Cold Weather Comfort

Contents

Dressing In Layers For Cold Weather Activity

Dressing in layers allows you to tailor your cold weather comfort to the activities you engage in and maintain the driest, warmest state you can. There are three basic layers to consider when dressing for cold weather:

1. Base Layer (wicking)
2. Mid Layer (insulating)
3. Shell Layer (weather protection)

You can remember them easily by using the 3W method: Wick, Warm, Weatherproof.

Base Layer

Should draw moisture away from the body, facilitate evaporation. Pulling moisture away from the body means your body stays warm. Choose the base layer appropriate to your activity level and the temperature in which you are operating. There are light, medium and heavy base layers; figure about 2 oz material/cloth weight per square yard to determine which category yours fits in. 1-2 oz = light, 3-4 oz = medium, over 4 oz = heavy. This is a general rule of thumb, check labels, as some materials are more or less insulating than others—trust the manufacturer's recommendation.

Mid Layer

This layer is your insulating layer. Garments suitable for this layer include fleeces, synthetic fill jackets, down fill jackets, wool sweaters and wind fleeces. This layer functions by trapping heat and also air next to the body, which is then heated by body heat. Some mid layer garments are also worn as shell layers or in lieu of shell layers.

Shell Layer

The purpose of the shell layer is to protect you from wind and rain. Wind and water resistant or windproof and waterproof garments are used to keep the elements out and from penetrating your Mid and Base layers. Ventilation is critical to keep moisture inside your cold weather system from collecting—which will cause you to become chilled and a candidate for hypothermia. Some of the outer shell categories include: waterproof/breathable shells, water-resistant/breathable shells, soft shells, waterproof/non-breathable shells, insulated shells.

Accessories

Special consideration should be given to socks and footwear, as well as to protection for your hands and head. Socks should not fit too tight—cutting off circulation will make your feet cold. Consider a wicking layer under your insulating socks, using silk or nylon/silk socks—which can also help prevent chaffing. Consider socks made from Thermax, PolyPro, Thorlo and Merino wool or other high quality, insulating materials. Choose appropriate footwear that is not too tight and is properly insulated and or water-resistant or waterproof for the environment you are operating in. Cold feet hurt morale and increases the risks of tripping, slipping and/or sustaining injurious falls.

Gloves or mittens should be suitable to your environment and the functions you will be required to perform. It's best to have more than one pair, suited to different levels of temperature, but also to serve as a backup in case one gets wet. Losing the use of one's hands due to numbing cold means you lose the ability to defend yourself, to work effectively and start fires. Once the ability to start a fire or make use of tools goes, you're at a serious disadvantage when compared to having the use of your hands to create fire, make use of tools, or build shelter.

I**t is a myth that you lose 75% of your heat through your head.** You lose heat through exposed areas of skin at the roughly same rate. Your head accounts for approximately 7% of heat loss. When beginning exertion, heat loss increases to 50% until muscles demand on oxygen reduces blood flow to the brain and returns heat loss rate down to 10%. Once sweating begins, heat loss through the head returns to a baseline of 7%.

However, since we dress according to our physical activity levels and do not want sweat to linger on our exposed scalp (or anywhere else on our body), it is best to cover the head—especially considering the effects of wind on the temperature of one's body. Additionally, the ears are thin and highly susceptible to damage from frostbite because of the relatively thin amount of tissue and low bloodflow. Proper head gear should protect the rest of your dress system from the elements just as well as your Shell Layer. Baseball caps, beanies, watch caps, balaclavas, neck gators and scarves can all be suitable cold weather head gear in the appropriate conditions. One thing headgear offers is psychological comfort, something that should not be underestimated in cold weather conditions. Extreme cold can quickly present life or death survival situations based solely upon temperature and environmental exposure—having the extra psychological peace of mind from the additional warmth and calming comfort that proper headgear offers could be the difference between life and death.

The Truth About Heat Loss Through Your Head
http://www.wintercampers.com/2011/02/19/the-truth-about-heat-loss-through-your-head/

How To Dress In Layers
http://www.rei.com/expertadvice/articles/dress+layers.html

Cold Weather Clothing Tips
http://www.ems.com/shop/index.jsp?categoryId=3942287

Modern Antarctic Clothing
http://www.coolantarctica.com/Antarctica%20fact%20file/science/clothing_in_antarctica.htm

Creating A Multi-climate, Extended Range Sleeping System

For year-round emergency preparedness, consider the climate you live in and the extreme temperatures you will face. A good emergency sleeping system is one that you can use any time of the year and allows you to endure the climates to which you will be exposed at a moment's notice. I have used the following system down to 19 deg F on a concrete slab:

- Sleeping bag
- Silk sleeping bag liner
- Micro-fleece sleeping bag liner
- Space or survival blanket
- Self-inflating air mattress

These items are assembled in the following manner in extreme cold conditions:

Silk liner is closest to the body/skin. The space blanket is folded and goes underneath the body between the silk liner and the micro-fleece liner, to reflect heat. You don't want the space blanket on top of you as it they do not allow moisture to escape and condensation from your body's perspiration will accumulate under the space blanket, making your liners wet and causing you to become chilled. Outside the micro-fleece liner is your sleeping bag, which rests off the ground upon the insulating layer of air from the air mattress.

I chose a light weight sleeping bag rated to 40 deg F. This makes it practical for Oklahoma temperatures in Spring and Fall. The silk liner can be used in the heat of summer by itself, with the bag serving as cushioning underneath. The micro-fleece liner is suitable for early Fall weather by itself or in conjunction with the silk liner. Add whatever combination makes you comfortable. Unused components can be used to create makeshift shelter or be shared with others. Space blankets can be used to create lean-to's or as tarps to keep rain off of you with para cord or bungee cords. Inflatable mattresses can be used to aid in water crossings.

The CLIMATE OF OKLAHOMA
http://cig.mesonet.org/climateatlas/doc60.html

Keeping Your Performance Up During Cold Weather

Cold weather makes you feel hungrier and requires more energy expended to perform work. Not eating enough food or a well balanced diet will impair your performance and decrease survivability. Rethink the '4 food groups' and approach diet in terms of 7 food groups. From *Food in Antarctica* on the Cool Antarctica website:

- Carbohydrates, Fats and Proteins - to supply energy
- Vitamins, Minerals, Fiber and Water - to ensure the body runs smoothly

http://www.coolantarctica.com/Antarctica%20fact%20file/science/food.htm

For a comprehensive and all-encompassing look at cold weather performance and health, please refer to the publicly available U.S. Army's Technical Note No. 92-2, SUSTAINING HEALTH & PERFORMANCE IN THE COLD: Environmental Medicine Guidance for Cold-Weather Operations.

http://www.usariem.army.mil/Pages/download/cold.pdf