Planning Playgrounds for Children With Disabilities

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Key Words: children, handicapped • environment design • playground and playthings

Occupational therapists are well qualified for involvement in playground planning. They know how to eliminate architectural barriers, adapt equipment to maximize independence and functional levels, and use play in facilitating children's development. By participating in playground planning or adaption, the occupational therapist can present play opportunities for children with disabilities, increase public awareness of occupational therapy, and extend the use of treatment modalities. This paper makes specific suggestions for planning and building to make the idea for a playground a realistic goal. A case example illustrates the planning of a playground in a hospital setting.

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. However, children with physical, mental, or emotional problems are often excluded from these opportunities because appropriate play facilities and equipment are lacking.

The Education for All Handicapped Children Act of 1975 (Public Law 94-142) was enacted to increase the acceptance of children with disabilities by their nondisabled peers, to ensure equivalent opportunities for all children for learning, and to facilitate the development of skills in disabled children by exposing them to modeling by their nondisabled peers (Field, Roseman, DeStefano, & Koewler, 1982). More recent amendments, Public Law 98-199 of 1983 (Education of the Handicapped Act Amendments) and Public Law 99-457 of 1986 (Handicapped Infants and Toddlers), state that pre-school-age children are also entitled to opportunities for learning. These amendments declare a need to enhance development and to minimize the potential for developmental delay. They provide financial assistance to states to develop and implement early intervention programs that will facilitate the intellectual, emotional, physical, mental, social, and language development of infants and toddlers with disabilities. Adapted playgrounds can be particularly valuable in meeting some of these needs as well as in acquainting the community with disabled children—another stated goal of the funded experimental programs.

Attention should be directed to the design of playgrounds that fulfill the objectives of these laws. Occupational therapists can be instrumental in designing optimal playground environments for young children with disabilities, because they have a knowledge of developmental disabilities and understand what modifications are needed to eliminate architectural barriers, thus maximizing independence. Play, often used as a modality by occupational therapists, is essential to developmental progression. Playgrounds are excellent stimuli for encouraging spontaneous play. Ayres (1981) stated the following about play and playgrounds:

A human being is designed to enjoy things that promote the development of his brain, and therefore we naturally seek sensations that help organize our brain. This is one of the reasons why children love . . . to run and jump and play at playgrounds and at the beach. They want to move because the sensations of movement nourish their brains. (p. 7)

Playgrounds are popular with children because swings, slides, merry-go-rounds, monkey bars, see-saws, tunnels, and sandboxes fulfill the needs of the developing nervous system. (p. 24)

Since the value of play has been well established (Ayres, 1981; Chance, 1979, Erikson, 1963, Garvey,
The focus of this article will be on the planning, building, and funding of adapted playgrounds and on revisions of existing playgrounds to accommodate children with various disabilities.

The Occupational Therapist's Role

Playground objectives, schematic drawings, and equipment features are described in the literature (Mast & Kahn, 1986; Nimowitz & Levine, 1978; Nimowitz, 1978; Hogan, 1982; Mason, 1982), but little attention has been given to the role of the occupational therapist in the planning process. The occupational therapist can provide specific suggestions that can enhance a child's mobility, use of the senses, and cognitive skills in a playground environment.

Providing easy access and independence are important considerations in the planning or modifying of playgrounds for children with mobility limitations. For example, the selection of ground cover is important for children using assistive ambulation devices (crutches, prostheses, walkers, canes, and wheelchairs). A resilient and durable rubber safety surface, similar to outdoor running tracks, allows for easy mobility of wheeled equipment, such as strollers and IV poles (Exceptional Parent, 1981). Although sand or pea gravel are safe surfaces under swings and climbers because they slow running children and cushion falls, they are difficult materials for wheelchairs to travel through. The use of ramps and picnic tables with movable benches or no benches on one end or side are important for making playgrounds accessible to wheelchair users (Mason, 1982). Ramps built with a 1:12 ratio of height to distance can allow independent access to play lofts and slides (see Figure 1). Continuous handrails along the ramps make them safer for the ambulatory child (Nimowitz, 1978).

Sensory limitations present a different set of challenges to playground planners. Occupational therapists are aware of the importance of accentuating strengths and skills and provide planning suggestions based on this knowledge.

Fragrant plants, noise makers, and various textures, such as sand and water, can be provided for the blind child. The modification of game elements and rules can enable children with sensory impairment to participate. Softball, for example, can be adapted to allow the blind child to play with sighted friends by having a rope strung between padded poles at each base. The visually impaired child kneels to bat at a soft 23 in. playground ball, then runs while holding a short pipe, which goes around the rope to decrease friction between the hand and rope. Sighted students serve as catcher and tell the visually impaired child where to throw the ball (Bolt, 1970).

Occupational therapists also can suggest activities in accordance with a user's cognitive limitations. Goals may be to encourage imaginative play and exploration or to increase sensory awareness, visual-spatial awareness, and body integration. Cooperation and rule following are taught through team sports, such as basketball, volleyball, or badminton, games that are popular with adolescents. If an adjustable-height basketball goal or badminton net is used, these games can be enjoyed by persons in wheelchairs as well as by the ambulatory (see Figure 2).

Equipment

Multipurpose equipment, such as swings, slides, and merry-go-rounds, can meet a wide variety of needs. There are adapted swings that hold a child in a wheelchair, and bucket swings that hold a child who lacks good head or trunk control (Worner, 1983). Gliders gently rock the user and provide vestibular stimulation. They can be used by the child and the care giver simultaneously, allowing the child to build confidence in controlling the environment. Placing swings side by side encourages parallel play and socializing between peers. Large tire swings, hung horizontally, encourage group participation. Arm pull modifications can allow a child with lower extremity paralysis to be independent in swinging (Exceptional Parent, 1981).

Slides help children explore gravitational forces. They come in various sizes and shapes to meet differing needs. Extra wide slides allow a caretaker or friend to slide beside a frightened child or allow a child who cannot sit to descend in a prone position. Slides built into the side of a hill prevent spills off to the sides of the slide (Nimowitz & Levine, 1978). The
Figure 2. Adjustable height basketball goals enable people in wheelchairs to play.

Merry-go-rounds are another source of vestibular stimulation and can elicit cooperative play. To accommodate wheelchairs, they can be sunk so that the plate is flush with the ground. Locks hold the chairs in place (Worner, 1983). The hand operation of a merry-go-round gives the child control while encouraging upper extremity use and strengthening (important for daily living skills such as transferring and dressing).

Safety

Safety is of special importance in planning playgrounds (Nimowitz & Levine, 1978; Nimowitz, 1978; West & Levine, 1978; Wallach, 1983; de Bettencourt, 1983; U.S. Consumer Product Safety Commission, 1986). To achieve a playground that is safe and still challenging, stimulating, and fun for children requires thought. Occupational therapists can provide critical information to help protect children with cognitive, sensory, or physical limitations. For example, to protect a paralyzed child from burns on a hot metal slide, the slide should be placed in the shade.

Rules, such as parental supervision required, no glass containers allowed, no fires allowed for barbecues, should be established and clearly posted. Areas with moving equipment are separated from other play.
areas, because children with mental retardation may not have the judgment to avoid getting too close, and some children may not see or hear warnings of approaching danger. The use of soft materials reduces the possibility of injury from a collision. West and Levine (1978) and Mason (1982) suggest using swings made of cloth rather than wood or metal, and tires for climbers.

Other considerations for a safe play environment are the rounding of sharp edges on equipment, a barrier or fence to prevent children from wandering away; shade, especially for the very young and children who are sensitive to overheating or overexposure to the sun's rays; separation of active and passive play areas; and wheelchair access to resting areas, restrooms, changing rooms, drinking fountains, and telephones.

Case Example
The following guide, which represents a modification of a guide developed by J. Ross (personal communication, May 1985), was a useful tool in the planning of a playground at the James Whitcomb Riley Hospital for Children at Indiana University Hospitals, Indianapolis.

1. Form a committee of interested people to accept the challenge and devote time to this venture. (At Riley, the original committee consisted of an occupational therapist, a physical therapist, a nurse, and a child life specialist.)

2. Clarify the rationale for building the playground, the needs of the user population, and the goals to be achieved. (In our situation the old playground site was used for construction to expand the hospital. The proposed new playground was intended for supervised hospitalized children up to 16 years old, encompassing all children in our facility. The goal was a safe, accessible, but challenging play area.)

3. Receive approval for the project from the appropriate authorities such as the board of trustees or the hospital administration. Good communication and the clarification of expectations are essential.

4. Select a location for the playground, considering rooftop and small areas if other more suitable places are not obtainable. (Our proposed site was on the hospital grounds to provide ease of accessibility.)

5. Investigate funding sources and begin to secure funding through donations, grants, community groups, and benefits. Hogan (1977) describes how, on one project, volunteer efforts and donations from the community saved taxpayers an estimated $30,000. A budget analysis can be found in the Program and Concept Proposal, Children's Playground (1980). It may be necessary (as it was in our situation) to obtain administrative approval before asking for outside donations.

6. Solicit proposals from several architects. (We contacted four playground specialists, paying particular attention to their willingness to work within our budget and with our suggestions, and to their safety consciousness.)

7. Choose an architect. (We chose, with administrative approval, a local builder who had recently constructed several elementary school playgrounds within the city.)

8. Obtain input from the user population. (We invited patients, parents, children, and hospital personnel to participate in an on-site planning session. Two teams challenged each other to build the best and most creative three-dimensional miniature model, using assorted materials such as popsicle sticks, sponges, paper, and wire. We took notes and pictures, then combined the best ideas from the two models. The team members stipulated that sandboxes, slides, and swings be included; our job was to translate their requests into specific plans for the user population. This approach fostered interest and cooperation as well as generating usable ideas.)

9. Obtain approval for the finalized proposal and continue with fund raising until the estimated cost is available. (Our committee had a pledge to cover the cost of the playground, and we are seeking final approval for our proposal. One obstacle we faced was the need to keep our proposed site available for future hospital expansion. Our builder took a possible relocation into consideration.)

10. Construct the playground.

11. Plan opening day celebration with media coverage.


Discussion and Conclusion
The development of a playground for all children, be it in a park, a hospital, or a school, can benefit from the input of an occupational therapist who can provide perspectives on environmental design, equipment selection, and playground safety. Planning and constructing a playground for children with and without disabilities requires time, perseverance, and funding. Often the progress may be slow because of
administrative or community priorities. Persistence in planning, garnering support from community leaders, and investigating a wide variety of sponsors is essential to realizing success.

Acknowledgment

I express my sincere appreciation to Elaine Waltz for providing the illustrations and to Karen Bruner Stroup, PhD, and Zona Weeks, PhD, OTR, FAOTA, for their editorial assistance and support.

References


