

## Cerebral Palsy in Infancy: Targeted activity to optimize early growth and development.

*Roberta B. Shepherd (ed), 2014, Elsevier Churchill Livingstone, Sydney, ISBN 978-0-7020-5099-2, hardcover, 339 pages*

The contributors to this book are both extensive and impressive; each contributing their expertise, experience and research to collectively present a powerful, exciting and informative text vital for all paediatric physiotherapists working with children who have cerebral palsy (CP). The text supports the concept of early intervention being promoted as best practise for children with neurological conditions by presenting the theoretical basis and discussing the research evidence that informs this thinking.

The book is divided into 5 parts. Part 1 'The Changing face of intervention in infants with cerebral palsy' sets the tone of the text with a brief historical context which leads into discussion on understanding weakness due to impaired muscle activation and lack of motor control; advances in diagnosis, brain plasticity, motor development and active learning and skill acquisition. Following on is Annotation A 'Aspects of motor training' where Shepherd discusses therapy practices steeped in the current research of motor development with the aim of achieving functional independence.

Part 2, entitled 'Neuromotor plasticity and development', discusses the corticospinal tract, its development and its plasticity. These chapters work through research that describes the functional and anatomical evidence to support shaping of plasticity by activity. There are significant changes seen in neurological development over the early years and the relationship of how this is modified by experience and timing is summarised. This reinforces that early intervention along with enriched environments will impact upon neurological lesions as seen in Cerebral Palsy.

William Little in 1861 named what equates to diplegia cerebral palsy – Little disease. Part 3 gives specific insight

into the neuromusculo-skeletal impairments, adaptations and functional implications of having a disorder of the development of movement and posture. Understanding the responses in muscles and the adaptive changes, impairments and functional limitations for children with CP assists with the planning of appropriate interventions. Annotation B discusses 4 studies of passive mechanical properties of muscle that shows significant changes in young children with CP. Further detailed chapters are each devoted to 'spastic paresis', changes in skeletal muscle and the consequential effects on early muscle development. Enhancing muscle growth and function from capitalising on the plasticity of skeletal muscle through early intervention certainly raises the prospect of improved outcomes.

Part 4 describes assessment and diagnosis of early CP which has been enhanced by the use of Precht's Method on the qualitative assessment of general movements for prediction rather than waiting for later declaration. Damiano discusses the possible explanations for the 'disconnect' between lack of evidence supporting positive changes versus those expected to be due to maturation; and explores the links between psychological benefits and independent mobility.

The concluding part (5) of this book gives detailed practical information, photographs and discussion on lower limb performance, treadmill training, upper limb interventions, constraint induced therapy and bimanual training. The last chapter raises the idea of how technology can be utilised to initiate and support diagnosis, provide monitoring and assist with treatment. Nielsen suggests technology may replace and help maximise use of human resources.

The format of this book makes it a very useable text both for extending knowledge of evidence and enhancing practice. It is divided into 5 parts with a number of sub sections, all of which are well indexed and comprehensively referenced. The evidence and discussion are thought provoking providing a valuable platform for physiotherapists working in paediatrics.

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