

Safe Playground Equipment for Early Childhood Programs

by Donna Thompson, Susan Hudson, and Heather Olsen

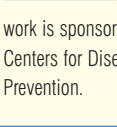
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Playgrounds for early childhood programs are places where children can play freely — exploring the natural environment, learning about their bodies, creating friendships, practicing physical skills. Many centers build in experiences not typically found outdoors by

including opportunities to explore music, art, dramatic play, woodworking along with the physical play that involves playground equipment. However, in recent years, there is a sense of urgency to the questions program directors ask about playgrounds: What kind of equipment is available to the children? How safe is that equipment?

In April, 2000, The National Program for Playground Safety (NPPS) released the results of the most comprehensive national survey of child care, school, and park playgrounds ever undertaken. A total of 3,052 playgrounds were

assessed. Of those, 1,163 (38%) were child care playgrounds.

NPPS sought to replicate this study in the Spring of 2003, by re-visiting the sites identified in the 2000 report. Again, all 50 states were visited. Overall, many states significantly increased their safety ratings as the nation improved its grade by moving from a C to a C+. (That report card for the United States is available on our web site: www.playgroundsafety.org). However, in the child care sector, the grade (C+) remained the same from the earlier survey.

This article will describe the kinds of equipment found in child care centers across the United States as indicated by the 2004 survey, compare them with findings of the 2000 survey, and then describe the safety of the equipment and the surfacing. Lastly, the authors will suggest some principles for child care personnel to consider in creating safe play areas for children.

What playground equipment is found at child care centers?

The table on page 21 compares the percentages of equipment found in child care centers in 2000 and 2004.

— Slides —

The 2004 study indicates that you are likely to find slides more frequently than any other item on a child care playground. The reason for this is that many child care centers are purchasing plastic slides at local stores. Although readily available, these slides are not meant for commercial use. Fifty-five percent of the playgrounds have at least one composite structure. This increase of composite structures accounts for the large number of play panels and steering wheels.

— Swings —

In contrast, there is a significant decrease in the number of swings — probably due to the amount of space they require for a use zone of protective surfacing. The use zone for swings is twice the height of the beam in front and in back of the swing. For example, a 6-foot high beam requires a use zone of 12 feet in front and 12 feet in back of the swing and 6 feet on either side of the swing structure.

— Other equipment —

Other comparisons are not available since the 2000 study was not so specific in recording the kinds of equipment found on playgrounds. However, it

Table 1
Equipment Percentage Comparison

Item	2000	2004	Increase/Decrease
Slides	89%	94%	+ 5%
Swings	66%	50%	- 16%
Play Houses*	1%	41%	+40%
Play Panels**	n/a	38%	+38%
Steering Wheels	0%	34%	+34%
Sand Boxes*	1%	28%	+27%
Arch Climbers	26%	22%	- 4%
Horizontal Ladders	35%	20%	- 15%
See-Saws	25%	20%	- 5%
Sliding Poles	25%	13%	- 8%
Spring Rockers	1%	11%	+10%
Cargo Nets	23%	10%	- 13%
Spiral Climbers	11%	9%	+ 2%
Merry-go-rounds	17%	8%	- 9%
Tire Swings	29%	8%	-21%
Geodesic Domes	15%	7%	- 8%
Balance Beams	1%	7%	+ 6%
Climbing Walls	0%	6%	+ 6%
Chinning Bars	15%	6%	- 9%
Talk Tubes	n/a	3%	+ 3%
Monkey Bars	16%	3%	-13%
Parallel Bars	6%	2%	- 4%
Cement Tunnels*	0%	2%	- 2%
Stepping Pods	n/a	1%	- 1%
Track Rides	0%	1%	- 1%
Animal Swings**	n/a	.5%	- .5%

*Although these items are play equipment, they are not technically covered by the ASTM F 1487 Public Playground Standard or by the CPSC Handbook. Some states have regulations regarding sand and covering sand boxes. Cement tunnels are not pieces of playground equipment or play equipment.

**Not available in the 2000 survey. In addition, we were much more precise about recording specific kinds of equipment in the 2004 survey.

would appear that child care centers are offering a great variety of equipment rather than traditional pieces, such as horizontal ladders, see-saws, merry-go-rounds, and geodesic domes that were not as appropriate for preschool children.

Thirteen percent of the child care centers visited had playground equipment for children ranging from ages 2-12. This probably accounts for pieces such as arch climbers, horizontal ladders, sliding poles, geodesic domes, cargo nets,

climbing walls, monkey bars, parallel bars, and track rides that are not appropriate for children under the age of 5.

Eighty-three percent of the sites visited were responsible for children ages 2-5. Fortunately there were very few monkey bars, cement tunnels, and animal swings.

The work of the Consumer Product Safety Commission (CPSC) has been effective in alerting the public to these injury hazards. The public is beginning to understand that free cement culverts are

not worth the injuries that they can cause to children.

How well is the playground equipment maintained?

There was a rise in the number of equipment pieces that had noticeable gaps and head entrapments from the 2000 study. Both of those situations have the potential to cause death and severe disability. It should be noted that gaps in equipment may be the result of inappropriate installation or aging equipment where joints may have separated. Again, the older the equipment, the more gaps present. This kind of situation deserves immediate attention.

Two other areas were worse than the last assessment: equipment being free from rust and free of splinters. Again, the older the equipment, the more likely these conditions are to exist. Table 2 illustrates the age of the equipment assessed in the study.

Finally, plastic equipment in child care centers appears to be holding up as few incidents of cracks and holes were detected.

What is the condition of the surfacing?

As important as the consideration of the equipment, is concern about the type of surfacing used under and around the equipment. This is a major factor that contributes to a safe playground; 70% of all injuries are attributed to falls to the surface from the equipment. How did child care centers fair in the area of safe surfacing?

Proper surfacing under and around playground equipment is determined by four factors:

■ Suitable Surfacing Materials

Better than 95% of the child care centers

used loose-fill surfacing materials (sand, pea gravel, wood chips, or wood fiber) or unitary surfaces of rubber mats or poured-in-place materials. Regardless of whether it is loose fill or unitary, suitable surfaces need to be used 100% of the time to absorb the fall of children to the surface.

■ Height of the Equipment

The second step to consider is the height of the equipment. Eighty-five percent of programs have equipment that is 6 feet high or less. We recommend that equipment for children ages 2-5 be 6 feet or less. The reason for this is that children are twice as likely to be injured from a fall over 6 feet in height.

■ Depth of Loose Fill Surface Materials

The third step to consider is the depth of materials. Even though most child care centers are providing suitable materials, they are not maintaining the materials at the appropriate depth. The depth of the surfacing should be proportionate to the height of the equipment. Unfortunately, 8% of the playgrounds surveyed had no surfacing at all.

■ Placement of Suitable Materials at the Adequate Depth in the Playground Use Zone

The fourth step is that the suitable material must be placed in the use zone. The use zones are areas under and around the playground equipment. The lack of attention here is truly placing children at risk. Safe surfacing needs to be where children are likely to fall. For

example, for stationary equipment such as spring rockers, there needs to be a 6-foot use zone all the way around the piece. For slides the use zone is the height of the slide plus 4 feet at the end of the slide. For a 6-foot high swing beam, there should be a 12-foot use zone in front and a 12-foot use zone in back of the swing.

In relation to stationary equipment 46% of the time surfacing was not in the use zone; for slides, 49% of the time surfacing was not in the use zone; and for swings, 66% of the time surfacing was not in the use zone. Child care personnel need to pay more attention to this situation.

Conclusions

The good news is that much of the playground equipment at child care centers is new and therefore probably safe, since 74% has been produced since 1991 and should conform to the US Consumer Product Safety Commission guidelines. In addition, 57% has been produced since the ASTM F 1487 Public Playground Standard was initiated.

The bad news is that there are still a few monkey bars, animal swings, and cement culverts that need to be removed. There are some unsafe conditions of the equipment such as gaps that might catch strings and those that might cause strangulation. In addition, the surfacing under the equipment still needs attention.

Further, as the NPPS staff observed child care playgrounds around the country, they saw succotash playgrounds in many child care centers. Those are playgrounds that have placed equipment every which way you can. There was no observable rationale for the placement of equipment. Placement is important to prevent collision of players.

In addition, it is critical that the area be designed to place equipment for different purposes in different areas: art, music pieces, physical movement,

science, and gardening. Choose the items to manipulate in order to teach specific concepts.

Child care operators can be proud that they maintained the conditions of a C+, but children deserve A playgrounds. The outdoor learning environment needs to be safe so that children can go out and do what they do best and that is play.

References

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Table 2
Age of the Equipment

Year of Manufacture	%
Pre 1980	3
1981-1990	9
1991-1994	15
1995-1997	17
1998-present	42
Unknown	2

Recommendations

- Child care personnel need to continue to select equipment that meets the CPSC Guidelines and the American Society to Testing and Materials Standards.
- Playground equipment should be selected to meet the age appropriateness of the children who attend the center; and the equipment should be separate for children ages 2-5 and 5-12.
- The surfacing under the equipment needs to be maintained on a regular basis. NPPS recommends that loose-fill surfacing be maintained to a depth of 12 inches so that sufficient surfacing will be available to withstand a fall of a child.
- Child care personnel should select equipment to fulfill a curricular need and consider the outdoors a learning environment. What is the concept you want children to learn? Involvement with which pieces of equipment will help children learn that concept?

Buyer's Guide to Outdoor Play Equipment and Products

This directory is a partial listing of companies providing outdoor play equipment and products. Inclusion does not imply endorsement by *Exchange*. To request free information from these companies, visit www.ChildCareExchange.com or circle the number for each company of interest on the Product Inquiry Card located between pages 64 and 65.

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Circle 106 on Product Inquiry Card

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7625 E. Main Road • Lima, NY 14485
info@outdoorplayproducts.com
www.outdoorplayproducts.com
Circle 107 on Product Inquiry Card

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660 Van Dyne Road • Fond du Lac, WI 54936-0549
sales@bciburke.com • www.bciburke.com
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Howell Equipment Co., Inc.
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Kidstuff Playsystems, Inc.

Richard Hagelberg • (800) 255-0153
5400 Miller Avenue • Gary, IN 46403
rhagelberg@KidstuffPlaySystems.com
www.KidstuffPlaysystems.com
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L.A. Steelcraft Products

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Miracle Recreation Equipment Company

(800) 523-4202
Circle 120 on Product Inquiry Card

National Program for Playground Safety

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University of Northern Iowa, School of HPELS
Cedar Falls, IA 50614-0618
playground-safety@uni.edu
www.playgroundsafety.org
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A set of four pamphlets: S—Supervision, A—Age Appropriate Equipment, F—Falls to Surface, and E—Equipment Maintenance. A supervision kit including manual, video, and fanny pack. Age appropriate signs. CD-ROMS on accessibility and CPSC guidelines. Videos: Planning, Maintenance, Surfacing, Supervision, SAFE playgrounds, and Sammy's Playground Pointers. SAFE Playground handbook and Playground safety lesson plans.

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