A PSHYCHOMOTRIC APPROACH FOR THE CORRECTION OF CHILDREN'S GAIT – THE ADAPTED MOVEMENT SCORE METHOD

CORECTAREA MERSULUI LA COPII PRIN ABORDAREA PSIHOMOTRICĂ - METODA PARTITURII MIȘCĂRII ADAPTATĂ

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Abstract

Walking is a complex process which requires full control throughout its entire duration, from walking inception up to locomotion ending, imposing continuous adjustments regarding speed, step length and width, direction and posture in response to internal and external stimuli. The general objective of this paper was highlighting the effectiveness of using the "Movement score" psychometric approach to improve the quality of walking in children with feet deficiencies. Human walking is a standard, repeatable and rhythmic locomotor act, having biomechanical patterns that are common for all healthy subjects. The human brain plays a very important role in the act of walking with cultural, cognitive and psychological factors that can affect how we walk. Psychomotric education is the starting point for the learning process of children. The movement score, also called "The Hungarian movement method" provides an efficient and plan-based tool that enables educators to playfully develop the physical, cognitive, affective and behavioural functions by adapting to the physical and psychological characteristics of early childhood. In order to create a gait motor engram which is as correct and precise as possible, the "Movement score" method can be use to obtain the conditions for the correct walking parameters. The introduction of an adapted "Movement score" method in the usual physiotherapy program can improve the kinesthetic image of walking.

Key words: *motor engram, score papers, walking re-education*

Rezumat

Mersul este un act complex care necesită control pe tot parcursul desfășurării lui de la inițierea mersului până la finalul locomoției, cu ajustări continue ale vitezei, lungimii și lățimii pasului, a direcției și posturii în mers ca răspuns la stimuli interni și externi. Obiectivul general al acestei lucrări a fost evidențierea eficacității utilizării metodei psihomotrice „Partitura mișcării", pentru îmbunătățirea calitativă a mersului la copiii cu deficiențe ale piciorului. Mersul uman este un act locomotor standard, repetabil, ritmic, cu

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modele biomecanice raportate ca fiind comune la toți subiecții sănătoși. Creierul uman are un rol foarte important în timpul mersului, cu factori psihologici, cognitive și culturali care pot afecta modul de a merge. Educația psihomotorie este „punctul de plecare" al procesului de învățare a copiilor. Partitura mișcării numită și „Metoda de mișcare ungară" oferă un instrument planificat și eficient pentru educatori să dezvolte în mod ludic funcțiile fizice, cognitive, afective și comportamentale ale copilului prin adaptarea la caracteristicile fizice și psihologice ale copilăriei timpurii. Pentru crearea unor engrame motorii cât mai corecte ale mersului se poate adapta metoda „Partitura mișcării" pentru obținerea condițiilor pentru parametrii unui mers corect. Introducerea metodei "Partitura mișcării" în programul kinetic cu adaptările adecvate, poate îmbunătăți imaginea kinestezică a mersului.

Cuvinte cheie: *engramă motorie, foi de partitură, reeducarea mersului*

Introduction

Schools and teachers have always played, ever since the beginning years, an important part in the development process of children. Regarding physical activity, professionals can use recreational games that stimulate different areas of child development: socially, cognitively, affectively and motor development [1].

Through games, a child gets involved and feels the need to collaborate with all other participants. Playing will develop essential abilities for the future essential traits of the child, such as attention span, affection, ability to focus and other psychomotor perceptive abilities. "A playful lesson doesn't necessarily have to include games or toys. The playful attitude of the teacher and, subsequently, of children is what brings playfulness in a classroom" [2]. Psychomotor education with children must provide an essential starting point in the motor, emotional and psychological development of the child by creating opportunities for playing games. Taking part in such activities, the child develops the perceptive abilities by means of adjusting his psychomotric development [3].

The purpose of this paper has been the perfectioning of the process of re-educating the way children with foot deficiencies walk using the „Movement score" method. This method contains the tools for creating a correct walking pattern.

The general objective of this paper has been to highlight the efficiency of using the psychomotor method „Movement score" for significantly improving the quality of how children with foot deficiencies walk.

Walking

Human walking is a standard, repeatable and rhythmic locomotor act, having biomechanical patterns that are common for all healthy subjects [4]. Walking inception is related to signals coming from the volitional processing of the cerebral cortex or from the emotional processing coming from the limbic system. After its inception, walking becomes an automatically controlled movement [5]. Although walking is based on an automatic mechanism rooted in the similarities of worldwide walking models, there are some psycho-sociocultural characteristics that can influence the walking parameters [6]. The human brain plays a very important part during walking because of psychological, cognitive and cultural factors that can affect it.

Psychomotor education is the starting point for the educational process of children.

Mastering the body is the first condition for mastering the behaviour. Therefore, the relationship between the psychological and motor aspect is mandatory for the subject to successfully adapt to the surrounding environment.

The Movement score

One recently-developed approach for developing the psychomotor abilities is called the „Movement score". This method mainly focuses on physical activities, but it can also be used in the absence of a gym. Overall, it provides an opportunity for physical exercise to become a defining day-to-day experience. This method was developed by Gábor Magyar, a psychologist and special education teacher, resident in Szeged, Hungary and its team. The Movement score, also known as „The Hungarian movement method" offers teachers a plan-based and efficient instrument for playfully developing the physical, cognitive, affective and behavioural functions of the child by adapting the physical and psychological characteristics of early childhood.

The method uses small carpets or plates with different shapes, numbers and colors that are placed one after the other, each with its own purpose (Fig. 1).

Figure 1. The plates for Movement score

The „artistic" name of this method is given by the plates which have different plant or animal-based shapes and can be placed in several different ways, depending on the objectives, just as musical score sheets can be placed in various ways as building blocks of a song. Therefore, this method requires creativity and emphasizes the mastery of a teacher.

The colors and shapes on the score sheets and the way they are combined in different ways helps with the development of a mental image of movement. Complex movement is decomposed into simple, elementary units of movement.

For creating the motor engrams as correctly as possible, the method can be adapted for obtaining the parameters for a correct movement process.

The spatial and temporal characteristics of movement are represented through symbols that relate to the fantasies of young children: squirrels, bunnies, eagles, footprints, etc. These symbols are structured with an algorithmic approach, similar to a musical score, so that the child can successfully perform the traced task.

The score sheets direct the movement. Everything is explicit through the use of symbols:

- positioning the foot on the ground, the distance between steps, sole orientation, the movement direction: they are all guided by the plantar shape of the marks on the score sheets
- laterality is developed by assigning the blue color for the right side and the red color for the left side
- the flowers represent rotating on one leg and the rotation direction
- the pictures which contain animals show the spatial position of the arms (the eagle with open wings represents the position with laterally-straightened upper limbs, the squirrel represents the position with front-straightened upper limbs, the bunny represents the position with both hands up etc)
- the dots on the score sheets represent the number of to-be-performed movements, the duration of one movement or they simply regulate the movement succession

The accessories of the Movement score are:

- the domino pouches which have the same symbol as the scores
- a mirror that ensures the correction and self-correction of movement
- hoops and canes
- musical instruments
- balls

Several benefits of the usage of the Movement score have been noticed, such aș:

- it develops the general motricity, especially the fundamental movements (walking, jumping, running, rotating)
- it develops the basic natural-born physical abilities (strength, velocity, knack)
- it develops the psychomotricity
- it develops the motor color and shape structures, aș well aș combining them în different ways for creating a mental image of movement
- it provides the success feeling, which fuel the motivation of the subjects
- creating and developing of basic skills and knowledge
- the affective, cognitive and behavioural regulation of activity.

In order to re-educate the movement, the score sheets can be placed such that a correction, or even hypercorrection can be obtained, depending on the degree of deficiency of the foot. What's more, the sheets can be positioned at variable distances based on the step length. Some other ways of achieving the goals are:

- in order to correctly move by obeying the movement phases – for the heel attack, the contour of the heel is emphasized with a different colour than the rest of the heel
- in order to avoid the pulling of the foot on the ground, several obstacles can be used
- in order to obtain a match between the right (left) foot and the given footprint, scarves are used for tying the legs
- the length of the track can be altered to meet the number of score sheets

Conclusions

Walking is a complex process which requires full control throughout its entire duration, from walking inception up to locomotion ending, imposing continuous adjustments regarding speed, step length and width, direction and posture in response to internal and external stimuli. The knowledge of the subject regarding his/her own way of stepping and, implicitly, moving, have been referred to, in the specialty literature, as "motor knowledge" [8] or conscious monitoring of motor actions. Taking into account the relationship between the legs, feet and the central nervous system which results in the postural response, and also given that the abnormal walking pattern can be influenced and revised, the kinetic program "Movement score" can be used. Following this program can result in a correct walking pattern by adjusting some parameters of the plantar diagram.

One aspect of walking that can easily be improved by using the Movement score is the heel attack, because, in order to obtain this reflex for correctly placing the foot on the ground in an attacking position, the heel area can be emphasized on the score sheet. After a series of repetitions, a correct movement engram can be obtained.

In conclusion, introducing the "Movement score" method with the appropriate adaptations in the kinetic program can significantly improve the kinaesthetic image of movement.

Playful activities must be understood and applied as practices that promote learning and develop different motor, psychological, social and affective aspects of the human being. Games must be promoted by means of the psychomotric activities in an enjoyable and motivating manner. The teacher must prioritize activities which develop the human mind and body, thus the human being as a whole, especially during physical exercise and physiotherapy program. Playing provides a direct channel of communication, thus the child can express his/her feelings and wishes easily. This makes playing a very valuable instrument in both physical exercise classes and physiotherapy program.

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