



[Authoritative facts](#) about the skin from the [New Zealand Dermatological Society Incorporated](#).

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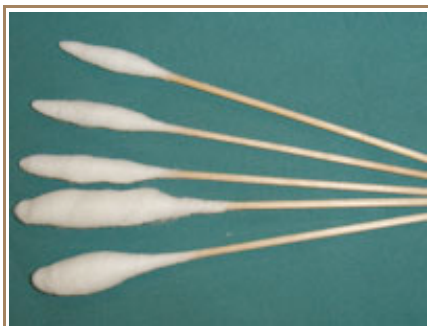
Cryotherapy

Cryotherapy refers to a treatment in which surface skin lesions are frozen.

Cryogenes used to freeze skin lesions include:

- Liquid nitrogen (the most common method used by doctors)
- Carbon dioxide snow (more commonly used 20 years ago)
- Dimethyl ether and propane or DMEP (available over the counter as Wartner®)

Liquid nitrogen cryotherapy equipment



Swabs



Spray gun



Spray gun



Dewar flask



Dewar flask safety



Spraying viral warts

Skin lesions treated with cryotherapy

Lesions that may be treated by cryotherapy include:

- [Solar keratoses](#)
- [Viral warts](#)
- [Seborrhoeic keratoses](#) (senile warts)

Specialist dermatologists sometimes freeze small skin cancers such as superficial [basal cell](#) and in situ [squamous cell carcinomas](#) (Bowen's disease), but this is not always successful so careful follow-up is necessary.

Freezing may be the most suitable way of getting rid of many different kinds of surface skin lesion. It is relatively inexpensive, safe, and reliable. However, it is important that the skin lesion has been properly diagnosed. It should not be used to treat [melanoma](#) or any undiagnosed pigmented lesion that could be melanoma.

The treatment

Liquid nitrogen

Cryotherapy using liquid nitrogen (temperature -196°C) involves the use of a cryospray, cryoprobe or a cotton-tipped applicator. The nitrogen is applied to the skin lesion for a few seconds, depending on the desired diameter and depth of freeze. The treatment is repeated in some cases, once thawing has completed. This is known as a 'double freeze-thaw' and is usually reserved for skin cancers or resistant viral warts.

Carbon dioxide snow

Carbon dioxide cryotherapy involves making a cylinder of frozen carbon dioxide snow (-78.5°C) or a slush combined with acetone. It is applied directly to the skin lesion.

DMEP

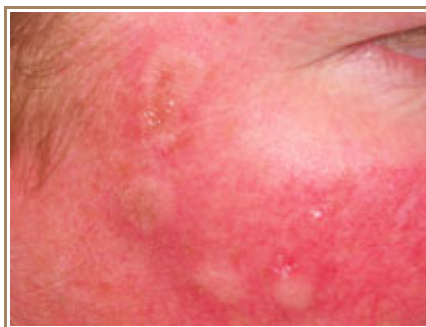
DMEP works at a temperature of -57°C . It comes in an aerosol can available over the counter. It is used to treat warts using a foam applicator pushed onto the skin lesion for between 10 and 40 seconds, depending on its size and site.

Cryotherapy stings and may be painful, at the time and for a variable period afterwards. There may be immediate swelling and redness. This may be reduced by applying a topical steroid on a single occasion straight after freezing. Aspirin orally may also reduce the inflammation and discomfort.

Cryotherapy



During liquid nitrogen freeze of lesion on arm



A few minutes after cryotherapy to solar keratoses



The day after cryotherapy to solar keratoses



Clear & bloody blisters from freezing the previous day



Eyelid swelling from a freeze two days earlier



Infected cryotherapy wound from a freeze three days earlier

Looking after the treatment area

The treated area is likely to blister within a few hours. Sometimes the blister is clear and sometimes it is red or purple because of bleeding (this is harmless). Treatment near the eye may result in a puffy eyelid, especially the following morning, but the swelling settles within a few days. Within a few days a scab forms and the blister gradually dries up.

Usually no special attention is needed during the healing phase. The treated area may be gently washed once or

twice daily, and should be kept clean. A dressing is optional, but is advisable if the affected area is subject to trauma or clothes rub on it.

When the blister dries to a scab, apply petroleum jelly (Vaseline) and avoid picking at it. The scab peels off after 5–10 days on the face and 3 weeks on the hand. A sore or scab may persist as long as 3 months on the lower leg because healing in this site is often slow.

Secondary infection is uncommon. When it occurs it may cause increased pain, swelling, thick yellow blister fluid, a purulent discharge and/or redness around the treated area. Consult your doctor if you are concerned: topical antiseptics and/or oral antibiotics may be necessary.

Final results

After a standard freeze of a solar keratosis, seborrhoeic keratosis or viral wart, the skin may appear entirely normal without any sign of the original skin lesion.

However, cryotherapy may result in a white mark (hypopigmentation) or a scar, particularly when freezing has been deep or prolonged, as is required for a cancerous lesion. A white mark may sometimes follow a light freeze. The white mark may be quite noticeable especially in those with darker complexions. Although the appearance often improves with time, the colour change can be permanent.

Skin lesions may fail to clear or may recur at a later date, necessitating further cryotherapy, surgery or other treatment.

A hard freeze to the skin overlying a superficial sensory nerve, such as treatment to a viral wart on the side of a finger, can cause numbness of the skin area that the nerve supplies. The feeling nearly always returns to normal within a few weeks or months.

Related information

Other websites:

- [Cryotherapy](#) - emedicine dermatology, the on-line textbook.

Books:

See the [DermNet NZ bookstore](#)

DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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