plines, and their care should be based in a few specialist centres that can offer the appropriate skills.

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Tanning with ultraviolet A sunbeds

Should be discouraged

Up to a fifth of British adults have used ultraviolet A sunbeds to induce artificial sun tans (CCE Meulemans, unpublished observations).[1] Yet a growing body of evidence indicates that such exposure may be harmful. To determine what the hazards are the British Photodermatology Group recently examined the data on the health effects of artificial ultraviolet A radiation and produced a set of guidelines for exposure.

Despite the sales talk ultraviolet A radiation is not uniformly effective in producing a tan. Ultraviolet A sunbeds generally produce a tan in people who tan well in sunlight (sun reactive skin types III and over),[2] but those who tan poorly or not at all or who are burnt easily by the sun (skin types I and II) are likely to be disappointed with the cosmetic results.[3,4] Moreover, up to half of all users develop minor annoying cutaneous effects such as redness, itching, and dryness.[3,4]

Some users have potentially more serious effects. People taking drugs or applying cosmetics with photosensitising potential and who then use ultraviolet A sunbeds may develop a photosensitivity reaction, generally an itchy or painful rash, sometimes followed by pronounced pigmentation.[5] Sunbeds can also cause the common photodermatosis polymorphous light eruption—a transient, irritating, papular reaction[4,6]—and they exacerbate light aggravated dermatoses, such as systemic lupus erythematosus.[7] Immunological changes, both cutaneous and systemic, have been seen after exposure to ultraviolet radiation from a sunbed.[4,8,9] Although these changes diminish immunological responses and, theoretically, immunological surveillance, their actual biological importance is unknown.

Excessive use of ultraviolet A sunbeds—defined as exposure for 30 minutes or more a week over several months—produces increased skin fragility and blistering.[10,11] It may also cause melanocytic lesions with malignant potential,[12,13] though these lesions have resulted primarily from using sunbeds at home, where the duration and frequency of use are likely to be greater than in a salon. In mice long term exposure to ultraviolet A radiation causes premature photoaging of the skin.[14,15] Although this effect has not been shown in human skin, it would be expected. Likewise, the non-melanoma skin cancer that has been induced in animals after long term exposure to ultraviolet A would also be expected in humans.[16,17] Extrapolation from animal studies and from epidemiological data on the incidence of non-melanoma cancer and exposure to sunlight suggests that the relative risk is probably small (<2) if sunbeds are used for no more than 20 half hour sessions a year through adult life,[18,19] but no data on humans support this estimate.

The data suggest that the use of ultraviolet A sunbeds is a weak risk factor in inducing melanoma.[20,21] Further studies are needed to confirm this and to establish the causal relation between pattern of exposure, the nature of the ultraviolet lamp, and melanoma.

Although many gaps in the knowledge of the effects of ultraviolet A radiation remain, the accumulating evidence suggests ever more strongly that the radiation has deleterious effects. The British Photodermatology Group has therefore recommended that the use of ultraviolet A sunbeds for cosmetic tanning should be discouraged. In particular several groups should not use them at all: children aged under 16; people who burn easily, do not tan, or tan poorly; those taking drugs or using cosmetics thought to be photoactive; those suffering from a skin disorder induced or aggravated by exposure to sunlight; those with a history of skin cancer; and those with risk factors for cutaneous melanoma. The risk factors include more than 20 benign pigmented naevi above 2 mm in diameter; a tendency to freckle; clinically atypical naevi; a history of severe sunburn, particularly in childhood or adolescence; and a family history of cutaneous melanoma. People who, despite this advice, want to use ultraviolet A sunbeds should not exceed two courses a year, each of no more than 10 sessions. Each session should last no longer than the time that it takes to produce just perceptible reddening of the skin eight to 24 hours later, up to a maximum of 30 minutes.

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Milk for babies and children

No ordinary cows' milk before 1 year

What milk should a child drink? For the suckling infant the answer is clear—breast milk; or failing that an infant formula. Recently, however, our nutritional priorities have moved on from suckling babies to weanlings and toddlers. New products have arrived—the follow on milks. Another factor is that health conscious families are buying skimmed and semi-skimmed milk. So what advice should be given to mothers, living in developed countries, who want to know which milk is best for their children?

The table gives the composition of the milks from which the choice has to be made. Most infant formulas and follow on milks are reconstituted from powders, but some are now available as liquids. All infant formulas and follow on milks available in Britain are fortified with iron and vitamins A and D.

From birth to 6 months

Up to 6 months the child should receive breast milk or an infant formula. Few will require solid weaning foods before 3 months, but almost all will want something extra by 6 months. When compared with bottle fed babies those who have been breast fed for 13 weeks or more have fewer gastrointestinal upsets and fewer admissions to hospital.[1] If an infant formula is chosen one of the whey based products is preferable, though casein predominant formulas are acceptable. Mothers, health visitors, and doctors commonly switch babies from one type of milk to the other; such switching is unnecessary but is probably harmless.

Vitamin supplements are not formally recommended by the Department of Health for children under 6 months. Ideally mothers should have received vitamin D supplements in pregnancy but few do. If there is any doubt about the mother's vitamin D state during pregnancy—as, for example, in Asian mothers, winter pregnancies, and women living in northern Britain—then a breast fed baby should be given a vitamin D supplement.

Between 6 and 12 months

Between 6 and 12 months breast feeding may continue. Bottle fed babies should continue with their infant formula or they can have a follow on milk (see table); there is little to choose between them. Theoretically, the lower protein: energy ratios in infant formulas would not adequately support a mixed diet that was very low in protein—one made up of fruit and sweets, for example. In practice and in careful studies this does not seem to be a problem, but if there is any doubt then use a follow on formula. I advise mothers who are bottle feeding to continue with an infant formula. Some mothers, however, wish to move on from an infant formula, seeing this as a welcome sign of development of their babies; for them a follow on milk should be recommended rather than cows' milk.

All babies between 6 and 12 months given breast milk will need vitamin supplements. The recommended dose of supplementary vitamin D is 7 μg daily. This is provided by one Department of Health vitamin supplement five drops daily (not prescribable on FP10) and by many proprietary preparations. Vitamin policies have changed several times over the years and there are many different views.[2-4] Those babies given infant formulas or follow on milks will not need vitamin supplementation. Special efforts should be made to ensure that children having only limited exposure to the sun—those in northern urban areas, those not having a sunny holiday, Asian children, those taking vegetarian diets, and others with cultural, social, or medical reasons limiting exposure—should receive vitamin D supplements or drink a milk containing vitamin D.

I do not recommend ordinary cows' milk before the age of 1 year. It contains little vitamin D and iron and causes subclinical but appreciable gastrointestinal bleeding in about a third of children.[5] Other possible disadvantages are its higher concentrations of saturated fat and sodium, but the importance of this for the child's future is not clear. The extra cost of using an infant formula or a follow on milk rather than ordinary cows' milk (10-15p a day) is small compared with the price of other baby products.

Between 12 and 24 months

After the age of 1 year the choice is between cows' milk or a follow on milk; both are acceptable as part of a mixed diet. Semiskimmed and skimmed milk are not recommended at this age because of their limited energy content. Follow on milks are not used nearly as much in Britain as in some other countries, but they may have some advantages: they contain

Content of available milk for babies and children per 100 g feed (made up with water according to manufacturer's instructions where necessary)

	Energy in kJ (kcal)	Protein (g)	Vitamin D (μg)	Iron (mg)	Saturated fat (g)	Sodium (mmol)	Cost (pence)	Earliest age for use
Breast milk	290 (70)	1·3	0·01	0·08	2·1	0·6		From birth
Infant formulas*	285-290 (67-70)	1·5-1·9	1·0	0·4-0·7	1·0-1·9	0·6-1·1	6-7	From birth
Follow on milks†	270-285 (65-67)	2·0-2·9	1·1-1·2	0·7-1·2	1·2	1·3-1·5	6-7	6 Months
Cows' milk:								
Ordinary	285 (67)	3·4	0·02	0·05	2·5	2·2	4·5-6	12 Months
Semiskimmed	200 (48)	3·4	0·02	0·05	1·1	2·2	4·5-6	2 Years
Skimmed	140 (34)	3·4	0·02	0·05		2·2	4·5-5	5 Years

*Infant formulas available in Britain: whey based—Aptamil, Ostermilk, Premium, SMA Gold; casein predominant—Milumil, Ostermilk 2, Plus, SMA White.
†Follow on milks available in Britain: Junior Milk, Progress.