The functions of Motor Play and its evolutionary implications in the development of the child

Le funzioni del Gioco Motorio e le sue implicazioni evolutive nello sviluppo del bambino

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ABSTRACT

With this contribution we want to further elevate the value of the educational contribution that the observation of the game before, and the game itself then, can give to the work of the teacher. The aim is to ask ourselves how the game, as a daily and fundamental element for a harmonious psychophysical growth of the child, can become a fundamental element also for adults and in particular to identify, decrease and counteract increasingly frequent aggressive phenomena in our classes/ sections. Physical activity (PA) and fundamental motor skills are important components of present and future health trajectories in young children. This study examined the effects of a 24-week mobility intervention on the motor competence of kindergarten children. Initial tests were on guided play (research group A) and free play (control group B). 20 preschool children were assessed for motor skills before and after surgery using the tests of long jump from standstill and fast run over a distance of 10 meters. The tests were administered to both groups and immediately before the start of the research, as well as at the end the same tests were administered for the evaluation of the results. All children significantly improved their motor skills from baseline to final assessment. Both Group A children and Group B children have shown slight rates of change, proving that the game is independent of adult control. It stimulates memory, motor language, attention, promotes the development of perceptive patterns and socio-emotional-affective abilities. On the contrary, a poor playful activity can lead to deficiencies in the child's personal maturity and maturity.

Con il presente contributo si vuole elevare ulteriormente il valore dell'apporto educativo che l'osservazione del gioco prima, e il gioco stesso poi, possono dare al lavoro dell'insegnante. Lo scopo è interrogarci su come il gioco, da elemento quotidiano e fondamentale per una armoniosa crescita psicofisica del bambino, possa divenire elemento fondamentale anche per gli adulti ed in particolar modo per individuare, diminuire e contrastare fenomeni di aggressività sempre più frequenti nelle nostre classi/sezioni. L'attività fisica (PA) e le abilità motorie fondamentali sono componenti importanti delle traiettorie di salute presenti e future nei bambini piccoli.

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Questo studio ha esaminato gli effetti di un intervento di abilità motoria di 24 settimane sulla competenza motoria dei bambini della scuola dell'infanzia. I test iniziali sono stati sul gioco guidato (gruppo di ricerca A) e sul gioco libero (gruppo di controllo B). A 20 bambini in età prescolare sono state valutate le capacità motorie prima e dopo l'intervento utilizzando i test del salto in lungo da fermo e della corsa veloce su una distanza di 10 metri. I test sono stati somministrati ad entrambi i gruppi ed immediatamente prima della partenza della ricerca, così come alla fine sono stati somministrati gli stessi test per la valutazione dei risultati. Tutti i bambini hanno sensibilmente migliorato le proprie capacità motorie dal basale alla valutazione finale. Sia i bambini del Gruppo A e sia i bambini del Gruppo B hanno dimostrato lievi tassi di cambiamento dimostrando così, che il gioco è indipendente dal controllo dell'adulto. Esso stimola la memoria, il linguaggio motorio, l'attenzione, favorisce lo sviluppo di schemi percettivi e le capacità socio-emotive-affettive. Al contrario, invece, una scarsa attività ludica può comportare nel bambino carenze sulla personale maturazione e maturità.

KEYWORDS
Motor Game, Physical Activity, Psychomotor Development, Motor Skills.
Gioco Motorio, Attività Fisica, Sviluppo Psicomotorio, Abilità Motorie.

CONFLITTI D'INTERESSE
L'Autore dichiara che non sussistono conflitti d'interesse.

1. Introduction

Play is an important means for the development of the child, it is also a method for achieving educational goals. Playing teaches the child to try, to make mistakes, to experiment and with the game, the child develops and builds his personality. Still, with the game you can transport the meanings of the playful activity to the things of real life and, both the words, as the objects used, can be reinvented and reused for new meanings and functions. The game is a training, a fundamental practice for the whole childhood, it represents free actions that go beyond the dimension of reality (Bondioli & Bobbio, 2019). The game, whatever it is, is characterized by some common points: (Mussen & Hetherington, 1983):

- ✓ the game is intrinsically motivated, not stimulated by external stimuli, optional;
- ✓ the game is spontaneous, free of external punishment, it is an end in itself and while you play, you ask the question: what can I do with this object or person?
- ✓ the game is not a serious performance of an activity or behavior;
- ✓ the game is free from external rules;
- ✓ the game implies active involvement.

A fundamental component of the game is the invention, in fact with fantasy children left free to play create new games transforming even the old ones, but despite all the differences, that link the basic elements to the fruition by the child are durability, repeatability and participation. Therefore, the elements that characterize the games can be distinguished in:

a) rules;
b) type;
c) interaction;
d) symbolic component;
e) start and end game.

Piaget (1951), identifies three stages of development of playful behavior:

- Exercise games: they represent the first year of life ("sensory-motor phase") are the repetition of patterns of motor or vocal behavior observed in adults. The child learns to coordinate gestures and to exercise control over his movements, grabbing, swinging or carrying objects to the mouth, opening and closing the hands.
- Symbolic games: delineate the period between 2 and 6 years ("representative phase"), in this phase children develop the ability to represent, through gestures or patterns learned previously.
- Games with rules: appear between 7 and 11 years ("social phase"), these games require the ability to share and respect certain rules of socialization between peers.

The games are related to the emotional development of the child and the growth of which the psychic balance changes with age. It is possible to distinguish 5 stages:

- 0–1 year: Sensations enrich the Self, which gradually forms. The first games of the child involve his own body, the mother's body, surrounding objects, learning to distinguish between the Self and the non-self.
- 2 years: it is the phase of the beginning of the awareness that can separate from the mother, with the consequent anxieties of abandonment. The game is useful because it is representative of this dynamic.
- 3 years: it is the age at which you start with the first socialization games: the child is interested in playing with companions and takes pleasure in imitating the behavior of adults.
- 4-5 years: at this stage the games reflect the internal state that the child is experiencing.
- 6-10 years: In childhood, games become Group games. The rules ensure the smooth functioning of the game and allow you to experience ties and socialization (Cassese, 2002).

The importance of the game for the overall development of the child is beyond question, therefore, the game is at the center of many studies. Today, it is known to be crucial for development because it contributes to the cognitive, physical, social and emotional well-being of children and young people (Galfo, 2022).

2. The game in favor of psychomotor development

Play is not only a contribution to cognitive development, but it is also a manifestation of such development. From this point of view, «Play is a form of symbolic representation, a transitory process that accompanies a child from the first forms of sense-motor intelligence to the operating structures that characterize mature

and adult thinking» (Piaget, 1951). The cognitive processes present during the game are the same as those present in learning. In-game research strengthens learning. At the first age of thirteen or twenty-four months, the game facilitates language learning. Conversion games have a positive effect on reading, social skills, and creativity in children. Through protomathematical games the child learns basic mathematical skills such as addition, equality, calculation, planning, extraction, classification, measurement. Playing the child learns the language. Listening to other children and adults, he learns new words, exchanges words and phrases. Children who are motivated to play show greater language development than others who show less interest in the game. In general, children who spend more time in the game get better results in cognitive development tests (Improved, 2006). Moreover, children who play theatre games, role-playing games, are often more creative than those who spend less time in such games (Vygotsky, 1980).

We can distinguish the following cognitive processes that occur during play:

1. Organization - thanks to the functions of the game, the child learns to tell the stories in a logical order, such as to go to define the cause and effects;
2. Divergent thinking-through play the child learns to create different ideas;
3. Symbolism - with play, the child transforms objects, and remodels toys;
4. Fantasy - playing the child imagines and pretends to be in different times and spaces.

The game also allows the child the opportunity to develop motor skills, especially coordination (Rabaglietti et al., 2007). These, over time, will become increasingly sophisticated and complex, forming dynamic systems of action (Sabbadini, 2005) and thanks to the environment, motor skills will change and improve. It emerges therefore, the need for an environment suitable for the development of motor skills, so that without doubt, in addition to free spaces, the school is the place where psychomotricity has the opportunity to express itself, as the child is at school learning to relate to others and to express themselves using mainly the movement and the body. Through the latter, in fact, feelings and emotions emerge that represent for the child real life experiences (Mancia, 2006). Through these experiences the child can «develop and structure hierarchies of behavior, modifiable and expandable according to the needs of the moment and according to the phenomena of the surrounding reality» (Presutti, 2015). The personality of the child is developed through his body, through the body of the other and through the relationship between them. It is precisely this relationship between the child, the world of objects and the world of others that allows the subject to realize his own ego. Spread and cultivate psychomotricity to improve not only the skills of relationship but above all, by the child, the knowledge of himself and others. It will therefore be important, also the role of the adult who will have the function of educating to the recreational activity, that is, to teach the child that to have fun does not need to use at the same time many games, but that it is important to know how to select and choose the game to be dedicated to at that time. It will therefore not be a priority for the child to use many toys, but it will be essential, rather, that they are suitable for his age, which will not anticipate the time, nor delay the creative possibilities, but that they are able to tease his imagination and satisfy his need to produce, know and share with others. The adult will make his contribution by preparing the environment for the game, that is, by creating the optimal conditions for the activity of play, in order to allow the child to experiment

and discover his skills, to relieve his tensions and to express their emotions. With the right environment the child can be free, without the opposition of the adult and the latter can feel confident that the child, by virtue of this reason of attraction, work, and concentration, will be busy building himself (Bianchi & De Santis, 2015).

3. Motor skills

Promoting sustainable physical activity (AP) in children also improves public health conditions, as it contributes to improving cardiometabolic health and controlling the problem of childhood obesity (Ekelund et al., 2012). Motor skills are positively related to physical fitness development and body weight, thus having a positive influence on PA and psycho-physical health (Logan, et al., 2015). The fundamental motor skills in favor of the development of the movement are divided into 3 categories (Payne & Isaacs, 2020):

- Motor (body movement in space);
- Tool skills (pushing or manipulating objects in space);
- Balance Ability (Postural Control Ability).

Fundamental motor skills develop early in childhood between 3 and 6 years and also contribute to the development of health. Given the health benefits associated with fundamental motor skills, it is therefore crucial for young children to obtain a level of proficiency in these skills (Olivieri, 2016). Motor skills do not emerge in the absence of education, but rather must be taught (Robinson & Goodway, 2009). Interventions on motor skills have been shown to improve children's PA behaviors (Quail, 2009). Literature shows that there is a positive association between fundamental motor skills and PA in childhood and adolescence (Cittone & Villani, 2019). In fact, a systematic review by McDonough et al. (2020) shows that the effect of physical activity on the development of children's motor skills, have a positive effect on the development of motor skills of adult subjects. No study observed a negative effect on the development of motor skills of children as the duration of physical activity increases. In addition, Chaput et al. (2020), in a review, confirm that a greater quantity and a better intensity of physical exercise have positive effects on health especially at the cardiorespiratory level, muscle, bone, metabolism and psyche. Physical activity based on scientific evidence reduces depressive symptoms and the risk of depression in the future. It also has positive effects on cognitive function and school performance (memory, school performance and executive functions). All confirmed also by the systematic review of Wu et al. (2017), higher levels of exercise are associated with better health conditions. On the contrary, more time devoted to sedentary behavior is linked to a lower health condition. So, the higher the frequency of physical activity, or the less sedentary, the better your health-related quality of life will be. The purpose of this study was to evaluate basic motor skills, related to play. In the literature, previous theoretical models hypothesize that children participating in the intervention on motor skills significantly improve their motor skills over time (Robinsonet al., 2016). In light of the above, we assume that the children who will receive the surgery will be more committed than the control group that will be left free to play outdoors.

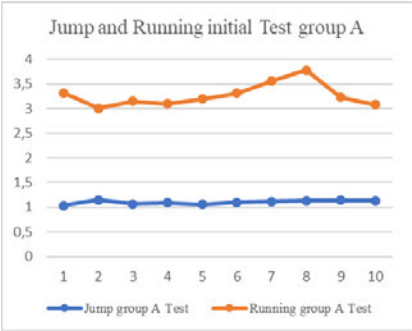
4. Materials and methods

The study was conducted on a sample of 20 children (12 boys and 8 girls) of preschool age between 5 and 6 years, in the hour of multidisciplinary recreational activity of a kindergarten in the province of Naples, for a total of 2 classes involved. This project, in addition to exploring the potential of the game in involving children to the movement, has been proposed to observe the basic motor skills in early childhood and the relationships between the game improving skills such as fast running and jumping. All 20 children were evaluated, both those randomly placed in Research Group A and the remaining 10 in Control Group B. In detail, 10 Children of Group A (males: n=7, height = 127 0.3 cm, body weight = 17.9 9.2 kg; females: n=3, height = 126 0.1 cm, body weight = 18.8 .11kg) and 10 children of Group B (males: n=5, height = 126 0.7 cm, body weight = 19.6 12.2 kg; females: n=5, height = 127 0.1 cm, body weight = 19.3.2 10.2). All subjects did not present musculoskeletal problems, vertebral pathologies, disorders related to the vestibular or visual apparatus. The aims and objectives of the study were described to all participants and their families.

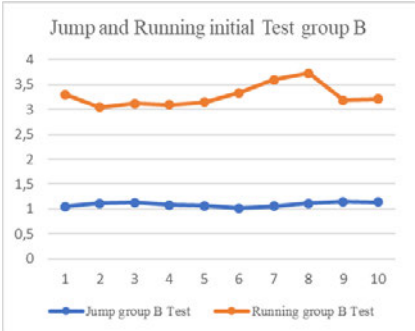
The 20 pre-school children (12 boys and 8 girls) aged between 5 and 6 years, were subjected to a battery of tests aimed at estimating basic motor skills. In detail, in 24 weeks, the level of competence in running skills on the distance of 10 meters and the long jump from standstill, preparing Group A through the activity of play and leaving the game free and creative Group B. The first two weeks (6 meetings), were used for assessments, carried out by all children and before the subdivision of groups. While for the final re-test, the last 2 weeks (6 matches) were used. All activities were carried out during the hours of motor activity, for a total of 72 meetings. The evaluation of the tests involved the allocation of time (estimated with the chronometer) on the fast run of 10 meters, while for the long jump the distance reached after the jump in centimeters represented the unit of measurement to be assigned as a result. The results of the final evaluations, after the period of guided play training of Group A and after the free play activity of Group B, were considered as the level of individual competence achieved. In detail, each child has performed only one test for each test with standardized sequence (long jump from standstill in sand hole and fast linear run from standstill on athletic track). The Group A has been subjected to physical activity, based on recreational activities led by teachers, for a total of 60 meetings. Group B, instead, was left free to play, but supported only for the vigilance of the activity always by the teachers of motor science but on different days, in 60 meetings. They were respected for testing and play activities on Monday and Wednesday for Group A, while Tuesday and Thursday for Group B.

5. Results and analysis

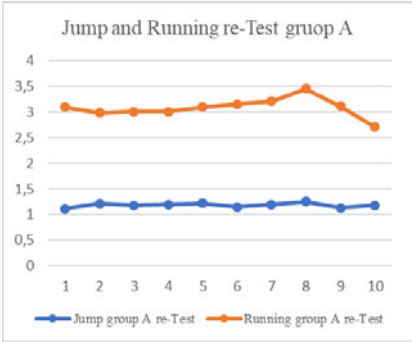
The individual results of the running level, and initial jump (test) and achieved (re-test) are shown in Graph 1 and 2 for group A, while for group B the same results are shown in Graph 3 and 4. The results are presented as mean and standard deviation (Table 1). Group A showed significant improvements in both re-tests, but not such as to justify a significant improvement over group B.



Graph 1



Graph 3



Graph 2

Graph 4

Test	medium	standard deviation
Jump group A Test	1,102	0,03709447
Runninggroup A Test	3,274	0,22397321
Jump group B Test	1,094	0,04152108
Runninggroup B Test	3,279	0,21205895
re-Test	**medium**	**standard deviation**
Jump group A re-Test	1,184	0,03878144
Runninggroup A re-Test	3,083	0,17804775
Jump group B re-Test	1,174	0,04029888
Runninggroup B re-Test	3,097	0,138784

Table 1.

6. Discussion

This study examined the effects of a 24-week mobility intervention on the motor competence of kindergarten children. Initial tests were on guided play (research group A) and free play (control group B). 20 preschool children were assessed for motor skills before and after surgery using the tests of long jump from standstill and fast run over a distance of 10 meters. The tests were administered to both

groups and immediately before the start of the research, as well as at the end the same tests were administered for the evaluation of the results. All children significantly improved their motor skills from baseline to final assessment. Both Group A children and Group B children have shown slight rates of change, proving that the game is independent of adult control. It stimulates memory, motor language, attention, promotes the development of perceptive patterns and socio-emotional-affective abilities. On the contrary, a poor playful activity can lead to deficiencies in the child's personal maturity and maturity.

Play is important in all areas of child development and it is clear that the quality of play contributes to the level of development that the child will achieve as he grows up. In addition to providing the child with great fun and satisfaction, it improves his motor skills and stimulates emotional development. Through play, the child will develop their social skills and create a basis of appropriate behavior in relation to others. It will be up to the regular educator and to select the game correctly according to the age of the child and what he wants to develop or strengthen. Play contributes to a healthier childhood and the intellectual development of children. Through play children show interest in their surroundings, observing and exploring develop the ability to find solutions independently.

Playing, children acquire their first important life experiences through which they gradually understand the richness of interpersonal relations and how the surrounding environment works, knowing the world in a fun way. The game allows you to prepare the child for future life, in order to achieve his full personal potential and become a mature person. Children through play seek and find answers to many questions, feed their curiosity, enrich the imagination, develop perception and motor skills. The game therefore always has a positive effect on the education and development of the child in early childhood, as we have shown in this research.

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