

## The many ways we lose heat

Who would have ever thought there are many different ways we get cold? I always figured hot is hot and cold is cold. Not so actually, as there are a number of ways, we get cold. It is important to recognize the reason we are cold in order to take care of the problem.

When you are sitting on the side of a hill and start to feel a chill coming on, it must be dealt with. Hypothermia is a killer and moves very quickly. If you do not stop the chill coming into your body, hypothermia can leave you deader than free lunch.

Hypothermia can develop in as little as five minutes in temperatures of minus 50, and as little as 15 minutes in water that is near freezing. Shivering is likely the first sign you will notice that hypothermia is setting in on you. Unfortunately, you may not notice the signs after that because mental acuity disappears quickly.

You need to determine the reason you are starting to feel a chill in order to properly alleviate the problem. Sitting on the ground, conduction would be my first suspect. Conduction heat loss is through direct contact.

Sitting on the ground can affect your body's ability to stay warm. If you are sitting on the ground, try putting some insulation between you and the cold ground. A closed cell foam pad works well for this. A folded up extra piece of heavy clothing will work as well.

If you feel this cold while you are in your shelter, you need to raise your bed or sitting area off the ground. A collection



### Tips from the Posse

By Mark Rackay

of pine boughs will work wonders in a pinch to get some space between your body and the ground. In a situation like heat loss because of conduction, putting on extra clothes will probably not help.

Sitting on the hillside you could also be losing heat due to convection. Convective heat loss is the transfer of heat from your body to moving molecules such as air or water. The thin layer of air surrounding your skin is heated by conductive heat from your body.

The outside air carries the heat away from your body in the ambient air currents. This movement of heat away from your body is called convective heat loss. The solution is to add a layer of clothing, capable of blocking the wind, thereby keeping the wind off exposed skin.

The normal process in which your body sheds heat is called radiation heat loss. This is simply the transfer of heat from one object to another, similar to heat leaving a wood stove. The normal process of heat moving away from your body occurs in air temperatures below 68 degrees F. The body loses 65% of its heat through radiation.

Protecting and preventing radiant heat loss is fairly simple. The old

adage of dressing in layers is what prevents this type of heat loss. Start with a good base layer (long underwear), a middle layer of some good insulation (down or hollow fill type materials) and an outer layer to protect from the elements like wind, snow and rain. Gore-Tex makes a terrific outer layer.

Another way we lose heat from our bodies is through respiration. This is just plain old breathing but can be increased if we exert ourselves while in the cold. As we exhale warm air out into the atmosphere, circulation to our skin is decreased which can lead to feeling chilled.

Our body also loses a fair amount of hydration through respiration as well, so staying properly hydrated is helpful. Try not to exert yourself in the outdoors when it is cold, but if you must, wear a mask. Wearing a mask warms the air entering your lungs so your body uses less energy to warm the incoming air. Breathing freezing air into your lungs can lower your core temperature quickly, especially when exerting.

The fifth way our body loses body heat is through evaporation. Water evaporates from your skin when it is wet, such as sweating. Water causes much more heat loss from the body than air does, so body heat can be lost very quickly when wet. Our body can lose up to 85 percent of body heat just through sweating when we work out.

Falling into near freezing water can cause you to lose dangerous amounts of body heat in minutes. Anyone submerged must



There is more to staying warm outside than just bundling up. Tyler Rackay is dressed in layers with the outer layer being water resistant. (Mark Rackay/submitted photo)

be stripped of wet clothing and warmed immediately.

The area where I get chilled most often is through perspiration while outdoors. I might be climbing a ridge with a heavy pack on my back and the sweating begins. When I get to the top of the ridge, I am saturated and will chill quickly as I rest. Evaporation of the sweat can cause chilling in minutes

The best thing for evaporation heat loss is prevention. Start with a base layer of clothing that has moisture wicking capabilities. This is a place where cotton is not your friend. Cotton holds the moisture close to your skin, making you cold faster. Spandex and polyester materials, sometimes in combina-

tion, will pull moisture from perspiration away from your skin, keeping you dry and preventing chilling later.

When you know you are going to exert yourself, such as when you head up the ridge, take a layer of clothing off. When you stop on top of the ridge to rest you can put the layer back on as soon as you begin to chill.

I know the on and off of clothing layers can be a time-consuming problem. I have straps on the outside of my pack where a jacket can quickly be attached or detached as the case may be. Trouble or not, it is better than being chilled and starting down the hypothermia trail.

Realizing there are many ways to get cold

in the outdoors helps prepare you to deal with the chill before it becomes a problem. It just is not as simple as putting on more clothes, you must know why you are cold.

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## Skiing the Uncompahgre Plateau



### Outdoors

By Bill Harris

The major snow event of New Year's Day was literally a blessing from heaven. Most of the mountains of western Colorado received in excess of 2 feet of snow. About that same time, I received an email from a friend about a cross-country skiing opportunity on the Uncompahgre Plateau. A trail was being packed



Dave Batten and Jon Horn skiing the plateau. (Submitted photo/Bill Harris)

down with a snow machine to create a skiable track.

A few days later Jon Horn, Dave Batten and I drove up Dave Wood Road in search of the ski track. At the intersection of the Divide Road and Dave Wood Road I parked my truck.

We clipped in, then skied up the Divide Road. The Divide Road and adjoining Rim Road are groomed for snowmobiles during the winter. The track had been groomed the evening before, so it was a great skiing surface. Once the snowmobiles

use it the surface becomes rutted and choppy.

Dave led the way up the Divide Road. Just beyond the Forest Fence trail sign we found a wide, packed trail, so followed it into the trees. There was a simple ski track in the packed trail. The trail wound

through a mixed stand of aspens and spruce interrupted by small clearings. Sunshine and blue skies made for a great day on the trail. It felt great to glide along on prepared trail – no busting through deep powder.

After several miles the trail made a large loop then headed back on itself. It had warmed up a bit, so I had to stop to change my ski wax to purple. Jon and Dave were on waxless skis, but I am old school in that regard – too cheap to buy a new pair.

It was nice to get out on a fine winter's day, cruising silently through the trees. You didn't have to drive an hour or more to enjoy Colorado's white gold. The only downside

is the Plateau, like many other chunks of public land, can get crowded and busy on weekends.

I was curious about who was packing down the trail we had skied. It is not the first time an effort has been made to establish cross-country trails on the Plateau. Back in 1991 Steve Walker, Eric Sowell, myself, and others worked with the U.S. Forest Service to develop ski trails along Dave Wood Road. They are still being used today but need an upgrade. The trail system never gained any long-term traction due to the lack of grooming funds and an irregular snowpack at that elevation.

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