



MEDICAL GUIDANCE

Cold Weather Physiology

We have a central body temperature of 37° Celsius. Thermo sensors register the local temperature of the skin, the surroundings of the blood vessels, the internal organs, in the muscles and different areas of the central nerve system. The information is accumulated in the hypothalamus which is the center of temperature regulation. From there, the temperature will be controlled by vasoconstriction, vasodilatation, perspiration, muscle tremble and activity of the metabolism.

Affects of cold:

- on breathing: cold on the skin of the head results in bronchoconstriction
- on the heart and blood circulation: cold results in an increase of systolic and diastolic blood pressure
- on motor efficiency: cold results in a reduction of the maximal power of muscle contraction and maximal shortening velocity of the muscle
- on cognitive efficiency: beginning with a central temperature less than 35° Celsius, cold results in reduced memory efficiency and reduced concentration

Clothing suggestions:

The principles of clothes are like an onion:

- first layer is functional synthetic underwear - don't wear cotton
- second layer is a long synthetic tight winter trousers and a tight long arm shirt or a light fleece shirt
- third layer is a light wind stopper or rain jacket

Also:

- use hats and gloves (we lose up to 40% of our body temperature via head and throat)
- scarves for the throat
- shoes for outdoors should be waterproof

Advice on activities:

- extend the warming up period - start the training session after warming up slowly
- cover up on change-over or while sitting on the bench
- you may not feel thirsty but drinks are needed - in cold temperatures we lose more liquid by breathing so drink water, warm fruit or herb teas or bouillons
- have a warm hearty breakfast
- use mildly warm water for bathing – which is better than hot water because it does not dry the skin so much
- moisturize the skin well
- use a heavier hand lotion for hands and nail cuticles
- use lip balm for lips
- dressing takes longer when there are more garments to put on, so give yourself more time to get to games etc.
- at the end of a training session, cool down wearing dry clothes
- go for a shower directly after sport activity
- dry your hair before going outside after sports
- consider taking vitamin C

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