SUNBEDS – POTENTIAL HEALTH RISKS

(Rationale for removal from District Council leisure facilities)

BACKGROUND

The perception of sun tanned skin or the bronzed body as representative of health and beauty has lead to the proliferation of tanning devices in a wide range of cosmetic and leisure outlets. Suntanning is caused by the exposure of the skin to ultraviolet radiation (UVR). The potential adverse health effects of exposure to UVR are well documented. The Northern Ireland Melanoma Strategy Implementation Group has campaigned for the last 5 years against the use of sunbeds and pushed for their removal from local council health and fitness centres. Recent statements from the International Commission on Non-Ionising Radiation Protection summarising the potential adverse affects of exposure to ultraviolet radiation from tanning devices and from the British Medical Association and British Photodermatology Group recommending against the use of sunbeds because of potential health risks has lent much weight to the campaign to reduce the use of these appliances. The following information is drawn from reports issued by the above mentioned bodies.

INTRODUCTION

Sun tanning is caused by exposure of the skin to ultraviolet radiation (UVR). Tanning appliances come with different UVR emission characteristics and different requirements for filtering undesirable wave lengths. Most of the tanning appliances in use today are UVA emitting, at levels many times higher than the sun, but with the increasing evidence of UVA induced skin and eye damage the sun-tanning industry has increased the UVB content of the spectrum in order to more closely simulate natural sun exposure. This change has permitted shorter tanning exposures. It is important to recognise that there is no firm scientific evidence to indicate that tanning with either UVA or UVB dominated sources poses less risk. In principle, the reaction of a person to UVR in respect to burning or tanning is similar whether induced by the sun or by a sunbed.

Evidence is now being accumulated to indicate the following possible harmful effects to health.

Short term:
- Burnt and peeling skin
- Dry and itchy skin or rash
- Eye infections including conjunctivitis

Long term effects include:
- Premature skin ageing and wrinkling
- Increased risk of cataracts
- Increased risk of skin cancer
SKIN CANCER

It is well proven that excessive exposure to UVR increases the risk of developing skin cancer. The non-melanoma skin cancers (NMSC) including squamous and basal cell carcinomas are the most common of the skin cancers and are normally not fatal. Cutaneous malignant melanoma while much less frequent than NMSC, is much more serious and accounts for the majority of deaths from skin cancer. It is impossible to say exactly how much sunbed use contributes to the development of skin cancers. It depends on your skin type, strength of sunbed and number of sessions. Some people are more prone genetically to cancer than others. Although research in this area is limited a Swedish study in 1994 found that the risk of melanoma in young people who used sunbeds more than 10 times per year, was 7.7 times greater than non users.

Other work on estimates for risk of incidence of NMSC due to the use of sunbeds suggest a doubling of risk for no more than 20 session/year over a 30 year period. Taken collectively, both experimental and epidemiological data on skin cancer all indicate that cumulative exposure increases the risk of skin cancers. Therefore added exposure from UV tanning appliances is likely to add to the detrimental consequences of natural solar exposure.

PREMATURE SKIN AGEING

There is considerable evidence that cumulative UVR exposure results in premature skin aging characterised by dry, coarse, leathery and wrinkled appearance. In a five year longitudinal study of women using tanning salons compared with non users, serious modifications of skin elasticity and extensibility were found in the tanning salon users. The study concluded that the unremitting use of sun beds induces a functional decline of the dermis resembling premature ageing.

OTHER SKIN RISKS FROM SUNBED USE

- Increased skin fragility and blistering.
- Dry and itchy skin or a rash.
- Burnt and peeling skin.
- Modified immune system response – there is evidence that skin exposure to UVR has an immunosuppressive effect and can activate and accelerate the growth of human viruses including HIV and have effects on infectious diseases.
EFFECTS ON THE EYE

Corneal damage by UVR exposure is often referred to as snow blindness of welder’s flash and the damage is limited to the epithelial cells. This condition is short lived, 24 hours, but extremely painful and incapacitating. There is however some evidence of long-term effects of UVR absorption by the cornea and evidence of endothelial thinning.

Conjunctivitis is the inflammation of the membrane that lines the inside of the eyelids and covers the cornea and may often be accompanied by erythema of the skin around the eyelids.

Cataract development - transmission of UVA through the lens is much greater than UVB. UVA however plays a part in lens ageing and it should not be inferred that UVA is safe with respect to lens exposure.

Intra-ocular melanoma development – there is evidence that exposure to tanning appliances may be associated with a twofold to fourfold increase in the risk of developing intra-ocular melanoma.

CONCLUSIONS/RECOMMENDATIONS

The International Commission on Non-Ionising Radiation Protection report concludes ‘any use of sun tanning appliances is likely to raise the risk of skin cancer’ and ‘recommends against the use of UV-emitting appliances for tanning or other non-medical uses’, ‘a safe level of solarium use does not exist’. The British Photodermatology Group recommends that sunbeds are not used at all but where they are this use is closely monitored. The British Medical association advises people not to use sunbeds because of the potential health risks and calls on Government to regulate sunbed use.

Delegates attending the Cancer Care Ireland 2002 Conference held in Belfast on 15 October, including cancer experts from Ireland, UK and the United States unanimously stated that in relation to skin cancer much more could be achieved by efforts on the field of prevention and in this regard, stopping the use of sunbeds was highly important. Northern Ireland councils removing sunbeds from their premises were congratulated and others encouraged to follow suite. The Imperial Cancer Foundation Research Fund has issued a factsheet on sunbed usage. This factsheet recommends not using artificial tanning equipment stating that there is no safe limit. Guidelines issued by the CIEH state that the provision of sunbeds in local authority premises should be phased out. The DHSSPS ‘Strategy for the prevention, diagnosis and treatment of malignant melanoma and other skin cancers in Northern Ireland’ states that District Councils should work for the eventual elimination of artificial tanning equipment as should all other health service bodies.

Finally a quote from Professor John Hawk, Consultant Dermatologist, St Thomas' Hospital based on his experience “Skin cancers can take 20 years to develop and the sunbed industry is still relatively young. There are already cases of early skin cancer in people who have frequently used sunbeds. My concern is that in the next few years we will see a substantial increase in skin cancers and ageing in people who are regularly using sunbeds.”
REFERENCES:

‘Health Issues of Ultraviolet Tanning Appliances used for Cosmetic Purposes’ (paper A) published by the International Commission on Non-Ionizing Radiation Protection (Health Physics, 2003 84 1 pp119-127).

‘Sunbeds: What are they, who uses them and what are the health effects?’ by Professor Brian Diffey, Consultant Medical Physicist, Dryburn Hospital. HEA 1997.
