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## Special Report

# BREAKING THE RULES FOR WINTER SAFETY

*By G. Kent Scott*

Winter safety is a concern as we travel and play in the snow and cold. Here are some guidelines for being prepared to survive a cold weather emergency. This information can also be used to make you more comfortable while enjoying outdoor winter activities.



*The author (right) and Gil Phillips test clothing systems in the Arctic*

The advice in this article is based upon years of experience developing cold weather clothing for the military and testing it in the mountains and high arctic islands. When I describe these experiences to people, they often say "I hate to be cold!" When I respond that I was *not* cold, they seem unable to comprehend being warm at 20 degrees below zero. But with knowledge and experience, you too can be warm. The principles of warmth that allowed me to gain this experience were developed by the late Gil Phillips of Albuquerque, New Mexico.

### Traditional Methods Don't Work!

For over 30 years, Gil championed the cause of comfort and safety in sub-zero conditions. His experiences began when he was a Scoutmaster and found that the traditional methods of staying warm on winter camps did not work. Rather than continue to be cold and miserable, Gil decided to do something about it. Years of study and experimentation resulted in his being able to keep himself and his scouts warm and safe on sub-zero campouts. He did all this on a budget that a scout could afford. Later, I was privileged to work with Gil and his son Jim in the development and field testing of clothing and equipment for sub-zero living.

When European adventurers first began exploring the Arctic territories, they nearly froze to death. The layered wool and cotton clothing, leather boots and socks, and waterproof outer garments that provided reasonable comfort in the European climate proved woefully inadequate against the harsh Arctic conditions. Only when they adopted the native Eskimo clothing, consisting of a single layer of caribou hide, with mukluks to protect the feet, were the explorers able to complete their expeditions.

## **Principles of Warmth**

Gil's methods violate all the traditional principles of winter survival that evolved from our European background. Based on the Eskimo approach to living in the cold, he established the following rules for safety and warmth:

### **1. Fire and Shelter are Unreliable**

Fires fail in extreme cold or high winds. Tents blow away and cabins burn down. Sub-zero safety must be based on clothing, water, and food.

### **2. There Is No Such Thing as Thin Insulation**

The only thing that truly insulates the body is dead air space, and it takes about one inch to do the job. Gil found the best insulating material to be open-cell polyurethane foam.

### **3. Moisture Control, Not Insulation, Is the Key to Warmth**

In other words, regardless of the "R" factor, insulation is not insulation when it becomes wet. Insulating material that does not absorb and hold water will be warmer.

### **4. Forget Layering**

The problem with layered clothing is that it promotes moisture and frost buildup between the layers. A single thick layer of insulating material stays much drier and therefore warmer.

### **5. Avoid Waterproofing**

Waterproof clothing and footwear may keep outside moisture from getting in, but they trap body moisture inside, where it decreases the effectiveness of insulation.

### **6. Get Rid of That Cotton Underwear**

Cotton absorbs and holds moisture. Use synthetic fabrics such as nylon and polyester throughout your clothing system.

### **Leave the Chocolate at Home**

Wholesome foods with complex carbohydrates provide more warmth and energy than candy.

### **7. Have Patience!**

Anticipate that everything takes longer to do in the cold. Plan far ahead and don't become frustrated.

The practical application of these principles has resulted in the manufacture of a unique cold weather clothing system and in the adoption of Gil's teachings into the Boy Scout Fieldbook. You can apply this knowledge to

assure you own safety and comfort this winter by providing yourself with adequate knowledge, clothing, and nutrition.

### Try It!

**First**, get a copy of the Boy Scout Fieldbook from your nearest Boy Scout office or library. (Do not confuse this with the Boy Scout Handbook, which all Scouts have.) Study the sections on winter camping and on making your own equipment.

**Second**, provide yourself with adequate clothing. You can make your own by following the instructions in the Fieldbook, or you may purchase foam clothing. If you cannot or prefer not to obtain foam clothing, you can get a reasonably satisfactory result with layers of synthetic pile or wool clothing such as long johns and sweaters. Just be sure not to use cotton clothing or cotton underwear with any of these options.

The outer shell fabric needs to be wind-tight but not waterproof. You can test the fabric by holding it tightly over your mouth and attempting to blow air through it. Waterproof fabric will allow no air to pass through. Wind-tight fabric will permit a barely detectable flow of air. Fabrics that are not wind-tight will be easy to blow through.

Mittens should be made of wool or polypropylene with removable shells for ease in drying. Although wool does absorb some moisture, my experience has been that I end up melting my polypropylene mittens on stoves or car engines, so my choice is wool mittens.



*Building a practical shelter in arctic conditions*

**Third**, provide yourself with water and food. It is easy to become dehydrated in cold weather because the cold dry air draws the moisture out of the body. And when there is snow on the ground there is an interesting psychological effect that keeps us from feeling thirsty. It may be necessary to force yourself to drink water. Becoming dehydrated slows the metabolic processes and can result in hypothermia. Dehydration also results in a negative attitude and sluggish thinking. These effects can be disastrous in a survival situation.

One way to ensure a supply of liquid water is to carry water bottles inside your clothing to prevent them from freezing. Take your water to bed with you at night for the same reason.

Eating snow for water does not work because you simply cannot get enough this way. Remember, snow is mostly air. You will feel too full to continue eating snow long before your body's needs are met. In cold weather your body needs at least 1/2 gallon of water per day if you are inactive; at least 1 gallon per day if you are doing physical work.

For food, use whole grains, nuts, and meat. Examples are whole grain bread, biscuits, pancakes, bagels, all types of nuts, cheese, and homemade jerky, lightly seasoned and with lots of fat. (See the recipe at the end of this article.) I know the jerky sounds terrible right now, but in the cold it tastes like candy. Choose mostly food that can be eaten without cooking.

Give it a try! Get some books and equipment and go camping this winter. Practice and refine your methods until you are confident. This is how to overcome a fear of the cold.

## **Beef Jerky for Cold Weather Energy**

Buy a cheap cut of meat with lots of fat. Slice it into strips about a quarter of an inch thick. Sprinkle strips lightly with any combination of the following: salt, chili powder, Jensen's broth, onion soup powder, pepper, or whatever sounds good to you. The main idea is not to make it too strong or salty.

Place the seasoned meat strips in a fruit dryer and dry at 125 to 140 degrees until firm and leathery. Store in the freezer until you are ready to go camping.