



European Sunlight
Association

International Factsheet on Sunbeds

UV exposure, sunbeds and tanning: 6 things you probably didn't know

Proper sun care is extremely important, we all agree on that. Yet, exposure to UV light carries both risks and benefits: over the last few decades the focus has only been on the risk of overexposure and that sunlight should be avoided at all cost. But in the last few years more and more studies are showing the research used may have biases and moderate exposure may outweigh the risk of over exposure. Therefore, we feel the **urge to call for a balanced discussion**, in order to be part of the solution to address concrete challenges related to UV exposure, tanning and sunbeds use. As policies need to rely on solid evidences, let's look at the key misconceptions in the sector.

1. A Suntan is natural

'The dogma, now fossilized in print, is that any tan is a sign of skin damage. Tell that to Darwin. Even if there was hard evidence that melanoma was UV-induced it would be all the more important to keep a protective tan' – Dermatology Professor Dr. Sam Shuster, Newcastle University, UK.

This is not the public health message we are getting today though, as sunlight and tanning are portrayed as something to be avoided at all costs. Sun avoidance has been repeatedly proven as harmful, as sunlight helps to keep healthy Vitamin D levels in the blood, along with other photoproducts like nitric oxide, which fights chronic diseases like hypertension and arteriosclerosis. Furthermore, a study showed, that the mortality rate is twice as high in women who avoid sun exposure compared to those who were more exposed to the sun.¹ A 2019 commentary titled "Sun Exposure Public Health Directives"² state *"The public health directive regarding sun exposure and human health should be adjusted to reflect current scientific knowledge. We recommend a public health directive as follows: All persons in the world regardless of skin color or latitude of residence, other than those with extraordinary sensitivity to sunlight, should get enough sun exposure to maintain a serum 25(OH)D level well over 20 ng/mL (desirably at 30–60 ng/mL) while taking care to avoid sunburn."*

2. Sunbeds are basically like the sun: enjoy it in moderation!

UV emitted from sunlight and sunbeds are more similar than generally thought: the UV in midday summer sunlight is made up of about 95% UVA light and 5% UVB light. Most indoor tanning equipment emit the same, with a maximum intensity equaling the midday sun in the Mediterranean. This is guaranteed through the European standard EN 60335-2-27, limiting UV output from sunbeds to 0.3W/m². The major difference however, is that UV from a sunbed is easily controlled to avoid overexposure by trained and industry certified operators following Professional Standards.

3. Regular UV exposure actually lowers melanoma risk

UV has a complex and often-misunderstood relationship with melanoma skin cancer risk. Consider: indoor workers who get less UV exposure get more melanomas than outdoor workers who get regular sun. The largest meta-analysis of risk factors for melanoma found that people with the most UV exposure, chronic UV exposure which was defined as continuous regular UV exposure, had a 5% REDUCED risk of melanoma.³ That's why sunburn – not regular sun – is the main UV-related risk factor and total sun avoidance as proclaimed by the WHO⁴ is a major mistake.

¹ Lindqvist PG, Epstein E, Nielsen K, Landin-Olsson M, Ingvar C, Olsson H. Avoidance of sun exposure as a risk factor for major causes of death: a competing risk analysis of the Melanoma in Southern Sweden cohort.

² Hoel DG, de Grujil FR. Sun Exposure Public Health Directives. Int. J. Environ. Res. Public Health

³ Gandini S, Sera F, Cattaruzza MS, Pasquini P, Picconi O, Boyle P, Melchi CF. Meta-analysis of risk factors for cutaneous melanoma: II.

⁴ WHO IARC Monographs on the Evaluation of Carcinogenic Risks to Humans.

4. The risks and benefits of sunbed use have not been presented accurately (fairly)

The latest meta-analysis of research for sunbeds in Europe “*did not show an association*” with melanoma ($OR=1.10$; $95\%CI=0.95-1.27$, $p=0.218$)⁵ In addition, the recent report by SCHEER (Scientific Committee of the European Commission) and WHO report has been discredited in a review paper for being based on “an incomplete, unbalanced and non-critical evaluation of the literature.”⁶ Research has shown tanning before a sunny vacation will reduce your risk of sunburning by 75% and DNA damage by 60%⁷. The relationship between solar UV radiation and skin cancer is so extremely complex, it is inappropriate to attribute any single factor to the development of a cancer. This may depend on the interaction between many variables, such as age, genetics, diet, smoking, alcohol, environment and lifestyle. Recent studies confirmed that two cancers out of three are basically unavoidable, due to DNA copying errors rather than environmental factors.⁸ This is why we cannot ignore such multilayered context when designing public health policies, steering away from any simplification targeting a single factor.

We strongly believe that the **current policy of complete sun avoidance is creating more overall harm than good** for the general population. We are of the opinion that **moderate UV exposure** (less than the time required to burn, adapted individually according to skin type and precedent exposure) should be sought rather than avoided. This is also the opinion of some European cancer agencies.

5. Indoor tanning facilities provide personalized counseling to their customers

Professional tanning studios offer thorough counseling for customer intake and follow-up, advising on controlled exposure to UV rays, both in terms of exposure schedule and safety requirements. The European standard EN 16489 covers training requirements, the qualification of studios personnel and requirements for the provision of services: thanks to this standard, customers are offered a progressive tanning schedule that avoids sunburn. Moreover, very fair skinned people (with so-called ‘Type 1’ skin - always burn, never tan) and minors are not allowed to use sunbeds.

EN 16489 has been developed bringing together a wide range of stakeholders, including the Austrian Standards Institute (ASI), the European Cancer League (ECL) and the consumer standardization body ANEC. To bring into practice the standard, the European Sunlight Association (ESA) has created with ASI as third-party certifier a certification, training and labeling scheme aimed at studios across Europe.

6. Vitamin D deficiency is a global public health issue

Over one billion people in the world are either vitamin D deficient or insufficient, making it a proper global epidemic: current research shows that low vitamin D levels play a role in causing as many as seventeen varieties of cancer, cardiovascular diseases and bone health.⁹ Sunlight is the natural way the body was designed to produce vitamin D (actually a hormone) and you cannot go to toxic levels as the body limits its own production. Vitamin D deficiency is a sunlight deficiency considering most people are indoors almost all the time. Sunbeds were originally invented to trigger vitamin D production in light-deprived Northern European populations, and they continue to provide such benefit.

⁵ Burgard et al., Solarium Use and Risk for Malignant Melanoma: Meta-analysis and Evidence based Medicine Systematic Review.

⁶ Reichrath et al., A Critical Appraisal of the Recent Reports on Sunbeds from the European Commission’s Scientific Committee on Health, Environmental and Emerging Risks and from the World Health Organization.

⁷ de Winter S, Vink AA, Roza L, Pavel S Solar-simulated skin adaptation and its effect on subsequent UV-induced epidermal DNA damage

⁸ Tomasetti C, Vogelstein B: Variation in cancer risk among tissues can be explained by the number of stem cell divisions, 2015.

⁹ Naheem Z, Vitamin D deficiency – an ignored epidemic, 2010.

In fact, a recent research paper on sunbeds and vitamin D found that sunbeds raise participants' vitamin D to optimal levels for health.¹⁰

Vitamin D is only present in a few foods and in very low amounts (fatty fish like salmon, eggs, dairy) and obviously can also be taken through supplements. However *'when you ingest vitamin D, only about 60 percent of it sticks to vitamin D-binding protein, but when you make vitamin D in your skin, 100 percent binds to the protein'* as stated Dr. Michael Holick, vitamin D research pioneer from the Boston University School of Medicine, USA.

Low Vitamin D blood levels may only be an indicator of a sunlight deficiency. Recent research shows that sunlight reduces the risk of Multiple Sclerosis.¹¹

¹⁰ de Gruijl FR, Pavel S: The effects of a mid-winter 8-week course of sub-sunburn sunbed exposures on tanning, vitamin D status and colds

¹¹ Tremlett H, Zhu F, Ascherio A, Munger KL. Sun exposure over the life course and associations with multiple sclerosis