Sunscreen and Cancer

Origin of the myth

Some companies have advertised that their sunscreen products do not contain the carcinogenic (cancer-causing) substances which other sunscreens contain. In particular, manufacturers of holistic and all-natural sunscreen make this claim. The substances said to be possibly carcinogenic are titanium dioxide, zinc oxide, octyl methoxycimamate, oxybenzone and 4-methyl-benzylidene.

In addition, some people believe that reducing their exposure to sunlight can cause Vitamin D deficiencies, which may also lead to cancer.

Current evidence

Sunscreen

The “Report on Carcinogens” is a list of known or reasonably anticipated human carcinogens (cancer causing substances). None of the suspect ingredients, listed above, are included in this list. The International Agency for Research in Cancer (IARC) also does not recognise these ingredients as carcinogenic. None of these chemicals has been banned by the Food and Drug Administration in the US or by the European Union.

In response to claims that sunscreen causes skin cancer, a 2003 review examined the link between sunscreen use and melanoma. No evidence for increased risk of melanoma with sunscreen use was found. The research suggested that sun-sensitive people who have higher risk of melanoma are more likely to use sunscreens.

In 2009 the Therapeutic Goods Administration (TGA) conducted an updated review of the scientific literature available on the use of nanoparticles in sunscreens, in particular zinc oxide and titanium dioxide. The TGA review concluded that: The current weight of evidence suggests that nano-materials such as titanium dioxide or zinc oxide nanoparticles currently used in sunscreens pose no risk to human skin or human health.

An Australian study published in 2011 showed that regular use of sunscreen was effective in reducing incidence of melanoma, the most serious form of skin cancer.

Vitamin D

Vitamin D is required for good health. It is produced when our skin is exposed to UV radiation. There has been recent speculation that reducing exposure to sunlight through measures such as using sunscreen may lower vitamin D levels in the body causing a range of health problems.

Guidelines on sun exposure were modified following a symposium on Vitamin D held in 2011. The guidelines recommend that people living in Perth or locations south of Perth receive 30 minutes of sun exposure, close to midday, on most days during June and July. At this time the UV Index is usually below 3 so sun protection is not required.

For the rest of the year research indicates that Western Australians can get enough vitamin D absorption from incidental protected sun exposure while conducting their day-to-day activities. No change was made to the guidelines for people living in the mid to northern parts of Western Australia where sun protection is needed all year round due to high UV levels.
While sunscreen could theoretically block vitamin D production entirely, in practice it has not been shown to do so.\textsuperscript{13-16} Research indicates that sunscreen is rarely applied correctly and that incidental exposure to UV is enough to produce the required amounts of vitamin D.

**Summary**

There is no evidence that use of sunscreens increases the risk of skin cancer or causes Vitamin D deficiency.\textsuperscript{10,11} Meanwhile, there is definite evidence that sun exposure increases the risk of skin cancer. Solar radiation is classified as a known human carcinogen in the Report on Carcinogens.\textsuperscript{1} IARC also classifies solar radiation as carcinogenic to humans.\textsuperscript{12}

**Further reading**

- Choosing and using sunscreen
  The Cancer Council WA

- Use of SPF30+ sunscreens
  The Cancer Council Australia

**References**


6. Ade`le C. Green, Gail M. Williams, Valerie Logan, and Geoffrey M. Strutton, *Reduced Melanoma After Regular Sunscreen Use: Randomized Trial Follow-Up*, Journal Of Clinical Oncology, Volume 29 Number 3 January 20 2011


