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What Degree Does the Home Environment Contribute to Gross Motor Skill Development in Young Children?

Allison Fowler

Abstract:

It is theorized that the home plays a big role in the motor development of a child. Home is usually the place where a young child spends most of their time. The aim of this research project was to see if the home environment correlates in any way to a child's motor development in children ages 18-42 months. Seven children and their parents participated in this study. Parents filled out the AHEMD survey which asked questions about their child's home environment and toys available. The AHEMD survey is a reliable and valid parental self-report assessment instrument that addresses the quality and quantity of factors in the home that are conducive to enhancing motor development. A motor assessment was performed on each child evaluating their running, jumping, kicking, and throwing skills. The results showed that there was a large correlation between a child's play materials used for gross movements with the arm and legs and an increased kicking and throwing score on the motor assessment. The results showed that there was not a large correlation between a child's throwing or kicking score on the motor evaluation and play materials used for gross movement exploration that were used in their home. Results showed that there was not much of an association between having a playroom in their home and their throwing, kicking, running, and jumping scores on the motor assessment.

Introduction:

The purpose of this study was to determine to what degree the home environment contributes to gross motor skill development in young children. Many researchers say that the first years of life are the most important stages in human being development. Recent researchers in child development indicate that an optimal range of development occurs with a stimulating environment and strong contextual support (Gabbard, 2008). Furthermore, these factors may have even more impact during the first years of life. Of the various factors comprising the environment, few would disagree that the home is a primary agent for learning and development. In this study, the aim was to see if the environment at home has an impact on motor development of the child. Will interacting with more toys or being exposed to new activities at home affect how a child's motor skills will progress? Benefits of the study include improving parent's knowledge of the impact of the home environment on motor development. Parents could potentially use this information to increase opportunities for their children to move in more ways, and interact with more types of objects in the home, in such a way that motor skill development would be enhanced. Also, it would be beneficial to know if there is not a relationship between the home environment and motor development because the parents will know that the toys and interactions that they have in the home will not increase or decrease their motor development.

Methods:

Parents of children ages 18-42 months in age were contacted via email to see if they would be interested in the study. Seven children and their parents participated in the study. A parent of each child was required to fill out an informed consent for their child to be able to

participate in the study. The informed consent contained information about what the study would consist of and requested permission from the parent for the child to be able to participate in the study and to be video recorded.

The investigator provided each of the parents with an *Affordance in the Home Environment for Motor Development Self-Report (AHEMD-SR)* to complete. The AHEMD-SR is a reliable and valid parental self-report assessment instrument that addresses the quality and quantity of factors (affordances and events) in the home that are conducive to enhancing motor development in children ages 18-42 months. It consists of five factors which are outside space, inside space, variety of stimulation, fine motor toys, gross motor toys, and child and family characteristics. Three types of questions are used: simple dichotomic choice, 4-point Likert-type scale, and description-based queries; representing 20 variables and 67 items. To protect the participant's privacy, the name of each child on the survey and informed consent was replaced with a code.

The investigator then conducted a gross motor assessment of running, jumping, throwing, and kicking on each of the participants. To assess the participants kicking skills, a ball was kept stationary and the participants were instructed to kick the ball at a square that was taped on the wall. A kickball was used. To assess the participants throwing skills, each child is instructed to throw at a square measuring 2 feet wide x 3 feet tall, marked off on a wall with tape. The participants will stand 10 feet away. A tennis ball will be used for this activity. To assess the jumping, a 1 foot piece of duct-tape will be put on the floor and each child will be instructed to jump over it. To assess running, each participant will be instructed to run along a straight path that will be marked off with cones. The participants will be videoed so that the

investigator can review them later. For the motor assessment portion, the investigator worked with one participant at a time, all on different days.

After conducting the motor assessment, the investigator could give each child a skill score for running, jumping, throwing, and kicking based on the age of the participant. If the child's skill score given by the investigator was lower than the score they should receive for their age, a score of 0 was given to the participant. If the child's skill score given by the investigator was normal for their age, a score of 1 was given to the participant. If the child's skill score given by the investigator was higher than the score they should receive based on their age, the participant was given a score of 2.

The investigator picked out five questions from the AHEMD-SR survey that might correlate with gross motor skills that were assessed. The investigator used question 13 and 22 from the survey. These were Yes or No questions. Question 13 asked if there was any apparatus or platform that permits the child to climb on/off and step or jump from in the outside space of the house. Question 22 asked if there was a playroom in the child's house. If the survey showed yes as the answer to the question, the numerical value of 1 was given for that question. If the survey showed no as the answer to the question, the numerical value of 0 was given for that question. Question number 38 on the AHEMD-SR survey was used. The question asked, "On a typical day, how would you describe the amount of awake time your child spends free to move in any space of the house." If the answer to this question was no time, the numerical value of 0 was given. If the answer was little time the numerical value given was 1. If the answer was some time, the numerical value given was 2. If the answer was a lot of time, the numerical value given was 3. Question 61 and 63 on the AHEMD-SR survey was looked at by the

investigator. Answers to these questions were given a numerical value of 0-5, depending on what was marked on the survey. Question number 61 asked, “How many play materials used for gross movements with the arm and legs (throwing, catching, kicking, rebounding, striking, etc.) do you have in your house?” Question number 63 asked, “How many of these play materials used for gross movement exploration (sliding, creeping, climbing, rolling, etc.) do you have in your house?” The investigator used Pearson Correlation to determine the relationship between test items. The investigator ran a correlation test between the following: Question #61 values and Kicking score values, Question #61 values and throwing score values, Question #63 and kicking score values, Question #63 and throwing score values, Question #22 and kicking score values, Question #22 and throwing score values, Question #22 and running score values, and Question #22 and jumping score values.

Results:

	Mean	Standard Deviation
Question 61: Kicking Score	1.14	0.69
Question 61: Throwing Score	1.43	0.53
Question 63: Kicking Score	1.14	0.69
Question 63: Throwing Score	1.43	0.53
Question 22: Kicking Score	1.14	0.69
Question 22: Throwing Score	1.43	0.53
Question 22: Running Score	1.29	0.49
Question 22: Jumping Score	1.14	0.69

	Mean	Standard Deviation
Answers to Question #61	3.57	1.51
Answers to Question #63	2.86	1.35
Answers to Question #22	0.29	0.49

Results showed a strong positive correlation (.87) between the number of play materials used for gross movements with the arm and legs in a child’s home and their kicking score on the motor assessment (Cohen, 1988). Results showed a moderate positive correlation between the number of play materials used for gross movements with the arm and legs in a child’s home and their throwing score on the motor assessment. The correlation was .47. There was a weak positive correlation (.39) between the number of play materials used for gross movement exploration in the home and kicking scores on the motor assessment. There was a weak negative correlation (-0.13) between the number of play materials used for gross movement exploration in the home and throwing scores. There was a weak negative correlation (-0.14) between whether or not the child had a playroom and their kicking score. There was a weak positive correlation (0.09) between whether or not the child had a playroom and their throwing score. There was a weak positive correlation (0.30) between whether or not the child had a play room and running scores. There was a weak negative (-0.14) between whether or not the child had a play room and jumping scores.

Discussion:

From our results, there were only two correlations that were large. There was a clear correlation between the number of child’s play materials used for gross movements with the

arm and legs (throwing, catching, kicking, rebounding, striking, etc.) that are present in the home, and an increased kicking and throwing score on the motor assessment. Therefore, children might benefit from having access to more play materials that are used for gross movements with the arms and legs in their home. Some examples of these play materials could include balls of different sizes and colors, bats, baseball gloves, throwing targets, etc. The more of these objects available to the child, the higher their motor skills in throwing and kicking are likely to be.

From our results, there was only a very small correlation between the number of play materials used for gross movement exploration (sliding, creeping, climbing, rolling, etc.) and gross motor skill acquisitions. This means that if your child doesn't have access to many of these play materials at home, it is not going to greatly increase or decrease their kicking or throwing motor development. Some examples of these play materials are slides, stairs, tunnels, climbing apparatus, exercise mattresses, pool, parachutes, etc. There was also a very small correlation between the child having a play room in their house and their jumping, kicking, throwing, and running motor assessment scores. This means that whether or not a child has access to a play room has little impact on their jumping, kicking, throwing, and running motor development. Parents should not worry about having to provide a play room for their child in order for them to develop adequate motor skills because having a playroom has little effect of motor development.

Any opportunity for a child to learn and develop a skill outside of their primary environment, gives them a chance to increase their motor skills (Haydari, 2009). It is possible that these results could be an unfair representation because kids may have access to these

items outside of the home such as in daycare, parks, relative's houses, etc. The fact that each child was varied in the availability of toys, space, and play implements outside of the home environment may have caused the results to be an unfair representation. In addition to the primary environment of the child's home such as toys, materials, apparatus, and availability of space, stimulation and nurturing by parents and others may affect the motor development of a child. (Haydari,2009). This study didn't consider the amount of nurturing provided to each participant, which may have caused the results to be construed. This research is limited by a small sample size.

All in all, parents should know that increasing the number of toys available to their children which allows gross movements, such as slides, stairs, tunnels, climbing apparatus, exercise mattresses, pool, parachutes, etc., will help to increase their kicking and throwing performance. Parents would benefit from knowing that not having many toys that are used for gross motor exploration, such as slides, stairs, tunnels, climbing apparatus, exercise mattresses, pool, parachutes, etc. is okay because these toys don't play a large role in improving your child's kicking or throwing motor development. It is also not imperative for a child to have their own play room in their home because it has little influence on a child's motor performance in kicking, running, jumping, or throwing.

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