The Fall Report
A Discussion of Health Issues

Fall General Surgery, LLC

The Fall Report: Ice Dangers

Winter is a Fun Time, but it's Dangerous Too.

Our long winter season begins each year on December 21st. Outdoor enthusiasts look forward to many winter time sports including snowmobiling, skiing, snow-shoeing, hunting, and ice fishing. Yet, winter brings with it special hazards affecting our every-day activity and work as well as play. With some common-sense precautions, your winter may be not only a fun time but a safe time as well.

For any sports involving ice, some understanding of its formation and integrity will add a measure of safety for you.

Most substances contract as they cool. Water becomes most dense at 39^{o}F, but as it continues to cool molecules of water move apart and at 32^{o}F solidification of water occurs and ice is formed.

Primarily, two fundamental characteristics of ice create its danger to human beings:

1. Ice is slippery
2. Ice integrity (strength) is unpredictable.

Slippery component:

This quality of ice probably leads to the greatest incidence of serious injuries. Thin or thick, ice is slippery. On the road, "thin ice, "pure ice," black ice," and "glare ice" are all forms of ice that are sometimes invisible, adding dangers to driving. Failure to recognize underlying ice conditions while driving either in an auto or on a snowmobile may result in a lack of appreciation of safe stopping distances, resulting in less serious "fender-benders" or more severe, tragic consequences. Risk is increased with poor lighting conditions and/or less than optimal tire/track conditions.

Regarding walking on ice:

Slipperiness is just another way of saying, "a loss of friction," the property of objects which makes them resistant to being moved across one another. The simple act of walking safely depends on friction to prevent a slip and fall. Danger increases as fundamental stability decreases, i.e. getting into or out of a vehicle where the weight of the body and momentum is on one foot, not two, or going up and down steps, ascending or descending a hill, etc.

Several things can be done to enhance your safety. Most importantly, recognize the condition and balance risk vs. benefit. Don't drive if you don't have to. If you have to drive, drive more slowly, keeping more distance between you and other vehicles. Begin slowing down earlier as you approach intersections. Ensure that your tires are in good condition.

Don't walk on ice if you don't have to. If you do have to, wear adequate foot gear. Rubber is better than leather. Consider the use of ice creepers. Taking shorter steps and walking a bit "flat-footed" is favorable in centralizing your center of gravity and increases the surface area of your feet on the ice below.

If you use an assistive walking device (cane or walker) under normal circumstances, walking on ice is particularly dangerous. Grocery shopping or a non-urgent doctor's appointment can wait a day or two. If you are elderly, have someone else sweep off the steps. Let professionals take care of snow on the roof.

Winter conditions, at best, are dangerous. Using good common sense can help you get through these dangerous months and allow you to welcome spring and summer in good health.

Ice integrity:

As previously mentioned, water is most dense at 39^0F, but as the temperature falls, water molecules move apart and under ideal conditions, ice forms at 32^0F. The key, though, is "ideal conditions."

Many factors influence the formation of ice and are reflected in its physical characteristics. New ice is usually stronger than old ice. Ice formation is erratic as it depends on variable weather conditions, the presence of flowing water (currents) as, on Lake Superior, near the Hot Pond, Tern Island, the Breakwall, and shipping channels. In these areas, thickness and strength of ice may vary dramatically within only a few yards. Flowing water, as in rivers, creeks, and springs in inland lakes create similar hazards.

Snow cover affects ice formation as it insulates the ice, thereby affecting freezing and, in addition, adds, by its weight, an additional detrimental factor to solid ice formation.

Some people have advised that "ice is never safe – don't go on it!" But we know that's not going to happen. Ice fishermen know that fish activity is highest with new ice. For those people who venture onto the ice, there are many recommendations that will add to a safe and fun experience.

The Fall Report is written by Dr. James Nibler from Fall General Surgery, Ashland and Hayward, a practice that includes Dr. George Fall, general surgeon and Dr. James Nibler, general physician and surgical consultant. For more information, call 715-685-0656 or 877-244-2734.

- If you are going out "early" on new ice, don't go alone. Use a spud to estimate ice integrity, carry safety ropes and hand-held ice picks.

- Know your geography. Are there particular danger areas: structures, currents, hot water effluent (Hot Pond) or springs.

- Don't get lost! Be aware of changing weather conditions (blowing snow or a blizzard). Be aware that a traditional compass may not be accurate while on a running snowmobile and consider using a GPS unit.

- Avoid traveling under poor lighting conditions.

- Keep general ice thickness guidelines in mind:

  2" or less – STAY OFF
  4" – Ice travel by foot
  5" – Snowmobile or ATV
  8-12" – Car or small pick up
  12-15" – Medium truck

What do you do however, if despite following these precautions, you fall through the ice into the underlying frigid water?

1. Don't try to remove clothing or boots
2. Turn to the direction from which you came
3. Approach the ice and use your ice picks to pull yourself back on to the ice – it may be easier to do so on your back, allowing your lower body to float toward the surface
4. When on the ice, move away from the hole, lying flat, to spread out your weight
5. Get back to a warm, dry, sheltered area
6. Seek medical attention, even if you feel "OK"

If in a vehicle:

1. Travel with a window open
2. Do not use a safety belt
3. Do not wear a life preserver - falling through into the water would then float you to the top of the submerged vehicle and hamper your attempts to escape

This year has been most unusual regarding ice formation on the bay. As mentioned in the Daily Press (1-19-06), this year may be only the second time in 25 years that the Madeline Island Ferry Line will not have a winter shut-down.

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There have been numerous reports of vehicles falling through the ice on Chequamegon Bay as well as inland lakes, rivers and flowages.

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