

Not all risk is bad, playgrounds as a learning environment for children

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Abstract

Should all risk be eliminated from children's playgrounds? Play is a vital part of childhood and growing up. Children learn through play to develop social, cognitive, physical, and emotional skills. However, playgrounds are a known cause of child injury, especially injuries that result following a fall from playground equipment.

Adherence to playground safety standards, along with other prevention measures, such as adequate adult supervision, age appropriate play equipment, routine playground safety audits to identify wear and tear on equipment and maintenance needs, are likely to result in a reduction in the frequency and severity of the incidence of injury associated with falls associated from playground equipment.

Introduction

Should all risk be eliminated from children's playgrounds? Some experts would argue that children do not lose interest in play equipment that is not challenging.¹ While school aged children themselves indicate that an environment that is risk free is 'no fun' or 'boring'.²

How do we achieve a balance between safe play environments and play equipment, while enabling children to explore, face challenges, learn new skills, and identify and assess risks?

This article discusses the implications of risk free playgrounds on the development of a young child's social, cognitive, physical and emotional skills. It describes the trend in

incidence of falls from playground equipment that required hospitalisation in NSW over an eleven year period and considers the effectiveness of prevention measures, such as playground safety standards, in reducing the impact of playground-related injuries to children.

The need for children to acquire skills

Play is a young child's foremost activity. It is a vital part of childhood and growing up. Children learn through play to develop social, cognitive, physical, and emotional skills. Playgrounds provide young children with an opportunity for learning skills and social development.³⁻⁴ However, playgrounds are a known common location of child injury, especially injuries that result following a fall from playground equipment.^{1,5-6}

Risk factors for playground injury can include age and gender, height of play equipment, type and depth of under surfacing, compliance with equipment and safety standards, inappropriate design and layout, incorrect installation, lack of age and ability-related apparatus, lack of adult supervision, misuse of equipment, and rates of exposure to playground equipment.⁷⁻⁹

Elimination of play equipment hazards, such as head and finger entrapment, should be made through safe design. However, the design of safe play equipment does not necessarily mean non-challenging play equipment. Children should be given opportunities to explore and experiment in play environments that are creative and stimulating and that involve some degree of challenge.¹⁰

Children should be able to extend themselves physically, socially, and cognitively in the playground environment. Being able to make informed decisions based on previous experience, and through learning to manage challenges that are obvious or foreseeable is an important learning experience for a child. It assists in contributing to a child's holistic development, formulating positive self-image as well as competent living skills.

Opportunities for children to explore and evaluate risks

In our society the term risk normally conveys a negative connotation. This is technically incorrect. Risk is a continuum and can be both positive and negative. The trick is to

manage the risk to a level that is appropriate and acceptable to the group or to individuals that are exposed to the risk.

A well designed playground should encourage a child to take risks within a semi-controlled environment that protects a child from a hazard they may be unable to foresee when using playground equipment as intended. A well designed playground will be designed so that risk involved in play is apparent and foreseeable by the child.¹¹

If the risk is obvious to the child, it allows the child to develop a sense of what is safe and what is not safe. For example, the development of the 'space net' - a cargo net styled play apparatus that allows children to climb to heights of anywhere between ground level and four to five metres are designed so that older children with more mobility skills can climb higher on the apparatus than younger children. If the older child does lose their grip and fall, the cargo net below would catch their fall. Appropriate under surfacing cushions any falls from the lower level of the apparatus. The development of a sense of what activities are safe is an important learning skill for children to master as it is a life-long skill that every adult needs to acquire – ie. where is the boundary between what may be considered safe versus not safe?

It is essential that children have opportunities to explore and experiment in an environment that provides a degree of managed risk. Many play areas traditionally used by children in the past are no longer available due to urbanisation, making playgrounds essential play and learning environments for many children. Society has effectively created an environment that makes it harder for children to run around and play. It is well known that the enjoyment of being active, particularly in childhood, is a key factor in becoming and remaining active in later life.¹¹

What is required is the capacity to achieve a balance between both safe play environments and equipment while still enabling children to take part in a learning environment. To little challenge for a child can often lead to inappropriate risk taking – getting the correct balance is the key.

Hospitalisation following a fall from playground equipment

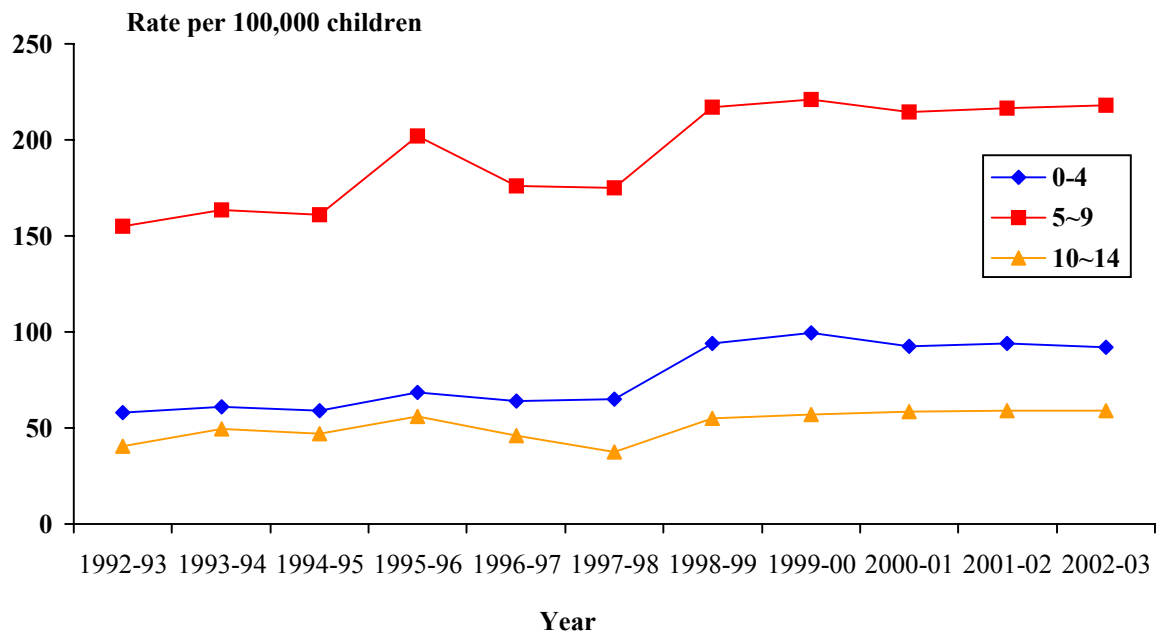
The New South Wales (NSW) Inpatient Statistics Collection (ISC) includes information on separations from NSW public and private hospitals. Information collected includes patient demographics, diagnoses and clinical procedures. For hospitalisations following an injury or poisoning external causes are recorded.

Information from the ISC for the financial years 1992/93 to 2002/03 where the external cause was ‘falls from playground equipment’ and the age of the patient was 14 years or less were analysed. Changes were made to the external causes coding frame in NSW during the timeframe under study and as a result hospital separations were classified by ICD-9-CM (E884.0) up to 1997/98 and by ICD-10-AM (W09) from 1998/99 onwards.

It is likely that some of the increase in the rate of falls from playground equipment for children 0-14 years is due to the changes to the coding system, specifically the inclusion of falls from trampolines, skateboards and scooters in W09 in ICD-10-AM, where they had previously been coded separately from ‘falls from playground equipment’ in ICD-9-AM.

During 1992/93 to 2002/03, 15,191 children were admitted to hospital in NSW following a fall from playground equipment. The hospitalisation rate in 2002/03 in NSW for children aged 14 years or less following a fall from playground equipment was 124 per 100,000 children. Children aged 5 to 9 years had the highest rate of falls from playground equipment compared to the other younger and older age groups (Figure 1).

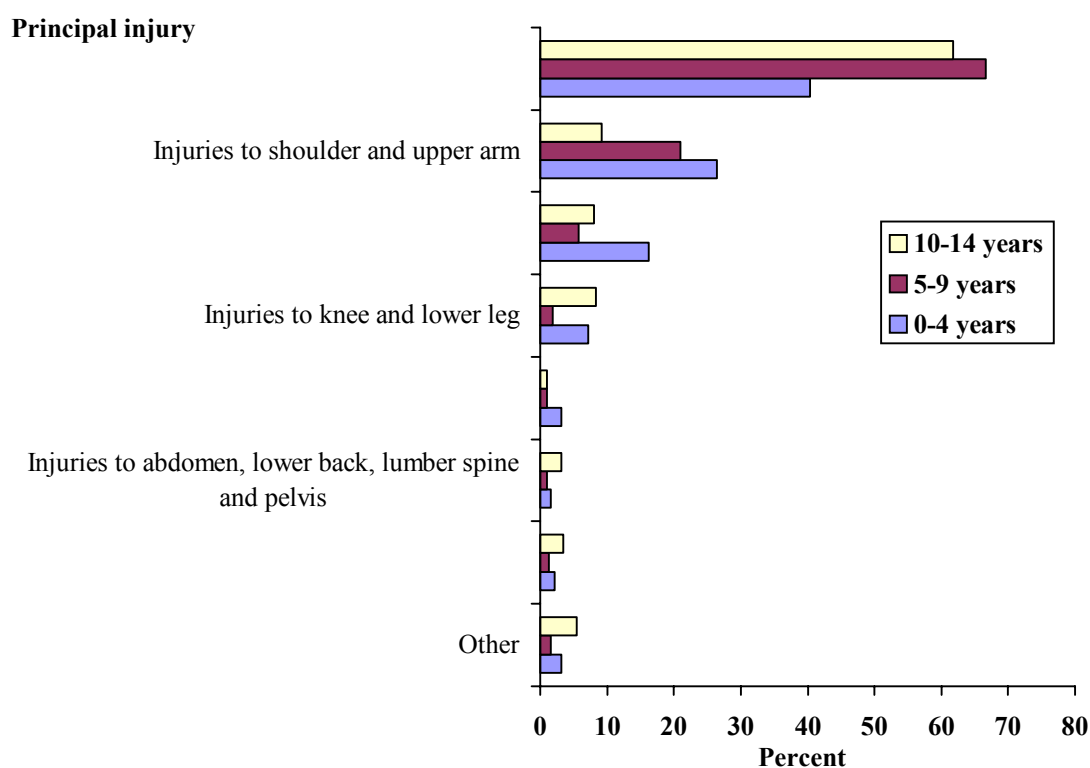
Figure 1 Hospital admissions in NSW following fall from playground equipment in children aged 0-14 years, 1992/93 to 2002/03



Source: NSW Department of Health Inpatient Statistics Collection and Australian Bureau of Statistics Census data (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

The principal diagnosis for children 0-14 years who were admitted to hospital following a fall from playground equipment were analysed for the 2002/03 financial year. Differences in the principal diagnosis of hospitalisation were observed for different age groups of children (Figure 2). Children aged 5 to 14 years were more likely to experience injuries to the elbow and forearm than children aged four years or less. Whereas children aged four years or less were more likely to experience injuries to the shoulder and upper arm, injuries to the head, and injuries to the hip and thigh than children aged 5 to 14 years.

Figure 2 Hospital admissions following fall from playground equipment in children aged 0-14 years by principal injury, 2002/03



Source: NSW Department of Health Inpatient Statistics Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health

Effectiveness of playground safety standards

Safety standards have been developed to provide guidelines upon which playgrounds and equipment should be designed, installed, and maintained.¹¹⁻¹⁷ They take into account developmental and anthropometric data specific to children. These standards are not intended to provide risk free environments, but rather to specify the minimal acceptable standard for play equipment and surrounding environments. They incorporate a number of risk management strategies for injury prevention, such as placing a maximum height on playground equipment, as there is strong evidence that the fall height is a major contributing factor in injury severity and frequency.⁷

The Australian Standard Playground Equipment AS 4685:2004 specifies a 2.5m maximum free height of fall among other strategies to limit the severity and frequency

of fall-related injuries. The Standard also specifies the fall zone and that impact attenuating surfacing shall be provided within this fall zone in accordance with the requirements of AS/NZS 4422. A fall of any height onto a non-compliant surface is far more likely to result in an injurious incident than a fall onto compliant surface. Random field testing by one of the authors (DE) has revealed alarming high rates of non-compliance with AS/NSS 4422.

Research has shown that horizontal climbing equipment (commonly known as monkey bars in Australia) is one of the pieces of playground equipment most likely to cause injuries following a fall.^{6,19} The new Australian Standard attempts to manage this known risk by limiting the free height of fall from upper body equipment to 2.2 metres.

Although changes in the height of playground equipment have been incorporated into the new Australian Standard, this is not likely to result in an elimination of all injuries associated with falls from climbing equipment.

Recent research in Australia has indicated that while many playgrounds do comply with the current Australian Standard for equipment height, surface type and surface impact attenuation, the Standard is not adequate for preventing risk of arm fracture.²⁰ AS/NZS 4422 presently limits the impact force to less than 200g and a Head Injury Criteria (HIC) to 1000. In lay terms this means for a child with a mass of 30kg their weight at impact can be up to 200 times greater (ie 6,000kg). This is the maximum limit set by the existing Standards for compliant surfacing.

Adherence to the new playground Australian Standard, accompanied by other prevention measures, such as adequate adult supervision, age appropriate play equipment, routine playground safety audits to identify maintenance needs, are likely to result in a reduction in child injuries associated with falls from playground equipment.

Conclusion

Current urban environments in the developed world have eliminated many traditional play areas, resulting in reduced opportunities for children to run and play spontaneously. Playgrounds now form the only practical space available for many children in which to play and therefore have become essential in a child's development,

where they learn many of the basic principals of life skills essential for a healthy lifestyle.

It is essential that playgrounds provide opportunities that allow a child to extend themselves in a challenging environment.

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