FEDERAL UNIVERSITY OF SÃO CARLOS
CENTER OF BIOLOGICAL AND HEALTH SCIENCES
GRADUATE PROGRAM IN PHYSICAL THERAPY
Concentration: Physical Therapy and Functional Performance
Via Washington Luís, Km 235 – São Carlos, SP 13.565- 905
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COURSE: FIT 154 - Neurofunctional Physical Therapy
Credits: 12
Course Load: 180 hrs.
Instructors: Ana Carolina de Campos, Ph.D.
Anna Carolyna Lepesteur Gianlorenço, Ph.D.
Eloisa Tudella, Ph.D.
Nelci Adriana Cicuto Ferreira Rocha, Ph.D.
Thiago Luiz de Russo, Ph.D

Course Overview:

Principles in neurofunctional physical therapy:
1. International Classification of Functioning, Disability, and Health (ICF).
2. Theories that support the development and clinical application of evaluation and intervention.
3. Basic functional principles of the central and peripheral nervous system and musculoskeletal system applied to Neurofunctional Physical Therapy.
4. Sensorimotor development through the lifespan and health conditions.

Neurofunctional physical therapy evaluation:
1. Instruments and procedures for clinical evaluation according to ICF components through the lifespan and health conditions.
2. Wearable technologies for monitoring physical activity and body movements.

Neurofunctional physical therapy intervention
1. Evidence-based practice in children's health care.
2. Evidence-based practice in adult/older adult health care.

Course Materials:

1. Adriana Neves dos Santos, Sílvia Leticia Pavão, Ana Carolina de Campos & Nelci Adriana Cicuto Ferreira Rocha. International classification of functioning, disability and health in children with cerebral palsy. Disability & Rehabilitation, 2011, 1–6. DOI: 10.3109/09638288.2011.631678

2. Gibson, E. J.; Pick, A. D. An ecological Approach to perceptual learning and development. Oxford University press, 2000.

3. Hadders-Algra, M. The neuronal group selection theory: a framework to explain variation in normal motor development. Developmental Medicine & Child Neurology, 2000, 42, 566-572.

4. Jones, T.A. (2017). Motor compensation and its effects on neural reorganization after stroke. Nature Reviews. Doi: 10.1038/nrn.2017.26

5. Newell, K., M.; Vaillancourt, D. E. Dimensional change in motor learning. Human Movement Science, 20, 2001, 695-715.

6. Novak, I., Mcintyre, S., Morgan, C., Campbell, L., Dark, L., Morton, N., ... & Goldsmith, S. (2013). A systematic review of interventions for children with cerebral palsy: state of the evidence. Developmental Medicine & Child Neurology, 55(10), 885-910.

7. Pascual-Leone, A., Amedi, A., Fregni, F., Merabet, L.B. (2005). The Plastic Human Brain Cortex. Annu. Rev. Neurosci. 28:377-401.

8. Rosenbaum, P., & Gorter, J. W. (2012). The 'F-words' in childhood disability: I swear this is how we should think!. Child: care, health and development, 38(4), 457-463.

9. Roy, R.R., Harkema, S.J., Edgerton, R. (2012). Basic concepts of activity-based interventions for improved recovery of motor function after spinal cord injury. Arch Phys Med Rehab. 93:1487-97.

10. Schiariti, V., Tatla, S., Sauve, K., & O'Donnell, M. (2017). Toolbox of multiple-item measures aligning with the ICF Core Sets for children and youth with cerebral palsy. European Journal of Paediatric Neurology, 21(2), 252-263.

11. Szilvia Geyh, Urban Schwegler, Claudio Peter & Rachel Müller (2018): Representing and organizing information to describe the lived experience ofhealth from a personal factors perspective in the light of the International Classification of Functioning, Disability and Health (ICF): a discussion paper, Disability and Rehabilitation, DOI: 10.1080/09638288.2018.1445302

12. Takakusaki, K., Tomita, N., Yano, M. (2008). Substrates for normal gait and pathophysiology of gait disturbances with respect to the basal ganglia dysfunction.

13. Thelen. E. Motor Development. American Psychologist, 1995.