

Accident Prevention in **Summertime**

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Statistics Canada estimates that an average of 3000 children and adolescents die in accidents each year in our country. This figure clearly outnumbers all deaths from cancer, congenital malformations, pneumonia, cardiac diseases and meningitis (1).

This article presents the epidemiology of the major accidents involving children and adolescents and the appropriate preventive measures. At the beginning of summer, health professionals should review these preventive measures and bring them to the attention of adolescents and their parents during consultations.

The six most frequent causes of accidental deaths among children and adolescents are, in order 1) road accidents, 2) drownings, 3) burns, 4) asphyxia, 5) falls and poisonings.

In summer, road accidents, drownings, burns and falls particularly catch our attention.

Car accidents

The automobile accident is the most frequent cause of serious injuries among youth (2). Of all means of prevention, let us mention the seat belt and road safety.

Children aged 5 and over are required by law to fasten their seat belt. The use of the seat belt reduces by 50% the risk of deaths or serious injury during head-on collisions. It also prevents ejection therefore reducing by five times the risk of death (3).

The number of road accidents is reduced if drivers respect speed limits and refrain from consuming alcohol or drugs. We must sensitize adolescents to this issue. In 1989, in Quebec, adolescents aged 16 to 19 represented 23% of all passengers killed in car accidents and 18% of all injured, while only 15% of all car drivers are younger than 19 (4). Moreover, 40% of road accidents involving this age group happen between 9:00 PM and 3:00 AM (5).

Alcohol use and abuse is often associated with fatal accidents involving adolescents. Men and those who ingest more than six drinks are more inclined to drive their car than women and more moderate consumers (6).

Cycling accidents

Among youth aged 5 to 14, six accidents in ten are related to cycling. For every 100 accidents, one youth will suffer injuries leading to a visit to an emergency room (5). Head injuries are responsible for 70 to 80% of deaths related to bicycle accidents. Wearing a helmet can reduce by 85% risks of head injuries and by 88% brain injury, according to a case study conducted in Seattle in 1989 (7). The main safety recommendations can be found on Table 1 (8).

Table 1

Safety recommendations for cycling

- A bicycle is not a toy.
- Depending on the age and maturity of the child, establish limits for cycling.
- Wear a protective helmet.
- Teach the safety rules.
- Ride on a bicycle path or on the right side of the road in the direction of the traffic.
- Stop at intersections and look both ways before crossing a street.
- Respect road signs and traffic lights.
- Signal before turning.
- Avoid riding at dusk or after dark.
- Keep bicycle in good condition.
- Choose a bicycle to fit (measure leg length).
- Respect Highway Safety Code which presently requires:
 - white reflectors in front
 - red reflectors in the back
 - yellow reflectors on each pedal
 - red reflectors in spokes of back wheels
 - white headlight in front for night riding
 - red light in the back for night riding

Accidents involving pedestrians

Pedestrians are the victims of road accidents. In the United States, there are about 8000 deaths each year. In 1984, 30% of the victims were between 5 and 14 years of age. Among young people, accidents happen most frequently at intersections. At the time of the accident, 50 to 75% of the pedestrians had violated the Highway Code. Over 60% of fatal accidents happen after dark. (9). Safety principles can be found in Table 2 (5).

Table 2

Safety recommendations for pedestrians

- Choose safe areas of play: avoid garage entrances and busy streets.
- Walk on the sidewalk.
- Respect the Highway Code.
- Wear brightly-coloured clothes.

Accidents involving roller blade and skateboard users

In spite of the fact that children and adults skateboard and roller skate on our streets, the Highway Code prohibits these means of transport on public roads. This sport is often the cause of head injuries and broken bones. Safety-wise users should respect safety measures (Table 3) (10).

Table 3

Safety recommendations for rollerblade and skateboard users

- Wear a helmet, wrist, elbow and knee protectors, long-sleeved jackets.
- Choose a roadway in good condition, without cracks or holes.
- Keep laces inside your shoes.
- Respect the Highway Code.
- Do NOT use a walkman when skating.
- Do NOT skate at night or when it is raining.
- Do NOT skate on busy streets.

Scooters and 3-4 wheels vehicles

Scooters are small, have a low contour and are difficult to see. Their short wheelbase makes them relatively unstable.

3-4 wheels vehicles. These vehicles are especially designed for off-road use. Their high centre of gravity compromises the stability. They can reach a speed of 50 km per hour and more. In their advertising, most retailers target the adolescent population. The lack of experience of these young drivers makes driving these vehicles more dangerous.

Most reported accidents result from a loss of control of the vehicle; the vehicles overturn or drivers are thrown off. Collision with a fixed obstacle (fence, tree, etc.) is another frequent cause of accident. Risk factors related to the use of these vehicles include excessive speed, absence of a protective helmet and appropriate clothes, lack of experience of drivers and excessive alcohol use (11).

The main recommendations of the Canadian Pediatric Society concerning these vehicles are 1) to prohibit the use of 3-4 wheels vehicles to adolescents younger than 14, 2) to promote the passing of appropriate legislation (age, licence, insurance and obligatory helmet) and 3) to prohibit any promotional material that targets children younger than 14. Better supervision of production and safety norms laid down by the Canadian government is desirable (12).

Drowning

In 1987, there were eight accidental deaths in private swimming pools in Quebec; five of them happened in family swimming pools. Most victims were young children. It is estimated that 50% of the victims did not know how to swim. More victims were boys than girls. Even if one knows how to swim, risks of drowning remain. Panic and hyperventilation, under certain circumstances, can make people react inadequately and lead to drowning (13). Risk factors associated with drownings are: epilepsy, mental retardation and alcohol use.

An American study shows that, of 136 children involved in water/swimming accidents, 40 died, 7 survived with a neurological dysfunction and 89 did not suffer any after-effects. The prognosis is poor if there is a delay in the resuscitation and before rescue teams can intervene (14).

Several water safety recommendations are put forward in Table 4 (5, 15, 16, 17, 18).

Table 4

Water Safety Recommendations

Swimming

- Beginner Courses do **NOT** prepare swimmers for real emergency situations.
- **NEVER** swim during a storm.
- **NEVER** dive into unknown water. Always check the depth and safety of the water before diving.

Swimming pool

- **NEVER** dive into shallow water. Even a depth of 2,6 metres of water is not always safe.
- **ALWAYS** have rescue equipment and a first aid kit near the pool. Make sure that there is a responsible adult present who is able to perform the basics of resuscitation.
- Do **NOT** swim after eating a big meal, taking medication or drinking alcohol.
- Remove all electric wires near the pool.
- Clearly mark the depth of the water at intervals along the edge of pool.
- Install a ladder (minimum width 76,2 mm), made of non-slippery materials.
- Cover the pool with a tarpaulin when it is not in use.

Boating

- **NEVER** go in a boat under the influence of alcohol.
- **NEVER** overload the boat.
- **ALWAYS** have a life jacket approved by the Canadian Ministry of Transport aboard for each passenger.
- According to the type of boat, **ALWAYS** have on board:
 - oars
 - a baler or hand pump
 - a fire extinguisher (on inboard motor boats or boats with cooking appliances)
 - distress signals

Burns (19)

It is estimated that in the United States 1 300 people die each year from burns and other fire-related accidents. Most of these victims are younger than five years of age. The presence of a smoke detector reduces risks of death by about 50%. To avoid burns, certain safety precautions should be taken. See Table 5 (8).

Table 5
Fire Safety Recommendations
<ul style="list-style-type: none">• Install smoke detectors and check them regularly.• Own a fire extinguisher.• Establish an evacuation plan in case of fire.• NEVER smoke in bed.• Keep fuels in safe places outside the house.• Be careful with fireworks (adult toys!).• Beware of thunderstorms.

Falls (5,13)

Every year in the United States, about 100,000 people are seen in emergency rooms following accidents on the playground. Three injuries out of four are caused by play equipment (slides, swings and ladders). Others hurt themselves by catching a finger or a limb in a play structure. Although play equipment manufacturers have changed their products in a significant way, efforts must still be made to assure safety on playing fields. Here are some essential safety tips on the subject (Table 6).

Table 6

Safety Recommendations for playgrounds

- Have a shock-absorbant surface (25 to 30 cm) of sand, wood shavings or tires beneath play equipment.
- Choose light materials for swing seats.
- Fix equipment firmly in the ground.
- With fences or barriers separate areas of the playground used for active games (baseball, soccer, etc.) from other areas.
- Install non-slippery materials on surfaces where children climb.
- Use a specific colour for equipment used by different age groups.
- Use bright colours on the protruding pieces of play equipment.
- Separate with paths the different areas of the playground and encourage children to keep away from swings, moving equipment and dangerous activities.
- Install a phone which can be easily seen near the playground. Highlight emergency numbers.
- Clean playgrounds regularly removing all broken glass and sharp metal objects.
- Inspect and maintain playing fields and equipment regularly to assure the safety of the environment.

Conclusion

Adolescents are involved in accidents; this is reality. Can we accept the idea that accidents are linked to misfortune, fate or to the unexpected and not propose measures to counter them? We, as parents, adults and professionals must take an active part in guidance, prevention and intervention for the safety of all adolescents. Have a nice summer and be very careful!

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