

Commercial tanning salons and melanoma risk

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ABSTRACT

There have been many case-control studies of melanoma and the use of indoor tanning equipment. A recent meta analysis of 8 credible studies in North America estimated an overall significant odds ratio of 1.23. Three of these 8 studies also reported separately on commercial use and home use of indoor tanning equipment. For home use the overall odds ratio was a significant 1.53 while for commercial use there was a non significant 1.05.

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Sir, In 2006, a working group of the International Agency for Research on Cancer (IARC) published a systematic review and meta analysis of epidemiological and experimental studies on the use of indoor tanning equipment and skin cancer.¹ Indoor tanning equipment, as defined in the 2006 IARC report, included sunbeds and sunlamps, whether used in commercial tanning salons or other settings, and was referred to in the report as “sunbeds or indoor tanning equipment.” The authors did not separate data by place of use. Based on 19 informative studies, ever-use of sunbeds was positively associated with melanoma (summary relative risk, 1.15; 95% CI, 1.00–1.31).

In 2012, the 2006 IARC report was updated by 4 of its authors to include an additional 8 indoor tanning studies published since the IARC report.² The term “sunbeds” was again used to refer to use of indoor tanning equipment, whether in commercial tanning salons or at home or in other settings. Based on these 27 studies of ever having used sunbeds, there was an associated summary relative risk of 1.20; (95% CI, 1.08–1.34). As in the 2006 IARC report, the authors did not separate data by place of use.

In 2014, a further systematic review and meta analysis on melanoma risk and “indoor tanning” was published.³ This study also combined data from home use with data from commercial tanning

salon use, using the omnibus term “indoor tanning” to describe both. This study is the only meta-analysis on the subject that separated studies by geographical area. Figure 2 in their paper gives the odds ratios of melanoma for ever use versus never use of indoor tanning. For North America, the authors considered 8 studies to be credible and they calculated a meta analysis giving an overall odds ratio of melanoma of 1.23 (95% C.I. 1.03, 1.47) for ever having used indoor tanning; a statistically significant increase. As indicated, these individual studies combined data from indoor tanning at home and indoor tanning at commercial tanning salons. 3 of these 8 acceptable North American studies⁴⁻⁷ also provided a separate analysis of home and commercial tanning salon use. These analyses, as well as a meta analysis and the original analysis of the 8 studies³ are given in Table 1.

The 3 studies that considered both home and commercial indoor tanning show a considerable difference in melanoma risk between home indoor tanning and commercial tanning salon indoor tanning. The tanning salon meta analysis estimate of 1.05 essentially shows no increase melanoma effect, while the home tanning estimates a significant increase in melanoma risk. We therefore see that there is an important underlying difference between commercial tanning and “do it yourself” home tanning, which may involve

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Table 1. Odds Ratio of melanoma from ever use of indoor tanning.

STUDY	Odds Ratio (95% C.I.)	Home Tanning Odds Ratio	Salon Tanning Odds Ratio
Chen et al. 1998	1.13 (0.82, 1.56)	1.40 (0.97, 2.04)	0.79 (0.49, 1.26)
Clough-Gorr et al. 2008	1.22 (0.83, 1.79)	1.39 (1.00, 1.96)	1.14 (0.80, 1.61)
Fears et al. 2011	0.93 (0.75, 1.15)		
Holly et al. 1995	0.94 (0.74, 1.19)		
Lazovich et al. 2010	1.74 (1.42, 2.13)		
Ting et al. 2007	1.64 (1.01, 2.66)		
Walter et al. 1999	1.54 (1.16, 2.04)	1.97 (1.29, 3.00)	1.16 (0.77, 1.75)
Zhang et al. 2012	1.11 (0.97, 1.27)		
TOTAL	1.23 (1.03, 1.47)	1.53 (1.23, 1.89)	1.05 (0.83, 1.32)

increased sun burns and their known risk for melanoma.

In 2011, a report⁸ was presented at the 3rd North American Congress of Epidemiology held in Montreal which analyzed home vs. salon use of indoor tanning based on those studies in the original IARC report of 2006. The authors also concluded in their abstract that “When professional sunbed usage is considered independent of home and medical exposures there is no association with melanoma.”

Finally, it should be said that all of the above odds ratio values may be high due to the general problem of recall bias.

Disclosure of potential conflicts of interest

The author has done consulting for the American Suntanning Association.

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