

# Motoric Stimulation on Early Childhood Development

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## ABSTRACT

Early childhood is a golden period in child development, as, in this period, children undergo many significant changes. At an early age, children have great potential to continue to develop. Motor stimulation movements should be given to work as a stimulant for various aspects of child development to optimize that. The motor skills development of a child will be benefited optimally where such motor skills are adequately stimulated. Fundamental motor skills in early childhood stimulated optimally are expected to improve children's ability to perform physical activities, such as training flexibility and writing skills, training balance, ability, and skills, and increasing children's self-esteem. Furthermore, the use of various media/materials in making artwork can be used to train children to express themselves and be more creative with various ideas and imaginations. This study aims to explain the stimulation of motor skills that can be given to early childhood.

**Keywords:** *Motor skills stimulation, Early childhood, Optimal development*

## 1. INTRODUCTION

The movement space of children is crucial in optimizing the development of motor skills in early childhood. Movement stimulation is one way to optimize children's growth and development to develop and learn in class according to their development stages. The process of stimulating motor skills in early childhood includes two basic movements, namely the traditional perception movement and the sensory perception movement. Traditional perception movements occur when children are 0 to 1 year old. [1]. Besides that, the sensory perceptual activity occurs at the age of 2 to 5 years. both of these basic movements must be experienced and mastered by children because these movements are indicators of the development of children's gross motor skills according to their developmental stages

The children's necessary movements observed by teachers and researchers result from perceptions and cognitive learning processes in school [2]. Therefore, various cognitive and affective learning types in the classroom are significant to improve children's intelligence. The process of stimulus and response to children's movements greatly affects children's learning in the classroom, especially in the psychomotor domain. Raab and Green's research shows that children's involvement in imitating movements, focusing attention,

and changes in sitting position in the classroom determine children's learning outcomes in the cognitive realm [2].

Children's behavior is often understood as a result of cognitive and emotional processes. So far, identifying the development of children's movements is made by observing the child's movement's ability when doing cognitive learning in class. Some evidence shows that children can control their actions through stimulation and basic movement control programs. It shows that some movements can be controlled through the perceptions and goals of children's movements, both individually and collectively. According to Gergely, Bekkering, and Kirally, babies tend to imitate adult's movement with the motivation to achieve the same goal, rather than simply copying the movement if the goal is advantageous [3]. Movement imitation will be more successful when children think about the movement's benefits, not merely imitating adults. Based on this explanation, research on the stimulation of early childhood basic movements will be an exciting topic to explore. This research is very important to be done to assist teachers in directing children's movement exercises according to their developmental stages, helping children learn comfortably, and preparing children to imitate the models and modification of movements taught by the teacher in class. Thus, the learning process results in cognitive,

compassion, and motor skills that can be adequately achieved, correctly, and systematically.

## **2. THEORETICAL STUDY**

### **2.1. Early Childhood Movement Stimulation**

Early childhood movements are influenced by the stage of development of the movement at the age of 0 to 1 year. The basic movements at this age determine the development of movements shown and practiced by children in daily activities and will impact the optimization of the classroom's learning process. The following two reflexes are explained as supporting knowledge in discussing basic movement stimulation of early childhood to achieve that.

#### **2.1.1. Primitive Reflex**

Primitive reflex is an automatic movement that serves as natural reactions that should integrate and impede reflex reactions to allow the development of natural motoric in children [4]. It reflexes preparing the children to move against gravity, which gradually altered into voluntary movement through the integration process during the first month of life [5]. The primitive reflex can be illustrated as follows:

While playing, the children move by developing their skills, which affects the children's advanced movement. Based on the notion of primitive reflex, such movement an imaginary movement, an initiative movement that starts from a simple movement by the children. One example of such movement is the sitting movement position that moves like an "S" shape.

Children show a variety of positions and body movements when active and playing. One of the often-observed positions is the "W-sitting" position. In this position, the child sits with their buttocks completely on the floor between their legs, knees bent, and legs widen to the side. In this position, a young child will have a broader support base that increases body stamina, especially in a weak area. This play attitude naturally requires less control of posture, allowing the child to focus his energy on toys. This position tends to be the preferred position for children who have poor stem stability or strength. Research has shown how this position affects children. However, the present research will be focused on causes W-sitting to the in children and how to improve it. Sometimes, inadequate stem strength might result from a maintained primitive reflex called the Symmetrical Tonic Neck Reflex (STNR) [6].

#### **2.1.2. Postural Reflex**

Postural reflexes are reflex movements demonstrated in the development of balance, coordination, motor skills, and motor planning. Similar reflective reflexes, postural

reflexes are automatic movements. These movements are still more related to mature response patterns to stimuli (noise, light, sound, texture, touch, etc.).

Postural reflex is responsible for maintaining children's body's posture when movement and position are altered. This reflex is also responsible for ensuring the body remains upright and aligned[6]. Children must continue to fight the effects of gravity in the universe as they develop. When the posture reflex has begun to form, children will begin to maintain balance, posture, and flexibility in their body movements. Postural reflexes sequentially replace primitive reflexes when the CNS is mature. This postural response is an altered primitive reflex in the higher brain area (cerebral cortex) [6].

Based on those two reflexes, the traditional reflexes and the postural reflexes, provide a basis of knowledge for researchers to study more deeply about the stimulation of movement and its effect on movement reflexes since early childhood. Early childhood movements' stimulation is influenced by the physical environment, social, and biological inheritance that the children experience. Nevertheless, the most influential factor is the social environment. At the age of 0 to 5 years, children are often not allowed to move freely because their parents are concerned about the risk of physical accidents in children. Children's movement at that age when they can freely move their limbs will significantly influence their movements' optimization at an advanced age as they grow.

Stimulation of the early childhood movement serves as a base in caring for children in the future movement of their [2]. Psychologically, research on children's stimulation cannot be separated from cognitive and affective processes during the learning process in class. Psychologically, movement stimulation as part of a scientific discipline includes basic movements to develop emotions and balance between cognitive processes and affective processes. Furthermore, it is suggested that the attention of the appraisers of basic movement associations states that there is no relationship between cognitive processes and emotional systems [7].

In early childhood, prophetic motor movement stimulation is one type of behavior therapy to improve motor function, including somatosensory and sensorimotor functions. Research showed that training forms utilizing passive and active movements with and without visual feedback tended to be most beneficial [8].

The description shows that the discovery of steps of children's basic movement stimulation in movement activity, which is told in a stimulant manner, follows children's movement's targeted evaluation process. Raab and Green conducted a research study focused on movement conditions, movement positions, and movement goals as important aspects to be studied to get the effects of children's movements [2].

**2.2. Parts in Movement Stimulation**

Children's motor stimulation is often associated with an effort to optimize the learning process in the classroom. Movement is often seen as a result of higher cognitive and perceptual processes. However, this idea has been investigated in various ways; understanding how movements perfect the cognitive process is still being explored. A research conducted by Raab and Green states that the adjustment of unsafe movements (external arms and flexion arms in heuristic and systematic

processes) in the deviation of the recent cognitive adjustment model. There is a model derived defining the tuning effect based on the purpose of the movement [2]. Each person moves toward an extension or flexion position to move with the movement that links the movement with the avoidance function or approach. The analysis shows that cognitive refinement is produced based on the movement's purpose rather than its position. Movement stimulation in early childhood is stimulation that can help to optimize the learning process.

**Table 1.** Fundamental Movement Skill (Age 2-11 years)

<b>Locomotor Skills Move the body in any direction from one point to another</b>	<b>Stability skills Balancing the body in stillness and motion</b>	<b>Manipulative skills Control of objects using various body parts</b>
Walking Running Hopping Skipping Jumping for height Jumping for distance Dodging Side Stepping	Balancing Landing	Catching Throwing Kicking Striking with the hand Striking with an implement
(Source: Barnett et al., 2014)		

**2.3. Excessive motor stimulation through FMS in Early Childhood**

Some of the advantages of movement stimulation through movement reflex include first; it helps coordinate children's movements at 0 to 1-year-old and other movements. Second, it helps develop the movement of children of 2 to 12 years old to acquire movement experiences that satisfy the children's development stages and obtain the movement and cognitive learning results.

**2.3.1. Proprioception Movement for Child**

In the development of fundamental movement screening, the theory's application is to look at children's motor skills development at the age of 0-1 years and ages 2-12 years. Both of these age ranges have the potential to increase children's movement or decrease children's motion. As for some of the proprioception, movement can be seen in table 2.

**Table 2.** Matrix of Proprioception Movement for Child

<b>Proprioception Cheat Sheet</b>	
<b>Proprioceptive Avoiding Behaviors</b>	<b>Runs Into Objects, Walls, or People</b>
Appears Lazy or Lethargic	Uses Extreme Force
Avoids Active Activities (Running, Jumping, Climbing)	Stomps, Walks Loudly
Can Be a Picky Eater	Poor Body Awareness
Prefers to sit still	Kicks, Bites, and Hits
Seems Uncoordinated	Poor Personal Space
Needs to Look to do Familiar Activities	Prefers Tight Clothing
Difficulting Using Stairs	Chews Clothing, Pencils, Fingers
<b>Proprioceptive Activities</b>	
Bear Hugs	Trampoline
Massages	Wall Pushups
Animal Walks	Yoga Stretches
Carrying/ Lifting Boxes	Playdough Kneading

**Table 3.** Proprioception Input

<b>Proprioceptive Input</b>	<b>Planned proprioceptive input activities can improve sensory integration, emotional regulation and prevent inappropriate sensory seeking behaviors throughout the day.</b>	
	Squishing	Crash pad
	Crunchy snacks	Bubblegum
	Using a straw	Trampoline
	Chew fidgets	Leapfrog
	Skipping rope	Weighted vest
	Pillow fights	Body sock
	Tug-o-war	Therapy putty
	Scooter board	Ankle weights
	Stress balls	Heavy work
	Gorilla jumps	Crab walk
	Stretching	Massage
	Somersaults	Bear hugs
	Jumping jacks	Yoga
	Simon says	Sports

Proprioceptive input activities planned throughout the day may increase sensory integration, emotional regulation, and also prevent inappropriate sensory search behavior. This can affect motor skills in early childhood.

### 2.3.2. *Motoric skill in early childhood*

Good motor skills development is not only supported by the fulfillment of nutritional needs but also required movement stimulation. In a book called Dynamic System Theory developed by Thelen and Smith, to build motor skills, children must perceive something in their environment that can motivate them to move [9]. The provision of stimulation can optimize children's gross motor skills development according to the stage of development. Most stimulation is obtained from the children's most adjacent environment, such as family, especially mothers, who take care of them. The role of mothers is very beneficial for the overall child development process because parents can recognize abnormalities during their children's development process [9]. Some basic motor skills of children are as follows:

- 1) Locomotor skills include body movements, such as walking, running, jumping, gliding, rolling, galloping, dropping, and cycling.
- 2) Nonlocomotor skills are moving limbs with the body in standstill positions such as swinging, lifting, rocking, stretching, hugging, arching, twisting, bending, and pushing. This skill is often associated with body balance or stability, which requires a balance to some degree.
- 3) Manipulative skills include limited use and control of small muscles' movement, especially those in the hands and feet. This movement skill can be seen

when children catch the ball, dribble, throw a ball, kick a ball, bounce a ball, hit, and pull.

Besides the skills to support the stimulation, the children's movements are also influenced by several factors. It is suggested that the movements taught to preschoolers are always related to the following matters:

- 1) Time is related to fast/slow. For example; movements performed by the whole or part of the body at different speeds;
- 2) Load, movement may be stipulated in the form of heavy, light, moderate movements;
- 3) Space is the extent to which the body's movements use space in its implementation [10].

During the golden age (1-3 years), stimulation given to children will significantly influence the brain's development. Such stimulation becomes the basis of shaping the children's lives to come. The earlier the stimulation provided, the better the children's development. In addition to the many stimulations provided, the children's knowledge will become broad. It is also stated that the children's brain tissue who get a lot of stimulation will develop up to 80% at the age of 3 years [11].

On the contrary, if the children are never provided with stimulation, the brain tissue will shrink so that the children's brain function will decrease. This is what causes children's development to be inhibited. Four years old children can use scissors while others might be able where they are five or six years old. Thus, children's motor movement stimulation is increasingly influenced by the children's social environment.

Previously described, the basic skill experience factors are locomotor, non-locomotor, and manipulative movement. Therefore, to achieve movement stimulation, we need to use several strategies. According to Hetherington et al., there are several strategies to optimize early childhood movements' stimulation. (1) The children shall improve their motor skills; (2) The children need to recall new things that they will do to increase their movements ability; and (3) Using children's spare times to try new things, especially in the area of children's movements; (4) basic motor movement exercises that start from warming up exercises, content and cooling down movement [12]. With some of these exercises, children's motor stimulation will be realized both gross motoric and fine motoric skills.

### 3. CONCLUSION

Early Childhood Movement Stimulation is a strategic step for a researcher in tracing the process of children's movement development from the age of 0-12 years. The development of the child's movement aged 0-1 years is crucial to determine the development of movement and children's learning process in the classroom. Hence, the study of Movement Stimulation through primitive reflex and postural reflex movement is suggested to affect the children's learning process and achieve better learning outcomes.

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