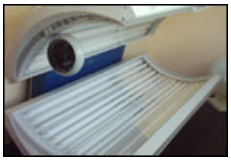


Sunbeds

& UV radiation

Source document:
SCCP (2006)

Summary & Details:
GreenFacts

Context - In addition to natural sunlight, sunbed users seeking to achieve a tan expose themselves to substantial amounts of artificial UV radiation.

However, there is evidence that UV radiation can cause damage to health.

What are the health and safety implications of both natural solar UV radiation and artificial UV radiation from sunbeds?

An assessment by the European Commission Scientific Committee on Consumer Products (SCCP)

The answers to these questions are a faithful summary of the scientific opinion produced in 2006 by the Scientific Committee on Consumer Products (SCCP):
"Opinion on Biological effects of ultraviolet radiation relevant to health with particular reference to sunbeds for cosmetic purposes"

The full publication is available at: https://copublications.greenfacts.org/en/sunbeds/
and at: http://ec.europa.eu/health/opinions2/en/sunbeds/

1. Introduction on sunbeds

Developed in the 1970s, sunbeds came into widespread use in the 1990s. They emit ultraviolet (UV) radiation to achieve a tan, which appears after a few exposures and becomes more intense with additional exposures. Because diseases such as skin cancer, which sunbeds may induce, take a long time to develop, it will take several years before the full health effects of sunbeds are known.

2. What are the health effects of solar UV radiation?


The risk of skin cancer depends on skin type
Credit: Dr A.R. Young

2.1 Exposure to sunlight has some beneficial effects. It is responsible for the production of vitamin D in the body, which is essential for maintaining healthy muscles and bones and may also have other health benefits. However, eating foods rich in vitamin D or taking adequate levels of vitamin D supplements is likely to produce the same beneficial effects.

2.2 In the short term after exposure, UV radiation can cause sunburn, aggravate certain **skin** diseases, and affect the immune system. It can also cause adverse reactions in people who take certain medicines or those who apply creams or other products containing particular chemicals.

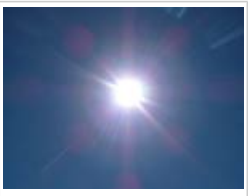

UV radiation can harm the eyes
Credit: Honolulu Star-Bulletin

In the long term, exposure to UV radiation can cause skin cancers and premature ageing of the skin. The risk of developing skin cancers depends on the amount and pattern of sun exposure, and on skin type. For the most lethal type of skin cancer, the risk also depends on age, physical characteristics such as fair hair or the presence of moles and freckles, as well as family history of skin cancer.

2.3 UV radiation can also harm the **eyes**. In the short term, it can cause a kind of "eye sunburn", a temporary but painful inflammation of the outermost layer of the eye.

In the long-term, it can increase the risk of developing several eye diseases, including cataracts and eye cancer.

3. How can different types of ultraviolet radiation affect health?


UV radiation from sunbeds and from the sun is essentially the same

3.1 Natural and artificial sources of UV radiation have similar short-term effects on health, but, due to the scarcity of the data available, it is very difficult to compare their long-term effects.

UV radiation is essentially the same whether it comes from the sun or from artificial sources: it comprises three types of radiation – UVA, UVB, and UVC – which have different wavelength ranges. However, sunlight and radiation from various artificial sources all contain different amounts of each of these types of radiation. As a result, the health risks related to different UV radiation sources may be different.

3.2 In general, UVB produces much greater short-term effects on the skin, such as tanning, sunburn, and damage to DNA, than UVA. UVB is also known to reduce the functioning of the immune system but this is less clear for UVA.

UVB is likely to be the main cause of premature skin ageing and of one type of skin cancer. However, for the most lethal type of skin cancer, the roles of UVA and UVB are not yet known.

Because the ozone layer absorbs all the UVC from the sun, solar UVC is not a health issue. UVC from artificial sources is unlikely to harm the skin but it can cause severe short-term damage to the eyes and should therefore not be permitted in sunbeds.

4. What are the health and safety implications of sunbeds?

4.1 In the short term, exposure to UV radiation from sunbeds can cause undesirable skin reactions and reduce the functioning of the immune system.

In the long term, it could increase the risk of skin and eye cancer, and cause the skin to age prematurely.

4.2 Individuals who use sunbeds frequently might have higher levels of vitamin D and healthier hipbones. Many people also claim to feel better after using sunbeds but no biological explanation for this has yet been found.

5. What limits should be set for UV radiation in sunbeds?

5.1 The sunburn effect of UV radiation only depends on the total amount of radiation received during a tanning session and not on the intensity or duration of exposure. For skin cancer, however, a study on mice showed that, for a fixed total amount of UV radiation received, the risk of developing cancer was greater when using weaker or intermittent radiation over a longer period of time.

5.2 Safe limits for preventing short-term effects of UV radiation from sunbeds, such as **sunburn**, depend on skin type. The dose of UV radiation received during each tanning session should be small enough to avoid sunburn and, to minimize the risk of sunburn resulting from timing errors, the prescribed sunbed session should be no less than 10 minutes. In any case, sunbeds should not emit more UV radiation than tropical sun.

Sunbed sessions should last no less than 10 minutes
Credit: ProcessQLIO

At present, it is not possible to give a safe limit for preventing long-term effects such as **skin cancer** because there is no known dose below which there is no risk of developing cancer. Therefore, any set limit value is arbitrary.

6. What comments were expressed on the findings of this assessment?

Interested parties were invited to comment on the findings of this assessment by the European Commission Scientific Committee on Consumer Products (SCCP).

Some people from public health bodies suggested that the health risks of sunbeds were not sufficiently emphasized while others from the sunbed industry suggested the opposite. There were several comments on the health benefits of vitamin D. Overall, there were many comments on detail, but none have altered the overall conclusions.

7. Conclusion on UV radiation and sunbeds

Although the use of sunbeds has some positive health effects, the European Commission's Scientific Committee on Consumer Products (SCCP) is of the opinion that it is likely to increase the risk of skin and possibly eye cancer.

Therefore, the **SCCP** deems that:

- people with known risk factors for skin cancer should be advised not to use sunbeds. These people include those with sensitive skin types, freckles, unusual or multiple moles, or a family history of melanoma.
- eye protection should be worn when using sunbeds.
- sunbeds should not be used by individuals under the age of 18 years, since the risk of skin cancer seems to be particularly high when sunbeds are used at a young age.

Sunbed users should wear eye protection
Credit: consumer.org.nz. Photographer Murray Lloyd