

Research Paper: The Benefits of Playgrounds for Children Aged 0-5

Prepared for the Shasta Children and Families First Commission

by
Duerr Evaluation Resources

Overview

The Shasta Children and Families First Commission (SCFFC) has funded several projects which in part or whole create playgrounds for young children aged 0-5. Each of these playgrounds will be developed separately with local community input, but share several fundamental characteristics. Each will be created in a safe, fenced area and will contain various play equipment which meets state safety standards, all specifically designed for very young children. The Commission is interested in how these playgrounds will impact the healthy development of these children. However, the development of evaluation research plans which might directly measure this impact were judged to be impractical. This is because such a research plan would involve trying to observe and measure physical, social, and intellectual changes in children who used the playgrounds and then attribute these changes only to playground use. This type of study would be clearly beyond the financial resources of the Commission and would require intensive intervention in the lives of these young children.

As an alternate approach, one of the Commission's evaluation contractors—Duerr Evaluation Resources (DER)—was asked to produce a review of pertinent research that documents the benefits of playground use in the development of young children. A search of available research was conducted at the California State University ReSEARCH Station (Library) and through internet resources.

An extremely large volume of research is available on child development in general, and the role of play. Information on the specific benefits of playground equipment is usually mentioned indirectly as one of several ways in which children can experience active physical play. The research summarized in this report looks primarily at the role that various play activities which are experienced on playground equipment have on brain development, motor skills, and social development.

Findings

Playgrounds provide crucial and vital opportunities for children to play. There is substantial research showing the clear link between play and brain development, motor-skills, and social capabilities. All learning—emotional, social, motor and cognitive—is accelerated, facilitated, and fueled by the pleasure of play. Playgrounds that promote different types of play are vital for a child's cognitive, emotional, physical, and social development. The more specific ways in which playgrounds and play equipment, similar to those being installed in Shasta County, promote growth are described below.

Play and Free Play

What is play? Play is simply having fun, the spontaneous activity of children. Play encompasses many things—it can be done with the body (running, jumping, dancing); the mind (fantasy play); props (building blocks, pushing a toy); and words (jokes, singing). Play is fueled by curiosity and is driven by it. Play begins simple and grows more complex as the child grows.

Playgrounds provide an opportunity for free play. Free play differs from the structured play of recess or organized sports and games. Playground free play allows children to play any way they choose, supported by a wide range of structures and spaces. Free play allows the child to explore according to his or her natural tendencies, and allows them to learn from one another and to interact with a wide range of age groups.¹

Brain Development

Research on brain development shows that the most crucial time for a child's development is in the earliest years.² The act of play by a child stimulates brain development and function³ and has a key role in building the foundation, organization, and capabilities of the brain.⁴ It is very important for children to have many regular opportunities for a variety of gross motor activities.⁵ Children that do not get crucial interaction in their first six years will face a lifetime of limited brain power.⁶

That said, how does play directly correlate to brain development? The stages of development of the brain mirror the stages of play in early childhood. Play speeds the development of corresponding portions of the brain with patterned activities, and each stage of play promotes the growth of that portion of the brain and lays the neural connections and speeds the cerebellar synapses.⁷

To help visualize what is meant by laying “neural connections” and speeding “cerebellar synapses” in relation to play, try to imagine the connections of the brain as an overgrown, difficult-to-walk path. The more a child plays (using sensory impressions and motor-activities) the more the child, in their brain, walks that path. The more the path is walked by engaging in free play, the more defined the path becomes. Soon the path becomes a dirt road, then a street, and finally a highway. Through constant use, by repetitive play activities, going from A to B in the brain becomes very rapid—an easily negotiated highway. The child who does not stimulate those neural connections and cerebellar synapses, who sits on the couch watching TV all day, still has those connections but they remain only a path and not a highway.

Playground play structures help facilitate a child's cognitive development during free play because toddlers are at a sensor-motor stage of development and they learn through their sensory impression and motor activities and the interaction of the two.⁸ Playgrounds provide a space for children to enrich, build, and expand their cognitive development through play.

Motor-skills

Research indicates that children with poorly developed motor-skills by age five will likely never develop efficient motor-skills.⁹ Outdoor play appears to be an important environment to foster these skills. Playgrounds offer infants and toddlers a base for simple motor and exercise play and provide an environment to foster these skills. Preschoolers are highly motivated to challenge and

refine their motor skills on more difficult play equipment.¹⁰ Playgrounds provide critical space for children to be given opportunities to move and be encouraged to advance into the next stage of development,¹¹ because through play they can develop advanced fine motor and manipulation skills.¹² The lack of physical fitness among children poses a danger to their health as adults, and playground equipment is one avenue to promote physical activity of children.¹³

Outdoor play on playgrounds can provide different opportunities to stimulate age appropriate physical development: tactile panels promote manipulation and coordination; bridges and ramps promote loco motor skills; and slides and swings promote balance and coordination. Depending on the child's developmental stage, these and other play components help the child encode and decode movement, inhibit reflexes and control movements (reaching, grasping, releasing), and progress from elementary stages to motor stage movements (running, hopping, dynamic and static balancing, axial movement).¹⁴

Language Development, Intelligence, and Social Skills

Play is the primary vehicle for development of the imagination, intelligence, and language.¹⁵ The playground maximizes opportunities to engage in a greater amount of play with their peers.¹⁶ The interaction with their peers allows children to express ideas and feelings and develop oral skills.¹⁷ Play structures promote social play because they provide children with places to congregate and communicate. Through the act of playing they learn social and cultural rules, and experiment with various emotions, and explore the socially shared system of symbols.¹⁸ By playing they also learn by physical and mental trial-and-error, through interaction with their environment and peers, the ability to discriminate between relevant and irrelevant information.¹⁹ Simply put, a shortage of playgrounds can add to children's passivity.²⁰

An example of how free play in playgrounds aids the development of social skills can be seen in the spontaneous creation of 'games.' Whether it be a game of tag or fantasy play that makes a playground structure into castle with the children assigning themselves specific roles (guard, king, queen, etc.), peer interaction is required to establish the 'rules of the game' and play begins. Children learn to negotiate, compromise, work together, and also to control themselves and tolerate their frustrations in a social setting because without abiding by the invented 'rules' the child cannot continue to play successfully with their peers. The modular structures that link different playground elements together provide opportunities for socialization by providing different kinds of interaction—nooks for single children; retreats for two or three; places for one on one adult/child interactions; and places for small groups.

Summary

Child's play is not just all fun and games. The act of play is a crucial component in the successful growth of the brain, body, and intellect. Playing promotes brain development and helps lay the neural grid for a successful mind through repetitive play actions that reinforce that grid. Playing promotes physical success by allowing the child to explore, test, and expand the limits of the growing body. And playing promotes social, intellectual, and oral skills by allowing the child to interact with their peers and environment.

Playgrounds by their very name are grounds on which to play. But they are more than that, playgrounds provide a safe environment designed specifically to foster and enhance the

opportunities for a child to play alone, with a caregiver, or with other children. Given the importance of play in the development of a child, any space which gives a child free reign to do just that should be seen a crucial component in a child's life. Playground equipment and space can meet the needs of children 0-5 by providing different opportunities to engage in appropriate developmental play. Playgrounds are, it is important not to forget, fun for children and this fun will have lasting positive effects on their development.

ENDNOTES

- ¹ Hudson, S., Thompson, D. *Are Playgrounds Still Viable in the 21st Century?* Parks & Recreation, 36. April 2001.
- ² Palmer, L. *Developmental Brain Stimulation in School and Day Care Settings*. Winona State University. (www.innovationcentral.org/smar_research.htm)
- ³ Rivkin, M. *Outdoor Experiences for Young Children*. ERIC Digest. December 2000. (www.ael.org/eric/digests.edorc007.htm)
- ⁴ Perry, B., Hogan, L., Marlin, S. *Curiosity, Pleasure and Play: A Neurodevelopmental Perspective*. Haaeyc Advocate. June 2000. (www.childtrauma.org/Curiosity.htm)
- ⁵ Thomson, D. *Matching Children and Play Equipment: A Developmental Approach*. Early Childhood News. March/April 1999.
- ⁶ Galetta, J. *Building Better Brains: With New Research Showing That Simulation Spurs Brain Growth*. Chattanooga Times-Free Press. 3/31/2000. (www.uwchatt.org/invest_brainsarticle.htm)
- ⁷ Perry, B.
- ⁸ Thomson, D. *Matching Children and Play Equipment: A Developmental Approach*.
- ⁹ Wortham, S., Frost, J. *Playgrounds for Young Children: National Survey and Perspectives*. Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance. 1990.
- ¹⁰ Frost, J. *Child Development and Playgrounds*. Parks & Recreation, 32. April 1997.
- ¹¹ Thomson, D. *Matching Children and Play Equipment: A Developmental Approach*.
- ¹² Perry, B.
- ¹³ Hudson, S.
- ¹⁴ Brown, P. *Developmental Domains and Outdoor Play Components*. Children's Institute for Learning and Development. Spring 2001. (www.ipema.org/newrel4.asp)
- ¹⁵ Frost, J. *Children's Play and Playgrounds*. Boston: Allyn and Bacon. 1979.
- ¹⁶ Brown, P. *Developmental Domains and Outdoor Play Components*.
- ¹⁷ Hernandez, Y. 'Recess' Provides Cognitive, Social and Psychomotor Opportunities for Growth. IDRA Newsletter. April 2001. (www.idra.org/newsletter/2001/apr/yojani.htm)
- ¹⁸ Frost, J. *Child Development and Playgrounds*.

¹⁹ Perry, B.

²⁰ Gardner, M. *'Recess is Over' – A Playground Refrain Gets a Sad New Twist*. *Christian Science Monitor*, 87. October 1995.

ADDITIONAL RESOURCES

Adcock, D. *Play and learning*. Rolling Hills Estates, CA: B.L Winch, 1979.

Bauer, H. *Scientific Literacy is Child's Play,*" IDRA Newsletter. April 1996.

Bredekamp, S. *Developmentally Appropriate Practice in Early Childhood Programs Serving Children from Birth through Age 8*. Washington, D.C.: National Association for the Education of Young Children. 1987.

Britz-Crecelius, H. *Children at play, preparation for life*. New York: Inner Traditions International. 1986.

Cohen, D. *The Development of Play*. London; New York: Routledge. 1993.

Corsaro, W. *Friendship and peer culture in the early years*. Norwood, NJ: Ablex. 1985.

Dekaban, A. *Neurology of Early Childhood*. Baltimore: Williams and Wilkins. 1970.

Frost, J. *Reflections on Research and Practice in Outdoor Play Environments*. Dimensions of Early Childhood, 20. 1992.

Gabbard, C. *Windows of opportunity for early brain and motor development*. Journal of Health, Physical Education, Recreation, and Dance, 69. 1998.

Gallahue, D.L. *Motor Development and Movement Experiences*. New York: John Wiley & Sons. 1976.

Garvey, C. *Play*. Cambridge, MA: Harvard University Press. 1977.

Hayward, D.G. *Children's play and urban playground environments: A comparison*. Environment and Behavior, 6. 1974.

Hughes, F. *Children, play, and development*. Boston: Allyn and Bacon. 1995.

Johnson, J.E. *Playland Revisited*. Journal of Research in Childhood Education, 11. 1998.

Johnson, J.E. *The effect on behavior of variation in the amount of play equipment*. Child Development, 6. 1935.

Kirn, W. *What ever happened to play?* Time, 157. April 2001.

Piers, M. *Play and development: A symposium*. New York: Norton. 1972.

Roberton, M.A. *Developing Children – Their Changing Movement*. Philadelphia: Lea & Febiger. 1997.

Sawyers, J. *The preschool playground: Developing skills through outdoor play*. The Journal of Physical Education, Recreation & Dance, 65. August 1994.

Shore, R. *Rethinking the Brain: New Insights into Early Development*. Summary from Conference: Brain Development in Young Children. Families and Work Institute, New York. 1997.

Sluckin, A. *Growing up in the playground: the social development of children*. Boston: Routledge & K. 1981.

Susa, A. *The Effects of Playground Design on Pretend Play and Divergent Thinking*, Environment and Behavior, 26. July 1994.