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Interest of the propulsion on Joey

The constant increase in extreme prematurity is a real public health problem with the birth of children at risk of developing severe motor and cognitive disabilities. Among these disabilities, gait abnormalities hold a special place, not only because they may deprive the child of his autonomy but because the acquisition of walking is a key factor for the motor and cognitive development of the child. Despite this context, the implementation of walking training programs is often very late and not very adapted to the specificities of very premature children. This situation is all the more damaging as the earliest interventions are always the best due to the plasticity of the muscles and skeleton as well as the nervous system in the first months of life. Nevertheless, intervening in ex very premature infants requires training them by promoting the development of their biomechanical locomotor capacities without risk to the development of their muscles and skeleton.

From this point of view, the Joey is a very promising system because it allows the infant to perform quadruped propulsion from birth without exerting weight on the hips while strengthening the musculature of the legs, arms, trunk and neck and promoting symmetrical and coordinated movements, essential for the emergence of bipedal walking.

Benefits of daily training from birth with a Joey on locomotor and sensorimotor development

At birth, all muscles are functional but not active and not voluntarily controlled in spontaneous condition. The baby is born in a bending position and his first movement to overcome gravity is the extension of the head.

If the infant is lying on his stomach, especially on a system like the Joey, he will be able to raise his head in extension, in order to clear the nose of the mattress, which has the effect of stretching the flexors of the neck. During this head extension, it will also unfold and push with its lower limbs, "stepping", which has the consequence of lowering its pelvis and moving its point of stability towards the feet. This has the effect of stretching the muscles of the psoas and large right of the abdomen (stabilizers of the lower part of the trunk), very important muscles to stimulate for the future postural balance of the child. The Joey can therefore have a beneficial effect in stimulating leg movements and abdominal muscles.

From month to month in spontaneous condition, the baby will use in turn the extensor muscles of the trunk but also the stabilizers of the shoulder (pectorals, rotator cuff, upper and middle trapezius) to lean on the forearms and then on the hands, elbows outstretched (lower trapezius) in order to rise against gravity. This has the effect of pulling the ribs down, giving them their obliquity and thus stimulating the diaphragm by lowering it (whose role is essential for breathing, digestion as an anti-reflux barrier, phonation). However, in children with muscle weakness, these acquisitions are difficult. The advantage of the Joey is to allow the infant to raise his trunk and head and allow the arms to perform traction movements with less effort and thus promote the stimulation of the upper limbs, pectorals, trapezius etc.

The upper limbs thus work on the stability of the shoulder, essential to acquire manual skill (for fine motor skills). The lower limbs serve as a point of support, stability, regulated by the succession of symmetrical extension, flexion and abduction.

Around five months, in typical children, dissociated movements are more common (knee flexion/hip extension, knee flexion on one side/knee extension on the other). From five months, the large dorsal muscle is used to reach objects located far or high. Here again, the Joey can be beneficial by promoting symmetrical flexion-extension very early as well as stimulating the large dorsal during propulsion on wheels.

Finally, putting the child in a prone position on his stomach during periods of awakening allows the baby to organize the focus of the eyes, in a field of 180. He creates a point of reference and stability from which he can rise against gravity with the musculature he can develop. Here again the use of the Joey from birth can stimulate visual perception even more since the Joey has the advantage of allowing the child to move on a perimeter of 360 degrees.

In conclusion, soliciting a child from the first months of life makes it possible to optimize its possibilities, to accompany families for whom it is a great source of appeasement, especially if the child presents risks of neurological sequelae. In addition, targeting interventions according to needs, intensifying solicitation if certain difficulties are identified early makes it possible to reserve human and financial resources for those who really need them.

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