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ROLE OF OUTDOOR PLAY METHODS IN THE DEVELOPMENT OF CHILDREN: A NARRATIVE REVIEW

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ABSTRACT

Background: Play has a significant relationship with the development of domains in children. Play begins from birth to 16 years of life. Children are exposed to various play methods such as outdoor, puzzles, drawing and music, video games, and other play methods that have an essential role in the development of domains like cognitive, physical, emotional and social domains and promote a daily basic healthy lifestyle.

Method: The reviewed literature was searched using different search engines and different keywords. The Source of the data has been electronic sources (Google Scholar, PubMed, and journals) and print sources (journals, Textbook, References). All the articles were screened for title and inclusion-exclusion criteria.

Results: A total of 21 articles with a good level of evidence were included, and tabulated revealing their important factors like a year, author, title, and type of study. The article published in the English language were included in the study.

Conclusion: Different play methods like physical and gross motor, fine motor skills, play in class, playground, outdoor and indoor, with group or individuals showed the relation with all the domains, improving their growth or development and decreasing the risk of diseases and providing healthy lifestyles.

Keywords: Different Play methods, domains and development, gross motor skills, fine motor skills, outdoor games, traditional games

INTRODUCTION

"Development is a constant process from conception to maturity" **[1]**. The child's development is divided into different stages; neonate (birth to 1 month), infant (1 month to 2 years), children (2 to 12 years), and adolescent (12 to < 16 years) **[1, 2]**. A child's development consists of different types of Domains like; the physical domain, social domain, cognitive domain, and emotional domain. These domains are responsible for development in children as per age **[3]**.

The **physical domain** includes gross motor and fine motor skills. Gross motor skills involve large muscle groups or great muscles, which help to control movements like crawling, standing, walking, running, swinging, balance, etc. Fine motor skills involve small muscles like the skill of using hand and foot and are responsible for activities like handling, grip, writing, drawing, **[4]** etc. The **social domain** involves interaction with friends, peers, parents, and teachers, also developing their cooperation, and teamwork skills, and improving communication skills among kids **[5]**. The **cognitive domain** involves spatial attention, shared attention, and working memory of a child. other domains are Language and emotions, which play an important role in a child's pronunciation, processing, and memory **[6]**, the development of children's **emotions** is the refraction of behavior, psychological responses, feelings, and all the events experienced in the child's environment **[7, 8]**.

Many early childhood developmental skills are developed through play. Play begins from the moment a child is born and continues for the rest of their life. Play is defined as voluntary and self-controlled, fun, active, spontaneous, free, unlimited, natural, and self-initiated activities. Play can be indoors as well as outdoors. plays are classified in several ways **[9]**. Many quantitative and qualitative studies show the importance of various play methods in the development of children **[10]**. Those children who are active in their playtime display a greater role in brain development, cardiorespiratory fitness, and functioning which leads to positive changes in brain structure, and improved performance of brain regions responsible for executive functions like self-regulatory behaviors such as attention inhibitory control, or working memory **[11]**.

The play methods appropriately correlate with the development of early learning and numeracy in children from the time of birth till the age of 16 years. From birth to 6 months, a smile is an important social and emotional skill. Baby's first smile

starts through their playful learning, as a reaction to parents' voices, music, etc. This also helps in increasing oxygen saturation, non-nutritive sucking, and weight gain in neonates **[12]**. At the age of 1-3 years, child development is rapid, with the most obvious language and motor skills changes. For example, toddlers' motor development is typically characterized by walking and other gross motor skills such as running, and jumping, and Fine motor skills like writing, drawing, etc. Also, Various play methods help in the development of skills of locomotor and object control skills **[13]**.

Children who are younger than 3 to 5 years also spend time watching T.V. and playing video games that promote the cognitive perception of memory, and hand-eye coordination improving learning skills. Hansen Sandseter EB *et al*. Found that, for children in their middle childhood, participating in play and activities where they involved fun, freedom, and the possibility to develop abilities, were significant for their happiness. Also, these play activities and involvement improve their intrinsic motivation, learning, cognitive, and musculoskeletal development **[13]**. Children of 5-17 years old are often involved in games, competitions, sports, trips, and recreational activities within the family, school, and their place of living. This helps in strengthening the cardiovascular system, and musculoskeletal tissue and reduces the risk of non-infectious diseases. Involvement in different activities in childhood influences development. Various play methods have a significant role in the overall development of children **[14]**. The present study aims to review the literature on various play methods in different phases of the development of children.

MATERIAL AND METHODOLOGY

This narrative review of literature pertaining role of play methods in children's development. Before the search of literature keywords were finalized i.e., Different Play methods, different age groups, domains and development and gross motor, fine motor skills, games, reading, drawing, fun games, symbolic play, video games, puzzles, etc. After finalizing the keywords, the literature search was done using various search engines such as Google Scholar, PubMed, ovoid, SAGE, Springer Link, EBSCO, Discovery service, and Web of Science database, etc. whenever possible hand search of articles was done University library and research Centre. The criteria for the inclusion of articles were studied and reports that provide data on the role of different play methods on children. All types of studies like systematic reviews, meta-analyses, randomized control trials, and case

series were included. The search criteria were limited to the last 12 years only. The articles published in the English language and having a good level of evidence were included in the study. Articles were screened and selected based on the inclusion criteria. The selected articles were appraised depending on the type of study/research design.

RESULTS

After finalizing various keywords, and with the help of the search strategy 70 studies were identified from multiple databases. Following the removal of duplicates and my screening of titles and abstracts, a total of 53 potentially relevant studies remained. These studies were reviewed according to inclusion criteria to determine if they should have included, 40 studies remained other 13 studies were excluded from the studies because of the role of play methods in adults above 16 years of age. Among these studies, another 6 studies were removed as they included children with some deformity or disabled children. So in the end total 21 studies were included in this review.

Table: 1 Outdoor Play Methods [15-35]

Sr. No.	Author, Year	Title of Study	Type of Study	Methodology	Conclusion
1.	Hasyim H. 2021	Learning Modifications Through Play Rope Games For Children's Gross Motor Skills in Students [15]	Experimental Study	A total 20 students aged 6-7 years, Studing in a class I Elementary School Takkalasi, Barru district, were included and the results of children's gross motor skills before and after a jumping rope game activity was analyzed	Modification of learning through play rope games that are applied in the learning process can improve gross motor skills in students.
2.	Lemes V,Gaya AR 2021	Physical Fitness Plays a Crucial Mediator Role in Relationships Among Personal, Social, and Lifestyle Factors with Adolescents' Cognitive Performance in a Structural Equation Model. The Cogni-Action Project.[16]	Cross-Sectional Study	1,196 adolescents aged 10–14 years from Chile. Three physical fitness components and eight cognitive tasks were measured.	Physical fitness plays a crucial mediator role in the associations between several factors associated with adolescents' cognitive performance. Therefore, educational and health strategies should prioritize improving physical fitness through physical activity.
3.	Lundy A, *et al.*, 2020	Effects of Active Outdoor Play on Preschool Children's on-Task Classroom Behavior [17]	Observational Study	21, 3 to 5-year-old children's compared under two conditions—one in which children played outdoors immediately prior to the learning and one in which they did not. The relationship between the level of physical activity on the playground of children and their on-task behavior was examined.	Findings indicate that outdoor play prior to learning resulted in greater on-task behavior.

4.	**Alexander Wray, *et al.*, 2020**	**Physical activity and social connectedness interventions in outdoor spaces among children and youth: a rapid review [18]**	**A review**	**Out of 104, 55 interventions targeted physical activity outcomes, 10 targeted social connectedness outcomes, and 5 targeted both. Play (n = 47) and contact with nature (n = 25) were dominant themes across interventions, with most taking place in a school or park.**	**The incorporation of natural and play-focused elements into outdoor spaces may be effective ways to improve physical activity and social connectedness.**
5.	**Khanturaev N, *et al.*, 2020**	**The Role of National Action And Movement Games In The Physical Development Of Primary School- Age Children[19]**	**Observational study**	**This article covers the role of national action and movement games in the healthy upbringing of primary school-age children, the joint formation of knowledge, morals and delicacy in them, as well as the development of their physical conditioning were studied**	**Action and movement games constitute a crucial factor for individual learning of primary school-age children.**
6.	**Hayrettin Gümüşdağ 2019**	**Effects of Pre-school Play on Motor Development in Children[20]**	**Experimental Study**	**In this study, a total of 30 boys and 30 girls were enrolled from preschool children aged 4 to 6 years and investigated the effect of 12 weeks of game education on motor development was assessed.**	**A statistically significant difference was found in the experimental group pre-test and post-test comparisons. In these comparisons, the post-test values were found to be higher than the pre-test values.**
7.	**Wunwisa Muangthong 2019**	**Effects Of Outdoor Game Activities On Ability Of Fine Motor Usage For Early Childhood [21]**	**Cross Sectional Study**	**This research was to compare the ability of fine motor usage before and after learning with outdoor game activities in 20 early childhood for 4 - 5 years old in 8 weeks, 4 days each week and 30 minutes per day.**	**The early childhood has the ability to use fine motor more than before implementing experimental games.**
8.	**Ioan Sabin SOPA 2019**	**Developing Attack Point In Volleyball Game Using Plyometric Exercises At 13-14 Years Old Volleyball Players [22]**	**Experimental Study**	**A team of 15 girls with age between 13-14 years old and a volleyball experience between 5 and 6 years old were taken and they performed. five physical tests: standing long jump, triple broad jump, standing vertical jump, spiking point, and block point. The experiment group followed a four months plyometric program for improving jumping abilities and the results were analyzed**	**Plyometric program included in the experiment had good results in both five tests but statistically significant results were found in standing long jump test, triple broad jump test and in block point.**

9.	**Adams J, Veitch J, *et al.*, 2018**	**Physical Activity and Fundamental Motor Skill Performance of 5-10 Years Old Children in Three Different Playgrounds[23]**	**Descriptive Pilot Study**	**Children aged 5 to 10 (n = 57) were recruited from three independent playgrounds located in Melbourne. Whilst playing, children wore accelerometers which measured time spent in physical activity and direct observations recorded fundamental motor skills and play equipment use.**	**Children in the traditional playground (n = 16) engaged in more moderate-intensity physical activity (9.4 min) than children in the adventure playground (n = 21), (5.6 min) (p = 0.027). There were no significant associations with vigorous intensity physical activity or fundamental motor skills between playgrounds.**
10.	**Borghese MM, Jansse I 2018**	**Development of a measurement approach to assess time children participate in organized sport, active travel, outdoor active play, and curriculum-based physical activity.[24]**	**Observational Study**	**Children aged 10–13 wore an accelerometer and a GPS watch continuously over 7 days. They also completed a log where they recorded the start and end times of organized sport sessions.**	**This novel measurement approach can be used to estimate the time that children participate in different types of physical activity.**
11.	**Bento G, Dias G, *et al.*, 2018**	**The importance of outdoor play for young children's healthy development.[25]**	**Longitudinal study**	**A project focused on the exploration of the outdoor environment was developed with a group of young children in an early childhood education setting in Portugal. The project aimed to transform educational practices, moving from frequent indoor activities to a regular use of the outdoor environment.**	**The valorization of early years and outdoor play can be under-stood as a mean to promote healthier lifestyles, acknowledging that today's children will be the adults of tomorrow.**
12	**Teodora-Mihaela, *et al.*, 2017**	**The importance of motion games in the psychomotor development of pre-schoolers during the physical education class.[26]**	**Pilot study**	**During a semester, they applied a syllabus based on the method of motion games, the subjects in the research were asssed with the help of Ozeretski-Guillmain prior and after testing.**	**After the application of the proposed syllabus, an improvement in the test indices has been observed, a significant percentage of subjects advancing towards slight psychomotor inability.**
13.	**Tortella P, Haga M 2016**	**Motor Skill Development in Italian Pre-School Children Induced by Structured Activities in a Specific Playground.[27]**	**Experimental Study**	**71 children from local kindergartens came to the park once a week for ten consecutive weeks and were exposed to 30 minutes of free play and 30 minutes of structured activities. Before and after the ten visits, each child completed nine tests to assess levels of motor skills, three for fine-motor skills and six for gross-motor skills.**	**This study revealed that the group who practiced gross motor activities in a specific playground in Treviso, Italy improved significantly in four out of six gross motor tasks compared to the control group.**
14.	**Shakhanova A, *et al.*, 2015**	**The Effect of Sports Physical Loads on the Somatic Development and Physical Performance of Young Football and Basketball players.[28]**	**Experimental Study**	**A total of 60 boys playing football and 60 boys playing basketball at the age of 10-15 years were examined. The control group**	**The determined regularities of the somatic development-are less constant and stable in their time**

				consisted of 60 10-15-year-old schoolboys not engaged in sports activities. Todetermine PWC170 and VO2max, the hardware and software system "Poli-Spektr-Ergo" was used.	response and quantitative characteristics and in the conditions of football training, the sports physi-cal activities can be considered as a growth-promoting factor only at the early stages of the training process
15.	Yuksel MF, Cengiz A 2015	Effects of Badminton Training on Physical Parameters of Players.[29]	Experimental Study	This study was to analyze 8 weeks of a basic technical badminton training program on some fitness parameters of beginner level badminton players.	After two months of training, it was determined that the vertical jump increased for the experimental group. It was determined that the standing broad jump performance showed a significant improvement in performance.
16.	Alesi M, Bianco A 2015	Motor and cognitive growth following football training program. [30]	Observational Study	Forty-six children with chronological age of ∼9.10 years, were divided into two groups: Group 1 (*n* = 24) attended a Football Exercise Program and Group 2 (*n* = 22) was composed of sedentary children. Their abilities were measured by a battery of tests including motor and cognitive tasks.	Football Exercise Programs is assumed to be a "natural and enjoyable tool" to enhance cognitive resources as well as promoting and encouraging the participation in sport activities from early development.
17.	Kovacevic T, Opic S. 2014	Contribution of Traditional Games to the Quality of Students' Relations and Frequency of Students' Socialization in Primary Education.[31]	Qualitative Study	232 students in the second, third, and fourth grades in four primary schools in Karlovac. The first test determined the quality of students' relations and the frequency of their socialization. After applying the traditional games, implemented.	Results have shown an improvement of human relations between students in class, and an increase of students' socialization outside classes, after implementing traditional games in school.
18.	Carvalho HM, *et al.*, 2014	Physical Growth and Changes in Intermittent Endurance Run Performance in Young Male Basque Soccer Players.[32]	Longitudinal Study	From 2009–2013 players were measured twice a year; once at the start of the season and the other at the end of the season . A total of 33 soccer players, were considered for analysis. From the total sample, 24 players completed at least five measurements.	The intermittent endurance run performance increases steadily between the ages of 10 and 15 years in adolescent Basque soccer players, but a decrease in the rate of increases was observed between 12 and 13 years. Along with it development of the intermittent endurance run was positively influenced of systematic training exposure over the season.
19.	Schaefer L, Plotnikoff RC	Outdoor Time Is Associated with Physical Activity, Sedentary Time, and Cardiorespiratory Fitness in Youth.[33]	cross-sectional study	A 306, youth aged 13.6 years' children were. exposure of interest in	Time spent outdoors is positively associated with MVPA and

	2014			**self-reported time spent outdoors after school, stratified into three categories: none, some, and most/all of the time. The main outcome of interest was accelerometer-derived MVPA. Secondary outcomes included sedentary behavior, cardiorespiratory fitness, overweight status, and blood pressure.**	**cardiorespiratory fitness in youth and negatively associated with sedentary behavior.**
20.	**Maria F.** **2014**	**The influence of direct and indirect teaching method in the development of selected technical skills in the sport of football to children aged 12-14 years old.[34]**	**Randomized Control Trail**	**This research included 50 total students, the program lasted 12 weeks 3 trainings per week, enduring 65 minutes for each one.**	**The results of this research indicated that the method with the better results in the development of the examinee's movement skills to children between 12-14 years old.**
21.	**Ortlieb S, Schneider G** **2013**	**Physical activity and its correlates in children: a cross-sectional study.[35]**	**Cross Section**	**Information on PA and potential correlates was collected from 1843 girls and 1997 boys using questionnaires during the 10-year follow-up of two prospective birth cohort studies.**	**Physical Activity correlates relevantly with several domains like, sex, sports Club, membership, physical environment, time outdoors, and emotional symptoms.**

DISCUSSION

Outdoor Play Methods have special features that provide an open environment, where children experience the freedom, to perform gross movements. When children are exposed to sunlight, it contributes to their physical, cognitive, social, and emotional development, also plays role in their immune system. "Different outdoor play activities like running, jumping, throwing and ball catching, open and close bottles, rope, badminton, traditional games like a bath in the river, pastures and planes, different sports activities like volleyball, football, soccer, and different playground activities.

In this review, we have included a total of 21 studies that incorporate different types of studies with various play methods, among all the articles we found more literature on the activities/play which involves physical activities. There are several types of physical activities that children participate such as organized sports e.g., badminton, volleyball, soccer and football. Active travel e.g., walking to school, cycling, Outdoor playing e.g., free play, playing in class, playground activities, and curriculum-based physical activity e.g., physical education. Physical fitness activities are bodily movements of skeletal muscles that play an essential role in

reducing the risk of disease, helping in completing daily basis tasks and physiological state of well-being, developing of cognitive, visuospatial memory, psychomotor, social domains, reducing symptoms of depression, promoting healthy bone structure, supporting muscle growth, maintaining vital stability, preventing children from becoming overweight, improves selective attention, working memory, numerical Calculation, and educational achievement **[16-23]**. There are certain factors that affect physical activities in children like different body weight, Sex, and Environment in which are living.

Many studies show the difference in the performance of physical activities with regard to their gender and the area in which they are living, it shows that males are more active, and those children who are living in rural areas are comparatively more active in physical play as compared to the children living in urban zones. Movement is a fundamental part of children's life. During the first ten years of children's life, they spend more time of the day in kindergarten, and primary school, with peer groups, and their educators on the playground. At that time motor behaviors are continuously changing, and interaction with the biological structure happens. In kindergarten and primary school children play various games in the playgrounds such as running, throwing, stopping, and catching the ball, pulling out a napkin, long and vertical jump, different motor skills like gross motor skills One leg balance-right or left, Balance on beam, Balance on platforms, Heel-to-Toe Walking, ball squeezing, slides, swings, merry-go-round, climbing frames, Running to ribbon bundle game, Scooping funny eggs game and Putting a Medicine Ball and games which improves fine motor skills like the Building Bricks and the Posting Coins right or left hand and other traditional games: Swallows Go By; Crocodile; Blind Mouse; Black Queen One, Two, Three; Open/Close bottle by Saba ball game, Cutting, How Much, Godfather, Pot; Noughts and Crosses; wooden blocks and places for hiding, Granny, Granny, What's the Time?; Toothpaste; Come On, Children, Home; Cat Goes Round, etc.. Through all these play activities, the children can improve their abilities to experiment, solve problems, think creatively, and cooperate with others, which promotes positivity, joyful life, honesty, fairness, straightforwardness, imagination, courage, dependability confidence, motivation of the children **[4, 11, 15, 24-28]**.

As in later childhood, children are more exposed to the more competitive sports activities like Football, basketball, volleyball,

badminton, and Basque soccer. All this activity needs a huge number of practices, training, control, and high motor density for that they require a larger volume of speed-power, speed endurance, plyometric power, agility, and quickness. All this will lead to increase social, observational, attention, running skills, somatic maturity, balance and coordination skills, hand-eye coordination, legs strength in the children and it can decrease the risk of injuries **[6, 29-33]**.

CONCLUSION

This review focuses on how different types of play activities enhances the development of the child in each phase of their life. From birth to 16 years of life children develop gradually and play is the most integral part of all the activities. During the developing years of life, children are exposed to different types of play, commonly outdoor games. Each game has an important role in the child's development as some play activities help in the development of all the domains like physical (Gross and Fine motor skills) domain, social domain, cognitive domain, emotional domain, and sensory-motor skills. Most of the children are exposed to outdoor games which enhance their capabilities like improving children's endurance, cardiovascular strength, the strength of leg and arm, balance and coordination skills, running skills, somatic maturity, hand-eye coordination, and it can decrease the risk of injuries, promotes growth and through play, stress will be reduced in children.

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