

Prevention and early drug treatment are the keys to frostbite treatment

3 September 2019, by Julia Turan



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Frostbite is an injury which usually affects the extremities, such as fingers and toes, and has the potential of causing irreversible tissue loss. The treatment of freezing cold injuries to the periphery has advanced substantially in the last 10 years. Optimal outcomes are only likely to be achieved if a multi-disciplinary team uses the full range of diagnostic and treatment approaches that are now available, said Chris Imray, CASE Medicine, presenting this week at the Extreme Environmental Physiology conference of The Physiological Society.

The internet, and satellite phones, with [digital images](#) allow immediate access by patients from remote geographical locations to hospital-based specialists who can assess cold injuries and advise on early field-care.

The severity of [frostbite](#) injuries can now be assessed with a bone scan called triple-phase, allowing early prediction of likely subsequent [tissue](#) loss. Newer thrombolytic therapies (which dissolve blood clots) such as iloprost have transformed treatment options when instigated at an early time-

point.

Frostbite occurs when the fluid in our cells freezes, it swells and chemicals are produced. These two processes permanently damage the tissues in our bodies. Frostbite can vary in the depth and the extent of damage it causes.

If only superficial skin is damaged and it is rewarmed soon after [injury](#) it may recover completely, this is called frost-nip. Frostbite commonly occurs on the extremities such as fingers, toes, ears, penis and nose, but it can technically occur anywhere.

It obviously requires a cold, but not necessarily freezing, environment and wind-chill can add to the potential for damage. Frostbite is more likely at altitude (less oxygen is available for the tissues to recover) and in a hypothermic or injured person. It is more likely if circulation is restricted by tight fitting clothes, boots or jewelry.

Clients with pre-existing conditions which may predispose to [poor circulation](#) (e.g. diabetes, Raynaud's sufferers etc.) are more likely to suffer from frostbite. Certain drugs that effect peripheral circulation may also predispose people (e.g. beta blockers or nicotine in cigarettes).

Addressing the importance of the issue, Chris Imray said:

"Awareness and experience is the key to prevention, and prevention is the key to treatment. The adage that "prevention is better than treatment" is especially true for frostbite, which is typically preventable but very difficult to treat."

More information: Research Symposium: The pathophysiology of frostbite and other cold injuries. Extreme Environmental Physiology (University of Portsmouth, UK) (2019) *Proc Physiol Soc* 44, SA02 www.physoc.org/abstracts/the-p...-other-cold-

[injuries/](#)

Provided by The Physiological Society

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