Intervention Efforts Focused on Improving the Motor and Sensory Processes of Infants Help Control Neurological Risk by Way of External Environment Training.

Developments in Motor and Sensory Function Before and After Neurorehabilitation Program in Babies with Neurological Risk. P2-61

Averi Giudicessi [1]
@averigg
averigiudicessi@gmail.com

Cristian Ibarra [2]
cristian.ibarra@uabc.edu.mx

Hector Pelayo [3]

[1] *Department of Psychology, Benemérita Universidad Autónoma de Puebla*
[2] *Department of Psychology, Benemérita Universidad Autónoma de Puebla*
[3] *Department of Psychology, Benemérita Universidad Autónoma de Puebla*

Introduction

Early detection of neurodevelopmental disorders is essential as these conditions impact various brain functions including: cognitive, language, motor, learning, and behavioral processes (Cioni, Inguaggiato, and Sgandurra 2016).

In recent years ample research in neurodevelopment has concentrated on the effects of environmental and experience stimulus on brain development and plasticity in infants (Cioni, Inguaggiato, and Sgandurra 2016; Walker et al. 2011).

More specifically, the newborn age is a crucial time in the intervention of neurodevelopmental disorders to help prevent future manifestation of developmental conditions (Hartinger et al. 2017; Guralnick 2011).

Objectives

The objective of this study was to compare changes in motor and sensory abilities in infants with neurological risk factors after receiving an intervention program targeted at improving sensory and gross motor function.

Methods

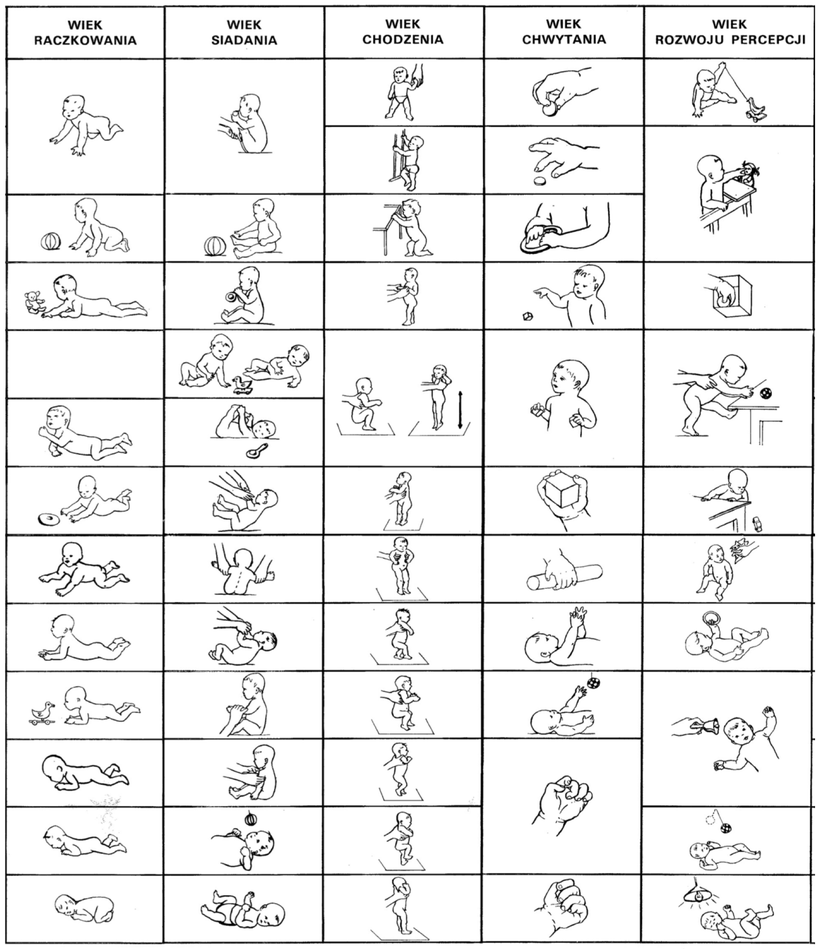
Our study evaluated 152 babies with neurological risk factors at Hospital General de Cholula and Hospital del Norte in Puebla, México. Babies included in the sample reside in rural areas.

The two hospitals where the sample was treated are part of the public health system in México, specifically in the Seguro Popular Structure.

Rehabilitative program was based on the Katona system that involves sensory and motor improvement exercises and was applied to participants 60 minutes every day (Monday to Sunday) for 7 months.

Parents were trained in exercises by a professional in the Katona System and came to the hospital every 15 days for ongoing treatment.

A pre-evaluation and post-evaluation was applied to all participants to measure improvements.



Results

A paired-samples t-test was conducted to compare pre and post-test scores to measure advances in infants. There was a significant improvement in scores between the pre-test scores (M=10.99, SD=1.27) and post-test scores (M= 27.5, SD= 2.25); t(151)=85.28, p=0.001.

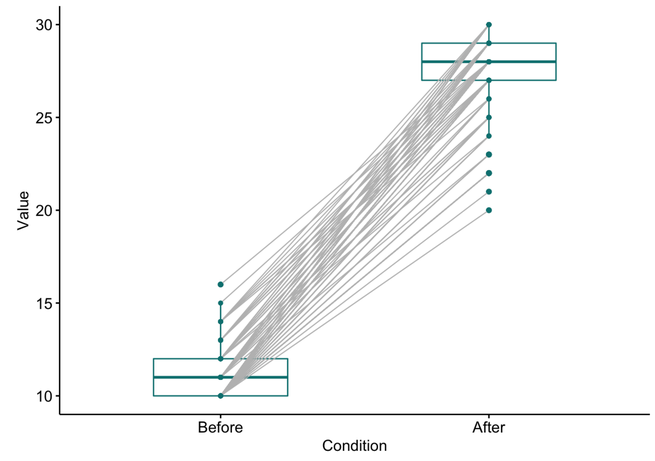


Figure 1: Pre & Post Evaluation Scores

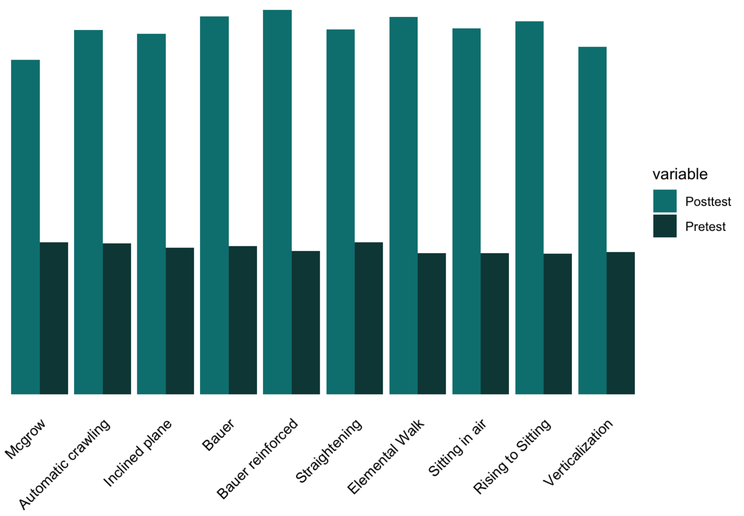


Figure 2: Pre & Post Evaluation Score Comparison by Exercise

Acknowledgements

This work was supported by scholarships from CONACYT to A.Giudicessi (#890272) & C.Ibarra (#889901).

References

Cioni, Giovanni, Emanuela Inguaggiato, and Giuseppina Sgandurra. 2016. "Early Intervention in Neurodevelopmental Disorders: Underlying Neural Mechanisms." *Developmental Medicine & Child Neurology* 58 (March): 61–66. https://doi.org/10.1111/dmcn.13050.

Guralnick, Michael J. 2011. "Why Early Intervention Works: A Systems Perspective." *Infants & Young Children* 24 (1): 6–28. https://doi.org/10.1097/IYC.0b013e3182002cfe.

Hartinger, Stella Maria, Claudio Franco Lanata, Jan Hattendorf, Jennyfer Wolf, Ana Isabel Gil, Mariela Ortiz Obando, Magaly Noblega, Hector Verastegui, and Daniel Mäusezahl. 2017. "Impact of a Child Stimulation Intervention on Early Child Development in Rural Peru: A Cluster Randomised Trial Using a Reciprocal Control Design." *Journal of Epidemiology and Community Health* 71 (3): 217–24. https://doi.org/10.1136/jech-2015-206536.

Walker, Susan P, Theodore D Wachs, Sally Grantham-McGregor, Maureen M Black, Charles A Nelson, Sandra L Huffman, Helen Baker-Henningham, et al. 2011. "Inequality in Early Childhood: Risk and Protective Factors for Early Child Development." *The Lancet* 378 (9799): 1325–38. https://doi.org/10.1016/S0140-6736(11)60555-2.