

Cold Weather and the Birkebeiner

(For help on the trail – the emergency number is stamped on your bib 780 922 3293)

The Birkebeiner is a participation oriented event. Our skiers range from the beginner to the experienced, and from those seeking a pleasant day of social skiing to those seeking or accepting a rigorous challenge.

We do not cancel unless it is extremely cold - generally below -25C although there are variances for wind speed and direction, sunshine and projected warming through the day. The shorter races will be cancelled at somewhat 'warmer' temperatures. As an option, we may shorten the 55 km event. (The other events are difficult to shorten due to their routing.) We know there are many who would ski under extremely cold conditions but we also have to watch out for the safety of our volunteers who may be out there all day. We also know there are many who have no interest in -20C temperatures! It is a balancing act.

The individual skier must decide whether they are accepting of conditions on the day – both in terms of enjoying the experience and of being prepared physically and equipment wise for the conditions. Even though the event is proceeding at cold temperatures - if you are not prepared, it is likely best if you choose discretion over valour.

Cold Weather Hazards

- **Frostbite** – freezing of both the skin and the underlying tissues; leaving one prone to short –long-term damage and increased likelihood of refreezing the area on future outings. Frostbite may affect the face, which Medical Team people might observe, but can also affect toes and fingers which they do not check.
- **Windchill** – increased convective heat loss due to wind. Windchill can also reduce the effective insulative value of clothing and boots as cold air currents penetrate deeper.
- **Motion-related Convection Heat Loss** – increase in convective heat loss due to the skier moving through the air. It can combine with windchill if skiing into the wind..
- **Hypothermia** – cooling of the body's core temperature caused by extended exposure to cold temperatures, windchill and convective heat loss, fatigue, dehydration and insufficient insulative value of clothing. Wet clothes decrease the insulative value of clothing.
- **Exhaustion** – on cold days/dry snow there is less glide and the skier must work harder. Exhaustion affects your ability to make good decisions in a timely way.
- **Dehydration** – decline in fluid level in the body. Dehydration increases the potential for frostbite, hypothermia and exhaustion. Hot drinks at feed stations are crucial, but are harder to guarantee on very cold days when stoves might fail. Cold drinks may contribute to hypothermia and cold injuries.
- **Exercise-induced Asthma** – a narrowing of the airways caused by exercise exacerbated by breathing cold, dry air through the mouth. Once affected, it is often a permanent condition in the individual.
- **Clothing Limitations** – For example, scarves absorb moisture from the skier's breath and in very cold temperatures, if they are pulled down for even a couple of minutes, they can freeze and be unusable for the rest of the outing. This leaves the skier's face exposed to the risk of frostbite and exercise-induced asthma as there is no warming layer before the cold air is breathed in. Another example is cross country ski boots, which typically have quite good insulation for skiing average distances in moderate winter temperatures, but at very cold temperatures over extended exposure are less adequate.
- **Age** – children have a higher surface area to mass ratio and also less muscle mass than adults, so are more prone to cold injury/illness. They often don't have the strength to push hard enough to glide on cold, dry snow, so may be reduced to 'walking'. The accompanying adults may also get hypothermic or freeze their

own feet due to the slow pace. Seniors also have less muscle mass than adults and can have less than optimal circulation in their extremities, contributing to cold injury/illness.

- **Remoteness** – much of the Birkie course is remote from vehicle access increasing the time needed to find and assist a distressed skier. Many skiers do not carry sufficient extra clothing to protect them from the cold, especially if they are reduced to being on the snow for any length of time. It can take 45-90 minutes for emergency help to reach a skier on parts of the Birkie course. The potential for severe hypothermia and frostbite go up exponentially if a skier has to stop for an extended period.

Recommendations

- First and foremost, be self critical of your underlying health, level of fitness and your equipment and ski only if you are comfortable on all counts. Cold days are usually tougher and slower skiing.
- Dress for the cold. Everybody has their favourite materials but the principle is the same - wick moisture away from your body and out through the layers to the exterior, while having insulating layers to retain heat and an outer breathable shell to break the wind. Wet clothes are not desired as they conduct heat away from your body. As a skier we expect you are familiar with layering – the layer closest to you wicking moisture away from your skin (wool or synthetics such as polypropylene), one or more insulating layers (wool or synthetic fleece etc.) and an outer breathable wind break layer. Cross country jackets and pants often have wind protection in the front and are more breathable in the back. Due to the wide range of products – check with a knowledgeable outdoor expert or on the web for the best products.
- Mitts are usually warmer than gloves. Ensure they breathe as wet ones get very cold. Use the same principle of wicking moisture to the exterior, insulation and external wind protection in your choice of mitt or glove. Mittens or gloves extending over your wrists helps keep your hands warm.
- Use a face mask or scarf and cover as much of your face as possible. Bring a spare one as they can accumulate ice. Synthetics work well. Use petroleum jelly to protect areas you can't cover. Covering is far preferable to jelly. A feed station volunteer will be happy to pull the spare mask from your pack.
- Carry spare dry clothes, a hat, mittens and face covering. We know you want to travel lightly and speed along, but you never know if something may go awry or even if you may have to stop and help someone.. Once you stop skiing in the -20s you cool off extremely quickly.
- Wear overbooties or stop and warm up if your feet get cold in your ski boots. Socks may range from synthetic to wool.
- Eat and drink your way through the feed stations. They like to keep busy. Stay hydrated and nourished.
- Ask medical personnel at the feed stations to check you for frostbite every once in a while.
- Feel your toes and fingers. If they feel very cold, or you don't feel anything - stop at a feed station, seek medical advice and get into the warmup shelter or tent.
- If you are shivering or feeling disoriented – talk to a medical person and get warmed up immediately. If you are not at a feed station – tell fellow skiers to call the emergency number and keep moving as best you can. Help will be on the way but it may be faster to get to the next station and a warm up facility.
- If you come across a downed and distressed skier or a skier you feel may be hypothermic or in other distress - do not leave them. Call the emergency number and keep them warm – lay a coat on the snow for them to lie on if need be. Also send a skier to notify the next feed station or patroller.

Hot Tip!

On a cold day, 55 km with pack skiers will weigh in with their emergency fleecy in their packtake it out for wearing while waiting at the start lineand then put it back in for the race. Make sure it's in your pack at the end as you will need the pack weight!