

BACKCOUNTRY SNOWSHOEING AND SKIING FUNDAMENTALS

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OVERVIEW: Winter travel in the back country can be a fantastic experience, but comes with certain risks that must be recognized and planned for. The purpose of this class is to discuss the various factors that can influence your enjoyment and safety in the back country and provide you tools to deal with changing conditions that may arise.

THE WINTER ENVIRONMENT AND WHAT IT MEANS TO YOU

A. Changes in Conditions that can occur during your trip

1. Severe swings in temperature
2. Storms/Whiteouts
3. Significant changes to surface snow conditions throughout the day
4. Avalanche Danger

B. How you deal with these changes can determine the level of comfort and safety, and is often related to your choice of gear:

SKIS: There are several types of ski systems. Each has their own intended use. Be sure to use the right ones for the type of trip you're taking.

1. **SKATE SKIS:** suitable for track skiing only.
2. **LIGHT NORDIC SKIS:** Long, skinny, no metal edges. Use a light toe clip to specialized lightweight boot. Suitable for track skiing and some easy, flat touring with no weight.
3. **BACKCOUNTRY NORDIC SKIS:** These are a beefier ski. They tend to be wider at the tip and tail, shorter in length and have metal edges and either 3-pin bindings or special beefy bindings made to go with specialized boots. The boots for these skis are either a heavy leather boot, much like a hiking boot or a specialized plastic boot that fits a certain binding. While they are a bit heavier than Nordic Skis, they turn more easily and are suitable for things like backcountry touring, hut skiing and can be used in telemarking. They are a better all-around ski suitable for various activities.
4. **RANDONEE SKIS:** A specialized system that is a hybrid between Backcountry Nordic skis and downhill skis. They more closely resemble alpine skis with a broader tip and tail. The boots and bindings are similar to downhill ski systems except that the heel of the boot can be disengaged to make skiing uphill easier. When the skier is ready to head downhill, they engage the heel in the binding and then ski down much as you would on alpine skis. These systems are very good for skiing on steeper terrain, with heavy packs and in tree cover because you have much more control on turns and the skis are much more stable. The downside is that they are very heavy and if you are going to be doing a lot of uphill work, can be tiring.

5. **SKINS:** A layer that attaches to the bottom of the ski that enables you to ski uphill for long periods without having to herringbone, which can be exhausting with heavier loads. These are available in varying sizes to fit a variety of skis and can be cut to perfectly fit the ski. They can be attached mechanically, with an adhesive surface or a combination of both.

****Waxable v. Nowax Skis:** Most Nordic & Backcountry touring skis today are no-wax. These skis have a pattern on the bottom of the ski which provides grip that allows you to kick off and glide. Easier to maintain, and you don't need to carry wax and worry about temperature and snow condition changes during your trip. The downside to no-wax skis is that they can ice up during certain snow conditions and they arguably do not glide quite as well, but much easier to use.

SNOWSHOES:

1. **WOODEN** leather strap with long tail: These were the classic snow shoe for hundreds of years. They were very effective in that they had a very large surface area that spread your weight out, preventing post holing. They needed much care and the bindings were prone to open when you were in deep snow.
2. **METAL:**
 - a. **Light Recreation:** These tend to be lighter weight, shorter in length and for use primarily on trails or light off trail use. They may have one crampon under the ball of the foot, but usually not on the back or along the sides. Just fine for light day trips in packed snow, but not as good for off trail use with a heavy pack.
 - b. **Backcountry Snowshoes:** Look a lot like the recreational version but have a heavier duty gauge of metal, better decking and a more substantial binding. They will usually have another crampon on the back, under the heel and perhaps some along the side. These are better for going off trail and with heavier packs.
3. **Plastic** MSR snowshoes with tail additions you can add if you get in deeper snow or are carrying a heavier load.

REMEMBER.....one size does not fit all! Sizing is a function of your weight, with your gear, and the type of conditions you will most likely experience the majority of the time.

POLES: Necessary for both skiing and snow shoeing. Most good poles are adjustable & will need fairly large baskets. Many also come apart and can be hooked together to make an avalanche probe. The materials vary from titanium, to aluminum to carbon steel to fiberglass. Prices can vary a great deal. It's best, if you are going off trail, to buy a better pair. It can be very difficult to get back on your feet if you fall in deep snow and your poles break.

SHOVEL: Should be a part of your gear if you are going very far in the back country. Especially important for skiers. Useful for digging a snow shelter if you get stuck out. Needed to check snow conditions if you're in an avalanche prone area. Absolutely necessary to dig if someone is buried in an avalanche. Metal v Plastic

PLB/SPOT: These can be helpful if you get lost and need rescuing. Not a substitute for having navigation skills!

AVALANCHE TRANCEIVER AND PROBE: Should ALWAYS be carried for backcountry travel. Might not be necessary in known safe terrain, but if you are unfamiliar with the area always carry with you. These units do not utilize GPS technology. EVERYONE in the party must carry one and make sure they are all compatible. You must learn how to use these before going in to the back country. There's no time to learn on the job! Constant practice is a must.

OTHER PERSONAL GEAR:

BASICS THAT SHOULD ALWAYS BE IN YOUR PACK:

Shelter system (can be as simple as a tarp)	Light Source/spare batteries
Fire starting Material/Matches	Goggles/good snow glasses
Hand/foot warmers	Emergency food supply
Signal mirror & whistle	Sun Protection
First Aid Kit	Hydration System
Extra layers of clothing	Map& Compass (GPS)
Multi-tool	Repair kit
Some type of communication device (cell phone, radio etc.)	

CLOTHING: Remember, in the winter.....**COTTON KILLS!!!!** Remember that your system is only as good as the weakest part!

INNER LAYER: Should be a wicking fabric (including bras and underpants). Poly pro, wool, etc. Pulling the sweat away from your body keeps you feeling warmer and prevents heat loss.

INSULATING LAYER: This can be one thicker piece or two thinner pieces. Using two thinner pieces allows you to control heat production in a more efficient manner. This layer should consist of fleece, wool, synthetic or down top. The pants should be loose fitting tights such as the Patagonia Regulator series, Mountain Hardware Windpro tights. Note, using running tights is not necessarily a good idea, while they wick, they provide no inherent warmth needed for more extended extreme weather conditions you may encounter while out.

SHELL LAYER: Should be water proof and breathable and uninsulated. Insulated jackets and pants, unless you're doing very cold winter activities where you are spending a lot of time idle, are too warm and will cause you to perspire.

Make sure this layer is breathable. Cheap imitations are not! (eg. Goretex, Event, Elements©)

You should have both jacket and pants.

1. Jackets: You should have ways to vent it and it should have a hood.
2. Pants: Make sure they have long zippers on the lower legs or better yet, all the way up. This provides ease of getting in to and out of them without taking off your boots. Some have built-in gaiters.

FOOTWEAR:

1. Good water proof boots. The type you will need will depend on what you're doing. If skiing, you will pick from the boots that go with a particular system. If snowshoeing, you should probably have insulated boots.
2. Wool Socks are warmest, but synthetic are fine also.
3. Gaiters: These cover the boot and lower part of your pants. Hook to boot. Keep snow out of the top of your boot.

HEADWEAR:

1. Good wool or breathable fleece hat that covers your ears. The type that have wind proofing over the ears are really good.
2. Balaclava: This covers your entire head and face except for your nose and eyes. Very good for cold, windy conditions.
3. Neck Gaiter

HANDWEAR:

1. Insulated gloves w/down or synthetic fill, Goretex or other water proof breathable shell outers.
2. Insulated Mittens
3. Liner gloves