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UNIVERSITY OF MEDICINE, PHARMACY, SCIENCE AND TECHNOLOGY
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SCHOOL OF DOCTORAL STUDIES

ABSTRACT OF DOCTORAL THESIS

Contributions on Bobath and Vojta therapy on motor deficit in children with ante-, peri- and postnatal distress

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Background

Kinetherapy, with a history spanning nearly 5000 years, has evolved into a key discipline in humanity's struggle to restore health and promote active, healthy living. Today, with a growing understanding of the complexity of the neuro-muscular system in children, the need for a tailored and effective therapeutic approach to treat motor deficits associated with ante-, peri- and postnatal distress is emerging. This topic becomes imperative in the current context, where the incidence of neurological disabilities among children in Romania is increasing.

This issue becomes crucial in a context where children affected by ante-, peri- and postnatal distress experience major difficulties in their motor and functional development. The therapeutic approach using Bobath and Vojta methods is emerging as a promising direction for improving the quality of life of these children and reducing the negative impact of early distress on their motor functionality.

The overall **aim** of this research is to evaluate and make significant contributions to the effectiveness of Bobath and Vojta therapy in treating motor deficits in children with ante-, peri- and postnatal distress.

This PhD thesis extensively investigates infantile cerebral palsy and other pathologies encountered in physiotherapy practice, such as prematurity and obstetric trauma, providing a detailed analysis of specific assessment and intervention methods, including the Bobath Method and the Vojta Method. The paper also includes three separate studies exploring the combined benefits of Bobath and Vojta therapies in children with motor development disorders, the influence of factors on recovery time in infant torticollis, and kinesiological intervention in preterm infants. The overall conclusions and originality of the thesis are outlined in the final sections of the paper.

Study 1- Benefits of combining Bobath and Vojta therapies in children with motor development disorders

This prospective, interventional study, conducted over a two-year period from 2020 to 2022, focused on the recovery of motor deficits in infants and children with neurological disabilities due to antenatal, perinatal and postnatal complications. Investigating the combined benefits of Bobath and Vojta therapies, the study included 108 patients with neuroreflexomotor developmental delay, divided into 3 groups with hypotonic, spastic and mixed forms of muscle characteristics. By applying well-defined criteria and implementing appropriate therapeutic sessions, the study aimed to develop motor engrams conducive to neuromotor recovery.

Patient groups underwent Bobath therapy, Vojta therapy, or both therapies in the same session, and periodic evaluations were conducted over a period of seven months. The results showed that the group receiving both therapies in the same session recovered more quickly, with 50% of patients recovering after four months of therapy.



The findings indicate that the concurrent use of Bobath and Vojta therapies led to a significant reduction in the time taken to recover from motor deficits compared to the application of a single therapy. This integrated approach may be an effective strategy in early intervention for children with motor developmental disorders.

Study 2- Factors influencing recovery time in infants with torticollis

The study focused on factors influencing recovery time in infants with torticollis, a condition characterised by unilateral fibrosis and shortening of the sternocleidomastoid muscle. With a sample of 41 infants aged 0 to 6 months diagnosed with congenital and acquired torticollis, the research aimed to identify relationships between key variables in the recovery process. Clinical assessment included measurement of degrees of rotation and lateral head tilt, and the rehabilitative treatment focused on achieving normal sternocleidomastoid muscle (SCM) function using physical therapy - the Vojta method. The results indicated that starting therapy early, within the first 3 months of life, contributed to higher rates of full recovery within 4-6 weeks. Those who started therapy later, especially after 4 months of age, had difficulty achieving complete results. Thus the importance of early intervention and its positive impact on motor development and prevention of compensatory skeletal changes associated with torticollis was highlighted.

The one-year study found that the presence of body asymmetries and the age at which therapy began were key factors influencing recovery time. Early intervention not only had a positive impact on the recovery process but also prevented compensatory skeletal changes. These findings highlight the importance of early diagnosis and treatment in the management of infant torticollis, providing relevant information for improving rehabilitation practices in this pediatric condition.

Study 3- Kinesiotherapy intervention on preterm infants

The study focused on kinesiological intervention in preterm infants, examining factors that influence their motor development up to 9 months of age. Premature birth carries significant risks, including the development of cerebral palsy and motor development disorders. The aim of the study was to identify motor development curves according to three developmental stages and to assess the impact of kinesiotherapy on reducing differences in motor development between preterm and term infants. The research included 78 infants assigned to a therapy group and a control group. The results showed that early therapeutic intervention applied in the first months of life had a positive impact, helping to bring preterm infants' motor progress closer to ideal developmental standards.

Detailed analysis of neuromotor development revealed that at 9 months of age, the therapy group showed a higher level of motor development than the control group. Infants in the control group showed significant delays in motor development, highlighting the need for early therapeutic intervention in preterm infants. Biological factors such as gestational age and birth weight were identified as significant factors influencing the motor development of these preterm infants.



The study confirmed the effectiveness of kinesiotherapy in treating motor impairments in premature infants, highlighting the benefits of early therapy using the Bobath method. Implementing prevention policies and access to physiotherapy at an early stage can significantly contribute to reducing the social and economic impact of motor development problems in children.

The thesis is notable for its innovative approach to Bobath and Vojta therapies in the treatment of motor impairments in infants, detailed analysis of the therapeutic mechanisms of the Vojta technique in torticollis and the development of a motor development curve for premature infants up to 9 months of age.

The originality is also highlighted by the integration of the goniometer for accurate assessment of mobility in torticollis, as well as the detailed analysis of biological factors influencing the effectiveness of therapy. The cultural relevance of the study, conducted on the Romanian population, underlines the applicability of the results in the context of the Romanian health care system.