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Leveling the Playing Field: Creating Equal Access to Playgrounds for Children of All Abilities

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LEVELING THE PLAYING FIELD: CREATING EQUAL ACCESS TO PLAYGROUNDS FOR CHILDREN OF ALL ABILITIES

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This Scholarly Project Paper, submitted by Sarah Kriesel-Koll in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.

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Faculty Advisor

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Leveling the playing field: Creating equal access to playgrounds for children of all abilities

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Chapter I

INTRODUCTION

Due to the obstacles they encounter, children with disabilities have difficulty interacting with their peers during play situations. Children love to play. The playground can be a place for children of all abilities to come together to learn and grow from each other. However, because of physical and social barriers that exist, the playground can also be an isolating experience. Since play is a child's primary occupation, how they develop their identity, self-esteem, and expression needs to be intentionally and purposely considered.

Additionally, because of the lack of playful opportunities on the playground, many children with disabilities feel isolated from their peers. The playground is an ideal place for children to develop socially, physically, mentally, cognitively and emotionally. It is a place for them to learn about themselves and the world around them. When opportunities are limited for children with special needs to engage in activities with their peers, secondary disabilities, such as decreased motivation, self-esteem, and increased dependence on others may develop.

In order to understand the relationship between the child, the environment, and their occupation of play, the Person-Environment-Occupation Model was chosen. This examines how these concepts fit together and impact each other to help the child achieve optimal occupational performance. Designing an environment that encourages participation and matches the abilities of the child will lead to successful performance in

occupations. Designing a playground that meets the needs of its users as well as providing a challenge and opportunities to learn and explore will help establish skills useful for the future.

Key concepts explored in this scholarly project include play development, insight into the experiences that children with disabilities have, the role of occupational therapy in working with children with disabilities, supports and barriers to play, and creating an inclusive environment.

The mismatch between the design of a typical playgrounds and the usability of the playground by children with special needs is necessary to address. All children deserve the right to play with their peers in a least restrictive environment. The following chapters will be devoted to a comprehensive literature review, methodologies used to gather data, results, product, and summary.

Chapter II will provide a comprehensive review of the literature regarding the relationship between children and play and various aspects of this concept. Also the role of occupational therapy in the design process of creating an environment that allows for participation of children of all abilities will be explored.

Chapter II

LITERATURE REVIEW

According to the Children's Defense Fund (n.d.), 6.2 million children with disabilities receive special education services in the United ~~.~~States. With this high percentage of children having disabilities, it is important to accommodate and modify the ~~the~~ environment in order to encourage these children to participate in activities. Inclusion in the school environment has long been a consideration, yet there is another primary environment that historically has been neglected: the playground. Children love to play; the playground is a place to gather and grow together. However, it can also be a place where children who are physically challenged are excluded. This chapter provides a comprehensive review of literature regarding typical play development sequences, experiences ~~that~~ of play for children with disabilities ~~have~~, identification of the role of the o~~O~~ccupational ~~T~~therapists in a child's care as well as environmental design. It also addresses supports and barriers of a playground~~,~~ and information on creating an inclusive playground to reach the goal of creating an environment with access for all children.

Typical play development: Play a child's primary occupation

Play is an important part of a child's life. It serves as a medium to experiment with the way the world operates. It also supports development – physically, cognitively, emotionally, and socially. According to Reilly, (as cited in Missiuna & Pollock, 1991, p. 882) "Play is considered to be the primary activity of the child, a prerequisite to

competence in occupational roles later in life." Play serves a central part of life for all children, including children with a disability.

Occupation is complex, dynamic, and defined by the individual. For a child, play is the primary occupation and can be viewed in many different ways. Is the activity considered "play" or "work" to that child? How does this impact how he/she participates and perceives the activity? Using play as a treatment intervention when working with children is critical to fostering growth, development and preventing impairments (Bracegirdle, 1992b). "Play [has] an integral relationship to early social, cognitive, representational / symbolic, and linguistic development." (Casby, 2003, p. 163).

A typical sequence of play development can be described in four broad categories (Case-Smith, 2001). The first stage, exploratory play, lasts from birth to about 2 years old and describes how a child explores his/her immediate surroundings through the senses. Textures, personal body scheme, sensory characteristics of objects, beginning motor skills and simple cause and effect relationships are learned. At this stage, children and caregivers have the strongest influence on the occupation of play.

The symbolic play stage occurs typically for children 2 to 4 years old (Case-Smith, 2001). Gross motor skills are refined with advancement in the child's ability to make distinctions between objects, symbolic importance and feelings of mastery. In addition, children discover their ability to alter the play environment and objects. Play begins as a parallel activity and over the course of time develops into a cooperative interaction with the child's peers.

The third stage is the creative play stage for children 4 to 7 years old (Case-Smith, 2001). During this stage, previous abilities are refined in the areas of sensory, motor,

cognitive, and social skills to prepare for school. Fine and gross motor coordination refinement allows for the child to participate in increasingly difficult tasks, such as manipulating small pieces, writing, and coloring. Play becomes a cooperative experience leading to competition and sense of relationships among peers emerges.

The final stage, the game stage, occurs in children between 7 to 12 years (Case-Smith, 2001). The understanding of distinct rules with a competitive nature and social interaction marks this stage of play development. A complex understanding of how materials fit together and can be changed is emerging. During this stage, children compare themselves to their peers and seek validation from both peers and parents.

Many developmental theorists have defined, described and determined the typical developmental sequence to play. Among the most popular are Piaget, Rosenblatt, and Reilly. Each theorist describes play as being developed in a series of stages. Piaget described play as occurring through ordered stages (as cited in Casby, 2003). He classified play into three main types: practice play, symbolic play, and games with rules. Rosenblatt (as cited in Casby) described a sequence of abilities from "undifferentiated sensorimotor action patterns to the conventional use of objects to more symbolic use of objects in play" (p. 168). Reilly (Case-Smith, 2001) used play as a means to assess and treat children with handicaps. Her sequence of play development progresses from exploratory where the child develops an interest in the environment, to competency play where skills are learned and generalized to other situations, and finally achievement behavior where play connects a child and adult's world and behavior.

Rubin, Fein, and Vandenberg (as cited in Skär, 2002) identified five characteristics that separate play from other activities. These include (1) friends, toys, and

interesting materials; (2) the child decides the play; (3) minimal interruption from parents or caregivers; (4) a safe comfortable atmosphere that promotes play; and (5) the energy to engage in the activity. According to Rubin et al., if any characteristics are missing it will influence the child's play.

For an activity to be described as play, it must be engaged in for no other reason than the participant's desire to be involved in that activity. It is described by the player as being a pleasurable activity, highly valued, intrinsically motivating and enjoyable. The player is in control of what happens; often becoming totally absorbed in an activity. The activity presents a "just right challenge" and offers the freedom to make choices and be in control (Bracegirdle, 1992b; Bundy, 1992).

Experiences of children with disabilities and play

In order to fully understand the need for playgrounds designed for children with disabilities, it is necessary to gain their perspective. Much has been written about the experiences children with disabilities have with play (Howard, 1996; Jennings, Connors, & Stegman 1988; Prellwitz & Tamm, 2000; Roberts, Pratt, & Leach, 1991; Skär, 2002). Often, children with disabilities engage in activities at home rather than in the community like their non-disabled peers. Howard noted that children with disabilities played with dolls and other toys more often than their non-disabled peers did. Similarly, Prellwitz and Tamm described play in children with restricted mobility as that of a "calm nature" and lacking the coordination or energy that their peers had to participate in outdoor activities, especially on the playground due to multiple barriers they encountered. Children with disabilities seek their caregiver's assistance more often than their non-disabled peers (Howard).

Minimal cooperative play opportunities were observed with children with disabilities. Nabors and Badawi (1997) and Nabors, Willoughby, and Badawi (1999) reported children with special needs were found playing by themselves or interacting with a teacher or aid more often than their typically developing peers. The assistant intervention required for the child to actively participate depended on the type of play the child was engaged in, while at other times the assistant's role was as an observer (Skär, 2002). Roberts et al. (1991) found students with disabilities interacted less and played less with their non-disabled peers as compared to their non-disabled peers. Younger children tend to see the relationship with their assistants as more of a playmate. As the child ages the assistant can interfere with his/her involvement with his/her friends (Skär). Participation in "normal" activities may also be inhibited by well-meaning parents and teachers who are trying to overprotect the child with disabilities (Missiuna & Pollock., 1991).

Skär (2002) asked students with mobility problems about their experiences using technical aids (splints, crutches, wheelchairs, walkers, etc.) during play. The focus was to explore the perceptions and personal experiences these children have and their need for technical assistance. Younger children saw the technical aids as an extension of themselves, as part of their body. They did not seem to be bothered or feel insecure about their aids. However, older children understood that other children did not require technical aids and felt the devices impacted their abilities to socialize and interact with other non-disabled children. Creativity and the ability to understand the importance of the aids played a large part in the children's capability to accept limitations and accommodate to various situations.

Role of the Occupational Therapists working with children with disabilities: Assessment, intervention, and promoting opportunities for inclusion

The training and knowledge occupational therapists have in modifying and developing accessible spaces are instrumental in designing optimal playground environments for children with disabilities. Their knowledge of developmental disabilities, insight into architectural barriers, and focus on client-centered treatment to maximize independence is an invaluable resource in this area of practice (Stout, 1988). "Occupational therapy is the art and science of helping people accomplish day-to-day activities that are important to them despite impairment, disability, or handicap. 'Occupation' in occupational therapy does not simply refer to jobs or job training; occupation in occupational therapy refers to all of the activities that occupy people's time and give meaning to their lives" (Neistadt & Crepeau, 1998, p. 5). Occupational therapists work with diverse patient populations. A hallmark of occupational therapy is the client-centered approach to treatment where a client's individual values and perceptions are considered and the goals of intervention are established mutually by the client and therapists (Pollock et al., 1997). For the pediatric population, the client-centered approach focuses on play.

Occupational therapists have been using play as a treatment for children to meet a variety of needs. These needs include sensory integration dysfunction, neurodevelopmental delays, occupational, behavioral, and developmental perspectives recognizing the sensorimotor, social, and constructive benefits of play (Missiuna & Pollock, 1991). Occupational therapy educational programs teach developmental sequences, assessment skills, intervention approaches, and the ability to grade activities,

adapt the environment and make assistive device recommendations for individuals with special needs (Accreditation Council for Occupational Therapy Education, 2000).

Assessment includes observing the child in a natural play setting, obtaining a play history, and identifying the play environments of the child, toys available, and opportunities the child has to engage in play with peers and caregivers. Assessment is also used to determine what is important to the child and what brings meaning to him or her (Pollock et al., 1997). Observing the child and listening to personal stories will add depth and meaning to the evaluation process.

Intervention involves building play opportunities into the child's daily routine, making play a part of the classroom, therapy, home and community settings. This will maximize play experiences that are similar to their typically developing peers (Missiuna & Pollock, 1991). Occupational therapists consult with teachers and caregivers to provide recommendations for toys and activities that meet the needs of the child and suggest ways to adapt the environment.

Free play encourages children to explore, experiment, and make decisions about the world around them. It also provides opportunities to cope with changes, learn consequences, explore cause-and-effect relationships, and work at overcoming obstacles (Missiuna & Pollock, 1991). Participation in free play activities with children who have physical disabilities is altered. With decreased opportunities to explore environments, secondary disabilities are likely to develop. Secondary disabilities include decreased motivation, underdeveloped social skills, increased dependence on others, lack of assertiveness, lowered self-esteem and immature gross and fine motor skills (Jennings et al., 1988; Missiuna & Pollock, 1991; Nabors & Badawi, 1997; Nabors et al., 1999).

Free play may be inhibited by physical and personal limitations of the child, the environment, social barriers, and caregivers who intervene too quickly. The child may lack the skills, motivation, concentration, or drive to participate and explore environments. This can cause the child to withdraw from the play situation due to frustration. Optimally, the demand of the environment needs to match the skills of the child. Often though, the environment, especially the community and playground, is not designed to meet the needs of children with disabilities. Peer play situations and interactions may be limited, which can lead to problems in social skills and difficulty initiating play with peers. Frequently, children with disabilities have limited opportunities to explore as compared to their typically developing peers. Parents are encouraged to take on the role of the therapist during play situations, thus diminishing the parent-child relationship. Encouraging the child to become more independent and rely less on caregivers may help decrease social isolation. By participating in play opportunities that match and build upon a child's skills, therapists can be instrumental in helping a child develop self-initiation, motivation, social skills, self-esteem, and other skills needed for the future (Pollock, 1997).

Supports and barriers to playgrounds

Throughout the research process, children, caregivers and therapists discussed environmental supports and barriers to playgrounds. Supports were viewed as things that assisted the child in the play process whereas barriers were things that inhibited a child from participating in play activities (Nabors & Badawi, 1997; Pollock et al., 1997; Prellwitz & Tamm, 1999; Prellwitz & Tamm, 2000; Skär, 2002). Identifying supports and

barriers in an environment assist in designing an optimal environment for all to participate in.

Pollock et al. (1997) examined the socialization and relationships with other children and found peer relationships to be an important support for a child with disabilities. Psychosocial factors are more influential to a child's perception of fun than physical factors. Not surprisingly, when a child participates in playful opportunities with others, they enjoy themselves more. The ability of children with disabilities to engage in both the social and play environments is increased when peers understand the child's disability. Other supports include adults and caregivers. Adolescents with disabilities were interviewed about their experiences with play as children. These individuals identified more barriers preventing engagement in play than those who did not have disabilities (Pollock, et al.).

Physical barriers at the playground make it difficult or impossible for children with disabilities to participate with their peers because of their disability. Simply getting to the playground may present as a barrier (Prellwitz & Tamm, 1999 & Pollock et al., 1997). Narrow passages through gates and fences, or ground surfaces such as sand prevent a child with a walker, wheelchair, or crutches from accessing the play areas (Stout, 1988). The design of the play equipment presents another challenge. Various equipment, such as swings, slides, and climbing equipment are more difficult for a child with limited mobility to access, as the design of the equipment may not accommodate a wheelchair or walker. Children on the playground present a barrier due to high speeds as they quickly move from equipment to equipment, and the crowding they cause on the playground. The time of year is another factor impacting usability of the playground.

Snow and ice can be in the way of allowing a child to participate, often requiring the child to stay indoors (Prellwitz & Tamm, 2000).

Pollock et al. (1997) found that children with disabilities identified more barriers to play than their non-disabled peers. These barriers included such things as weather, inaccessible spaces, length of play time, school and homework obligations, and psychosocial challenges. Often children with disabilities felt "different" from their peers because of their inability to play as they do. To address issues dealing with play, the social environment needs to be considered as well as the influence of the physical environment.

When designing playgrounds, children with physical or psychosocial handicaps are not taken into consideration, part of this may be due to the added costs associated with creating an adaptive environment. Cost is a huge factor in creating accessible playgrounds, both in purchasing adapted equipment and in the cost of consulting professionals. Individuals responsible for designing playgrounds need to explore and incorporate resources for increased access to the play equipment (Prellwitz & Tamm, 1999).

The Person-Environment-Occupation Model

To help explain the relationship between children and their environments and occupations, the Person-Environment-Occupation Model of occupational therapy is utilized. This model describes how each of these constructs: person, environment, and occupation work together and impact the individual. In this model, the person is viewed as unique with many dynamic qualities and "ever-developing being, constantly interacting within the environment" (Law et al., 1996, p. 17). The environment

encompasses many dimensions, including socio-economic, institutional, physical and social considerations where occupational performance takes place. Occupation includes activities, tasks, and occupations the individual performs to meet the needs of the individual.

The goal of this model is to achieve optimal occupational performance, satisfaction and successful performance of desired occupations. This is defined by the individual while engaging in purposeful activities and tasks in the environment. When a balance exists among the person, environment and occupation, achieving optimal occupational performance will be possible. Performance of occupational roles should bring satisfaction and pleasure to an individual if matched appropriately to the environment. Creating a balanced environment where the abilities of the child match the demands of the environment will result in successful performance for the child with the disability interacting on the playground. The needs of the greater community and dynamic nature of people require an environment that will accommodate different levels of abilities, such as designing a playground that offers a variety of equipment to meet the needs of a diverse population of users.

Creating an inclusive playground

"The playground is a useful context for examining young children's social interactions since is provides children opportunities to engage in spontaneous free play in an open setting and offers many opportunities for interaction with peers" (Nabors et al., 1997, p.22). The playground provides opportunities for children to meet and interact with other children, while developing an awareness of differences and similarities within their school and community. This fosters the growth of children in accepting differences

around them with respect and understanding. Planning appropriate play facilities to foster this interaction for children of all abilities is necessary. “A safe, accessible, and challenging playground encourages social interaction and physical and mental exercise. All children have the right of access to appropriate play opportunities” (Stout, 1988, p. 653).

A number of authors have presented suggestions on adaptations to make playgrounds more accessible for all users (Christoph, 1997; Ensign, 1993; Fickes, 2002; Goltsman, 1996; Meyer, 1997; Raschke, Dedrick, & Hanus, 1991; Stout, 1998; Worner, 1983). Areas to consider include access to the playground, ramps, and equipment. The entryway to the playground should be wide enough to accommodate wheelchairs and other necessary equipment. The ground surfacing should allow for easy mobility of wheeled equipment, yet still provide resiliency, firmness, stability, and slip resistance (Christoph). Ramps within the playground provide access to children with mobility aids. These should be constructed with a maximum slope of 1:12 with handrails on both sides of the walkway (Christoph; Ensign). Another component to consider are transfer points for children to be able to transfer from their wheelchair to the equipment allowing them the opportunity to leave their wheelchair and explore (Raschke et al.).

A variety of equipment should be chosen to meet the diverse needs of the users, including things that encourage climbing, running, balancing, jumping, crawling, riding, and bending. Other options to consider are various types of swings and gliders, slides, cargo nets, ropes, and balance beams, as well as stationary climbing equipment. Hand-holds and grips provided on equipment assist children who rely on upper extremity strength for mobility and encourage others to build arm strength (Raschke et al., 1991).

The height and spacing should be taken into account when designing the playground and determining the target population for the playground. Active play areas should be separated from walkways and other play areas for safety reasons. Pathways connecting play areas encourage children to find a place on the playground that provides comfort while easing mobility around the playground. Paved pathways could also serve as tricycle pathways and places for children to play games.

Further considerations include sensory opportunities to further enhance the playground experience. Fragrant plants, noise makers, sand and water play pits are all options to consider. Placing sand and water play areas at ground level and waist height will encourage more free play opportunities and allow individuals to play either seated or standing (Stout, 1988). Quiet areas, shelters, picnic tables with moveable benches (or no benches on one end or side) allow a wheelchair access to the table. Sun-shaded areas give caregivers a place to watch their children play, while giving children the opportunity to rest and cool down (Goltsman, 1996; Raschke et al., 1991). Landscaping can add attractiveness to the playground, as well as provide shade to its users (Fickes, 2002). Shelters, restrooms, and parking spaces should all be accessible to those with mobility issues. Fencing around the playground helps prevent children from wandering off and keeps balls and equipment in the play space.

Purpose of Project

The purpose of this project is to create a manual for playground planners, teachers, parents and caregivers to give children the opportunity to enjoy the same access and experiences as their non-disabled peers. The goal is to help all children interact as independently as possible with less emphasis on aid or adult assistance. This is done to

maximize their learning and developmental experiences. Occupational therapists have knowledge and skills helpful in designing accessible environments – including playgrounds. The emphasis that occupational therapists have on activities makes them unique in providing play services to children (Missiuna & Pollock, 1991).

Chapter III describes the process of developing a resource manual for planners, parents, teachers, and other caregivers. It was written to assist in designing playgrounds that take full advantage of the opportunities available for children with disabilities to increase social opportunities, facilitate physical development, and promote an atmosphere of inclusion for all.

Chapter III

METHOD

An inclusive and exhaustive literature review was conducted to gain a greater understanding of the needs that exist in the area of children and play focusing specifically on children who have disabilities and the play environment of the playground. Additionally, information was also gained through review of current catalogs from playground manufactures to learn what equipment is presently on the market and what is available for children with disabilities. Government documents and books were used to find information related to the created product and modified and adapted to fit the intended purposes of the product.

The literature suggests a lack of knowledge in regards to building a playground that meets the needs of all children who use them. As well, socialization opportunities are limiting for children with disabilities because of physical and psychosocial barriers that exist in this environment.

A product was developed to address these concerns at a level that is appropriate for teachers, caregivers and builders to provide information on equipment considerations, activities to encourage socialization, and additional sources of information regarding equipment, and organizations of interest. The intention was to put together information in one easy to use source to reference during all stages of planning and building as well as follow-up activities for increased inclusion of children of all abilities on the playground.

Chapter IV provides an introduction of the created product. It includes information regarding its purposes, use, and design.

Chapter IV

PRODUCT

Children need opportunities to play and experience the world. Of main importance, children have to socialize and master skills in the playground. The purpose of this project was to create a handbook for teachers, caregivers, and designers of playgrounds providing information to consider when designing and building playgrounds. This was based on knowledge gained in the literature review. This resource ties together information from multiple sources to give a fresh perspective on playground design and modifications available.

Included in the product is information on things to consider when designing playgrounds as a way to include all children of all abilities. Specifically, it incorporates information on choosing an appropriate surface material, selecting suitable equipment to fit your needs and population, safety considerations, and sources for additional information. In addition, games and activities are provided to assist teachers and caregivers in encouraging socialization between children with and without disabilities to help build relationships, teamwork and understanding.

The complete resource handbook can be found in appendix A. Chapter V provides a summary of the process and limitations of the project. Also included are recommendations for future actions.

Chapter V

SUMMARY

As stated in the literature review, there are significant benefits for all children to be included in cooperative play. Throughout this scholarly project, it became apparent that there is a true need for the redesign of community play environments to optimize the play experience and social opportunities for all children. Hence, communities must assess playgrounds to ensure that they are inclusive for all children.

Limitations of the study

A limitation to the study of inclusive play environments was that a majority of current research regarding this topic was from British, Canadian and Scandinavian Journals of Occupational Therapy. Since the United States has different laws and guidelines governing accessibility and inclusion for people with disabilities, these journals may not reflect the challenges faced by children in the United States.

Another limitation to the study of inclusive play environments is the scope of the disability areas addressed. Most of the research base focuses on children with mobility issues and does not address other physical and mental disabilities. These may include hearing impairments, cognitive delays, vision impairments or pervasive developmental delays.

Recommendations for future action

Many communities have playgrounds; however they may not fit the needs of all the children in the community. Systematic analysis to ensure playgrounds are inclusive

for all children should be conducted. A user satisfaction rating survey is one method to determine if the play environments meet the needs of its users. A playground's inclusive usability, within the least restrictive environment and the promotion of social interactions between children of all abilities should be part of the evaluation process. A product was created for parents, teachers and builders of playgrounds to assist in the planning process. The product was designed to help maximize play opportunities between children of all abilities on and off the playground. This manual will be made available to interested parties upon request. These people will be sent a follow-up survey to determine its usefulness in guiding design and set-up of a playground. Based on feedback from users of the reference manual modifications will be made.

Longitudinal and qualitative studies using children with disabilities in the United States should be completed to provide an accurate assessment of needs for these children. As stated previously, U.S. laws and guidelines governing accessibility and inclusion for people with disabilities may not be the same as those studied in the current research. Further research in the area of understanding the diverse experiences children with varied disabilities, such as hearing impairments, cognitive delays, vision impairments or pervasive developmental delays have regarding play and playgrounds is needed. Current research tended to focus on primarily children with motor handicaps.

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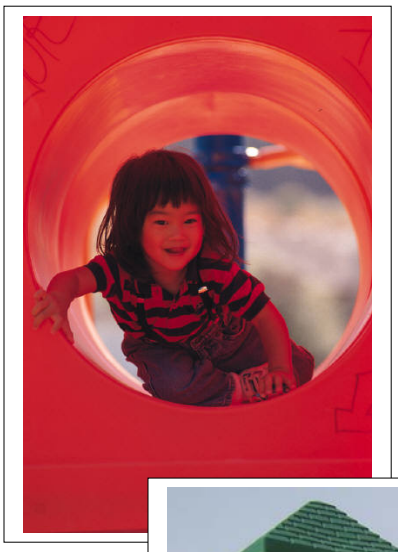
APPENDIX

Considerations for Playgrounds: Accessibility for All

A guide for caregivers, teachers, and designers



By Sarah Kriesel-Koll, MOTS

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Things to Consider

Play is a powerful medium for children to explore and interact with their environment. It offers opportunities for expression, interaction, discovery, and development. The process of designing a playground offers many options for consideration. This guide will help you explore the playground planning process and provide you options to consider in designing and building a playground to fit your needs. Designing an appropriate playground that provides access for all users will enhance the play, learning, and interaction experiences for children.

The social environment of the playground is as important as the physical environment. Providing opportunities that encourage growth in all areas is going to offer the most satisfaction for you and the children who will use it.

Included in this manual are resources for choosing appropriate equipment to meet the needs of the children who will use the playground with information on appropriate surface material, selecting suitable equipment to fit the intended population and their needs, safety considerations, and sources for additional information. In addition, games and activities are provided to assist you in encouraging socialization between children of all abilities to build help build relationships, teamwork, and understanding.

The rewards that come with designing the best playground is well worth the extra time and effort put into it.

Surfacing

The appropriate surface material for your playground should be one that is safe and accessible. It is important to choose a surface which will allow a child using a wheelchair, walker, crutches, or tricycle the ability to move around easily. Using a material that provides safety, accessibility, and enhances the look and feel of the playground will greatly benefit everyone.

According to Phillips (1996) and Theemes (1999), the following characteristics should be taken into consideration when choosing a ground surface for the playground.

- Accessibility
- Shock absorbency
- Maintenance
- Installation and purchase cost
- Long-term maintenance cost
- Permanence
- Containment needs
- Good footing
- Cushioning from falls
- Appearance
- Vandalism potential
- Flammability
- Drainage

Currently, the only resilient and impact absorbing surface that is considered accessible for all is rubber matting; however, because of the high cost of this material, it is recommended that only the parts of the playground with play equipment be covered (Theemes, 1999).

Questions to Consider:

- Is a firm surface provided to allow a child using a wheelchair, walker, or other wheeled device access to the playground?
- Will this surface allow for water drainage?
- Is the surface slip resistant?
- What are the maintenance requirements for this surface?
- Is the chosen surface attractive?
- Is there a smooth transition from one play surface to another?
- Is the surface durable and capable of withstanding extreme temperatures, frost, ice, snow, summer heat and humidity?
- Can the surface be easily repaired?
- What is the warranty and estimated life of the surface material?

Square safety tiles

Poured rubber surfacing, wood and chip

Pathways

Pathways should be designed to allow a child using a walker or other mobility device the opportunity to move around independently. According to ADA requirements, "an accessible route is a pathway specifically designed to provide access for individuals with disabilities, including those using wheelchairs or mobility devices" (ADA, p. 19, 2001).

Pathways provide accessibility and separate functionally different spaces. They also allow users the ability to move between equipment and orient themselves to the playground. A pathway should be firm, stable, slip resistant, accessible, durable, and provide appropriate aesthetics. Pathways can be a recreational and play facility in and of themselves (Moore, 1987). Pathways can also be used to separate 'active' play areas from 'passive' play areas or playgrounds designed for different age groups. Additionally, a pathway may be used to separate swings from other parts of the playground for safety reasons.

- The ADA recommends a pathway be 60-inch minimum clear width to accommodate individuals in wheelchairs room to pass each other or turn.
- Warning textures or markings in the pathway surface can be used to warn visually impaired visitors of changes in the path, such as slopes, ramps, or edges.
- A slight edge or curb or brightly painted strip on the edge of the pathway can be used to help visually impaired visitors orient and stay on the path.
- Changes in path textures should be accompanied by different noise and resiliency characteristics to allow better detection for its users.

Although play equipment may not always be desirable to every child with disabilities, simply being near other children will help encourage social interaction and inclusion.

Questions to consider:

- Do the pathways connect structures?
- Are the pathways wide enough to accommodate two people in wheelchairs passing each other?
- Do the pathways separate functionally different parts of the playground?
- Is the surface durable and capable of withstanding extreme temperatures, frost, snow, ice, summer heat and humidity?

A pathway separates various areas of the playground

Equipment

A variety of equipment choices are available on the market. Consider the age of the population that the play area will serve and the abilities of its users. Equipment that provides a 'just right challenge' will help foster growth and development of its users. Choosing equipment that will encourage social, physical, emotional, and cognitive development will enhance the play experience for the child.

See p. 9 for a detailed list of equipment choices and descriptions.

Questions to consider:

- Is there enough equipment that provides opportunities for a child with a disability to participate with their peers?
- Does the equipment fit the age and skill level the playground is designed for?
- Does the chosen equipment challenge a variety of skills, such as balance, coordination, strength, etc?
- Are there places on the playground that encourage socialization between children?

Double slide

Free standing activities

Sand digger

Accessible swing seat with safety harness

Accessible swing seat

Talking tube

Transfer System

A transfer system allows a child access to elevated equipment without the use of a wheelchair or mobility device. This system consists of a platform, transfer steps, and transfer supports (handrails). The transfer system provides access to elevated surfaces of the playground while minimizing the distance that individuals much travel to get to these surfaces. A clear ground space should be provided at the transfer platform for parking and leaving a wheelchair.

ADA requires the following transfer platforms:

- 11 to 18 inches height of top surface
- Minimum 24 inches wide
- Minimum 14 inches deep

Questions to consider:

- Does the platform meet ADA guidelines?
- Is adequate space provided at the bottom of the platform for leaving and parking a wheelchair?
- Does the transfer system eliminate the distance a child would have to travel to access elevated play equipment?
- Does the transfer system provide the necessary support for a child with special needs to feel safe and secure during mobility?

Transfer system

Another look at a transfer system

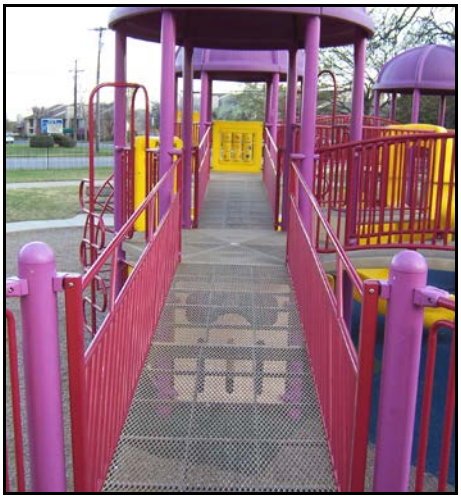
Ramps

Ramps allow a child using a wheelchair, crutches, or other assistive equipment access to elevated play structures without having to leave their equipment behind.

- Ramps should be constructed with a 1:12 max slope. Therefore, for every 1" vertical height, there should be 12" in length.
- Maneuvering space should be provided on the same level as the play component to allow a wheelchair the ability to turn around and change directions.
- Place handrails on each side of the ramp for safety reasons as well as give an ambulatory child the ability to use the rails for stabilization.

Questions to consider:

- Are ramps needed to enter the playground? If so, where should they be strategically placed for optimal benefit for all?
- Do the ramps provide access to various parts of the playground?



Various types and uses of ramps for accessibility to and around playground.

Safety

Our goal is to create a playground that is safe to its users while still challenging, motivating, and exciting. A playground that fails to stimulate a child's abilities by providing opportunities to use imagination and satisfy curiosity can lead to the child becoming bored and finding destructive activities to engage in. It is important to create a balance between challenge and excitement in an environment that is safe and supporting. Those who work with children need to provide both for their physical safety as well as emotional growth.

- Rules should be clearly posted at the playground such as supervision requirements, restriction of certain age groups on designated equipment, no glass containers, etc.
- Areas of moving equipment, such as swings, should be separated from other play areas to avoid a child getting hit by a swing.
- A barrier or fence around the play equipment will help prevent children from wandering off as well as keep balls and other equipment inside the play space.

Questions to consider:

- Does this playground challenge children with a 'just right challenge'?
- How is the equipment going to be properly maintained?
- How will children be supervised on the playground?
- Is proper signage provided to guide users?
- Have areas with moving equipment (such as swings) been separated from areas of stationary equipment?

Equipment Considerations for Common Equipment and Materials: Benefits and Modifications for Children with Special Needs

Equipment	Description	Goals and Benefits	S	P	E	C	Modifications
Sand or water tables	A sandbox or water basin mounted at table height	Encourages imagination, social interaction; can be played with alone or with others	X	X	X	X	●Adequate room underneath for a wheelchair to access ●Indentations around the table to offer support to a child with poor balance
Sand box	Ground level play surface enclosed with boundaries to play with sand	Provides sensory play and promotes balance skills while encouraging imagination, social interaction, and problem solving	X	X	X	X	●Corner chair provided for child with decreased trunk stability ●Provide shovels, buckets, trucks, and other sand toys to encourage socialization and creativity
Music panel	Music is produced by hitting a panel with a stick or by hand	Stimulates auditory discrimination and creative learning	X		X	X	●Placed at varying heights to accommodate a wheelchair ●Wheelchair accessible location
Steering wheel	Can be mounted on a post, side of wall, or on play equipment	Promotes imaginative play and interaction with others	X		X	X	●Appropriate height for a child in a wheelchair
Play counter	Usually mounted underneath equipment or a stand-alone piece of equipment; may be part of larger imaginative play system (play sink or stove top)	Encourages role play, imaginative play, and interaction with others, provides a surface for drawing and other activities	X	X	X	X	●Provide adequate surfacing, spacing and height for wheelchair access
Playhouse	Child-sized sheltered area with some privacy but allows for supervision of play	Encourages imaginative and social interaction, role playing,	X		X	X	●Should be large enough to accommodate a wheelchair and two to three other children
Tunnel	Molded passageway for crawling through and hiding	Encourages social interaction and the child to move their bodies in a new way	X	X			●Ramped access ●Large enough to accommodate an adult or two children ●Ceiling or side-mounted grips for children to pull their bodies along ●Textured to provide tactile cues to those with visual impairments

S = Social P = Physical E = Emotional C = Cognitive

Equipment	Description	Goals and Benefits	S	P	E	C	Modifications
Wide slide	Double the width of a typical slide; allows a child to use independently or with a peer or adult; a child with poor sitting balance may ride laying down	Encourages socialization, balance, vestibular stimulation, and cooperation	X	X			●Transfer points for a child to access from wheelchair ●To prevent falls, install on an embankment or with sides
Parallel Slide	Allow a child to ride slide individually or seated next to peer or adult	Encourages socialization, balance, vestibular stimulation and builds confidence	X	X			●Ramped access or transfer points ●Slides to maintain position on slide ●Dual slide should offer adequate space for adult to ride beside child
Tube and half tube slides	Enclosed slide allowing a child to ride independently	Provides vestibular stimulation, improves upper and lower extremity strength and balance		X	X		●Multiple means of access
Tire swing	Large tire is used as a seat, suspended from and overhead beam by a single point	Improves balance, strength, encourages social interaction, vestibular sense, and language development; can be used by a single child or with others	X	X		X	●Harnessing system to hold child with limited strength and sitting balance
Standard swing	Soft seating system with two point suspension system	Improves balance and coordination, stimulates vestibular sense; can be used individually or with a group	X	X	X		●Provide device producing sounds for visually impaired child and cueing for location
Supine Swing	Supine seating system with added straps for stability and fit that allows it's users to ride while supine	Allows a child decreased trunk stability or strength the ability to ride swing in supine position, stimulates vestibular system	X	X			●Additional straps may be required depending on needs of child
Platform swing	Suspended platform with ramp enabling a person in a wheelchair access on a swing	Stimulates vestibular sense and balance; may require assistance	X	X			●Additional wheelchair tie downs may be necessary to hold wheelchair in place
Spring-based teeter-totter	Provides increased safety; allows children of different sizes to ride together	Promotes improved balance and coordination, social interaction, and upper extremity strength	X	X	X		●Non-slip surface material on seat to assist in transfer

S = Social P = Physical E = Emotional C = Cognitive

Equipment	Description	Goals and Benefits	S	P	E	C	Modifications
Spring rides	Animal or vehicle shaped ride mounted on large coil spring	Improves balance, coordination, and upper extremity strengthening, stimulates vestibular sense		X	X		●Back support system and foot holds for added support ●Accessible seating for transfer from wheelchair
Balance beam	Installed slightly off the ground for walking on a narrow beam or pod-shaped platforms	Promotes balance, coordination, and gross-motor planning		X		X	●Railing provided to assist a child with poor balance ●Non-slip surface
Manipulative play panel	Panel with various gadgets mounted including knobs, latches, dials, switches, or a tick-tack-toe board.	Improves fine motor manipulation, cognitive skills, and social interaction	X	X		X	●Access to panel at varying heights ●Surface material and spacing to accommodate a wheelchair ●Bright colors to promote visual stimulation ●Provide tactile and auditory cues
Stairs and inclined ladders	Provides access to slides, climbing equipment, or platforms; should be wide enough to allow children to pass each other going up or down	Improves gross motor planning and low extremity development, can be crawled or walked up		X		X	●Railing provided on each side for support and increase safety ●Ensure ramped access to areas
Bridges	Wood, tires, rope, or chain structure connecting various play components; can be stable or move with child's movement	Encourages balance and coordination		X		X	●Handrails provided for safety ●Wheelchair accessibility as appropriate ●Textured surfaces for transition from equipment for visually impaired child to increase safety and spatial orientation
Adjustable basketball hoop	Adjustability allows equipment to be use at varying levels	Improves eye-hand coordination, upper extremity strengthening, balance, and social interaction	X	X		X	●Adjust to allow younger users or those seated to participate ●Accessibility for wheelchair ●Auditory cues provided by sound producing device
Sand digger	In ground mounted unit with arm mechanism and bucket to dig in sand	Promotes creativity, upper extremity strengthening, and can be used alone or with others	X	X			●Comes with or without a seat to allow wheelchair access ●Slip-resistant setting for transfer from wheelchair

S = Social P = Physical E = Emotional C = Cognitive

Adapted from :
Ensign, A. (Ed.). (1993, May). Universal playground design. PAM Repeater, 79, 1-20.
Theemes, T. (1999). Let's go outside! Designing the early childhood playground. Ypsilanti, MI: High/Scope Press.

Socialization Activities

The playground provides many opportunities for the developing child to interact and socialization with their peers. The playground brings children together of all cultures and abilities to learn from each other and the world around them.

For the child with special needs, the playground can be an isolating experience as limitations in their abilities can lead to decreased participation in activities with their non-disabled peers. Providing positive interactions and shared experiences with all children helps foster development and socialization.

Below are some activities to encourage socialization between children with special needs and their typically developing peers. When an activity uses pairs, children with disabilities and non-disabled peer should be paired to encourage true interaction.

Shadow Dancing

In pairs, children take turns being the leader and being the "shadow" partner as they move around the play area. Encourage the "shadow" to stick close to their partner and follow their movements. The leader is encouraged to make quick changes of direction and come up with new ways to move their bodies. The teacher or caregiver blows a whistle to signal 'stop', praising the teams who stop the quickest. The leader and "shadow" changes roles and continue the activity. Call out various movement ideas each time the activity stops, such as jumping, running, walking, walking backwards, side-stepping, skipping, etc.

Moving busy bodies

Children freely walk around in a general space, mixing around each other. 'Moving, moving, moving…….FREEZE!" Everyone quickly stops and listens for a body part command. Call out the name of the body part, 'Knees!' and children quickly pair up and touch knee to knee. Call out another name of another part, 'Elbows!' Children must find a new partner and touch elbows.

Variations:

- Call out the names of two body parts such as 'hands and knee'
- Touch 3 different body parts
- Have children match up in groups of 3

Wall Volleyball

In pairs, the children stand near and facing a wall. One partner bounces a ball off of the wall and the other child tries to catch it after it bounces once on the ground.

Variations:

- Try and catch the ball without it bouncing once on the ground
- Offer challenges, such as stomp your feet before catching the ball; touch your shoulders; snap your fingers; turn around once.
- Use a balloon or beach ball to decrease the challenge

Beanbag horseshoe

Provide each pair of children 2-3 beanbags and have them aim for a target 3 yards from a throwing line taking turns tossing their beanbag at the target. Each beanbag that hits the target scores one point, play to five points. Have the children challenge another player.

Variation:

- Vary the distance the target is to match the skill level of the children playing
- Increase or decrease the amount of points needed to score
- Play with rings and have children try and ring an object or pole

Balloon hit

In a circle of 4 or 5 children, have them work together to keep a large balloon from hitting the ground. Players are not allowed to hit the balloon twice in a row. Count the number of hits that are made before the balloon hits the ground.

Treasure hunt

Break children up in groups of 2 or 3 and provide a list of 'treasure' that the children need to gather. Give a bag for children to place their 'treasures' in. Example of 'treasure' children could gather include certain color leaf, stick, wrapper of some sort, bug, flower, etc.

Variation:

- Use pictures instead of words for the treasure list

Parachute Activities

Waves

Have children evenly spaced around the outside of the parachute, gripping the handles or holding onto the edges. Spread the parachute out and slowly create waves. Increase from slow, gentle waves to rolling waves, to huge waves. Encourage children to listen to changing directions.

Mushroom

Lower the parachute to the ground and on signal 'up' quickly raise the parachute overhead and walk to the inside and on signal 'down' lower the parachute to the ground. Sit on edges of parachutes to hold air in.

Ball hop

Place multiple small, soft balls, toys, etc into center of parachute and have children try to shake items off the parachute.

Switch places

Holding onto parachute, have children quickly raise the parachute overhead while a command is called out. Children who fit the command called quickly run underneath the inflated parachute and switch places with another child who fit the command. Commands may include such things as "if you are wearing red", "if you like to play checkers", or "if your birthday is in April". Repeat using various commands.

Circling ball

Have children evenly spaced and holding onto a handle or seam of the parachute. Place a medium sized light ball onto the edge of parachute and encourage children to try and make the ball travel around in a circle on the edge of the parachute. Children will do this by lowering their portion of the parachute when the ball comes to them and then raising the parachute to keep it moving. Once children get it, have them try and get the ball to move in the opposite direction.

Ideas adapted from:
Landy, J. & Burridge, K. (2002). Kids with zip: A practical resource for promoting active children ages 3-12. Australia: Prentice Hall

Sources for Additional Information

Playground Equipment Manufactures and Distributors:

Big Toys
7721 New Market Street
Olympia, WA 98501
Phone: 866-814-8697
Fax: 360-528-8680
http://www.bigtoys.com

Burke Company, Inc.
P.O. Box 549
Fond du Lac, WI 54936-0549
Phone: 920-921-9220
http://www.bciburke.com

Childforms
110 Charleston Drive, Suite 106
Mooresville, NC 28117
Phone: 1-800-447-3349
Fax: 704-664-1409
www.childforms.com

Creative Playgrounds, Ltd.
112 Market St.
Sun Prairie, WI 53590
Phone: 608-825-2140
Fax: 608-825-2114
http://www.creativeplaygrounds.com

GameTime
Phone: 1-800-235-2440
http://www.gametime.com

Kompan, Inc.
7717 New Market Street
Olympia, WA 98501
Phone: 1-800-426-9788
Fax: 360-943-3015
http://www.kompan.com

Landscape Structures, Inc.
601 Seventh Street South
Delano, MN 55328
Phone: 1-800-438-6574
Fax: 763-972-3185
http://www.playlsi.com

Leathers & Associates – Custom built community playgrounds for children of all abilities
99 Eastlake Road
Ithaca, NY 14850
Phone: 877-564-6464
Fax: 607-277-1433
http://www.leathersassociates.com

Playworld Systems
1000 Buffalo Road
Lewisburg, PA 17837-9795
Phone: 1-800-233-8404
http://www.playworldsystems.com

Sound Play - Incorporates outdoor musical instruments into playground design creating a unique play experience.
Sound Play
Outdoor Musical Instruments
P.O. Box 115
Parrott, GA 3177
Phone: 229-623-5545
http://www.soundplay.com

Playground Surface Materials

ChildTurf
110 Charleston Dr.
Ste. 106
Mooresville, NC 28117
Phone: 800-447-3349
Fax: 704-664-1409
www.childforms.com

No Fault Sport Group, LLC
3112 Valley Creek Drive
Ste C.
Baton Rouge, LA 70808
Phone: 1-866-637-7678
Fax: 225-291-3821
www.4NoFault.com

Mat Factory
760 West 16th St Bldg E
Costa Mesa, CA 92627
Phone: 800-628-7626
Fax: 949-645-0966
www.matfactoryinc.com

Rainbow Turf Products
109 East 17th St.
St. Cloud, FL 34769
Phone: 407-957-9499
Fax: 407-957-9599
www.rainbowturfproducts.com

Adapted tricycles, bicycles, balls, swings, signs and other play equipment

Achievement Products, Inc.
P.O. Box 9033
Canton, OH 44771
Phone: 1-800-373-4699
Fax: 1-800-766-4303
http://www.specialkidszone.com

Ambucs
Theraputic tricycles for children with disabilities
3315 North Main St., High Point, NC 27265
Phone: 336-869-2166
Fax: 336-887-8451
http://ambucs.org

American Swing Products - Swings, slides, spring animal rides, and other accessories
2533 N. Carson Street, #1062
Carson City, NV 89706
Phone: 1-800-433-2573
Fax: 775-883-2384
http://www.americanswing.com

Childcraft Educational Corporation
245 West Essex Ave.
St. Louis, MO 63122
Phone: 877-726-1696
Fax: 877-726-1714
http://www.childrensfactory.com

Flaghouse Recreational and sporting products
601 FlagHouse Drive
Hasbrouck Heights, NJ 07604-3116
Phone: 1-800-793-7900
Fax: 1- 800-793-7922
http://www.flaghouse.com

Freedex - Mobility cycles for people of all ageshttp://www.web.net/freedex

Grounds for play - Offers a variety of outdoor equipment, including swings, slides, tricycles, spring rides, tables, benches, and other produces for dramatic play.
Phone: 800-552-7529
http://www.groundsforplay.com

Outside Toys Pro - Ramps, sand diggers, swings and other wheelchair accessible playground equipment
6080 Eagle Ave.
Portage, IN 46368
Phone: 1-866-710-8697
http://www.outsidetoyspro.com

Playworks - Toys for children with special needs
667 West California Boulevard
Pasadena, CA 91104
Phone: 877-579-9300
Fax: 626-585-8675
http://www.playworks.net

Rifton - Equipment for those with disabilities
Community Products LLC
359 Gibson Hill Road
Chester, NY 10918-2321
Phone: 1-800-777-4244
Fax: 1-800-336-5948
http://www.rifton.com/r/Mobility/index.htm

Rock N'Roll Fun Machine - Custom fitting therapy cycles created for hand power, foot power, or both
Rock N' Roll Cycles
P.O. Box 1558
Levelland, TX 79336
Phone: 806-894-5700
Fax: 806-894-1238
http://rocknrollcycles.com

Other sources of information

Guide to ADA Accessibility Guidelines for Play Areas
Outlines and defines guidelines for minimum accessibility requirements for newly designed and remodeled playgrounds.
U.S. Access Board
1331 F Street NW, Suite 1000
Washington, DC 20004-1111
Phone: 1-800-872-2253
Fax: 202-272-0081
http://www.access-board.gov/play/guide/intro.htm

Boundless Playgrounds – Works with playground designers and communities to design "Boundless Playgrounds"
45 Wintonbury Ave.
Bloomfield, CT 06002
Phone: 860-243-8315
Fax: 860.243.5854
http://www.boundlessplaygrounds.org/index.html

For information related to playground surfacing materials
Consumer Product Safety Commission
U.S. Consumer Product Safety Commission
Washington, DC 20207
Phone: 800-638-2772
http://permanent.access.gpo.gov/lps2572/3005.html

International Play Equipment Manufactures Association (IPEMA)
Non-profit group promoting manufacturers of play equipment
1924 N. Second Street
Harrisburg, PA 17102
Phone: 1-888-944-7362
Fax: 1-717-238-9985
http://www.ipema.org

National Recreation and Park Association (NRPA)
22377 Belmont Ridge Road
Ashburn, VA 20148
Phone: 703-858-0784
Fax: 703-858-0794
www.nrpa.org

For information on playground safety and prevention of injury

National Program for Playground Safety
School of HPELS, WRC 205
University of Northern Iowa
Cedar Falls, IA 50614-0618
Phone: 1-800-554-7529
Fax: 319-273-7308
www.uni.edu/playground

For specific information standards for playground surfacing

American Society for Testing and Materials
100 Barr Harbor Drive
West Conshohcken, PA 19428-2959
Phone: 610-832-9500
Fax: 610-832-9555
www.astm.org

To receive the current *Handbook for Public Playground Safety* or to make a report on a product hazard contact:

U.S. Consumer Product Safety Commission
Washington, DC 20207
Phone: 1-800-639-2772
Fax: 301-504-0124
www.cpsc.gov

For information on articles related to developmentally appropriate practice and playground design

National Association for the Education of Young Children (NAEYC)
1509 16th Street, NW
Washington, DC 20036
Phone: 1-800-424-2460
Fax: 202-328-1846
www.naeyc.org

For information on children's right-to-play issues

The American Association for the Child's Right to Play
240 Hofstra University
Hempstead, NY 11549
Phone: 516-463-5176
http://www.ipausa.org

References

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Phillips, L.E. (1996). *Parks: Design and management.* New York: McGraw-Hill.

Theemes, T. (1999). *Let's go outside! Designing the early childhood playground.* Ypsilanti, MI: High/Scope Press.

U.S. Architectural and Transportation Barriers Compliance Board. (2001). *Guide to ADA accessibly guidelines for play areas.* Retrieved January 8, 2005, from http://www.access-board.gov/play/guide/intro.htm

Wortham, S.C. & Frost, J.L. (Eds.). (1990). *Playgrounds for young children: National survey and perspectives.* Reston, VA: American Alliance for Health, Physical Education, Recreation, and Dance.