Motor development in prematurely born children: What is the real risk?

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There has been a definite improvement in the number of premature and extremely low weight infants who have survived over the last two decades. Unfortunately, low birth weight and prematurity have also significantly increased risk of developing motor disorders in comparison to those born in full term.
Minor Motor Disorders, also known as Coordination Development Disorders, are more prevalent in premature infants with low birth weight. These motor problems continue during childhood and adolescence and may have negative effects on school performance, self-esteem and overall family dynamics.

Understandably, having a preterm child doesn’t automatically mean future disability, but up to 50% of preterm infants may later show motor disturbances and between 5 to 15% may suffer from Cerebral Palsy.

What are the most common risk factors?

Classification of risk factors is quite complex, but it is usually a combination of gestational age below 37 weeks accompanied by one or more of the following risk factors: sharp fetal suffering, brain hemorrhage or lesions, respiratory distress and pathological neurological examination related to alteration of primitive reflexes, muscle tone or general movements and delay in acquisition of appropriate motor skills.

An extensive number of studies suggest that early identification of children with or in the risk of developing motor disability is crucial for providing the earliest support and intervention, so vital for possible reduction of motor, cognitive or psychosocial issues. It is believed that early targeted and individually tailored physiotherapy intervention could be of great importance in development of movement quality and function in preterm children.
There is some evidence that recovery from central nervous system injury in infants can be understood both by new growth of motor neurons and creation of new neural pathways. If stimulated properly, unaffected part of the brain, which is not yet fully developed for specific tasks, may be utilised for other uses than were originally intended due to high brain plasticity.

**How and when should the therapy start?**

It is advisable to rely on comprehensive assessment of motor development with a high sensitivity in detecting small changes that may have an important influence on a child’s functional skills. It is crucial that none of the risk factors or signs of movement pathologies will not be missed, neglected or ignored.

There are various types of paediatric physiotherapy interventions focused on the improvement or normalization of motor development. In general, a physiotherapist, with an active participation of parents, designs a motor stimulation programme adapted to the actual level of a child’s development, available skills, needs of the family and social environment. Physiotherapy intervention is generally carried out by paediatric physiotherapist and by parents guided by this professional.

The key points which should be taken into an account when considering therapy for your prematurely born child are as follows:

- Physical intervention in preterm infants at risk of developing motor disorders or delay must be adapted to infant’s age, conditions and characteristics
- Physical therapy treatments based on the NDT Bobath method, the stimulation of motor development and the use of sensoriceptive techniques have proved to be effective for the improvement or normalisation of preterm infants not showing risk factors, whereas the combined administration of Vojta-Bobath, Vojta method itself or COPCA concept improved the motor performance of the high motor risk preterm infants.
- Physiotherapy should be initiated as soon as possible within the first trimester of a child’s life to maximise utilisation of available potential for improvement.
- The place where treatment is administered is not the factor affecting the efficacy of intervention. However, mastering treatment techniques and positions, handling, frequency and continuity of treatment are determinant factors in the intervention efficacy.
- Treatment is carried out by a physiotherapist together with the parents. Their involvement is vital for the successful improvement of the child’s motor performance.
References:

