# SCENIHR

## Public Hearing on Biological effects of ultraviolet radiation relevant to health with particular reference to sunbeds for cosmetic purposes

# LUXEMBOURG

## 12th April 2016

The Sunbed Association
VOICE OF THE INDUSTRY

# SCENIHR

## Public Hearing on Biological effects of ultraviolet radiation relevant to health with particular reference to sunbeds for cosmetic purposes

# Gary Lipman

## Chairman

# Gary Lipman

## 31 years experience in the tanning industry

## British Standards
**Committee Member SVS/019/02 Tanning salon services**

## National Institute for Health and Care Excellence (NICE)
**Topic member of Public Health Advisory Committee (PHAC)**
**Sunlight exposure: Risks and Benefits**

## Member: European Sunlight Association

**There seems to be an accepted assumption that using a sunbed will increase the risk of developing melanoma**

**Such statements should be intellectually robust enough to pass scrutiny - but they fail**

**There is compelling evidence to show there is no clinical data relating sunbeds and melanoma,
only interview based recollections**

# In the last decade there have been two in depth research investigations designed to prove the negative effect of using sunbeds

## 2005

**Luxembourg Health Institute**

**A multi-centre epidemiological study on sunbed use and cutaneous melanoma in Europe**

## 2011

**Cancer Research UK Centre, Leeds**

**Relationship between sunbed use and melanoma risk in a large case-control study in the United Kingdom**

# 2005

# Luxembourg Health Institute

EJC EUROPEAN JOURNAL OF CANCER

**Cancer Research UK Centre for Epidemiology, Mathematics and Statistics, Wolfson Institute of Preventive Medicine, London**
**West Hertfordshire NHS Trust, Hemel Hempstead Hospital, Hillfield Road, Hemel Hempstead, Herts HP2 4AD**
**INSERM U 590, Centre Leon Berard, Lyon, France**
**Department of Public Health, Erasmus University Medical Center, Rotterdam, The Netherlands**
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ELSEVIER

European Journal of Cancer 41 (2005) 2141–2149

European Journal of Cancer

www.ejconline.com

## A multicentre epidemiological study on sunbed use and cutaneous melanoma in Europe

Véronique Bataille [a,b,*], Mathieu Boniol [c], Esther De Vries [d], Gianluca Severi [e,f], Yvonne Brandberg [g], Peter Sasieni [a], Jack Cuzick [a], Alexander Eggermont [h], Ulrik Ringborg [g], André-Robert Grivegnée [i], Jan Willem Coebergh [d,j], Marie Christine Chignol [c], Jean-François Doré [c], Philippe Autier [e,i]

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*Keywords:* Melanoma; Case–control study; Sunbed; Sun exposure; Naevus

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doi:10.1016/j.ejca.2005.04.038

The Sunbed Association
VOICE OF THE INDUSTRY

**The Sunbed Association**

# 2005
# Luxembourg Health Institute

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## Studied 622 melanoma cases in five European countries

## Eminent Dermatologists

- Veronique Bataille
- Mathieu Boniol ← Here today
- Esther De Vries
- Gianluca Severi
- Yvonne Brandberg
- Peter Sasieni
- Jack Cuzick
- Alexander Eggermont
- Ulrik Ringborg
- Andrea-Robert Grivegne
- Jan Willem Coebergh
- Marie Christine Chignol ← SCENIHR
- Jean-Francois Dore ← SCENIHR
- Philippe Autier

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**Studied 622 melanoma cases in five European countries**

**Eminent Dermatologists**

**To prove sunbed use and cutaneous melanoma in 18-49 year olds**

**No evidence found**

The Sunbed Association
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## Conclusion

**“sunbed and sun exposure were not found to be significant risk factors for melanoma in this case-control study performed in five European countries”**

The Sunbed Association
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# 2011
## Leeds Cancer Research UK Centre

# Relationship between sunbed use and melanoma risk in a large case-control study in the United Kingdom

Faye Elliott
Mariano Suppa
May Chan
Susan Leake
Birute Karpavicius
Sue Haynes
Jennifer H. Barrett
D. Timothy Bishop
Julia A. Newton-Bishop

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UICC global cancer control

IJC International Journal of Cancer

## Relationship between sunbed use and melanoma risk in a large case-control study in the United Kingdom

Faye Elliott[1], Mariano Suppa[1,2], May Chan[1], Susan Leake[1], Birute Karpavicius[1], Sue Haynes[1], Jennifer H. Barrett[1], D. Timothy Bishop[1] and Julia A. Newton-Bishop[1]

[1] Section of Epidemiology and Biostatistics, Leeds Institute of Molecular Medicine, University of Leeds, Leeds, United Kingdom
[2] Department of Dermatology, University of L'Aquila, L'Aquila, Italy

Dear Editor,

A systematic review of 19 studies reported a 15% increased risk of melanoma (95% confidence interval (CI) 1.00–1.31) associated with ever use of sunbeds.[1] A recent Australian study by Cust *et al.* demonstrated an increased risk of early-onset melanoma (<40 years) associated with ever use of sunbeds (adjusted odds ratio (OR) 1.41, 95% CI 1.01–1.96).[2] Concurrently with the Australian study and using the same questionnaire, we investigated the relationship between sunbed use and melanoma at any age in the United Kingdom. A similar estimate in the UK, which has higher sunbed usage, would imply that sunbed usage is a major etiological factor for melanoma.

Nine hundred and fifty-nine population-ascertained incident melanoma cases diagnosed from September 2000 to December 2005 (age 17–76 years at diagnosis, 22% <40 years at diagnosis), 513 population-ascertained controls and 174 sibling controls were recruited to a case–control study whereby comprehensive sun exposure data, including a life-long residence calendar, were collected as described previously.[3] Participants were asked about sunbed or sunlamp use (ever *versus* never) and about locations they were used. Data were collected on age at first and last use and number of lifetime sessions. Years since first use was calculated and these variables were categorized as presented by Cust *et al.*: never, <25, ≥25 years; none, 1–10, >10 sessions; never, ≤4, >4 and ≤14, >14 years, respectively. A proxy for sun sensitivity phenotype (categorized as sun-sensitive or not sun-sensitive) was derived, as described previously.[3]

As far as possible, we repeated the analyses as reported by Cust *et al.* Spearman correlations, Wilcoxon rank-sum tests and Pearson chi-squared tests were performed for pair-wise associations. ORs and 95% CIs were calculated from unconditional logistic regression models using data from cases and population-ascertained controls to assess the sunbed variables as predictors of melanoma. Population controls were significantly older than cases (median age diagnosis/interview 58 and 53 years, respectively, $p < 0.0001$) and more educated ($\chi^2(3) = 6.9$, $p = 0.03$). Cases were significantly more likely to have family history of melanoma in first or second degree relatives compared with controls ($\chi^2(1) = 8.0$, $p = 0.01$). The primary analyses comparing cases and population controls were therefore adjusted for age (examined as a trend over quartiles), sex, highest educational level (primary/secondary school, sixth form/vocational training, university/post graduate examined as a trend), sun sensitivity phenotype, self-reported family history in 1st or 2nd degree relatives (none, any) and cumulative lifetime total sun exposure (examined as a trend over quartiles). These analyses were repeated in the subset of 157 cases with matched siblings using conditional logistic regression models, adjusted for all of the above-listed factors except family history. We also performed some subgroup analyses stratifying by the factors defined by Cust *et al.* (sex, age at diagnosis/interview, sun sensitivity phenotype, nevi, lifetime total sun exposure) and also average number of sunburns during lifetime. In our case–control study,[3] we found the sun exposure measure most associated with risk was a protective effect of regular weekend sun exposure. We therefore repeated the analyses adjusting for this measure but there was no effect on the results (data not shown).

The locations where sunbeds were used were private home (54%), tanning salons (34%), gyms/spas (32%), hairdressers/beauty salons (13%) and hospital/medical facilities (9%). In analyses considering cases and population controls, younger age was associated with number of sessions (rho = −0.37, $p < 0.0001$) and ever *versus* never use (means 49 and 60 years, respectively, $p < 0.0001$). Females reported a higher number of sessions compared with males ($p < 0.0001$) and 57% of females reported ever use compared with 38% of males ($\chi^2(1) = 52.0$, $p < 0.0001$). Sun sensitivity phenotype and educational level were not associated with sunbed use.

In multiple regression analyses, ever-use of sunbeds was not a significant risk factor for melanoma (adjusted OR 1.06, 95% CI 0.83–1.36, Table 1). Age at first use of sunbeds showed a small non-significant increased risk for use <25 years compared with never use (OR 1.16, 95%CI 0.84–1.62), as did age at last use <25 years (OR 1.49, 95% CI 0.95–2.34). Number of sessions and years since first use did not show an increasing trend effect on melanoma risk.

The secondary analyses comparing cases with sibling controls gave an OR of 1.10 (95% CI 0.63–1.94) for ever *versus* never use (Table 1). Having >10 sessions conferred an OR of 1.27 compared with never use (95% CI 0.63–2.55, $p_{trend}$ 0.54). If we further examine the number of sessions categorized according to our controls distribution (none, 1–20, >20), having >20 sessions conferred an OR of 1.49 compared with never use (95% CI 0.70–3.17, $p_{trend}$ 0.35). Age at

Letter to the Editor

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# 2011
## Leeds Cancer Research UK Centre

**950 population-ascertained incident melanoma cases were diagnosed**

**513 population-ascertained controls and 174 sibling controls were recruited (687 recruits)**

**As far as possible, they repeated the analyses as reported by Cust et al. Spearman correlations, Wilcoxen rank-sum tests and Pearson chi-squared tests were performed for pair-wise associations**

UICC global cancer control

IJC International Journal of Cancer

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ered to detect small effects. Two UK studies conducted more than 20 years ago reported significant increased risks for ever sunbed use with relative risks of 2.9 in both studies.[4,5] Three more recent UK studies demonstrated small non-significant increased risks for ever use.[6–8] Our study has a similar finding which could indicate an effect of sunbeds, but could also be due to confounding with other UV exposures. In summary, we have found no evidence for sunbed use as a risk factor for melanoma in the UK; although we cannot exclude a small effect of ever sunbed use, nor risk associated with use early in life, we can exclude a large effect.

Yours sincerely,
Faye Elliott
Mariano Suppa
May Chan
Susan Leake
Birute Karpavicius
Sue Haynes
Jennifer H. Barrett
D. Timothy Bishop
Julia A. Newton-Bishop

**In summary, we have found no evidence for sunbed use as a risk factor for melanoma in the UK; although we cannot exclude a small effect of ever sunbed use, nor risk associated with use in early life, we can exclude a large effect**

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International Journal of Cancer

# RE: Relationship between sunbed use and melanoma risk in a large case–control study in the United Kingdom

Philippe Autier and Mathieu Boniol

International Prevention Research Institute, Lyon, France

Dear Editor,

In their case–control study, Elliot *et al.*[1] found no association between sunbed use and cutaneous melanoma (hereafter melanoma), including after stratification for age at first use and for duration of use. In a previous article, the same group reported a statistically significant reduced risk of melanoma associated with recreational sun exposure, in particular with week-end sun exposure.[2] Although these findings are not in agreement with a wealth of data showing increased risk of melanoma associated with recreational sun exposure and sunbed use, particularly when exposures start at younger age, some studies[3,4] found results similar to those found by Elliott *et al.*[1] The main issue we would like to raise is whether this study had an adequate design for investigating associations between melanoma and lifestyle risk factors.

The first part of the Elliott *et al.* study[1] consisted in a comparison of sunbed use between "population-ascertained cases" and "population-ascertained controls." On this basis, in a recent work we classified this study as being population-based.[3] However, the previous article[2] provided more details on the methods, documenting that this case–control study was in fact not population based. Table 1 of the 2011 publication indicates that the main analysis was based on 855 cases and 483 controls. It is unusual and non-standard in case–control studies to have cases outnumbering controls by 44% ([875–483]/855). Controls were selected by general practitioners of cases among other patients attending the practice. The response rate of potential suitable controls was only 55% and there was strong imbalance in age distribution between cases and controls despite the fact that family doctors were instructed to select controls within the same 5-year age group as cases.[2] Subjects in the resulting control group were on average of higher socio-economic status than cases, when other epidemiological studies in the United Kingdom show that melanoma occurs more frequently in higher socio-economic groups.[5,6] Hence, the way controls were selected by family doctors may have led to a control group having lifestyle habits not at all reflecting habits prevailing in the general population, which may have resulted in biased estimations of risk associated with sunbed use and recreational exposure.

The second part of the Elliott *et al.* study[1] was based on a comparison with a group of sibling controls. This study part was small and did not have the statistical power to detected odds ratios less than 2.0. Furthermore, this study was restricted to 20% of all potential cases and sibling controls. This considerable attrition in response might have introduced selection bias. Also, siblings may share identical behaviors such as visiting indoor tanning parlours.

Biases related to the selection of subjects included in the control group are the Achille's tendon of case–control studies. If the statistical analysis can control for confounding, it cannot control for selection biases. We faced similar bias issues in a previous case–control study on melanoma and sunbed use in which controls were partly selected from general practitioner's patients.[7] We were aware of the methodological limitations of our study and dully published reasons why one should be cautious with interpreting our study results.[8] In this respect, while the case–control design of Elliott *et al.*[1] may have been appropriate for the study of genotypic and phenotypic traits, it was probably not appropriate for the study of lifestyle factors.

Yours sincerely,
Philippe Autier
Mathieu Boniol

## References

1. Elliott F, Suppa M, Chan M, et al. Relationship between sunbed use and melanoma risk in a large case–control study in the United Kingdom. *Int J Cancer* 2012;130:3011–13.
2. Newton-Bishop JA, Chang YM, Elliott F, et al. Relationship between sun exposure and melanoma risk for tumours in different body sites in a large case–control study in a temperate climate. *Eur J Cancer* 2011;47:732–41.
3. Boniol M, Autier P, Boyle P, et al. Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *BMJ* 2012;345:e4757.
4. Gandini S, Sera F, Cattaruzza MS, et al. Meta-analysis of risk factors for cutaneous melanoma: II. *Sun exposure. Eur J Cancer* 2005;41:45–60.
5. MacKie RM, Hole DJ. Incidence and thickness of primary tumours and survival of patients with cutaneous malignant melanoma in relation to socioeconomic status. *BMJ* 1996;312:1125–8.
6. Lee JA, Strickland D. Malignant melanoma: social status and outdoor work. *Br J Cancer* 1980;41:757–63.
7. Bataille V, Boniol M, De Vries E, et al. A multicentre epidemiological study on sunbed use and cutaneous melanoma in Europe. *Eur J Cancer* 2005;41:2141–9.
8. de Vries E, Boniol M, Severi G, et al. Public awareness about risk factors could pose problems for case–control studies: the example of sunbed use and cutaneous melanoma. *Eur J Cancer* 2005;41:2150–4.

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Letter to the Editor



**Philippe Autier and Mathieu Boniol wrote to IJC claiming that there were flaws in the research**

*Dear Editor,*

*In their case–control study, Elliot et al. found no association between sunbed use and cutaneous melanoma (hereafter melanoma), including after stratification for age at first use and for duration of use.*

IJC International Journal of Cancer

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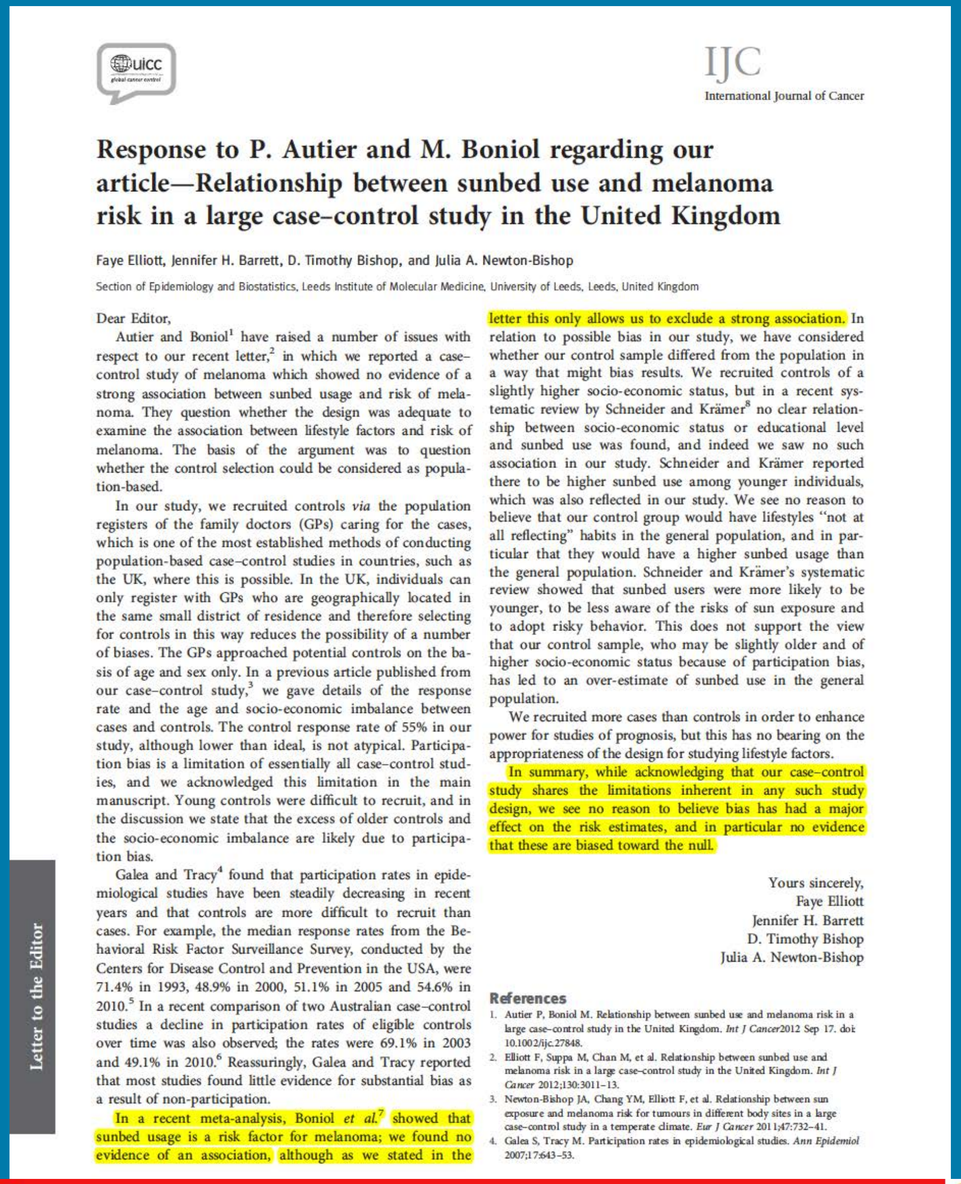
*Dear Editor*

*In a recent meta-analysis, Boniol et al.7 showed that sunbed usage is a risk factor for melanoma; we found no evidence of an association, although as we stated in the letter this only allows us to exclude a strong association*

*In summary, while acknowledging that our case–control study shares the limitations inherent in any such study design, we see no reason to believe bias has had a major effect on the risk estimates, and in particular no evidence that these are biased toward the null.*

Yours sincerely,
Faye Elliott
Jennifer H. Barrett
D. Timothy Bishop
Julia A. Newton-Bishop



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## Response to P. Autier and M. Boniol regarding our article—Relationship between sunbed use and melanoma risk in a large case–control study in the United Kingdom

Faye Elliott, Jennifer H. Barrett, D. Timothy Bishop, and Julia A. Newton-Bishop

Section of Epidemiology and Biostatistics, Leeds Institute of Molecular Medicine, University of Leeds, Leeds, United Kingdom

Letter to the Editor

Dear Editor,

Autier and Boniol[1] have raised a number of issues with respect to our recent letter,[2] in which we reported a case–control study of melanoma which showed no evidence of a strong association between sunbed usage and risk of melanoma. They question whether the design was adequate to examine the association between lifestyle factors and risk of melanoma. The basis of the argument was to question whether the control selection could be considered as population-based.

In our study, we recruited controls *via* the population registers of the family doctors (GPs) caring for the cases, which is one of the most established methods of conducting population-based case–control studies in countries, such as the UK, where this is possible. In the UK, individuals can only register with GPs who are geographically located in the same small district of residence and therefore selecting for controls in this way reduces the possibility of a number of biases. The GPs approached potential controls on the basis of age and sex only. In a previous article published from our case–control study,[3] we gave details of the response rate and the age and socio-economic imbalance between cases and controls. The control response rate of 55% in our study, although lower than ideal, is not atypical. Participation bias is a limitation of essentially all case–control studies, and we acknowledged this limitation in the main manuscript. Young controls were difficult to recruit, and in the discussion we state that the excess of older controls and the socio-economic imbalance are likely due to participation bias.

Galea and Tracy[4] found that participation rates in epidemiological studies have been steadily decreasing in recent years and that controls are more difficult to recruit than cases. For example, the median response rates from the Behavioral Risk Factor Surveillance Survey, conducted by the Centers for Disease Control and Prevention in the USA, were 71.4% in 1993, 48.9% in 2000, 51.1% in 2005 and 54.6% in 2010.[5] In a recent comparison of two Australian case–control studies a decline in participation rates of eligible controls over time was also observed; the rates were 69.1% in 2003 and 49.1% in 2010.[6] Reassuringly, Galea and Tracy reported that most studies found little evidence for substantial bias as a result of non-participation.

In a recent meta-analysis, Boniol *et al.*[7] showed that sunbed usage is a risk factor for melanoma; we found no evidence of an association, although as we stated in the letter this only allows us to exclude a strong association. In relation to possible bias in our study, we have considered whether our control sample differed from the population in a way that might bias results. We recruited controls of a slightly higher socio-economic status, but in a recent systematic review by Schneider and Krämer[8] no clear relationship between socio-economic status or educational level and sunbed use was found, and indeed we saw no such association in our study. Schneider and Krämer reported there to be higher sunbed use among younger individuals, which was also reflected in our study. We see no reason to believe that our control group would have lifestyles "not at all reflecting" habits in the general population, and in particular that they would have a higher sunbed usage than the general population. Schneider and Krämer's systematic review showed that sunbed users were more likely to be younger, to be less aware of the risks of sun exposure and to adopt risky behavior. This does not support the view that our control sample, who may be slightly older and of higher socio-economic status because of participation bias, has led to an over-estimate of sunbed use in the general population.

We recruited more cases than controls in order to enhance power for studies of prognosis, but this has no bearing on the appropriateness of the design for studying lifestyle factors.

In summary, while acknowledging that our case–control study shares the limitations inherent in any such study design, we see no reason to believe bias has had a major effect on the risk estimates, and in particular no evidence that these are biased toward the null.

Yours sincerely,
Faye Elliott
Jennifer H. Barrett
D. Timothy Bishop
Julia A. Newton-Bishop

### References

1. Autier P, Boniol M. Relationship between sunbed use and melanoma risk in a large case–control study in the United Kingdom. *Int J Cancer*2012 Sep 17. doi: 10.1002/ijc.27848.
2. Elliott F, Suppa M, Chan M, et al. Relationship between sunbed use and melanoma risk in a large case–control study in the United Kingdom. *Int J Cancer* 2012;130:3011–13.
3. Newton-Bishop JA, Chang YM, Elliott F, et al. Relationship between sun exposure and melanoma risk for tumours in different body sites in a large case–control study in a temperate climate. *Eur J Cancer* 2011;47:732–41.
4. Galea S, Tracy M. Participation rates in epidemiological studies. *Ann Epidemiol* 2007;17:643–53.

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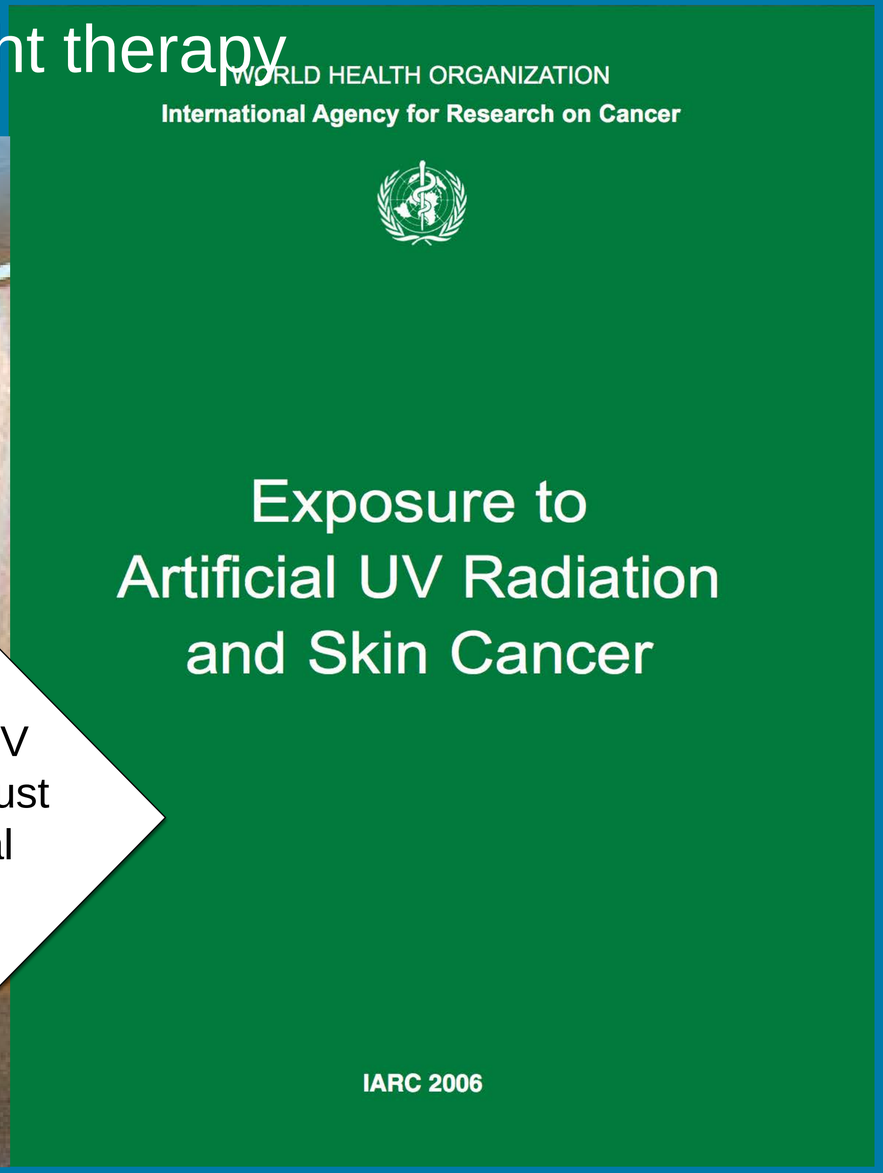
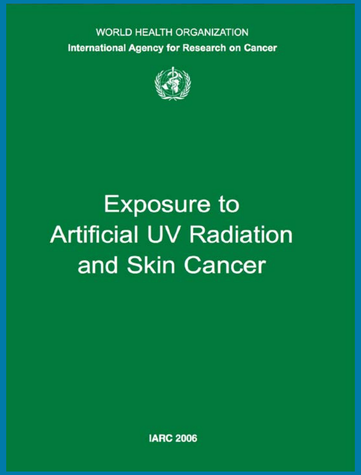
# Medical use Intensive UVB light therapy

Measured UV Devices not just professional sunbeds






# Relative Risk

**HOME UNITS (UV THERAPY)**

| STUDY | Case Yes | Case No | Control Yes | Control No | Calculated Odds Ratio |
|---|---|---|---|---|---|
| Swerdlow 1988 | No data or assumptions provided | | | | |
| Walter 1990 | 71 | 431 | 40 | 498 | 2.05 |
| Westerdahl 1994 | | | | | |
| Chen 1998 | 96 | 483 | 51 | 417 | 1.63 |
| Chen 1998 (people <25) | 57 | 483 | 26 | 417 | 1.89 |
| Westerdahl 2000 | 34 | 319 | 38 | 538 | 1.51 |
| Veierod 2003 | | | | | |
| Bataille 2005 | 126 | 113 | 142 | 107 | 0.84 |
| | | | | | |
| **TOTAL** | 327 | 1346 | 271 | 1560 | **1.40** |

**INDOOR TANNING SALONS**

| STUDY | Case Yes | Case No | Control Yes | Control No | Calculated Odds Ratio |
|---|---|---|---|---|---|
| Swerdlow 1988 | No data or assumptions provided | | | | |
| Walter 1990 | 59 | 431 | 55 | 498 | 1.24 |
| Westerdahl 1994 | | | | | |
| Chen 1998 | 44 | 483 | 44 | 417 | 0.86 |
| Chen 1998 (people <25) | 14 | 483 | 16 | 417 | 0.76 |
| Westerdahl 2000 | 52 | 319 | 64 | 538 | 1.37 |
| Veierod 2003 | | | | | |
| Bataille 2005 | 189 | 169 | 212 | 161 | 0.85 |
| | | | | | |
| TOTAL | 344 | 1402 | 375 | 1614 | **1.06** |

**MEDICAL 'PHOTOTHERAPY' SESSIONS**

| STUDY | Case Yes | Case No | Control Yes | Control No | Calculated Odds Ratio |
|---|---|---|---|---|---|
| Walter 1990 | 17 | 431 | 10 | 498 | **1.96** |

Data independently confirmed by Dr W. Grant and Dr M. Papas

**Home Units 40%**

**Professional Sunbeds 6%**

**Medical Units 96%**

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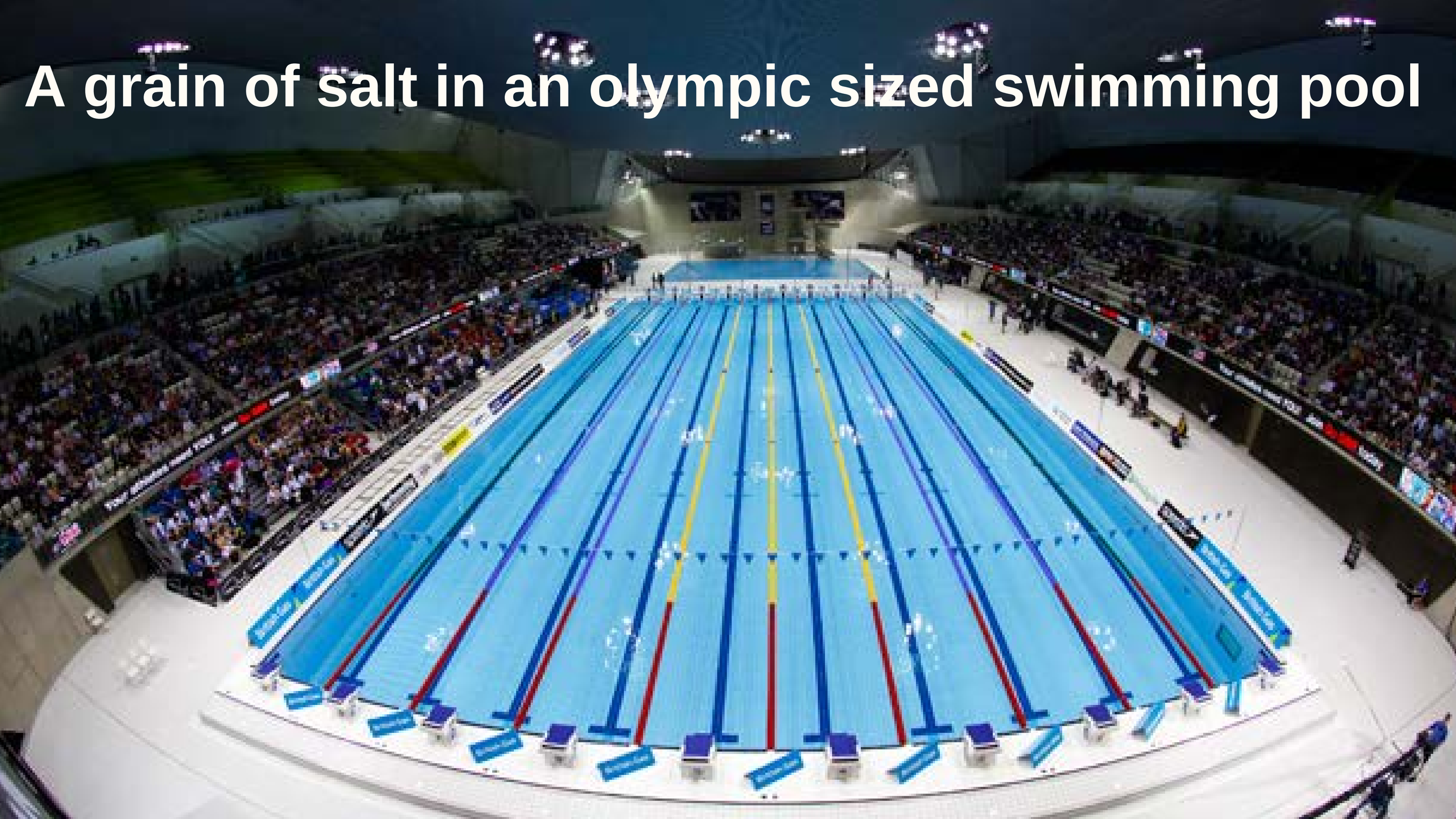
# A grain of salt in an olympic sized swimming pool



# SUNDAY TIMES 12th July 2009

## Sun warnings 'overstated' as science finds new clue to skin cancer

ADRIAN SHERRATT

New research shows that sunshine causes only a small proportion of melanoma cases

**Sarah-Kate Templeton**
**Health Editor**

SUNSHINE is not the main cause of the most dangerous form of skin cancer, according to researchers, who say some warnings about the perils of sunbathing are scaring people unnecessarily.

Scientists, whose research appears in the current issue of the journal Nature Genetics, claim the number of moles on your skin is the most important factor in the risk of getting melanoma. This re-ignites the debate over whether official health warnings about avoiding the sun are overstated.

The authors of the research paper maintain sunshine causes only a small proportion of melanoma cases. They believe health warnings would be more useful if focused on people with more than 100 moles, who should be taught to check their moles regularly for changes in shape, size or colour.

Melanoma can be treated — for instance by the early removal of a suspicious mole — but it is the most serious type of skin cancer, as it can spread to other organs in the body. The cancer can start in an existing mole or on normal-looking skin, and can occur in people who have no moles but hav fair skin and freckles.

Melanoma is relatively rar accounting for 10% of all ski cancer cases, but it is respons ible for most skin-cance deaths. About 1,500 people di every year in England an Wales of malignant

An internati researchers fr Australia, Mo and Philadelphia, by King's College Lo tified two genes that dicta how many moles someone wi have and their risk of gettir skin cancer. Tim Spector, profe sor of genetic epidemiology King's, said: "The number moles you have is one of th strongest risk factors for melanoma — stronger than sunshine. This paper shows that we found two important genes that control the number of moles you have. Those genes also give you an extra risk of melanoma."

Dr Veronique Bataille, a

doesn't make any difference whether you live in Glasgow or Sydney or LA."

Bataille added: "Let's keep sunshine in the picture because it does make you age and causes you wrinkles — we have never denied that. But let's mov away from scaring people saying they are going because they go in the

Sara Hiom, Cancer UK's director of health in tion, said: "This study con. Cancer Research UK's adv that people with lots of moles — as well as those with red hair or fair skin — are more at risk of the most dangerous form of skin cancer and should take extra care in the sun.

"The research does not in any way contradict the bulk of scientific evidence, which shows that most skin cancers are caused by over-exposure to ultraviolet [UV] rays."

She points out that malignant melanoma rates in the UK have more than quadrupled in

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ciency. A shortage of sunlight — the most important source of vitamin D — can lead to an increase in deaths from other cancers, osteoporosis, depression and premature ageing.

**An International team of researchers from Australia, Canada and America led by Kings College, London**

**Lets move away from scaring people by saying that they are going to die because they go in the sun"**

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# Melanoma. Shall we move away from the sun and focus more on embryogenesis, body weight and longevity?


## Veronique Bataille

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## Melanoma. Shall we move away from the sun and focus more on embryogenesis, body weight and longevity? ☆


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ABSTRACT

There are many observations regarding the behaviour of melanoma which points away from sunshine as the main cause of this tumour. Incidence data shows that the increase is mostly seen for thin melanomas which cannot be attributed to sun exposure but increasing screening over the last 20 years. Melanoma behaves in a similar fashion all over the world regarding age of onset, gender differences and histological subtypes. An excess of naevi is the strongest risk factor for melanoma and their appearance and involution throughout life, and the differences in naevus distribution according to gender is giving us a lot of clues about melanoma biology. Melanoma like all cancers is a complex disease with the involvement of many common and low penetrance genes many of them involved in pigmentation and naevogenesis but these only explain a very small portion of melanoma susceptibility. Genes involved in melanocyte differentiation early on in embryogenesis are also becoming relevant for melanoma initiation and progression. Reduced senescence and longevity as well as body weight and energy expenditure are also relevant for melanoma susceptibility. These observations with links between melanoma and non-sun related phenotypes as well as gene discoveries should help to assess the relative contribution of genetic and environmental factors in its causation.



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This review, whilst not wishing to dismiss sunshine altogether is attempting to redress the balance especially as the primary prevention of melanoma with avoidance of sun exposure has not been proven to reduce melanoma incidence and mortality and may be harmful.

### Melanoma incidence and mortality

The main argument for implicating sunshine as the cause of melanoma is the difference in melanoma incidence between Australia and Europe. The other argument is the rapid rise in melanoma incidence over the last 30 years which has been attributed to changes in sun seeking behaviour over the same period. [1,2]. However, there are some clues in the epidemiological data which, when looked at carefully, do not point to sunshine as being the main cause for these observations. When examining the incidence of melanoma in Australia, for example, the rapid rise in incidence has mainly been for very thin melanomas which have hardly had any impact on mortality which has remained fairly flat over the same period [2,3]. The delivery of dermatology services in Australia is very different from many European countries and especially the UK. Dermatologists and general practitioners in Australia offer rapid access melanoma screening following frequent public health campaigns and many naevi are excised during the screening process. These screening campaigns have led to a rapid rise in the number of very thin and borderline melanomas which in turn inflates overall incidence [4].

Comparing mortality and incidence data in melanoma is also important as it gives further clues to the types of melanomas removed following screening campaigns. The incidence of melanoma has risen dramatically in all countries where access to dermatologists is relatively easy and public health campaigns have been quite active. However, mortality has remained relatively stable and in some countries is even dropping with a widening between the mortality and incidence curves over the last 20 years [1].

This also supports the fact that most melanomas removed from screening campaigns are very thin and are likely to be biologically different. Data from Eastern European countries also supports this. A rise in incidence of melanoma in Eastern European countries has only occurred in countries where access to dermatologists has become easier with public health campaigns over that least 15 years. In other Eastern European countries, where this was not in place over the same period, the lower incidence and greater thickness


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“The arguments used to support sunshine as the main cause of melanoma do not always stack up. This review does not wish to dismiss sunshine but rather present another view on melanoma biology.

It should be recognised that drastically reducing sun exposure in Caucasians may have deleterious effects which may take many years to unravel and has not been successful in reducing melanoma incidence.

Sunlight is unlikely to be blamed for the rapid rise in melanoma incidence seen over the last 30 years and instead changes in screening for melanoma are probably responsible for a rapid rise in early melanomas”



## Vitamin D

An important and neglected area of research until very recently is the role Vitamin D in the susceptibility and survival of melanoma. Vitamin D is associated with sun exposure, pigmentation, BMI and telomere length so it is linking many risk factors for melanoma discussed above [47–49]. Newton Bishop advanced the field recently showing that low vitamin D levels are common in melanoma patients and have a deleterious impact on risk and survival [50]. It is therefore important to dissect these associations further not only to produce some safe recommendations regarding sun exposure but also to understand the complex relationships between various melanoma risk factors.

## Recent evidence of sun exposure in melanoma

It may be argued that this review did not debate enough the sun exposure evidence in melanoma. The link between melanoma and UV radiation has been based on many epidemiological studies, migration studies, animal models and cell biology over the last 30 years and it is not the scope of this review to go through all this evidence and assess the relevance of these observations for human melanomas. This would take too long and should be part of another manuscript. This review's aim is to redress the balance and present evidence of important non sun related melanoma risk factors which are often ignored in the literature. In terms of recent evidence, genome sequencing of melanoma tumours have shown that the number of all types of genetic alterations exceed 70,000 and that many of the point mutations are C-T pyrimidine dimers which in principle supports sun exposure in melanoma [51]. C-T mutations are, however, also found in genome sequencing of other tumours which have no link to sun exposure [52]. There is also the possibility that the new methylome studies in melanoma will show some effect of sun exposure in turning genes on and off which may affect melanoma risk. However, it is too early at this point as the very recent methylome studies on human melanoma have not been correlated with environmental exposure as it is relatively difficult to have accurate sun exposure data in these studies [53].

In summary, recent advances in genetics with good collection of environmental data will hopefully help to dissect the relative contribution of environmental and genetic factors in the causation of melanoma. The arguments used to support sunshine as the main cause of melanoma do not always stack up. This review does not wish to dismiss sunshine but rather present another view on melanoma biology. It is clear that sunshine causes significant photoageing and increase skin cancer risk with a significant burden to health services so excessive sun exposure is not advocated. But it should be recognised that drastically reducing sun exposure in Caucasians may have deleterious effects which may take many years to unravel and has not been successful in reducing melanoma incidence. Sunlight is unlikely to be blamed for the rapid rise in melanoma incidence seen over the last 30 years and instead changes in screening for melanoma are probably responsible for a rapid rise in early melanomas. New common low penetrance genes discovered via genome wide association studies and melanocyte biology show that melanocyte differentiation is very complex and is linked to other phenotypes such as longevity, BMI and energy expenditure amongst many others. Gender is also a very important modifying factor in naevi and melanoma biology and gender effects on naevi and melanoma needs to be explored further. More genome data as well as methylome studies are eagerly awaited to further elucidate the driver mutations and epigenetic changes in melanoma. However, the “at risk phenotype” should not be ignored and studies should not focus on melanoma tumours only. Vitamin D is linked to so many melanoma risk factors and appears to be protective for melanoma so more research is needed especially as Vitamin D deficiency is now becoming very prevalent in all Caucasian populations.

## Conflict of interest

None.

## Acknowledgments

Most of the research on naevi and melanoma in relation to ageing and telomeres in the twins was funded by the Wellcome Trust (grant number WT081878) and the National Institute for Health Research (NIHR) clinical research facility at Guy's and St Thomas Foundation Trust and NIHR Biomedical Research Centre at Guy's Hospital London.

## References

[1] http://seer.cancer.gov/faststats/selections.php?run&output=2&data=1&statistic=28&year=200802&race=28&sex=1&age=1&series=cancer&cancer=53.
[2] http://www.aihw.gov.au/cancer/#incidence.
[3] Coory M, Baade P, Aitken J, et al. Trends in situ and invasive melanoma in Queensland, Australia 1982–2002. Cancer Causes Control 2006;17:21–2.
[4] Welch HG, Black WC. Overdiagnosis in cancer. J Natl Cancer Inst 2010;102:605–13.
[5] De Vries E, Boniol M, Dore JF, et al. EUROCARE working group. Lower incidence but thicker melanomas in Eastern Europe before 1992: a comparison with Western Europe. Eur J Cancer 2004;40:1045–52.
[6] Bataille V, Grulich A, Sasieni P, et al. The association between naevi and melanoma in populations with different sun exposure: a joint case-control study of melanoma in the UK and Australia. Br J Cancer 1998;77:505–10.
[7] Bulliard JD, De Weck D, Fisch T, et al. Detailed distribution of melanoma and sunlight exposure: aetiological patterns from a Swiss series. Ann Oncol 2007;18:789–94.
[8] Gallagher R, McLean DI, Yang CP, et al. Anatomical distribution of acquired melanocytic naevi in white children. A comparison with melanoma. The vancouver mole study. Arch Dermatol 1990;126:466–71.
[9] Dodd A, Morelli J, Mokrohisky ST, et al. Melanocytic nevi and sun exposure in a cohort of colarado children: anatomic distribution and site specific sunburn. Cancer Epidemiol Biomarkers Prev 2007;16:2136–43.
[10] Larue L, de Vuyst F, Delmas V. Modeling melanoblast development. Cell Mol Life Sci 2013;70:1067–79.
[11] O'Hara C, Birch J, McCabe M et al. Gender differences in survival among teenagers and young adults with CNS tumours. Cancer Outcomes Conference. Available from: 2012 www.ncin.org.uk/conference.
[12] Gandini S, Sera F, Cattaruzza MS, et al. Meta-analysis of risk factors for cutaneous melanoma: II. Sun exposure. Eur J Cancer 2005;41:45–60.
[13] Gandini S, Sera F, Cattaruza P, et al. Meta-analysis of risk factors for cutaneous melanoma: I. Common and atypical naevi. Eur J Cancer 2005;41:28–44.
[14] Chang YM, Newton-Bishop JA, Bishop DT, et al. A pooled analysis of melanocytic naevus phenotype and the risk of cutaneous melanoma. Int J Cancer 2009;124:420–8.
[15] Cook AL, Smith AG, Smit DJ, et al. Co-expression of SOX9 and SOX 10 during melanocytic differentiation in vitro. Exp Cell Res 2005;308:205–22.
[16] Yokoyama S, Woods SL, Boyle GM, et al. A novel recurring mutation in MITF predisposes to familial and sporadic melanoma. Nature 2011;480:99–103.
[17] Bertolotto C, Lesueur F, Giuliano S, et al. A SUMOylation-defective MITF germline mutation predisposes to melanoma and renal carcinoma. Nature 2011;480:94–8.
[18] Davies H, Bignell GR, Cox C, et al. Mutations of the BRAF gene in human cancer. Nature 2000;27:949–54.
[19] Chapman PB, Hauschild A, Robert C, et al. Improved survival with vemurafenib in melanoma with BRAF V600E mutation. N Engl J Med 2011;364:2507–16.
[20] Curtin JA, Fridlyand J, Kageshita T, et al. Distinct sets of genetic alterations in melanoma. N Engl J Med 2005;353:2135–47.
[21] Blauer J, Buttner P, Murall R, et al. BRAF mutations in cutaneous melanoma are independently associated with age, anatomic site of the primary tumour and the degree of solar elastosis at the primary tumour site. Pigment Cell Melanoma Res 2011;24:345–51.
[22] Peeper DS. Oncogene-induced senescence and melanoma. Where do we stand? Pigment Cell Melanoma Res 2011;24:1011–107.
[23] Tran SL, Haferkamp S, Scurr LL, et al. Absence of distinguishing senescence traits in human melanocytic nevi. J Invest Dermatol 2012;132:2226–34.
[24] Goldstein AM, Cahn M, Harland M, et al. Features associated with germline CDKN2A mutations: a GenoMEL study of melanoma prone families from three continents. J Med Genet 2007;44:99–106.

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EPIDEMIOLOGY AND HEALTH SERVICES RESEARCH

BJD British Journal of Dermatology


## Melanoma epidemic: a midsummer night's dream?


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Key words
aetiology, incidence, melanoma, stage, ultraviolet

Conflicts of interest
None declared.

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### Summary


**Background** The reported incidence of melanoma has greatly increased and this has been attributed to ultraviolet exposure.

**Objectives** We considered the possibility that the increase was an artefact caused by diagnostic drift.

**Methods** We tested this by analysing the histological diagnosis, mortality and incidence of all lesions reported as melanomas in East Anglia between 1991 and 2004.

**Results** There were 3971 melanomas in all, and their annual incidence increased from 9·39 to 13·91 cases per 100 000 per year during the period studied. This increased incidence was almost entirely due to minimal, stage 1 disease. There was no change in the combined incidence of the other stages of the disease, and the overall mortality only increased from 2·16 to 2·54 cases per 100 000 per year.

**Conclusions** We therefore conclude that the large increase in reported incidence is likely to be due to diagnostic drift which classifies benign lesions as stage 1 melanoma. This conclusion could be confirmed by direct histological comparison of contemporary and past histological samples. The distribution of the lesions reported did not correspond to the sites of lesions caused by solar exposure. These findings should lead to a reconsideration of the treatment of 'early' lesions, a search for better diagnostic methods to distinguish them from truly malignant melanomas, re-evaluation of the role of ultraviolet radiation and recommendations for protection from it, as well as the need for a new direction in the search for the cause of melanoma.



thebmj BJD British Journal of Dermatology

# Published in the British Journal of Dermatology February 2009

There is a huge difference between melanoma and a benign lesion

A benign lesion is non-cancerous as it does not metastasise and should not be referred to as skin cancer

EPIDEMIOLOGY AND HEALTH SERVICES RESEARCH

BJD British Journal of Dermatology

## Melanoma epidemic: a midsummer night's dream?

N.J. Levell, C.C. Beattie,* S. Shuster and D.C. Greenberg*

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thebmj BJD British Journal of Dermatology

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There are important additional consequences of the diagnostic drift that our findings have indicated. It may have resulted in unnecessary excisions, health care and insurance costs, let alone the problems and anxieties given to patients and their families. Our findings are also important mechanistically: studies to identify melanoma genes may have been flawed by including benign disease. These findings inevitably challenge the validity of epidemiology studies linking increasing melanoma incidence with UV radiation, and suggest the need for a search for other ways in which the disease may be caused.

thebmj BJD British Journal of Dermatology

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# Professionalism within the UK’s Sunbed Industry

## Passionate about training, education and continuous professional  development

# EUROPEAN STANDARD EN 16489

## New EU Wide Accredited Training Standard for Tanning Salons and Tanning Salon personnel

The Sunbed Association
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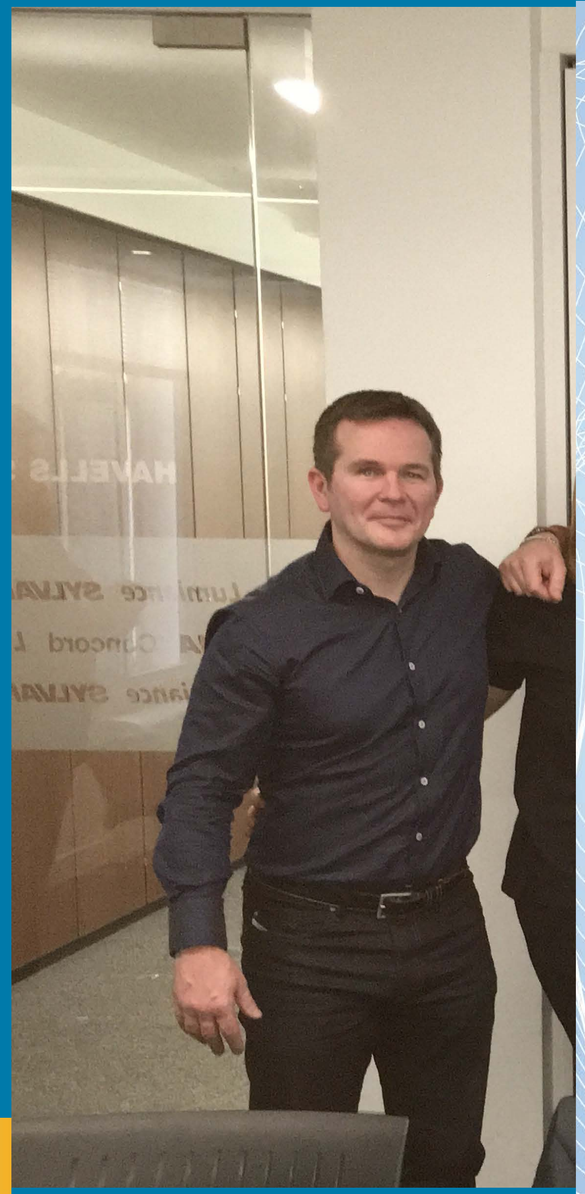
The Sunbed Association



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# CERTIFICATE
## OF TRAINING

This is to certify that

.....

Is qualified as a

**European UV Exposure Consultant**

Following the successful completion of

**The Sunbed Association's Professional Indoor UV Exposure Training Programme Certified to European Standard EN 16489**

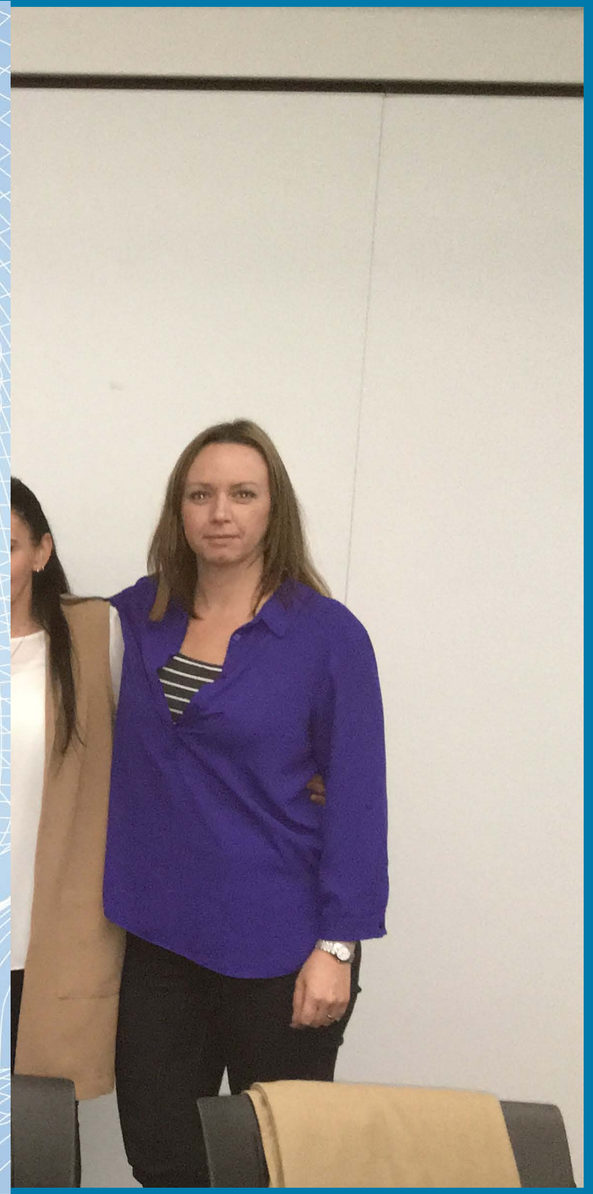
.....

Chairman, The Sunbed Association

.....

Date of training

ESA European Sunlight Association | TRAINING OF UV EXPOSURE CONSULTANTS EN 16489-1 | SUNSPACE CERTIFIED BY AUSTRALIA



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**Members must adhere to a robust Code of Pracice**

The Sunbed Association
VOICE OF THE INDUSTRY

# Customer Screening Questionnaire

As a member of The Sunbed Association, we offer tanning in a controlled environment.
It is essential to ensure all procedures are followed to identify any contra-indications to tanning.
Our trained staff can provide advice on responsible tanning.

**HAVE YOU USED UV TANNING EQUIPMENT BEFORE?** YES / NO

**IS YOUR SKIN NATURALLY:**

- Very fair
- Fair
- Brownish white
- Dark

**IN SUNLIGHT, DOES YOUR SKIN:**

- Tan easily and quickly
- Tan moderately and rarely burn
- Burn easily but tans eventually
- Never tans

**PRIOR TO USING THE SUNBED:**

- Ensure you know how to switch the sunbed off.
- Remove facial and body cosmetics.
- Remove all jewellery.
- Remove contact lenses.
- Always wear the protective goggles provided.

**REMEMBER:**

- Wait at least 48 hours between sessions.
- Do not sunbathe and use a sunbed on the same day.
- If signs of any redness remain from a previous session or from sunbathing, consult a member of our staff before using the sunbed.
- Do not use outdoor sunscreens or sun lotions on a sunbed.
- If you experience any abnormal reaction during the tanning session, STOP immediately and consult a member of our staff.

TSA/CRC-03-14

**PLEASE READ THE FOLLOWING QUESTIONS CAREFULLY:**

Are you currently taking any medication or drugs which increase the skin's sensitivity to UV rays? YES / NO

Do you have a medical condition that is worsened by sunlight? YES / NO

Are you pregnant? YES / NO

Have you undergone any form of surgery in the last 6 weeks? YES / NO

Do you have an excessive number of moles and/or freckles? YES / NO

Have you or anyone in your immediate family ever had skin cancer? YES / NO

Do you have a history of sunburn, especially in childhood? YES / NO

**IF YOU HAVE ANSWERED 'YES' TO ANY OF THE ABOVE, PLEASE CONSULT YOUR GP BEFORE USING A SUNBED.**

I have read and understood the information provided and have given accurate answers to the above questions. I have consulted my GP where necessary. I confirm that I am over 18 years of age and I am suitable to use UV tanning equipment. I undertake to advise the salon if my medical circumstances change.

SIGNATURE _____ DATE _____

# TANNING GUIDE

## YOUR GUIDE TO RESPONSIBLE TANNING

**IT IS ILLEGAL FOR ANYONE UNDER THE AGE OF 18 TO USE A SUNBED**

Tanning is an entirely natural process. Sunbeds are designed to offer a controlled environment in which to tan.

It is important that you **DO NOT** over-expose to UV or burn either in the sunshine or on a sunbed.

Please take time to read the information on this guide and follow the instructions. If you have any queries or questions, please contact a member of the salon staff **PRIOR** to having your sunbed session.

Now it's time to relax and enjoy your sunbed session.

### BEFORE YOUR SUNBED SESSION

- If any signs of redness exist from a previous sunbed or sunbathing session, seek advice from a member of salon staff.
- Ensure you know the location of the sunbed's emergency STOP button and how to switch it off if required.
- Remove all cosmetics from your face and body.
- Take off jewellery and remove contact lenses.
- Do not use outdoor sun lotions or sunscreens.
- Ensure you understand the instructions on the length of your sunbed session applicable to your skin type. NEVER EXCEED THIS LIMIT.
- Put on the protective goggles provided.
- Do not consume alcohol prior to or during your sunbed session.

### DURING THE SUNBED SESSION

- Always wear the protective goggles provided.
- Do not allow anyone else in the room when the sunbed is switched on.
- You may use an appropriate lotion specifically designed for use with a sunbed.
- If you notice or feel any abnormal skin reactions during the tanning session, stop the sunbed immediately and seek advice from a member of salon staff.

### AFTER YOUR SUNBED SESSION

- Do not sunbathe outside on the same day as you use a sunbed or vice-versa.
- Leave 48 hours between your first and second session. It is advised you leave 48 hours between subsequent sessions but definitely a minimum of 24 hours.
- Keep skin moisturised after and inbetween tanning sessions.
- Take a break from tanning each year and preferably between each course.
- If at any time you notice lumps, sores or unusual moles on your skin, consult your doctor.

### WARNING

UV RADIATION CAN CAUSE INJURY TO THE EYES. BURNING AND OVER-EXPOSURE TO UV MAY LEAD TO SKIN-AGEING AND EVEN SKIN CANCER.

WEAR THE PROTECTIVE GOGGLES PROVIDED.

CERTAIN MEDICINES AND COSMETICS MAY INCREASE SKIN'S SENSITIVITY.

READ THESE INSTRUCTIONS CAREFULLY.

### CONTRA-INDICATIONS TO TANNING

- As with exposure to natural sunlight, UV may pose a risk to certain people. Anyone on the precautionary list below should not use a sunbed or sunbathe.
- Anyone under the age of 18.
- Anyone with fair, sensitive skin, burns easily and does not tan in sunlight.
- Anyone with an excessive number of freckles and/or moles.
- Anyone with a medical condition that becomes worse in sunlight.
- Anyone who has, or has had, skin cancer. Or anyone where a member of their immediate family has, or has had, skin cancer.
- Anyone with a history of sunburn, especially in childhood.
- Anyone taking medicines or drugs which increase skin sensitivity when exposed to UV. The following may cause such reactions but this is not an exhaustive list:
  - anti-biotics
  - medication for blood pressure
  - anti-depressants
  - some contraceptive pills
  - eosin
  - analgesics
  - diuretics
  - anti-malarials
  - psoralens

**NB:** This is not an exhaustive list. The information leaflets accompanying medicines normally indicates if any of the drugs may cause photo-sensitivity. If unsure, please seek the advice of a pharmacist.

### PREGNANCY

There is no evidence to suggest that UV tanning equipment can damage a foetus. However, if you are or suspect you may be pregnant, we recommend you consult your GP prior to using a sunbed.

## PROMOTERS OF RESPONSIBLE TANNING

**The Sunbed Association, 2 Old College Court, 29 Priory Street, Ware, SG12 0DE**
**T** 0844 251 2559 **E** info@sunbedassociation.org.uk **W** sunbedassociation.org.uk
@SunbedAssnUK Sunbed Association UK-Ireland

The Sunbed Association VOICE OF THE INDUSTRY

TSA/TG01-2014

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**The Sunbed Association**

# SUNBED PROTOCOLS

This facility is a member of The Sunbed Association and must meet all the requirements of The Sunbed Code

The Sunbed Association
VOICE OF THE INDUSTRY

## EQUIPMENT PROTOCOLS

- Daily check to ensure sunbeds are in full working order – check acrylics and filters for cracks or other damage.
- Daily check to ensure all tubes are working.

## SALON PROTOCOLS

- Clean sunbed and, if applicable, ensure all cleaning equipment in place for customer cleaning.
- Check salon/sunbed areas for cleanliness.
- Check sufficient stock of products eg: goggles & sanitising lotion, record cards etc.
- Check displayed information is intact eg: health & safety advice, customer information, No-Under 18s, etc.
- Ensure all staff are aware of the location of the isolation switch for each sunbed in the event of an electrical emergency or fault.

## CUSTOMER PROTOCOLS

- Go through customer consultation to ensure suitability and that customer is aware of all the health & safety information.
- If in doubt about age, request photographic ID with age and keep a record of this.
- Discuss and agree customer skin type to assess correct session time and advise customer of the salon's policy on exposure times including 48 hours between the 1st and 2nd sessions and a minimum of 24 hours, and preferably 48, between all subsequent sessions.
- Skin Type 1 (non-tanners) – explain why they are not permitted to use sunbeds.
- Customer must check with pharmacist/GP that any medication being taken or prescribed does not make skin more sensitive to UV.
- Check that the customer's medical circumstances have not changed.
- Explain the necessity of wearing appropriate eye protection throughout the session.
- Advise customer that sunbed exposure offers only limited protection to natural sunlight.
- Advise customer of products available, including after care products.
- Ensure session (time + date) has been recorded.
- Show customer all salon facilities.
- Show customer how to operate the sunbed, pointing out all the safety feature, eg emergency stop button.
- After the session, discuss and agree next appointment, as appropriate.

TSA/SEPT 2015

PHOTOBIOLOGY

BJD
British Journal of Dermatology

# Nine out of 10 sunbeds in England emit ultraviolet radiation levels that exceed current safety limits

P. Tierney, J. Ferguson, S. Ibbotson, R. Dawe, E. Eadie and H. Moseley

The Photobiology Unit, Ninewells Hospital and Medical School, University of Dundee, Dundee DD1 9SY, U.K.

Correspondence
Harry Moseley.
E-mail: h.moseley@dundee.ac.uk

## Summary

Background Exposure to ultraviolet (UV) radiation from sunlight is recognized as the principal cause of skin cancer. Moreover, sunbeds have been classified as carcinogenic by the International Agency for Research on Cancer. Despite this, there

*Methods* Between October 2010 and February 2011, UV spectra were measured on site from a total of 402 artificial tanning units in England. Measurement instrumentation was calibrated, traceable to the National Physical Laboratory. Compliance with the relevant British and European standard was determined, and a skin-cancer weighting factor was used to compare the carcinogenic potential of sunbeds with that of sunlight.

standard. Moreover, the skin cancer risk for comparable times of exposure was up to six times higher than that for Mediterranean sunlight. This situation is unacceptable and stricter control measures must be put in place.

The International Agency for Research on Cancer, an agency of the World Health Organization, has classified sunbeds as a Group 1 carcinogen, which is the highest risk category.[1] This followed a meta-analysis that found a 75% increase in the risk of melanoma when indoor tanning started during adolescence or young adulthood.[2] An update of this meta-analysis has now revised this figure upwards to an 87% increased risk of melanoma with first use of sunbeds before the age of 35 years, with the risk increasing with the number of sunbed sessions.[3]

Surprisingly, there is a shortage of data from England on the levels of ultraviolet (UV) radiation received and the detailed spectrum to which sunbed customers are exposed. Previous studies carried out in Scotland revealed high levels of UVB found in new high-power sunbeds.[4–6] These studies also showed that the estimated cancer risk from sunbeds had increased by a factor of three in the last 10 years due to the use of high-power sunlamps. A British and European Standard, introduced in 2003,[7] set limits on the UV emission of sunbeds. No study has been performed to investigate compliance with the standard in England. Sunbed operators in England are not obliged to provide advice on health risks to customers; however, they are in Scotland under the Public Health Scotland Act 2008. They can also operate unmanned premises, equipped with coin-operated sunbeds available to anyone of any age, despite a report that half of all 15–17 year olds in Liverpool and Sunderland have used a sunbed.[8] In various regions of England, tanning outlets are required to operate under licence from their local authority, but UV emission levels are not measured due to the cost and complexity of obtaining reliable data.

In 2006 the European Union (EU) Scientific Committee on Consumer Products published an opinion stating that UV

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The Sunbed Association

# Prosafe
# Joint Action on Sunbeds
# (JAS)

## Stakeholders Meeting
## Institute of Physics, London

## 7th May 2010

# Deliberate Indifference

The All Party Parliamentary Group on Skin
58-60 Kensington Church Street, London W8 4DB
Tel: 020 7368 1611

Department for Business Innovation & Skills

Department of Health

HSE Health and Safety Executive

Essex County Council

ts trading standards institute

Chartered Institute of Environmental Health

The Sunbed Association
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# Product Safety Enforcement

# Joint Action on Sunbeds

# Local Authority Workshop

## 14th April 2011 and 3rd June 2014 - Birmingham

## Speakers

Marijn Colijn Project leader Joint Action Sunbeds
Richard Knight, Specialist Trading Standards Officer and UK Representative Prosafe

## Every Local Authority (TSO & EHO) in the UK invited by TSA & Trading Standard

# Leaflets to salons

**THIS LEAFLET HAS BEEN PRODUCED BY THE SUNBED ASSOCIATION TO HELP OUR MEMBERS FIND THE BEST ROUTE TO 0.3 COMPLIANCE.**

**LET'S BE CLEAR ABOUT ONE THING. 0.3 COMPLIANCE IS A REGULATORY REQUIREMENT, IT'S NOT AN OPTION.**

**MANY TANNING SALONS THROUGHOUT THE UK AND IRELAND HAVE ALREADY MADE THE MOVE TO 0.3 COMPLIANCE, EITHER VOLUNTARILY OR THROUGH TRADING STANDARDS ENFORCEMENT.**

## WHAT IS 0.3?

The EU's Scientific Committee of Consumer Products (SCCP) made recommendations regarding the safe UV emission level for cosmetic sunbeds. These recommendations were adopted and introduced to the European Standard relevant for sunbeds, EN 60335-2-27 in April 2009. The correct term of reference for the irradiance level is 0.3W/m², colloquially known as **0.3**.

## TIME TO COMMIT

Although the regulation came into effect several years ago, it is only recently that UK authorities have begun to test for compliance. Trading Standards Officers (TSOs) are the main regulatory body responsible for ensuring compliance. The anomaly to this is in Northern Ireland, where **0.3** compliance will be enforced by Environmental Health.

The advantage in being proactive about **0.3** is that when you are inspected by Trading Standards, it highlights due diligence if you are able to demonstrate an awareness of **0.3** compliance and that you have taken steps to meet the regulatory requirements.

## DO ALL YOUR SUNBEDS HAVE TO BE 0.3 COMPLIANT?

Yes they do, regardless of age and type.

There are a number of rules and regulations which apply to the safety of sunbeds. Some fall under the responsibility of the manufacturer and supplier, others are the responsibility of the operator.

All sunbeds traded new, second-hand or re-conditioned since April 2009 had to be **0.3** compliant. Where this is the case, the company/individual you purchased your sunbed(s) from should be able to provide you with documentary evidence to confirm **0.3** compliance.

However, regardless of age or type of sunbed, if it exceeds irradiance levels of 0.3W/m² it is deemed to be providing an unsafe service.

Under UK law the General Product Safety Regulations 2005 (GPSRs) requires that the supply of a product – in this case, the provision of sunbed sessions to consumers – must be safe. It is an offence to supply a dangerous product and an unsafe sunbed session, ie one that is not within the maximum irradiance level of 0.3W/m², would be deemed a dangerous product.

## HOW TO CHECK FOR COMPLIANCE

Your sunbed supplier should be able to advise whether your sunbed(s) are compliant or can be adjusted for compliance.

It is very important to understand that it's not just the sunbed itself that will ensure compliance. It is a combination of the sunbed and the tubes being used that will ensure compliance. There may also be adjustments required to facial tanners, ballasts and some of the embedded software.

Equally, your tube/lamp supplier should be able to provide confirmation that the tubes they have supplied are the correct **0.3** tubes for your sunbed.

## HOW DOES 0.3 AFFECT TANNING?

The key message about a **0.3** tanning session is that the risk of burning is dramatically reduced. As you know, burning or over-exposure must always be avoided, so this is a significant safety point for your existing and potential customers.

The tanning effect of a **0.3** session will be the same as the Mediterranean mid-day summer sun.

The tanning result will, however, be a deeper, longer-lasting tan that is kinder to your customers' skin.

## SESSION LENGTHS

For the majority of sunbeds, **0.3** tanning represents a reduction in UV output. In practical terms, it will generally require a minimum tanning session time of 10 minutes. This will of course vary from sunbed to sunbed.

The feedback from TSA operator members who have already converted to **0.3**, typically show that the maximum additional time clients take is 6 minutes but in most cases, clients are increasing their regular tanning time by 3 minutes and see equally good results.

## HOW TO COMMUNICATE 0.3 TO YOUR CUSTOMERS

It is important to provide your staff with proper training about **0.3**, highlighting what it means and the benefits to your customers. Proper staff training will give your staff the confidence to talk to your customers on the subject and allay any concerns they may have.

**0.3** is a great message to communicate to your customers as it pretty much eliminates the risk of burning.

Your sunbed supplier may be able to help with further marketing tools to help communicate **0.3** to your customers.

Some operators choose not to openly communicate the change to **0.3** to their customers, dealing with any queries on a one-to-one basis. If you choose this approach, proper training will still be required in order for your staff to communicate **0.3** on a one-to-one basis with confidence.

The Sunbed Association
VOICE OF THE INDUSTRY

# Leaflets to consumers

## 0.3 TANNING: INVESTING IN OUR CUSTOMER CARE

Very importantly, using a **0.3** compliant sunbed helps to prevent burning. It is essential to avoid any form of burning when exposing your skin to UV – on a sunbed and in sunlight.

And don't forget with **0.3** tanning, the result will be a deeper, longer-lasting tan that is kinder to your skin.

As a member of The Sunbed Association, we are committed to excellent customer care and delivering the best possible tanning environment for our customers. This is why we are committed to **0.3** tanning.

For more information about **0.3** tanning, speak to a member of our trained staff.

Quite simply, with **0.3** there has never been a better time to tan!

**Contact Us:**

A customer information leaflet produced by The Sunbed Association 2013-02.

0.3 TANNING

THE BEST WAY TO TAN!

The Sunbed Association VOICE OF THE INDUSTRY

The Sunbed Association VOICE OF THE INDUSTRY

# Leaflets to consumers

# YES!

## OUR SUNBEDS ARE 0.3 COMPLIANT

The UV output of our sunbeds, generally referred to as **0.3**, is approved by the EU and complies with all British and European consumer safety regulations.

A **0.3** tanning session delivers the same tanning effect as the mid-day Mediterranean summer sun but without the risk of burning.

## WHAT DOES 0.3 MEAN?

It's technical. But essentially, **0.3W/m²** is the amount of UV exposure that the EU's Scientific Committee on Consumer Products (SCCP) set as the limit for effective irradiance. This limit was then added to the European and British standards relevant for sunbeds.

A sunbed with a UV output above this level is deemed as 'unsafe'.

## HOW WILL 0.3 TANNING AFFECT MY TAN?

- Your tan will be deeper and longer-lasting.
- The tanning process is kinder to your skin.
- The risk of over-exposure or burning is effectively eliminated.

## WHAT IF I DON'T WANT A 0.3 TANNING SESSION?

As one of our valued customers, you are entitled to certain consumer rights, which include the provision of a safe service. Providing you with a tanning session that isn't **0.3** compliant would be deemed an unsafe service and, as a result, we could be prosecuted or have our salon closed down.

## WILL MY 0.3 TANNING SESSION BE LONGER?

Your **0.3** session time can be increased to get the same UV dose. If you would like a longer session, just ask a member of our trained staff and we will advise you.

The Sunbed Association
VOICE OF THE INDUSTRY

**Compliant replacement tube sales Jan 2010: 10%**

**Compliant replacement tube sales Dec 2014: 55%**

**Compliant replacement tube sales December 2015: 65%**

We welcome Standards and Regulations that enhances product and consumer safety

Justifiable regulation
(Reasonable, necessary and proportionate)

Appropriately administered

The Sunbed Association
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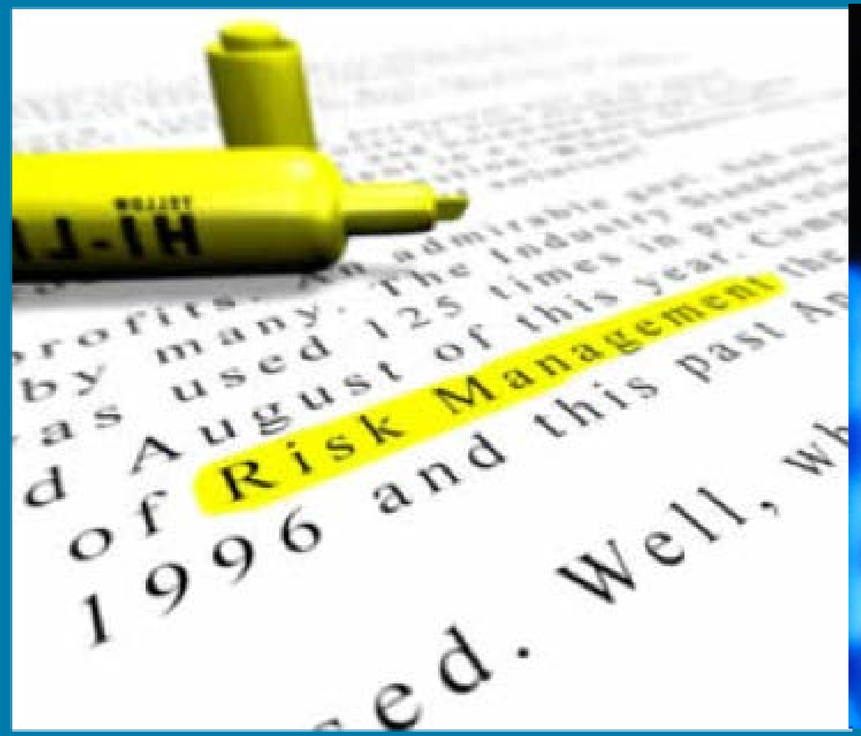
# COMPLIANCE NOT DEFIANCE



# GOVERNMENT AND LOCAL AUTHORITIES NEED TO SUPPORT THE INDUSTRY

‘It is important to identify ‘at risk’ groups - minority

The vast majority of Europeans can tan <u>with no contra-indications</u>

**Fundamental contradictions, omissions and inconsistencies on key components of the preliminary opinion**

**SCENIHR has failed to comply with the obligations of its scope**

**SCENIHR has failed to meet its burden to support their opinion <u>beyond reasonable doubt</u>**

**I urge the EU Comission;**
**You cannot, in good conscience accept this draft opinion as it is not a balanced review**

Possibility and Probability have become conflated

The issue is not sunbeds, the issue is over exposure

Standards, laws and health advice should be based upon fact, not perception

Opinions must be able to withstand scrutiny

Copies of any research papers quoted can be provided

# SCENIHR

## Public Hearing on Biological effects of ultraviolet radiation relevant to health with particular reference to sunbeds for cosmetic purposes

# LUXEMBOURG

## 12th April 2016

## Thank you for your attention

The Sunbed Association
VOICE OF THE INDUSTRY

# SCENIHR

## Public Hearing on Biological effects of ultraviolet radiation relevant to health with particular reference to sunbeds for cosmetic purposes

# LUXEMBOURG

## 12th April 2016

The Sunbed Association
VOICE OF THE INDUSTRY