

SUPPLEMENT 4

“Children rise to risk”¹Scott Belair²¹Phrase used by Joan Almon, Executive Director of the U.S. Alliance for Childhood.[12]²Reliable Reporting, Toronto, ON, Canada

Injury Prevention

As I sit near the playground at my 5-year-old son’s school, I see parents and teachers struggle to prevent children from going up the spiral slide to the highest platform on the playground. It seems twice as many children want to climb up the spiral slide as those that wish to sit down on their bums and descend the slide “as intended.” The reality is that it is normal for a child to want to climb up a slide when after the first few “intended use” turns, it loses its excitement. They are only doing what they are naturally wired to do – challenging themselves.

We are told that new play equipment designs are built for safety. But have playgrounds actually become any safer? Or are they just boring pieces of equipment that encourage kids to play elsewhere other than at the play space and therefore evade injury statistics? Many playgrounds have been stripped of fun and excitement for thrill-seeking kids, all as a result of litigation concerns, risk managers, parents, various pieces of legislation and playground safety standards. But, after all the playground removals we have heard about, read about or been involved with, have new playgrounds really become safer? Will this trend continue? Should more risk be re-introduced to the childhood play experience? Surely, exposure to some risk makes kids more comfortable with it.

The Executive Director of the U.S. Alliance for Childhood, Joan Almon, says, “Give [children] some genuine risk and they quickly learn what their limits are, and then they expand their limits.”[1] The problem is that if children never encounter even tiny or age appropriate risks, they never develop common sense in dealing with risk and challenge. [1] In the schoolyard, at a standard play space or elsewhere, how can we learn how fast is “too fast” unless we have experienced or witnessed “too fast”? How do children learn to fall from a playground structure safely unless they have experienced or witnessed a fall?

Some municipalities in Canada limit the height of equipment to 1.8 meters (6 feet). No doubt this will help reduce the chance of an injury from falls, especially considering that very few children will get excited about going to the park. What if for every kid who avoids breaking a leg from a playground fall, a million more never develop the muscles to do a chin-up, the endurance to play a game of tag, or the ability to analyze risk and learn about consequences?[1]

This problem, at times, goes well beyond playground safety standards. Some schools or school boards have outlawed ball playing, tag and other running games, while others only allow running around the perimeter of the yard and not anywhere in the middle due to the chance of a collision between runners.[1] In addition, some schools have optional outdoor recess and sometimes physical education class is not a requirement.

Risk limitation can encourage children to find alternative uses for play equipment (for example the common game *grounders* in which the children climb the outer periphery of the play equipment without touching the ground). If the intent is to reduce injuries from falls, could we not provide the same height, but provide more enclosure and/or better resiliency of the protective surfacing on the playground to make it safer, but still fun?

Canadian hospitalization rates due to playground injuries have dropped significantly from 35 per 100,000 in 1994/95 to 25 per 100,000 in 2011/12.[2] This might be due, in part, to increased compliance with the playground safety standard. Originally published in 1990 by the Canadian Standards Association (CSA), the standard includes recommendations for manufacturing, installation and inspection of play spaces as well as requirements for design (e.g. playground surfacing, equipment height, spacing between climber rungs).[3]

Since the initial set of safety standards was published, we have seen it grow from 52 pages in the 1990 edition, to 165 pages in 2014, even though public playgrounds account for an average of less than 1 fatality per year in Canada, much rarer than death by lightning strike.[4–6] Canada is not alone in expanding its regulations. The same scenario is evidenced in other parts of the world, including the United States.

The limitations of standards might be reflected in recent hospitalization statistics showing an upswing in playground injuries from 2007/8 to 2011/12, as reported in a CBC news article.[7] Playground designer Adam Bienenstock, raises the issue of play space surfacing (personal communication, Adam Bienenstock, October 1, 2013): when testing adherence to the recommendations for surfacing, the current gold standard for measuring impact is the surface impact test from the fall height of the installed equipment. This test is designed to prevent head injuries and is not intended to provide

any measure of injury reduction other than head injury. Commonly used surfacing, such as rubber, may comply with the standard and adequately prevent head injuries, while contributing to the increased incidence of specific bone fractures.[8]

Another limitation of the playground standard identified by Bienenstock is that it was not written to provide guidance for risk and play in nature. ‘Time in Nature’ is now an indicator in the Active Healthy Kids Canada Report Card. [9] There is growing evidence that the emotional, physical, and intellectual development of our children improves through increased contact with nature, while at the same time reduces bullying, injury rates, vandalism, and aggressive behaviors.[10] For natural playgrounds, less stringent standards might improve child development outcomes.

Some of the world’s most creative playgrounds and playground designers are located in Scandinavia and Germany. Many believe that early playgrounds evolved from children having a great time playing in the rubble of bombed out buildings (as compared to local play spaces). Following the war, many play space designers started with the concept of the adventure playground,[11] with the understanding of what children wanted in a play space (adventure, thrill seeking, changing play environment, creativity – often with loose parts, hiding play places, etc.) and then tried to add a modicum of safety.

Playground safety standards ought to be based on the hazard rather than prescriptive text. For example, in a majority of playground safety standards, climber rungs need to be 30 cm or less in distance apart. This spacing is based on the maximum distance a younger user can climb. The result is that these climbers are not challenging to our older users. What if, instead of a specific dimension, playground standards told designers to ensure climber rungs were spaced appropriately for the age group they were designed for? We might see slanted climber rungs. The idea of the slant is to make them closer together on one side and therefore easier, yet the other side of the climber might have significantly greater spacing as a challenge for older users. Children could choose the appropriate spot for themselves. This would allow play space designers to be more creative, provided the hazards are addressed and/or mitigated.

In new playground design, no one wants to create spaces that lead to children getting hurt. But there are ways to give children a sense of excitement without risking serious injuries. For instance, designers can provide climbing to thrill seeking heights of 6 to 8 metres, while limiting direct falls to the surfacing to manageable heights of 70 cm or less. These types of more exciting playgrounds are already commonplace in Europe and the movement is starting to spread to North America. The general concept is to incorporate hills,

embankments, landscape features and climbing equipment to form a pyramid or hill shape with play elements extending at various heights and lengths from a central point. The central masts are often only accessible through small cracks that adults dare not go!

Many parents, designers, and manufacturers of equipment would like to see risky elements of choice (e.g. monkey bars, suspension bridges, zip lines, hill slides, etc.) be available in play spaces, but not hidden hazards (e.g. faulty or damaged equipment, near structural failure, equipment improperly spaced, etc.).

If we focused on the following areas from a hazard removal-based perspective, we could open the door to more creative designs:

1. Heights – Do provide graduated challenge and indicate age appropriateness or difficulty levels. Do not provide great height without adequate fall protection (i.e. cushioned surfacing) and/or appropriate enclosure devices.
2. Speed – Do provide sliding, swinging, and motion activities where children control the speed and movement of equipment. Do not provide uncontrolled speed.
3. Tools – Do allow children to make a child-constructed playground or alter the look of a part, to indeed make it their park. Do not provide dangerous tools (such as saws, axes, ropes).
4. Visibility / Supervision – Do allow children over age 3 years to have some freedom without an adult (this can be done by trimming lower levels of shrubs for foot visibility, mesh enclosures so that children can have their space, provide fencing around the play space for containment, etc.). Do not design a space where children can get lost or disappear from supervision. Do not put elements too close together to inhibit flow of movement throughout the play space, or inhibit fall protection.
5. Dangerous Elements – Do not allow cliffs, deep or icy water, fire pits, etc. in a play space.
6. Entanglement / Entrapment – Do not allow equipment joints that could entangle cloth or entrap all or part of a child’s body.

Following that, a play space should be regularly inspected and maintained for obvious hazards (broken, vandalized components, significant wearing / decay, etc.). After that, we should let designers have the flexibility to be creative and add new stimuli to play spaces.

And finally...let kids play and be kids!

REFERENCES

1. Skenazy L. Free range kids: *Giving our children the freedom we had without going nuts with worry*. San Francisco: : Jossey-Bass 2009.
2. Canadian Institute for Health Information. National Trauma Registry Minimum Data Set, 1994-1995 to 2011-2012. 2013.
3. Canadian Standards Association. *CAN/CSA-Z614-14 - Children's playspaces and equipment*. 5th ed. Toronto, ON: Canadian Standards Association 2014.
4. Fuselli P, Yanchar NL. Preventing playground injuries. *Paediatr Child Health* 2012;**17**:328–30.
5. Safe Kids Canada. Child & youth unintentional injury: 10 years in review. Toronto: 2007. http://www.mhp.gov.on.ca/en/prevention/injury-prevention/skc_injuries.pdf
6. Mills B, Unrau D, Parkinson C, et al. Assessment of lightning-related fatality and injury risk in Canada. *Nat Hazards* 2008;**47**:157–83. doi:10.1007/s11069-007-9204-4
7. CBC News. Playground equipment involved in rising number of injuries. 2013.<http://www.cbc.ca/news/playground-equipment-involved-in-rising-number-of-injuries-1.1858497> (accessed 30 Sep2013).
8. Howard AW, Macarthur C, Rothman L, et al. School playground surfacing and arm fractures in children: a cluster randomized trial comparing sand to wood chip surfaces. *PLoS Med* 2009;**6**:e1000195.
9. Active Healthy Kids Canada. Are we driving our kids to unhealthy habits? Toronto, ON: 2013. <http://www.activehealthykids.ca/ReportCard/2013ReportCard.aspx>
10. UNICEF. The state of the world's children 2012. New York, NY: 2012. <http://www.unicef.org/sowc2012/fullreport.php> (accessed 11 Oct2013).
11. Kozlovsky R. Adventure playgrounds and postwar reconstruction. In: Gutman M, Coninck-Smith N de, eds. *Designing modern childhoods: History, space and the material culture of children: An international reader*. New Brunswick, NJ: : Rutgers University Press 2008.
12. Skenazy L. The war on children's playgrounds. Salon. 2010. http://www.salon.com/2010/05/18/war_on_childrens_playgrounds/ (accessed 19 Mar2014).