



## **HOME PLAYGROUND EQUIPMENT-RELATED DEATHS AND INJURIES**

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*CPSC staff recently conducted a special study of playground equipment-related injuries treated in U.S. hospital emergency rooms from November 1998 through October 1999. Staff also reviewed data on playground-related deaths reported to CPSC from January 1990 through August 2000. The study covered both public playgrounds and home playgrounds.*

*This report highlights findings related to home playgrounds and CPSC involvement in safety standards.*

### **Findings of Recent CPSC Playground Study**

Playground equipment is a leading source of childhood injury. Many deaths and injuries occur on home playgrounds.

From 1990 to August 2000, at least 90 children under age 15 died on home playground equipment. This represents about 70 percent of all playground-related deaths at known locations.

In 1999, there were an estimated 46,930 children under age 15 who went to U.S. hospital emergency rooms with injuries related to home playground equipment. This represented more than 20 percent of the more than 200,000 estimated playground equipment-related injuries treated in hospital emergency rooms.

The proportion of pre-school children (younger than age 5) injured on playground equipment was higher on home playgrounds. Almost 40 percent of those injured at home were younger than 5 years, as compared with about 27 percent of those injured in other locations (Figure 1). This difference likely reflects that pre-school children most often play on backyard playsets rather than in other locations.

In CPSC's injury study, it was found that very few home playgrounds (9 percent) had proper protective surfacing (Figure 2). In contrast, about 80 percent of public playgrounds in the study had proper protective surfacing. Proper surfacing can help prevent serious head injuries.

## **Results of the CPSC Study**

### **Deaths on Playground Equipment**

- ❑ From January 1990 through August 2000, CPSC received reports of at least 90 fatal incidents that occurred in home locations. This represents about 70 percent of all playground-related deaths at known locations. A total of 147 deaths to children younger than age 15 were reported for all playground locations.
- ❑ Almost three-fourths (66) of the deaths in home locations resulted from hanging from ropes, cords, homemade rope swings, and similar items. Other deaths resulted from home equipment tipover or collapse, falls from equipment, and other causes. In all locations, over one-half of the deaths involved hanging. Other causes of playground equipment-related deaths included falls, equipment tipover or collapse, entrapment, or impact with moving components.

### **Injuries on Playground Equipment**

- ❑ In 1999, there were an estimated 46,930 children under age 15 who went to U.S. hospital emergency rooms with injuries related to home playground equipment (most often swings). This represented more than 20 percent of the more than 200,000 estimated playground equipment-related injuries treated in emergency rooms.
- ❑ Children injured in home locations tended to be younger than those injured in other locations. Almost 40 percent of those injured at home were younger than 5 years, as compared to about 27 percent of those injured in other locations. This difference likely reflects that pre-school children most often play on backyard playsets rather than in other locations.
- ❑ Over 80 percent of the injuries on home equipment were associated with falls. Specifically, 69 percent involved falls to the surface below the equipment, 10 percent involved falls to other parts of the same equipment, and 2 percent involved falls to an unknown surface.
- ❑ The activity most often associated with falls on home equipment was intentional jumping or dismounting from equipment, primarily swings. Other scenarios involved victims who lost their grip or balance, slipped or tripped,

bumped into or were pushed by another person, and reached for an equipment component and missed.

- ❑ Only about 9 percent of home locations where injuries occurred had proper protective surfacing, most often sand. Dirt and grass were, by far, the most prevalent surfaces present under the equipment; these are surfaces that do not adequately protect children from serious head injury when they fall.
- ❑ For all playground locations, young children incurred a greater proportion of injuries to the head and face than older children. Almost one-half (49 percent) of all playground injuries to children younger than 5 years involved the head or face, as compared with 28 percent for older children.
- ❑ Overall, fractures were the most commonly reported injury, accounting for 39 percent of all injuries on manufactured equipment. Almost 80 percent of these fractures involved the wrist, lower arm, and elbow. Other injuries included lacerations (22 percent), contusions/abrasions (20 percent), and strains/sprains (11 percent).

### **Safety Standards**

In recent years, CPSC staff has worked with industry to strengthen playground safety standards to help protect children while they play. CPSC staff worked closely with ASTM on the safety standard for home playgrounds. In 1998, the standard was revised to include:

- ❑ A requirement that ropes be secured at both ends to prevent the rope from being looped back on itself in a manner that could create a strangulation hazard. Also requires a warning in the playset instructions against attaching items such as jump ropes, clotheslines, pet leashes, cables, and chains, which may cause a strangulation hazard.
- ❑ Guardrail requirements on platforms higher than 30 inches and protective barrier requirements on platforms higher than 48 inches, to help prevent falls.
- ❑ A requirement that a CPSC consumer information sheet for playground surfacing materials accompany the playset manual/instructions.

## Recommendations for Home Playgrounds

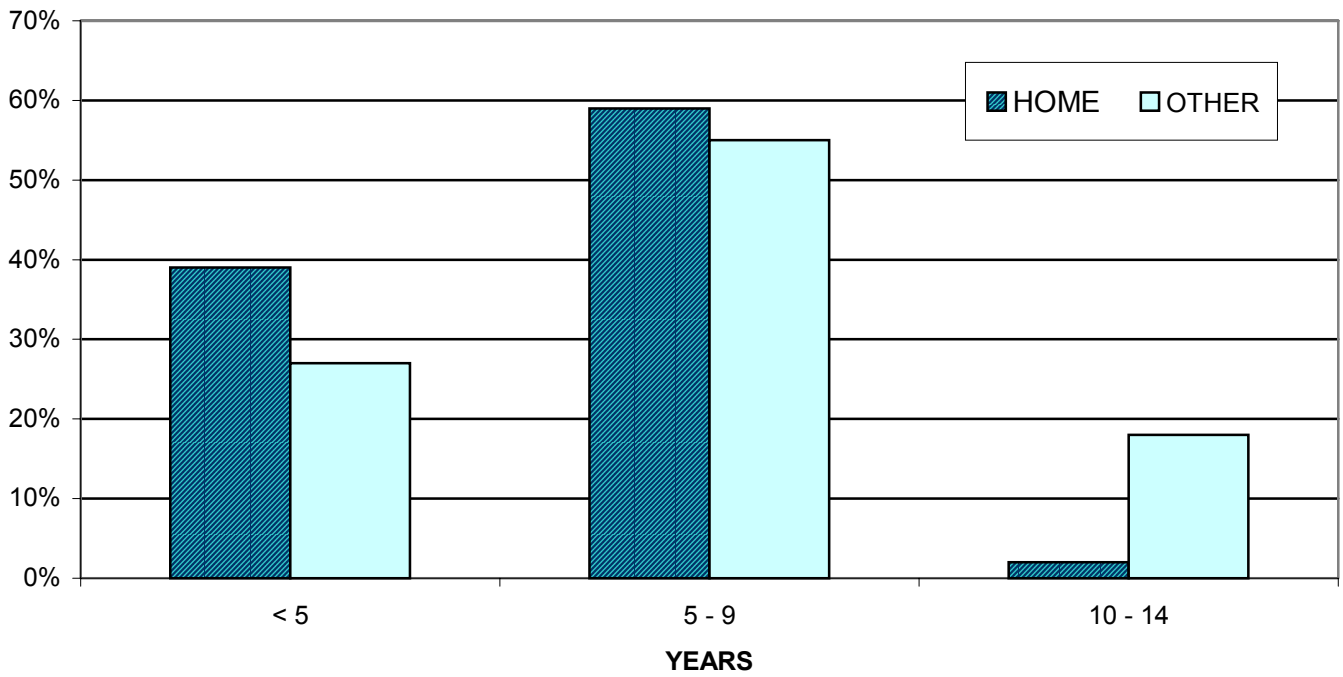
To help prevent injuries from falls and other hazards on home playgrounds, the following measures are recommended.

1. **Install and maintain a shock-absorbing surface** around the play equipment.
  - Use at least 9 inches of wood chips, mulch, or shredded rubber for play equipment up to 7 feet high.
  - If sand or pea gravel is used, install at least a 9-inch layer for play equipment up to 5 feet high.
  - Or, use surfacing mats made of safety-tested rubber or rubber-like materials.
2. Install protective **surfacing** at least 6 feet in all directions from play equipment. For swings, be sure surfacing extends, in back and front, twice the height of the suspending bar.
3. **Never attach** – or allow children to attach – **ropes**, jump ropes, clotheslines, or pet leashes to play equipment; children can strangle on these.
4. Check for **hardware**, like open "S" hooks or protruding bolt ends, which can be hazardous.
5. Check for **spaces** that could trap children, such as openings in guardrails or between ladder rungs; these spaces should measure less than 3.5 inches or more than 9 inches.
6. Make sure platforms and ramps have **guardrails** to prevent falls.
7. Check for **sharp points** or edges in equipment.
8. Remove **tripping hazards**, like exposed concrete footings, tree stumps, and rocks.
9. Regularly **check play equipment and surfacing** to make sure both are in good condition.
10. Carefully **supervise children** on play equipment to make sure they are safe.

For more information on playground safety, visit the CPSC website at [www.cpsc.gov](http://www.cpsc.gov) to check out the *Handbook for Public Playground Safety* and other publications. Or, call the toll-free CPSC Hotline at 1-800-638-2772.

**FIGURE 1.**  
**PLAYGROUND INJURIES,**  
**BY AGE OF VICTIM AND LOCATION**

**PERCENT OF  
INJURIES**



**FIGURE 2.  
HOME PLAYGROUND SURFACING**

