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Sunbeds

Ultraviolet radiation has been claimed,[1] though not universally,[2] to improve health, energy, and work rate. Many would agree, arguing that they certainly feel better on a sunny day. Possibly by extrapolation, a sun induced tan is now equated with wellbeing, although there is no objective evidence to support the association. The misconception has, however, opened up very lucrative possibilities for manufacturers of emitters of ultraviolet radiation. Equipment of all shapes and sizes has recently appeared in premises of all types in every part of the land. Sunbeds in particular are very popular and widely claimed to be able to tan without burning while avoiding the hazards of natural sunlight. But are they?

Terrestrial sunlight contains both ultraviolet B (280-315 nm) and ultraviolet A (315-400 nm) radiation. Ultraviolet B usually induces a tan readily but burns first,[3] while long term exposure is known to induce premature aging and cancers of the skin. Ultraviolet A usually induces a tan before it burns[3] and has been considered not to have serious long term effects. Sunbeds were therefore designed to emit solely ultraviolet A, generally giving skin dose rates[4] some two to three times those of sunlight.[5] But, importantly, some ultraviolet B contamination may also occur,[4] with dose rates at times not too much less than those of sunlight on a bright day.[5] Moreover, ultraviolet A alone may be associated with degenerative changes in human dermal connective tissue after repeated heavy exposure.[6] Mutagenesis and cell death have been noted in micro-organisms.[7] Skin cancers may possibly develop in mice after continuous exposure to high doses of ultraviolet A.[8] Cataracts seem likely to occur as a consequence of chronic intermittent irradiation of the eye with ultraviolet A.[9] Yet despite these possible hazards customers flock to obtain a tan. Some may be disappointed. In one study after a two week course of moderate sunbed exposure, only 10 out of 33 people obtained a good tan, whatever their stated tanning capacity in sunlight.[4] Even those who did tan usually obtained only moderate protection against later sunburning. People may also go red after using a sunbed and exposure to natural sunlight later that day may exacerbate the redness. Many will itch, and some may develop photodermatoses, particularly polymorphic light eruption,[4] or may suffer aggravation of already existing conditions, most seriously lupus erythematosus.[10] Some sunbed users taking or applying potentially photosensitising substances (for example, some antibiotics, diuretics, perfumes, and aftershave lotions) will develop discomforting irritation, erythema, or eczema, often followed by unsightly pigmentation. No long term effects of sunbeds have yet been recorded, but intuition strongly suggests that degenerative changes should be expected both of the skin and, unless they are suitably protected, of the eyes. And since the only objective advantage of sunbed irradiation is the production of vitamin D,[4] also available in the normal diet, in medical terms lying on a sunbed, either in the short term or in the long term, is not a pastime to be encouraged.

So what is being done to protect sunbed users? The Health and Safety Executive is issuing a guidance note on the hazards and optimal methods of sunbed operation for manufacturers and operators, who themselves have recently formed the Association of Sun Tanning Operators. Many operators will probably still have little understanding of the principles of operation of their units or of ultraviolet dosimetry. In practice, what information there is from official sources concerned with public health and safety suggests that sunbeds are actually causing only relatively few and usually minor short term mishaps in Britain, albeit with no objective good effects to balance these. In the long term the poor cost to benefit ratio in both money and time for customers may well reduce the popularity of sunbeds within the next few years. Indeed, the effects of long term exposure to sunbeds seem likely to remain much less important than those of long term exposure to sunlight. In the mean time, customers will no doubt continue to indulge themselves in the occasional visit to a sunbed parlour, even if they are really enjoying not the ultraviolet radiation but rather the music from the stereo headphones, the warmth from the infrared lamps, the breeze from the electric fan, and the spray from the water bottle.

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