

OPINION PIECE

TOBOGGANING IN CANADA

Pediatric Sport and Exercise Medicine Committee
Canadian Academy of Sport and Exercise Medicine
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Tobogganing in Canada is a popular winter pastime activity for individuals young and old. Tobogganing or sledding, as it is known in some areas is seen as a recreational activity without professional sport associations or governing bodies and it is not a competitive sport/activity. The activity involves one or more individuals using an object of various sizes and shapes and elevation off the ground to slide down a snow and ice covered hill with the primary goal of pleasure and enjoyment. Injury however is an unintended consequence and can have significant effects on the individual from fractures and contusions to head injury and significant neurologic damage and possible death. Most injury results from the rider colliding with an object on the hill that may be intentional as in ramps built into the hill or hidden objects such as snow covered tree stumps. Injury can also occur when the rider falls off the 'sled' contacting the ground or other riders. Less common is injury resulting from sliding into the roadway and colliding with vehicles parked or moving on the road. At the present time there is no law requiring helmet use for tobogganing. Currently there are few municipalities in Canada that regulate tobogganing and those that do have by-laws that are rarely enforced. Other municipalities have chosen to create 'safe sledding' areas and hills in order to address the injury risk. It is this injury risk and the potential for municipality liability in an injury situation that has led some areas to suggest a ban on tobogganing. It was the issue of safe sledding and the concept of banning that prompted the CASEM board to request a brief report and opinion from its Pediatric Sport and Exercise Medicine Committee.

In a literature review of injury related to tobogganing, there is a paucity of published studies documenting injury risk rates related to number of participants and hours of participation. Studies that do exist are primarily a review of injury related to multiple winter sports and activity in those that present to Emergency Departments and that need hospitalization.



Canadian data from two studies reveal the following. A review (Kim PCW et al. 1995) of admitted patients to Toronto Sick Kids Hospital in the 1990s – 22 in the 2 yr. study period with tobogganing injury, noted most were due to collisions with objects or falls off the toboggan, rare use of helmets and major (death, brain injury) and minor injuries sustained (fracture, laceration) with the head followed by trunk and extremity as injured anatomic areas. Head first sledding was associated with the most injury. Data from CHIRPP (Canadian Hospitals Injury Reporting and Prevention Program) in 1990s indicated low admission rates (7.5%) and 0.25-2.5% of all childhood injuries were due to tobogganing. Looking at sport injury data from CHIRPP for the years 2007 – 2010 (Fridman L 2012), sledding accounted for 3.2% of sport related injury in Canadian ERs and was #8 of 13 sports studied, behind soccer, hockey and basketball. Most injuries were seen in children under the age of 14 in this retrospective study. Fractures were the most common injury at 33% followed by soft tissue injury at 20%, sprains and strains at 9% and concussion at 6%. There was a large component of ‘other’ injuries in this review at 32%. The authors singled out concussion as one particular injury pattern and noted that sledding was the mechanism of concussion in 4-6% of all concussions identified across sports.

An 8 yr. retrospective practice review from the US found that sledding was the most common cause of hospital admission related to winter sport injury, at 53% (Herman R 2015). A 13 yr. retrospective study from Switzerland (Heim D. et al 2012) reported published tobogganing injury rates of 2-25% of all winter sports with injury affecting all age groups with adults sustaining more lower extremity injury and children more head and upper extremity injury. Similar results and conclusions were seen in an Italian study from 2007 that looked at a 3 year period of sledding injury (Corra S and de Giorgi F 2007) and a US study (Ortega HW 2005) looking at 5 years of sledding injury presenting to an academic pediatric emergency department.

We can infer from these studies that there is a wide variation in injury reports and hospitalization rates for tobogganing injuries across countries. Possible reasons for this wide variation can include regional variations in care and models of care and variations in access and participation rates in tobogganing in different geographic regions.

The table below is taken from Canadian data looking at injury due to tobogganing compared with other recreational sports during a 5-year span:



Tobogganing Injuries

Table 1: Number of Hospitalizations Due to Winter Sports and Recreational Activities, by Cause and Fiscal Year, 2006–2007 to 2010–2011

Activity	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011
Ice Hockey	1,221	1,099	1,099	1,188	1,114
Ice Skating	888	863	853	870	889
Skiing/ Snowboarding	2,364	2,573	2,464	2,443	2,329
Snowmobiling	1,195	1,295	1,231	1,228	1,126
Tobogganing	252	215	189	204	171
Total	5,920	6,045	5,836	5,933	5,629

Table 2: Number of Hospitalizations Due to Winter Sports and Recreational Activities, by Cause and Age, 2006–2007 to 2010–2011

Activity	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+
Ice Hockey	113	2,837	994	753	691	244	67	17
Ice Skating	169	899	479	688	833	684	462	149
Skiing/ Snowboarding	376	4,091	2,832	1,323	1,370	1,234	612	335
Snowmobiling	87	855	1,388	1,323	1,289	755	275	109
Tobogganing	348	354	115	89	79	37	N/R	N/R
Total	1,093	9,036	5,808	4,176	4,262	2,954	1,416	610



All studies have noted the importance of helmet use but there is a paucity of data that report overall helmet use in riders that suffer injury. Multiple authors note low levels of use in injured participants without actual reported usage rates. Overall helmet use by individuals of all ages participating in sledding has been reported to range from 35 – 50% of participants with those less than 10 yrs of age having highest usage of 64 – 93% and use drastically falling with increasing age (Ruedl 2015). Sledding head injury pattern is similar to patterns seen in injury related to bicycle use without a helmet. Helmet use is an area all authors suggest as essential in injury prevention strategies related to tobogganing. A recommendation to sled in an unobstructed area with children properly supervised by adults is also strongly advocated for. The majority of fatalities related to sledding were seen in adults as a result of the rider colliding with another object (including vehicles) at high speeds. Most studies have also recommended regular monitoring and maintenance of tobogganing areas to further reduce risk of injury.

It is the opinion of the committee that tobogganing and sledding is indeed an activity that has the potential to cause injury – both minor and severe. It is however, not at the top of the list of harmful recreational activities. After review of the literature with a paucity of clear safety and injury risk data noted, the pediatric committee consensus is that tobogganing and sledding in Canada is primarily a sport safety issue. CASEM and the CASEM Pediatric Sport and Exercise Medicine committee does not support banning of tobogganing given the lack of scientific data. The issue of banning falls into the domain of individual municipalities as it is not a scientific/medical issue. The committee fully endorses the various Canadian safety institutes recommendations for safe sledding that already exist. These include Health Canada and its Consumer Product Safety organization and Parachute Canada. Parachute Canada, a CASEM partner organization, has a 1 page document that is published and available on their website (and included with this document) that outlines tips for making the popular winter activity safer to reduce rates of injury. We do strongly support CASEM's endorsement of the already existing document *Preventing Injuries for Tobogganing & Sledding* created by Parachute Canada by including their logo on our website and including the document on the listing of position statements created by other organizations but supported by CASEM.



Appendix 1: Review – Municipal Bylaw's on Tobogganing and Sledding – Canada and USA.

A Google search for locations (towns, cities, etc.) that have banned tobogganing revealed few actual locations that have bylaws and outright bans. Most of these are in the US and the one major Canadian city, Hamilton Ontario, that suggested an outright ban, has recently reversed this opinion. At present the committee can find evidence for the following locations that have bylaws on tobogganing (mostly on public municipal land) and they limit locations of sledding hills rather than an outright ban on the activity:

Hamilton ON – A bylaw against tobogganing on city property has been present since the 1970s however it has rarely been enforced (Fines of \$100 - \$2000). A proposed ban of the activity in early 2015 was overturned by Hamilton city council. The bylaw is still present but the city is looking into creation of safe sledding locations and posting “tobogganing at your own risk” signage.

Calgary AB – Has 18 approved sledding hills in city and a bylaw.

Parks and Pathways Bylaw 20M2003

No person, while in a park, shall ride downhill in a toboggan, sleigh, carpet or sliding device except in an area where such activity is specifically allowed.

Toronto ON – Has numerous designated hills along with a bylaw that restricts the activity to certain locations.

City Bylaw 854-2004 608-22. Skiing, tobogganing and sledding.

While in a park, no person shall:

- A. Ski, toboggan, snowboard, skibob or sled in an area in a park where it is posted to prohibit it [*14 public parks as per bylaw 608-22*]; or
- B. Fasten or attach a ski, toboggan, snowboard, skibob or sled to any vehicle, motorized vehicle or motorized recreational vehicle for the purpose of being towed, dragged or otherwise pulled.

Edmonton AB – Tobogganing in approved areas only and weather dependent.



Winnipeg MB – The city has advertised official tobogganing areas with 4 Toboggan Hills and 7 Winter Slides, some of which have lights, washrooms and warm up areas.

Ottawa ON – Has 56 designated tobogganing hills and also published and available on line documents promoting safe sledding (see attached).

Orangeville ON – Posted signage on some hills designed for tobogganing saying “NO TOBOGGANING” after city insurance company mandated the sign. Level of enforcement is not known however.

Sudbury ON - Sledding in approved areas only.

In the US however there are some locations (Des Moines and Dubuque, Iowa; Lincoln Nebraska; Montville New Jersey) that have apparently banned tobogganing, but they are few in number.