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## Antioxidant photoprotective agents

The harmful effects of ultraviolet (UV) radiation from the sun or other sources are well established. [Sunburn](#) is often the first sign of excessive exposure to these damaging rays, whilst long term consequences may include [photoaging](#) and [skin cancer](#). Some people need to be particularly careful because they are [photosensitive](#).

Currently the main method of [protection against UV radiation](#) is the use of topical [sunscreens](#). However, there are several limiting factors with regards to the protection they provide. They need to be applied regularly (every 2 hours or immediately after swimming or strenuous activity) and getting uniform coverage over the entire body is often difficult to achieve.

In recent years, there has been much interest in the use of oral and topical antioxidants as photoprotective agents. These antioxidants work against the harmful effects of UV radiation via a number of ways that may include:

- Scavenging free radicals and reactive oxygen species (ROS) that are harmful to the body
- Decreasing the number of UV-induced sunburn cells forming
- Preserving Langerhans cells

Antioxidant photoprotective agents that are available in oral and/or topical preparations include:

- [Vitamin C](#)
- Vitamin E
- Carotenoids, such as beta-carotene
- Green tea
- Extract from fern plant [Polypodium leucotomos](#)

Oral preparations are commonly available as nutritional/dietary supplements from health food suppliers.

### Related information

#### References:

- Edlich RF, Winters KL, Lim HW et al. Photoprotection by sunscreens with topical antioxidants and systemic antioxidants to reduce sun exposure. *Journal of Long-Term effects of Medical Implants* 2004;14(4):317-340

#### On DermNet NZ:

- [Sun protection](#)
- [Polypodium leucotomos](#)

#### Books about skin diseases:

See the [DermNet NZ bookstore](#)

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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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