

## First Mexican Physiotherapy method based in Neuroscience

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Pediatric physiotherapy (PP) is in constant evolution, in the last 20 years neuroscience has made new discoveries and advances about the nervous system and how babies and children learn to move, how the nervous system works after a lesion and what neuroplasticity strategies should activate during therapy. These new knowledge is impacting directly in every theory and techniques in the PF world. Mexico does not have proper strategies to satisfy the need of babies and children with neurological damage, congenital and/or genetic anomalies, Mexican still use classic physiotherapy without scientific evidence; the physio-cognitive method Novelo-Merida (NM) is the Mexican proposal of how to interpret and apply all these knowledge under the optic of the cognitive theory. Fig 1.



**Figure 1.** Functional organizational diagram of the NM method

Physical therapy (PT), also known as physiotherapy, is one of the related health professions that treat acute or chronic pain, mobility and physical impairments arising from injury, trauma or illness usually induced by musculoskeletal, cardiovascular, respiratory disease, by using evidence-based kinesiology, exercise treatment, health education, activation, electrical and physical agents, neurological and endocrinological origins.

Physical therapy is supported through physical assessment, diagnosis, prognosis, medical care, physical exercise, recovery, illness prevention and health promotion to improve the physical functions of a medical. It's practiced by physical therapists (known as physiotherapists in many countries).

Pediatric physiotherapy is effective within the management of perinatal conditions, conditions diagnosed in infancy, and injuries sustained throughout childhood and therefore the transition to adult care. Pediatric physiotherapy improves physical function and quality of life. Its long term benefits are significant and include reducing disability and therefore the need for surgery or other more costly invasive interventions leading to a decreased burden on future use of health care services.

Pediatric physiotherapy services treat a good sort of acute and chronic conditions in several settings, from acute care hospitals, to the

community and schools. Pediatric physiotherapists assess, diagnose and treat neurological, developmental, cardiorespiratory and orthopedic conditions in children up to 18 years aged, with attention on improving function and increasing independence. Physiotherapy features a positive and significant impact on pulmonary function, control, muscle strength, and physical endurance in pediatric patient with chronic conditions like spastic paralysis, CF, and juvenile idiopathic arthritis. Physiotherapy interventions specialize in movement and enhancements in function to extend both the child's and family's quality of life. Improved function and involvement in daily activities provides more opportunity for social engagement.

Physiotherapy assessment and management of pediatric cases leads to significant long-term health benefits and decreased burden on future use of care services. Early physiotherapy management of motor development and mobility issues produces long-term positive impacts on health and enables the kid to extend their independence. Pediatric physiotherapy also plays a big role in ensuring the continuation of treatment while transitioning from child to adult care.

Early physiotherapy intervention to enhance motor development in pediatric cases features a significant positive impact on health outcomes.

- Physiotherapy improves mobility, enabling greater opportunities for improvements in function and increasing independence.
- Physiotherapy significantly reduced the danger of pulmonary complications in postoperative pediatric cardiac surgery, with an absolute risk reduction of 18.3%.
- Exercise programs by physiotherapists, including aerobic and strength training, for youngsters with chronic diseases and disability results in improved fitness, quality of life, strength, pulmonary function and functional abilities.

The importance of play activities can't be overstated. It's a vessel through which child regains skill lost as results of illness or injury. In pediatric physiotherapy arm exercises could also be combined with ball works or drawing pictures on an outsized sheet of paper on the wall. Leg exercises could also be combined with touching well placed objects with the toes. Any exercise could also be reinforced by using an action song. Standing could also be encouraged by placing a beautiful activity on suitable height surface. Movement could also be encouraged by fetching and carrying games, e.g shopping. Obstacle courses provide endless possibilities for the therapist and fun for the kid. The kid shouldn't be allowed to get bored. The therapist should attempt to keep activities simple and have a variety to settle on from and if the primary one fails or fades out quickly.

From about the age of seven children's awareness of their own bodies has matured enough to enable them to co-operate more actively in their pediatric physiotherapy treatment. they need sufficient body and spatial awareness to be ready to perform simply explained exercises and activities. The therapist should plan variety of short activities lasting 5 to 10 minutes. She could allow time for play as a gift between or after therapeutic activities. She should inform the kid what's expected of him. Parents who aren't present during pediatric physiotherapy treatment got to be kept informed about their child's treatment, his progress and any treatment that ought to be continued reception.

It would be presumptuous to assume that anybody approach to pediatric physiotherapy treatment is that the only right, proper and effective measure to use. The therapist working during this field will develop her own range of techniques, in order that with a private child and family

she will draw upon them and supplement them because the situation requires. All workers have the one common objective- to be as effective as possible in minimizing the handicapping effect of the condition thereby helping the kid to enjoy the optimum quality of life. Within the traditional boundaries of pediatric physiotherapy much is owed to the work of Bobath & Peto. Other systems that provide help and direction to oldsters include the Portage Teaching Service, and increasing numbers of families are exploring the methods offered by the varied 'Institutes of human potential' supported the work of Doman and Delacato.

The NM method solves basic questions that every physiotherapist who works with these children should propose during the planning and intervention of the therapy, it demonstrates with scientific evidence how this method plays a determinant role during the cognitive development in the first years of life, it also highlight the importance of activate neuroplasticity process as the neuronal organizers of the higher mental functions to achieve an effective and evolved motor skills. This method is designed with a very accessible methodology perfect for teaching in universities at a low cost and most importantly made by Mexican instructors.