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Comments on Biological effects of ultraviolet radiation relevant to health with particular reference to sun beds for cosmetic purposes, Adopted by the SCCP on 13 December 2005

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Public consultation
SCCP Opinion on biological effects of ultraviolet radiation relevant to health with particular reference to sun beds for cosmetic purposes

The Commission, in consultation with the Committee, invites interested stakeholders to send their comments on the opinion by Friday, 17 March 2006 to the following e-mail address: Sanco-Sc6-Secretariat@cec.eu.int

http://europa.eu.int/comm/health/ph_risk/committees/04_sccp/sccp_cons_03_en.htm

General comments:
This document emphasizes the adverse health effects and minimizes the beneficial effects, resulting in an unbalanced and less than objective review of the literature, leading to doubtful conclusions. Also, it should be considered that a preponderance of evidence would be a better guide for policy decisions, rather than ironclad evidence. Does a businessman delay important decisions until he can do a 10-year study when he has an assembly line in the production mode? No, he makes an informed decision based on the best available evidence at the time. In the U.S., we have both criminal and civil court proceedings. Murderers can sometimes get off in a criminal trial, in which greater than 90% certainty is required, but are often then convicted in a civil trial, where greater than 50% certainty is required.

Detailed comments:
Regarding non-melanoma skin cancer, it appears that sunburning and UVA are important risk factors for BCC, while total solar UV irradiance, especially UVB, is an important risk factor for SCC [Green et al., 1999]. For melanoma, UVA [Moan et al., 1999; Garland et al., 2003] and sunburning or intermittent exposure are very important, while vitamin D [Millen et al., 2004] and UVB reduce the risk.

p. 11. The evidence that UVB and vitamin D reduce the risk of internal cancers has gone well beyond the ecologic study results [Moon et al., 2005; Zhou et al., 2005; Gorham et al., 2005; Garland et al., 2006], although the ecologic results are quite useful [Garland and Garland, 1980; Grant, 2002, 2006; Grant and Garland, in press], and the mechanisms
of action are well known [van den Bemd and Chang, 2002; Krishnan et al., 2003; Lamprecht and Lipkin, 2003]. UVB has also been associated with increased cancer survival rates [Robshahm et al., 2005; Moan et al., 2005; Porojnicu et al., 2005; Grant, 2006].

The same can be said about autoimmune diseases. As for multiple sclerosis, the evidence is rather strong as well, including direct measures of solar UVB irradiance or vitamin D with reduced risk [van der Mei et al., 2003; Goldacre et al., 2004; Munger et al., 2004; VanAmerongen et al., 2004] and an understanding of the mechanisms [Cantorna and Mahon, 2004, 2005; Embry, 2004; Mark and Carson, 2006].

Vitamin D may play an important role in reducing the risk of type 1 diabetes mellitus [Hypponen et al., 2001; Harris, 2005; Luong et al., 2005].

Recent studies have also indicated a benefit in type 2 diabetes mellitus [Chiu et al., 2004; Pittas et al., 2006] and in strokes [Poole et al., 2006].

For recent reviews of the health benefits of vitamin D, please see [Zittermann, 2003; Gorham et al., 2005; Grant and Holick, 2005; Grant et al., 2005; Holick, 2005a,b; 2006; Zittermann et al., 2005; Garland et al., 2006].

p. 14. A discussion of free radical production from UVA should be made. It is very likely that free radicals and indirect DNA damage are much more important for BCC and melanoma than is direct DNA damage. See, for example, Haywood et al., 2003, Agar et al., 2003, Halliday et al., 2004, 2005, Millen et al., 2004.

pp. 18-19
According to a recent multi-country study, sunbed use was not found to be a risk factor for melanoma [Bataille et al., 2005]. This reference was omitted from the document for some reason. It should be mentioned and discussed.

The studies regarding melanoma risk from use of sunbeds should be reanalyzed and reinterpreted in terms of beds that have 3-5% UVB and those, such as in France and Sweden that are limited to <1.5% UVB [Autier, 2004] as well as Switzerland [Gerber et al., 2002] and perhaps the U.K. [Woollons et al., 1999; Das et al., 2002]. In the U.S., melanoma has not been significantly linked to sunbed use [Holly et al., 1995, Chen et al., 1998], likely due to the higher UVB fraction in the U.S. compared to that in Europe.

Another good reference on UV risk for melanoma is Kennedy et al. [2004].

p. 24. The statement that UVB is the most harmful part of the UVR spectrum reaching the Earth’s surface is incorrect. It is likely based on considering direct DNA damage rather than indirect DNA damage by free radicals, and overlooks the benefits of vitamin D. After all, mankind was able to escape from the tropics only by developing lighter skin
that permitted vitamin D production in lower UVB environments [Jablonski and Chaplin, 2000, Chaplin, 2004]. To place so little emphasis on vitamin D production is to seriously undermine the scientific credibility of the document and limit its usefulness in guiding public health policy.

p. 25. The last statement under Question 4 regarding sunbed generation of UVB and production of vitamin D is belied by the results in Tangpricha et al. [2004], cited in the report. See, also, Matsuoka et al., 1990, Koutkia et al., 2001.

In summary, the health benefits of sunbed lamps emitting 3-5% UVB out of the total UVR match the solar UVR spectrum reasonably well and produce vitamin D in the skin. It is the UVA portion of the spectrum that presents the health problems. The health benefits of vitamin D are becoming appreciated more each month. The health benefits of vitamin D production should be compared against the health risks of UVR, keeping in mind that many of the health risks arise from erythema, burning, and excess tanning, not regular, controlled UVR irradiance.

References to consult


Grant WB. Lower vitamin D production from solar ultraviolet-B irradiance for black Americans compared to white Americans may explain some of the difference in cancer survival rates. *J Natl Med Assoc*. 2006;98:357-64.


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