Reviewer's report

Title: Influence of sunbed exposures on psychological parameters and neuroendocrine mediators

Authors:

Thilo Gambichler (t.gambichler@derma.de)
Armin Bader (a.bader@derma.de)
Mirjana Vojvodic (m.vojvodic@derma.de)
Annelies Avermaete (a.avermaete@derma.de)
Kirsten Sauermann (k.sauermann@derma.de)
Peter Altmeyer (p.altmeyer@derma.de)
Klaus Hoffmann (k.hoffmann@derma.de)

Version: 2 Date: 6 Feb 2002

Reviewer: Dr Timo Partonen

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

The authors have studied the effect of repeated ultraviolet (UV) radiation exposures on emotional states, physical awareness, and serum levels of serotonin and melatonin in a three-week controlled trial. They found that UV exposed individuals felt better after the trial compared with not-exposed controls. The concentration of serotonin was increased and that of melatonin was decreased only after the first UV exposure. Repeated UV exposures led to the darkening of the skin.

In general, the manuscript is well written and rather interesting. The conclusions have been drawn adequately supported by the data shown. However, the discussion is in part too speculative and needs condensing. Sufficient details have been presented to allow replication. The manuscript does adhere to the relevant standards for data deposition, but not report enough details about the study protocol. Since there are many spelling errors, the writing is not acceptable in its present form.

Discretionary revisions

1. Page 2, Background (line 1). The authors say 'people feel'. Please consider saying 'most people' or 'people tend to feel'.

2. On page 2 (line 1 up) and page 11 (line 3). To what does the word 'respectively' refer? Please correct

3. Page 3, paragraph 2 (the second sentence). The authors present percentages without providing a reference. Please give appropriate citations.

4. Page 9, Discussion (lines 5 to 8). The authors state that the issue whether non-ocular light exposure
does entrain the circadian clock or suppress the circulating melatonin levels 'is still controversial'. In addition to the references cited here, there are now at least four independent replication studies showing negative results (please see Koorengevel et al. 2001 in Biol Psychiatry 50:691-8; Eastman et al. 2000 in Chronobiol Int 17:807-26; Lindblom et al. 2000 in Biol Psychiatry 48:1098-104; Lindblom et al. 2000 in Neuroreport 11:713-7; Hebert et al. 1999 in Neurosci Lett 274:127-30). Please consider updating the information.

5. Page 10, Discussion (lines 10 to 13). Here, these two sentences remain detached from the remaining. Please consider condensing your message presented in this paragraph.

Compulsory revisions

1. Page 5, Study protocol. The authors say that of the 53 volunteers 11 were 'randomly assigned to the control group'. Please provide a rationale for this unbalanced randomisation. How were these individuals motivated for the study? Were they paid for participation?

2. Page 5, Study protocol. The authors say that 'UVA irradiation was administered'. For 20 minutes each time? Please give more details.

3. Page 5, Questionnaires. The authors give citations to the two questionnaires used, but these are missing from the reference list. Please correct.

4. Page 5, Questionnaires. Why was not the BBS administered at t2? This would have yielded interesting data on the association of emotional state with changes in levels of serotonin and melatonin. In addition, the pre-exposure expectations would have been of help in trying to explain the findings.

5. Pages 6 (lines 1 to 2 up) and 7 (lines 1 to 2), Serotonin and melatonin serum levels. Please report the inter- and intra-assay coefficients for the methods used for the analysis of serotonin and melatonin concentrations.

6. Page 7, Statistical analysis (lines 2 to 3 up). The sentence 'In case of possibility the questionnaires were analysed using validated scales' does not make sense. Please explain and rewrite.

7. Page 9, Discussion (lines 11 to 13 up). The sentence 'The different levels of statistical significance, however, may indicate an effect of UVA radiation on melatonin levels via an extraocular pathway' is obscure. Please explain and rewrite.

8. Table 1. The distributions of skin types seem to differ between the UV-exposed and controls. Please comment on this in your discussion.

9. Table 4. Please provide the number of the UV-exposed and controls assessed at t1, t2 and t3 each.

10. Language revision is needed for the whole text. There are many grammatical and printing errors, for example on page 3 'pressur' (line 4) and 'to to' (line 9 up), on page 4 'the pineal glands' (line 1), on page 5 'an university' (Subjects, line 6), on page 7 'In case of possibility' (line 3 up), on page 9 'The rational' (line 19 up) and 'So different' (line 9 up), on page 10 'stimulation' (lines 8 and 9) and 'interisting' (line 22) as well as 'psychsocial' (line 23), on page 12 'sunscrren' (reference 6), on page 13 'Measruements' (reference 11), on page 14 'measremnet' (reference 24).
Competing interests:

None declared.