



Safety Canada

THE MEMBER NEWSLETTER OF THE CANADA SAFETY COUNCIL

JANUARY 2009

VOL. XLXIII No. 1

The Chilling Facts about Wind Chill

In Canada, over 80 people die each year from over-exposure to the cold and many suffer injuries from hypothermia and frostbite. Wind chill can play a major role in such health hazards because it speeds up the rate at which your body loses heat.

Anyone who has ever waited at a bus stop or taken a walk on a blustery winter day knows that you feel colder when the wind blows. We call the cooling sensation caused by the combined effect of temperature and wind, the wind chill.

On a calm day, our bodies insulate us somewhat from the outside temperature by warming up a thin layer of air close to our skin, known as the boundary layer. When the wind blows, it takes this protective layer away — exposing our skin to the outside air. It takes energy for our bodies to warm up a new layer, and if each one keeps getting blown away, our skin temperature will drop, and we will feel colder.

Wind also makes you feel colder by evaporating any moisture on your skin — a process that draws more heat away from your body. Studies show that when your skin is wet, it loses heat

much faster than when it is dry.

How much heat you lose depends not only on the wind chill, but on other factors as well. Good quality clothing with high insulating properties traps air, creating a thicker boundary layer around the body that keeps in the heat. Wet clothing or footwear loses its insulated value, resulting in body-heat loss nearly equal to that of exposed skin. Your body type also determines how quickly you lose heat — people with a tall slim build become cold much faster than those that are shorter and heavier.

In addition, we can also gain heat by increasing our metabolism or soaking up the sun. Physical activity, such as walking or skiing, increases our metabolism and generates more body heat. Age and physical condition also play a part: elderly people and children have less muscle mass, so they generate less body heat. Sunshine, even on a cold winter day, can also make a difference. Bright sunshine can make you feel as much as 10 degrees warmer.

Over time, our bodies can also adapt to the cold. People who live in a cold climate are often able to withstand cold better than those from warmer climates.

The best way to avoid the hazards of wind chill is to check the weather forecast before going outside, and be prepared by dressing warmly. As a guideline, keep in mind that the average person's skin begins to freeze at a wind chill of -25°C , and freezes in minutes at -35°C .

Taking shelter from the wind can reduce or even eliminate the wind chill factor. However, you would still feel cold from the outside temperature alone.

A recent survey indicated that 82 per cent of Canadians use wind chill information to decide how to dress before going outside in the winter. Many groups and organizations also use the system to regulate their outdoor activities. Schools use wind chill information to decide whether it is safe for children to go outdoors at recess. Hockey clubs cancel outdoor practices when the wind chill is too cold. People who work outside for a living, such as construction workers and ski-lift operators, are required to take indoor breaks to warm up when the wind chill is very cold.

Continued on page 2

Inside

Feature Story: The Chilling Facts About Wind Chill	1
President's Perspective	2
Wheels in Motion: Winter Driving Tips	3
Seniors: Surfing Seniors	4
Sports and Leisure: Safe Snowmobiling.....	4
Sun, Sand and Safety.....	5
Kwiz Korner: Wind Chill	6
On the Job: Keep it Safe – Working from Home	7
Public Safety: Don't Make a 'Meal' of Snow	8



President's Perspective

As Canadians, we are all too familiar with the winter ritual of shovelling snow from driveways and sidewalks. But how many of us are doing this chore properly? How can you keep from hurting yourself while shovelling?

As we've all experienced on those cold winter mornings, the need to shovel can sometimes come as a surprise. But however much of a hurry we might be in, the importance of warming up to prepare your body can't be overstated. Remember that while it can be a great workout, shovelling is a strenuous activity that if done without proper preparation can lead to muscle strains, cold exposure, back injuries and stress on the heart. So be sure to warm up – stretch, flex muscles and get the blood flowing before you dive in to that first shovel full.

Next, take a look at what you're wearing. Are you dressed appropriately? I suggest that you wear several layers of lightweight, non-restrictive clothing that gives you freedom of movement. The innermost layer should be "whisking" or thermal underwear that will allow perspiration to move away from the skin. Make sure your head (especially your ears), feet and hands are all well covered. Your boots should be lightweight, waterproof and have good traction to prevent slips and falls.

If the temperatures are very cold, below -40°C (or below -25°C when it is windy) then you should not shovel at all.

As for your shovel itself, invest in a lightweight shovel, less than 1.5 kg or about three pounds with a blade that is not too large.

Otherwise the load per shovel full will be too heavy, causing a great deal of stress on your back and heart. The grip should be long enough so you do not have to stoop to shovel. I use a wooden or plastic shovel, as I find metal to be too cold.

When shovelling, set a reasonable pace. The temptation is to dive right in and clear out as much as you can quickly, but this can lead to overexertion and injury. Try to push the snow rather than throw it. If you have to throw the snow, take only as much as you can easily lift with your shovel and turn your feet in the direction you are tossing the snow. Never twist at the waist to throw a load, and never throw snow over your shoulder! Remember that the wetter the snow is, the heavier it will be. Take your time and be sure to pause for a break when you need to.

Snow shovelling is part of winter in our country, but it need not be a dangerous part. We at the CSC encourage you to follow these tips and have a safe and happy winter season, and a great year ahead.

Safety, It's an Attitude



Jack Smith, President

Seven Steps to Cold Weather Safety

1. Listen to the weather forecast

- Check the Environment Canada weather forecast before going out in the cold.
- If conditions are hazardous, a wind chill warning will be issued.
- If the wind chill is very cold, exposed skin can freeze in minutes.

2. Plan Ahead

Groups and organizations should develop a plan in advance, to ensure that safety concerns are addressed when the wind chill is high. For example, schools could hold recess indoors, outside workers could schedule warm-up breaks, and those involved in winter

recreation could reduce the amount of time they spend outdoors.

3. Dress warmly

- Wear layers of warm clothing, with an outer jacket that is wind-resistant. Mittens, boots and a hat are also important. (We lose a large portion of our body heat from the head.)
- When the wind chill is high, try to cover as much exposed skin as possible.
- Wear a scarf, neck tube or face mask.
- Check frequently for signs of frostbite.

4. Seek shelter

- Get out of the wind.
- When wind chill is very cold, limit the time you spend outside.

5. Stay dry

- Wet clothing chills the body rapidly.
- Remove outer layers of clothing or open your coat if you are sweating.

6. Keep Active

- Walking or running will help keep you warm by generating body heat.

7. Know your limits

- Some people are more susceptible to the cold, particularly children, the elderly and those with circulation problems.
- The use of alcohol, tobacco and certain medications will increase your susceptibility to cold.

(Source: Defence R&D Canada, Defence and Civil Institute of Environmental Medicine – the research agency of the Canadian Department of National Defence)

WHEELS IN MOTION :

Winter Driving Tips

Winter driving can sometimes be a daunting task, especially when conditions are snowy or icy. Follow these steps to keep yourself safe and collision free during the next few blustery winter months.

Step 1: Make sure that your vehicle is prepared for winter driving.

- Winter tires are a good option, as they will provide greater traction under snowy or icy conditions.
- Keep a snow brush/scrapper in your car, along with possible emergency items such as a lightweight shovel, battery jumper cables, and a flashlight.
- Make sure that mirrors, all windows, and the top of your vehicle, are free of snow or frost before getting onto the road.

Step 2: Drive smoothly and slowly

- Don't make any abrupt turns or stops when driving. Doing so will often cause your vehicle to lose control and skid.
- Driving too quickly is the main cause of winter collisions. Be sure to drive slowly and carefully on snow and ice covered roads.

Step 3: Don't tailgate.

- Tailgating becomes much worse in winter weather. Stopping takes much longer on snowy and icy roads than on dry pavement, so be sure to leave enough room between your vehicle and the one in front of you.

Step 4: Brake before making turns.

- Brake slowly to reduce speed before entering turns. Once you have rounded the corner you can accelerate again.

Step 5: Learn how to control skids.

- When skidding, you actually need to go against your natural instincts and turn into the skid and accelerate. Doing so transfers your vehicle's weight from the front to the rear and often helps vehicles to regain control.

Step 6: Lights On.

- Turn on your lights to increase your visibility to other motorists.

Step 7: No Cruise Control.

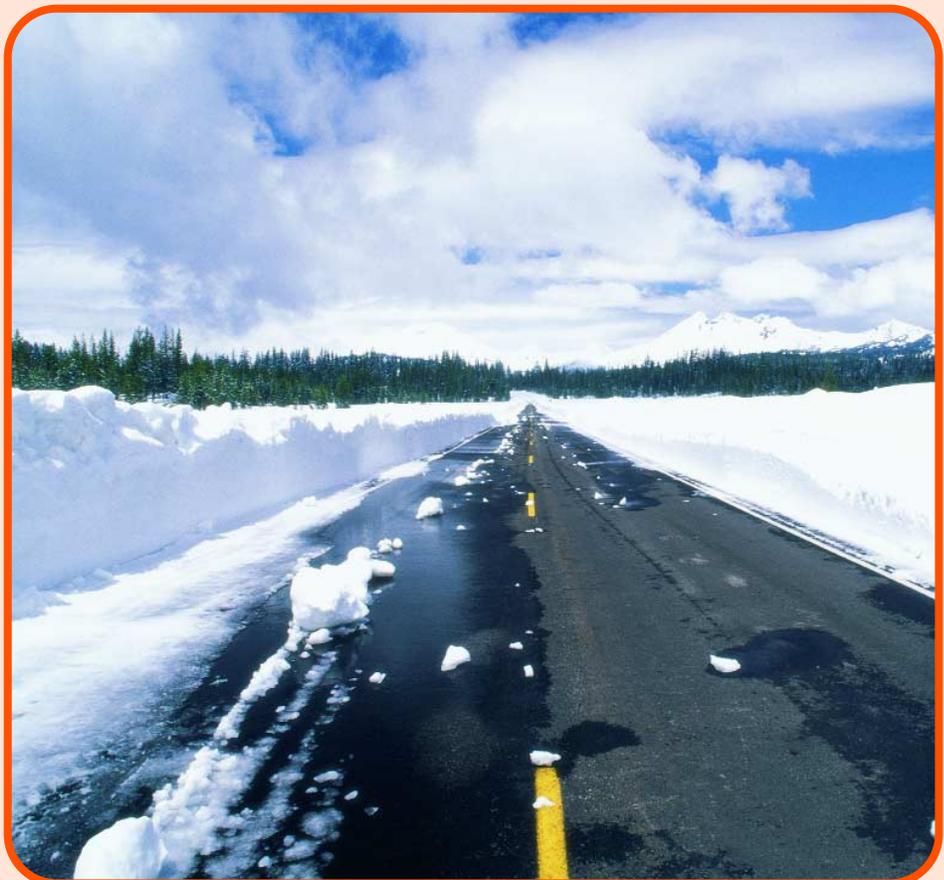
- Never use cruise control if conditions are snowy, icy, or wet, because if your car hydroplanes, your car will try to accelerate and you may lose control of your vehicle.

Step 8: Don't "pump" the brakes.

- If your vehicle is equipped with an anti-lock braking system (ABS), do not "pump" the brakes. Apply constant pressure and let the system do its work.

Step 9: Pay attention.

- Manoeuvres are more difficult to make in the snow. Be sure to anticipate what your next move is going to be to give yourself lots of room for turns and stopping.



SPORTS AND LEISURE :

Safe Snowmobiling

Snowmobiling has become a very popular winter sport for Canadians. There are currently over 700,000 registered snowmobiles in Canada and over 125,000 kilometres of snowmobile trails.

Every year people are injured and killed while participating in a pastime that should be remembered with only fond memories. Injuries and deaths that are related to snowmobiling can be prevented. Frequently reported contributing factors in collisions include excessive speed, drowning, unsafe operation, inattention, and operating under the influence of alcohol.

One of the safest snowmobiling rules is never to cross lakes or rivers. Besides the danger of plunging through the ice, you have far less traction for starting, turning and stopping on ice than on snow. Collisions on lakes account for a significant number of accidents. Don't hold the attitude that lakes are flat, wide-open areas, free of obstructions. Remember, if you can ride and turn in any direction, without boundaries, so can other riders. The threat of a collision, then, can come from any direction. However, if you do snowmobile on the ice, make absolutely sure the ice is safely frozen. Don't trust the judgement of other snowmobilers. You are responsible for your own safe snowmobiling. Drowning is a leading cause of snowmobile fatalities. Consider buying a buoyant snowmobile suit. If you go through the ice, remember that your snowmobile suit (even a non-buoyant one) and helmet may keep you afloat for several minutes. Slide back onto the ice, using anything sharp to dig in for better pull. Kick your feet to propel you onto the ice, like a seal. If the ice keeps breaking, continue moving toward shore or the direction from which you came. Don't remove your gloves or mitts. Once on the ice, roll away from the hole. Don't stand until well away from the hole.

SENIORS :

Surfing Seniors

Googling is good for grandma and grandpa! Studies show that middle-aged to older adults who browse the Internet on a regular basis, had twice the increase in stimulation on the decision-making and complex reasoning areas of the brain. Opposed to those who rarely search the Internet.

The study, conducted by researchers at UCLA, analyzed the brain activity of middle-aged to older adults during Internet browsing. The research indicates that browsing the Web engages the neural network and circuitry of the brain on a larger scale than reading does – but only in those with previous Internet experience. The most active regions during the search activity involved the frontal lobes, temporal lobes and cingulate areas, says the researchers, which are involved in complex reasoning and decision-making.

People who continue to participate in mind-stimulating activities, such as browsing the Internet, or even crossword and Sudoku puzzles, show better ability at maintaining cognitive functions and overall improvements in brain health.

As people age, cognitive functions normally slow down as the brain deteriorates. A reduction in neural network activity, and increased plaque deposits can also be noticed. Web surfing enhances the functioning of middle-aged to older brains, and delays the slowing down of brain activity associated with advancing age. Also, seniors who become proficient at and use a computer appear to have fewer depressive symptoms than older adults who aren't so technologically advanced.

The more experience the subject had in searching, the greater engaged a person's brain was. It thus appeared that computerized technologies have physiological effects that benefit the well being of seniors. The more you surf, the more your brain is stimulated, and the more you slow down the brains' process of aging.

Happy Googling!



SPORTS AND LEISURE :

Sun, Sand and Safety

Planning on travelling down south or overseas this winter? Remember to pack your common sense when you go abroad. Be sure you are aware of the health conditions in the country where you will be travelling, as well as the precautions you should take before you leave, and during your trip.

Be Proactive – Plan ahead to ensure a safe and healthy trip. Take steps to anticipate any issues that could arise while you are away. See a doctor about vaccinations at least six weeks before you travel, especially if you are travelling down south (a hepatitis A and B vaccine, like Twinrix may be recommended), or to a place where malaria is prevalent. Also, make sure you are in good health. People who have had recent surgery, recent injury, or are more than 36 weeks pregnant generally should not travel by air.

Try to learn about your destination; such as local laws and culture, and check travel advisories on your destination for health and safety concerns. While in another country, avoid pulling out large maps – you will stand out as a tourist for sure. Instead, study the map before you set out on an excursion. You want to blend in with the locals as much as possible.

Be Prepared – Getting sick or injured, losing a personal item or having things stolen while away, may not be at the top of your list of priorities before you leave, but preparedness is the best form of action. It is highly recommended to obtain travel insurance for the whole duration of the trip including the day you depart. Some travel company's offer health and baggage insurance together. This is a good option, especially if you are carrying items of high value, like video cameras.

To ensure you are prepared for your trip, you can start with packing smart. Purchase a money belt or a neck pouch to keep important information in; such as your passport, airline ticket, credit and debit cards, traveller's cheques, cash, a copy of your insurance policy and medical prescriptions.

Also, packing a travel medical/health kit is a good idea to allow you to take care of minor health problems if they arise.

Items to include are – antidiarrheal medication, anti-histamine, decongestant, anti-motion sickness medications, medicine for fever or pain, mild laxative, cough suppressant, antacid, any needed prescription medications (pack these in carry-on). Bandages, aloe vera gel, antibacterial wipes or alcohol-based hand sanitizer.

Be sure to make copies of all important travel documents, such as passports, birth certificates, and travel insurance

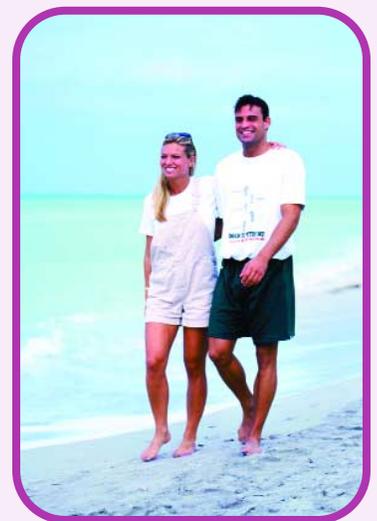
documentation, and store them in your suitcase, in case the originals are lost or stolen. Leave additional copies with a family member or friend back home. Maintain contact with friends and family, especially if you are travelling solo. Keep them posted on where you are and where you are heading next.

Airport security – Since the summer of '06, there have been restrictions on what you can and cannot take in your carry-on luggage. In order to minimize potential delays during the screening process, follow these guidelines:

- Only pack liquids, gels or aerosols that are 100mL or less, in your carry-on. Anything over 100mL can be packed in your checked baggage.
- All these items are to be placed in a clear 1L re-sealable plastic bag.
- Remove the closed plastic bag containing all permitted liquids, gels, and aerosols and put them in the tray provided at the beginning of the screening process.
- Water bottles are included in this screening, so make sure to empty the contents out before going through screening, otherwise it will be taken away from you. Many times you can fill it back up once you get through airport security.

Be Protected – Pay attention to your health while away. Use sunscreen with UVA/UVB protection in warm AND cold climates. If you are travelling in an area where malaria is present, it is important that you take anti-malarial medication as prescribed by your doctor. Since anti-malarial medication does not guarantee absolute protection against the disease, preventing mosquito bites is very important. Use mosquito repellents when outside, especially between dusk and dawn.

Be careful about food and water – avoid tap water, ice cubes, unpeeled fruit, and strange foods. Should you experience traveller's diarrhea, be sure to drink plenty of liquids to prevent becoming dehydrated, especially in warm climates. Also, limit your alcohol intake, and don't take mindless risks with your health and safety. But most important, is to have fun and stay alert. The best vacation is a safe vacation!



KWIZ CORNER : **Wind Chill**

1. Which of the following are affected by wind chill?

- a) your pet dog
- b) your car -- when you first start it
- c) your car -- when it is running
- d) your car -- when it stops
- e) your house
- f) the mail box

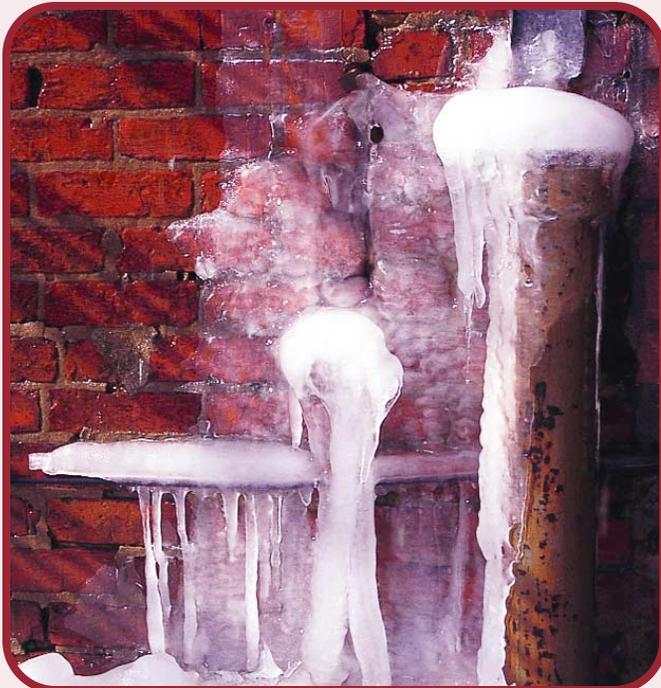
2. If the outside temperature is above 0°C, but the wind chill is (-5), will water freeze? What about the water pipes outside my house?

3. What effect does wind chill have on plants? Will my garden freeze?

4. You hear the following weather report on the radio: "The temperature is -10°C, and the wind chill is -20."

Questions:

- a) If the wind stops blowing, how cold is it outside?
- b) With the wind blowing, what is the temperature outside?



1. Remember, any object that is warmer than the outside temperature is affected by wind chill. (a) Fido is definitely affected by wind chill. Pets and farm animals should not be left outside during high wind chills.

(b) When you first start your car in the morning, the engine is cold, so it is not affected by wind chill. However, if you use a block heater, the wind will reduce its efficiency by blowing away the heated air. Park the car so the heater is sheltered from the wind.

(c) When your car is running, the engine is producing heat. The movement of your car creates its own wind, and if outside temperatures are cold enough, your car may not produce enough heat to warm the passenger compartment.

(d) When your car has stopped, wind chill will cause it to cool off more rapidly, but once it has cooled down to the outside temperature, it will no longer be affected.

(e) Poorly insulated houses lose heat more quickly during high wind chills, and fuel consumption increases.

(f) Your mail box is not affected.

2. No matter how strong the wind blows, the outside temperature does not change. If the temperature is above zero, water will not freeze. However, if the outside temperature is below zero, water pipes freeze and a strong wind will make your pipes freeze even faster.

3. Wind does affect plants. Plants lose moisture through their leaves, and a strong wind can cause plants to dehydrate, particularly if the ground is frozen and their roots cannot absorb water. However, if the outside temperature is above zero, plants will not freeze. But, if the temperature is below zero, plants will freeze, and, just like your water pipes, a strong wind will make your plants freeze even faster.

4. Both (a) & (b) have the same answer-- the temperature outside is -10°C. The temperature does not change, no matter how hard the wind blows. *Wind chill is a feeling -- not a real temperature.* The strong wind will make you feel very cold (as if you were in a room chilled to -20°C), but the outside temperature is still -10°C.

Answers

ON THE JOB :**Keep It Safe - Working From Home**

Technology has made it possible to do many jobs at home rather seamlessly. An increasing number of companies are offering "telework" as an option, especially given the increasing need for flexible work arrangements, the rising cost of fuel, and environmental concerns of commuting.

Where working from home is an option, don't forget to address all workplace health and safety concerns. Here are some things to consider:

Workstation - Just like in the office, a home-based workstation must include an appropriate, quality desk and chair adjusted to suit the worker's body dimensions. The keyboard must be at the right height so that arms and wrists are in a neutral position. Lighting must also be sufficient, with minimal reflection or glare.

Scheduling - Believe it or not, the most common problem with telework is not that the job doesn't get done. On the contrary, many teleworkers find they forget to take breaks! Without the natural breaks of meeting with co-workers or walking to a printer, the teleworker tends to spend long periods in the same position, doing repetitive motions that may lead to musculoskeletal injuries.

Work environment - The work environment must be free of hazards such as poorly positioned cords or wires, or ungrounded or overheated electrical equipment.

Emergency measures - Teleworkers, just like workers at the company site, should have smoke alarms, access to a fire extinguisher, a carbon monoxide detector, an evacuation plan, first aid supplies, and other measures in place for their safety.

Responsibilities - Your company's occupational health and safety policy should outline who is responsible for health and safety issues and worker's compensation if the teleworker is injured. A company representative must ensure the work environment is safe, and stay in touch with the worker. As for the worker, he or she must report accidents or injuries to their supervisor, just as workers at the company site are required to do. Put these details in writing to avoid any confusion, especially in the event of a

compensation claim. In this agreement also state which parts of the home are considered "the workplace," and indicate that the employer or a health and safety committee representative has the right to access this area of the employee's home to conduct a health and safety inspection.

You might want to implement a telework arrangement on a trial basis at first, to make sure it works for both the employee and the company. By formally addressing important issues up front, in writing, you can help your staff work safely and productively from home.

(Source: CCOHS)



Don't Make a 'Meal' of Snow

*Parents are always telling their children to stay away from the yellow snow – but is any snow really safe for kids to eat? Snow contains large quantities of *Pseudomonas syringae*, a type of bacteria that causes diseases in tomato and bean plants.*

Researchers have analyzed 20 samples of snow taken from various places around the world, such as Montana, the Yukon and Antarctica. The bacteria levels were high in all the samples. The most widespread bacteria in all samples proved to be *Pseudomonas syringae*.

With this knowledge, scientists began to wonder what effect the bacteria had on human health. The conclusion garnered from the study was that *Pseudomonas syringae* is neither a good guy nor a bad guy. This uncertainty thus leaves parents wondering what to do, but experts say there is not much cause for worry. The types of bacteria found in the atmosphere, and ultimately in snow, are not human pathogens and don't cause disease.

Children practically bathe in bacteria every time they are out in the playground, says Dr. Penelope Dennehy, a member of the American Academy of Pediatrics, and they won't get anything from snow that they wouldn't get from dirt. Most importantly, there are no clinical reports about children becoming ill from snow eating, so moderation is key.

Here are a few safety tips to remind your children, once that first snowfall hits the ground:

- Licking the snow off a glove is likely to be fine. Having a "meal" of snow is probably not a good idea.
- Make sure your child does not eat a lot of snow. It also contains particles from ordinary air pollution.
- Catching a snowflake on the tongue is OK. Eating snow that's on the ground is not OK.



Safety Canada

ISSN: 0048-8968

Canada Safety Council

1020 Thomas Spratt Place, Ottawa, ON K1G 5L5

Telephone: 613-739-1535 Fax: 613-739-1566

President: Jack Smith Editor: Valerie Powell (ext. 228)

Website: www.safety-council.org

Charitable BN: 11882 8565 RR 0001

Safety Canada is the member newsletter of the Canada Safety Council, an independent, national, not-for-profit safety organization. It is also published online. While strenuous efforts are made to ensure the content represents the best current research and opinions, no guarantee, warranty or representation is made by CSC as to the absolute correctness or sufficiency of all information, and CSC assumes no responsibility therewith. Articles may be printed with credit, except those copyrighted to other organizations.