

EXERCISING IN THE COLD

The biggest concern for exercising in the cold is hypothermia, or too much heat loss. When you exercise in a cold environment you must consider one primary factor: How much heat will your body lose during exercise?

Heat loss is controlled in two ways:

- Insulation, consisting of body fat plus clothing
- Environmental factors, including temperature, wind and whether you're exercising in the air or in the water. Each of these factors plays a role in the body's ability to maintain a comfortable temperature during exercise.

Insulation

Although many people aspire to have a lean figure, people with a little more body fat are better insulated and will lose less heat. Clothing adds to the insulation barrier and is clearly the most important element in performance and comfort while exercising in the cold. Generally, heat loss from the head alone is about 50% at the freezing mark, and by simply wearing a helmet or hat, a person can stay outside indefinitely.

Clothing is generally a good insulator because it has the ability to trap air, a poor conductor of heat. If the air trapped by the clothing cannot conduct the heat away from the body, temperature will be maintained. Unlike air, however, water is a rapid conductor of heat and people will sweat and risk significant heat loss even in the coldest of temperatures. With this in mind, you want to choose clothing that can trap air but allow sweat to pass through, away from the body.

By wearing clothing in layers, you have the ability to change the amount of insulation that is needed. While many new products can provide such a layered barrier, it is important to avoid heavy cotton sweats or tightly woven material that will absorb and retain water. Because these materials cannot provide a layer of dry air near the skin, they can increase the amount of heat your body loses as you exercise.

Keeping the hands and feet warm is a common concern when exercising in the cold. Lower temperatures cause blood to be shunted away from the hands and feet to the center of the body to keep the internal organs warm and protected. Superficial warming of the hands will return blood flow to prevent tissue



damage. Blood flow will not return to the feet unless the temperature of the torso is normal or slightly higher [0.5 to 1.0 degree Fahrenheit (F) above normal]. So, to keep your feet warm you must also keep the rest of your body warm at all times.

Check With the Weatherman

Always check the air temperature and wind chill factor before exercising in the cold. Data from the National Safety Council suggest little danger to individuals with properly clothed skin exposed at 20° F, even with a 30 mph wind. A danger does exist for individuals with exposed skin when the wind-chill factor (a combined effect of temperature and wind) falls below -20° F.

That can be achieved by any combination of temperatures below 20° F with a wind of 40 mph and temperatures below -20° F with no wind. If you are exercising near the danger zone for skin exposure, it also is advisable to warm the air being inhaled by wearing a scarf or mask over your nose and mouth.

Rules for Exercising in the Cold

- Check the temperature and wind conditions before you go out and do not exercise if conditions are dangerous.
- Keep your head, hands and feet warm.
- Dress in layers that can provide a trapped layer of dry air near the skin (avoid cotton sweats and other similar materials).
- Warm the air you are breathing if temperatures are below your comfort level (usually around 0° F).

Additional Resources

How to Exercise Safely in Cold Weather: www.sportsmedicine.about.com/cs/environment/a/aa121100a.htm

Runner's World—Run and Race Well in the Cold: www.runnersworld.com/article/0,7120,s6-238-267-269-12331-0,00.html

Runner's World—Is Cold Weather Running Bad for You? www.runnersworld.com/article/0,7120,s6-238-267-269-7442-0,00.html

If you are interested in information on other health and fitness topics, contact: American Council on Exercise, 4851 Paramount Drive, San Diego, CA 92123, 800-825-3636; or, go online at www.acefitness.org/GetFit and access the complete list of ACE Fit Facts.™

COMPLIMENTS OF:
ULSTER COUNTY HEALTH DEPT.
KINGSTON, NY
(845) 334-5527



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