Engage in ongoing personal assessment of your own ability to listen and observe for what is meaningful for child.

6. Conclusion

For many years, in keeping with the medical model, much of occupational therapy practice focused on reducing impairment, typically through the therapeutic use of activity, based on the assumption that impairment reduction assured occupational engagement. However, as newer models of health, such as the ICF indicate impairment reduction in and it does not necessarily enable participation or occupational engagement. Human occupation is the result of the complex interaction of a number of factors related to the person, occupation and environment. Further, there are circumstances, other than health conditions that limit occupational performance and engagement (22).

Fostering engagement in occupation in the CP childhood population is an opportunity for occupational therapists to move beyond medically based practice and into community and social environments.

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