

Activity 18: Solariums – safe tans?

Aims

- To encourage students to apply their knowledge of sun protection to critically appraise advertisements about solariums.

Assessment outcomes English 4.3, 4.8, 4.11; H&PE 4.6, 4.7

Reference fact sheet Fact sheet 11: Solariums

Worksheet Worksheet 18: Solariums

Teacher guidelines

- 1 Divide the class into small groups.
- 2 Give each group a copy of the Voluntary Standard for solarium operators.
- 3 Assign one advertisement from Worksheet 18: Solariums to each group. (See advertisement below.)
- 4 Ask each group to critically analyse the advertisement and answer the discussion questions on Worksheet 18: Solariums.

Advertisement one

The solarium assists in the treatment of psoriasis, acne, arthritis, eczema, dermatitis and bone deficiency. It is now proven that UV rays can be good for your health. However one of the biggest disadvantages of tanning in the natural sunlight is that it emits a relatively high proportion of UVB rays which unfortunately cause rapid sunburn. Using our solarium, UVB is low (0.8%) and UVA (tanning rays) are high which produces a natural healthy tan all year round. Also available is our exclusive range of bronzing tanning products, designed for use in the solarium.

Advertisement two

Whether it's your special day or someone close to you, why not look your best by having a beautiful tan to match the perfect outfit? Here at (X) you can trust your skin with our trained and certified staff and feel comfortable in knowing you will receive nothing but the best.

After completing our skin type analysis, a tanning program will be designed specifically for your individual needs plus a comprehensive information pack is provided. Choose from our wide range of tanning accelerants and skin care to not only enhance your tan but to ensure that your skin is completely looked after.

(X) has a wide range of sun beds to cater for everyone's tanning needs, including the stand-up solariums.

Advertisement three

(Y) ensures your safety and comfort by adhering to the standards of Smart Tan International. The Golden Rule of Smart Tanning is simple: Don't EVER sunburn. This professional indoor tanning facility is dedicated to helping you avoid sunburn whether you're tanning here or outdoors under the sun. On your first visit to the studio you will have your skin type analysed to determine what type of tanning program is optimal for you.

Advertisement four

The capsules work from within to stimulate the skin's natural production of melanin, the protective pigment responsible for skin colour. (Z) prepares your skin for the sun, reduces sun sensitivity and redness, helps protect against sun-induced ageing, and boosts and optimizes your tan. With continued use after sun exposure, you can maintain a healthy and golden glow.

Extension activities

- 1 Ask each group to create their own anti-tanning advertisement. It could be a print, radio or television advertisement.
- 2 Find out about the safety messages regarding UV radiation that solariums provide to clients e.g. when you go to one, is there any information about possible skin damage? What does the disclaimer say?



Activity 18: Solariums – safe tans? (cont.)

Information from "Australian/New Zealand Standard - Solaria for Cosmetic Purposes". AS/NZS 2635:2002

Voluntary Standard for solarium operators

Many people think solariums are a 'safe' way to tan, but all forms of UV radiation contribute to skin cancer (NRPB 2002), and a solarium tan is induced by UV radiation. In fact, solariums may emit much higher concentrations of UV radiation than the sun (Walter et al. 1990).

Solariums emit both UVA and UVB radiation, both known causes of skin cancer. The Cancer Council does not support cosmetic tanning in solariums under any circumstance.

It is recognised, however, that while solariums continue to be available to the public, there is a need for guidelines to reduce the risks associated with their use. In 2002, the Australian standard on Solaria for Cosmetic Purposes (AS 2635: 2002) was updated to include:

No person under the age of 15 shall be allowed to use a solarium or sunbed.

Consumers aged between 15 and 18 require parental consent.

People with fair skin which burns and who are unable to tan shall not use a solarium.

Solarium operators are obliged to display warning notices stating that exposure to UV radiation from suntanning contributes to skin ageing and may cause skin cancer.

Operators are required to ensure that clients sign a consent form outlining the risks before using the tanning equipment.

However, this standard is voluntary, which means solarium operators can choose whether or not to abide by it.

References:

National Radiological Protection Board (NRPB) 2002. Report of the Advisory Group on Non-ionising Radiation (AGNIR): Effects of ultraviolet radiation on human health. Documents of the NRPB 13(1):3-276.

Walter SD, Marrett LD, From L, Hertzman C, Shannon HS, Roy P 1990. The association of cutaneous malignant melanoma with the use of sunbeds and sunlamps. American Journal of Epidemiology 131(2):232-43.

Worksheet 18: Solariums

Your group should have been allocated one of the following advertisements and received a copy of the Voluntary Standard for solarium operators.

Advertisement one

The solarium assists in the treatment of psoriasis, acne, arthritis, eczema, dermatitis and bone deficiency. It is now proven that UV rays can be good for your health. However one of the biggest disadvantages of tanning in the natural sunlight is that it emits a relatively high proportion of UVB rays which unfortunately cause rapid sunburn. Using our solarium, UVB is low (0.8%) and UVA (tanning rays) are high which produces a natural healthy tan all year round. Also available is our exclusive range of bronzing tanning products, designed for use in the solarium.

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Answer the following questions in relation to your advertisement:



1 What is the main message of the advertisement?

2 Does this message comply with the Voluntary Standard for solarium operation?



Worksheet 18: Solariums (cont.)

3 What emotions or attitudes are the advertisers appealing to?

4 Does it make you feel that using this product would be safe?

5 Does the information in this advertisement “fit” with the other information you have learned about sun protection?

6 What makes people want a tan?



Fact sheet 11: Solariums

artificial tanning process which is claimed to be effective and harmless. There is, however, evidence to suggest that the ultraviolet radiation used in solariums and sunbeds damages the skin and may increase the risk of developing skin cancer. In view of this possibility, The Cancer Council South Australia strongly recommends against the use of solariums and sunbeds for cosmetic tanning.

Ultraviolet (UV) radiation is made up of three types of rays - UVA, UVB and UVC. The harmful effects of UVB and UVC rays have been known for some time. Naturally occurring UVC from sunlight does not reach the earth's surface as it is a short wavelength and is absorbed by the atmosphere. Until recently, UVA was thought to be relatively harmless but evidence is emerging which suggests that UVA also causes skin damage and increases the risk of developing skin cancer.

Is using a solarium a safe way to tan?

Most solariums claim to use only UVA. There are, however, two issues to be considered. Firstly, the output from solarium lamps can change over time. If UVB and UVC (both of which are dangerous in smaller quantities than UVA) are to be excluded, solariums need to be tested regularly, especially if globes or the perspex shields are changed. Secondly, researchers no longer regard exposure to UVA as safe.

Solarium advertising has claimed that UVA does not cause skin ageing or skin cancer in the long term. This is not true. UVA rays penetrate the top layer of the skin and can cause damage to the fibres in the lower layer. This causes the skin to lose its elasticity, to become thickened, roughened, blotchy and wrinkled.

Prolonged exposure to UVA may cause sunburn as well as a tan.

In the past, solarium advertising has also claimed that a UVA tan protects against sunburn, premature ageing and the risk of skin cancer which result from exposure to natural sunlight. There is, however, clear evidence now to show that UVA contributes to the development of the more common non-melanoma skin cancers. Some studies have suggested that using a sunbed or solarium may increase the risk of developing melanoma.

The effects of UV radiation are cumulative.

Whether a tan is produced by artificial sources of UVA (solariums) or by natural UVB and UVA (sunlight), the UV radiation dose received while acquiring the tan adds to the lifetime total dose and to the risk of skin cancer.

Do solariums pose any other health hazards?

- There is clear evidence to show that exposure to UVA from solariums and sunbeds contributes to the development of the more common non-melanoma skin cancers. Some studies have suggested that using a sunbed or solarium may increase the risk of developing melanoma.
- If the eyes are inadvertently exposed to UVA, the cornea and the conjunctiva may be briefly inflamed and sight may be damaged permanently.
- Up to 50 percent of people who use solariums develop minor skin irritations such as redness, itchiness and dryness. Exposure to UVA can also irritate some existing rashes.
- Some prescription drugs, including some antibiotics and diuretics, and some substances used in cosmetics, can increase a person's sensitivity to UVA. Use of a solarium by people taking these drugs or using these cosmetics can result in severe burning.
- The UV radiation from solariums has been shown to cause changes in the body's immune system, although it is not known how important these changes are.

What about the use of sunlamps for medical treatment?

Sunlamps are used to treat some medical conditions. This is done under strict medical supervision.

PUVA treatment stands for psoralens (P) and UVA. It is used to treat a variety of conditions, most commonly psoriasis. Psoralens are drugs which are either taken by mouth or applied to the skin prior to shining UVA onto the skin. The psoralens sensitise the skin to UVA.

PUVA is a very effective treatment. Although it is associated with an increased risk of skin cancer development, this is usually outweighed

Fact sheet 11: Solariums (cont.)

by the unpleasant nature of the underlying skin condition. It is important that this treatment is only carried out under medical supervision so that if problems do occur they can be detected and treated early.

Drugs which may produce a photo-sensitive reaction to UVA

Listed below are some of the most commonly used drugs that may cause a photosensitivity reaction to either naturally occurring UVA (sunlight) or artificial UVA (solariums). These drugs may be taken by mouth, or used as creams or lotions applied to the skin.

Please note that this is not a complete list and people who are taking medication are strongly advised to ask their doctor or pharmacist about the possibility of photosensitivity reactions occurring.

- Some products containing sulphonamide drugs, such as Septrin, Bactrim and Resprim, and other antibacterials such as Negram (Nalidixic acid).
- The tetracycline group of antibiotics, which includes several brands of doxycycline (Doryx, Vibramycin, Vibra-Tabs), tetracycline (Achromycin V, Mysteclin, Tetrex).
- Some of the non-steroidal anti-inflammatory drugs (NSAIDs), notably piroxicam (Feldene) and tiaprofenic acid (Surgam).
- Some drugs used to treat diabetes, such as tolbutamide (Rastinon), glibenclamide (Daonil, Euglucon) and chlorpropamide (Diabinese).
- The antifungal agent, griseofulvin (Grisovin, Griseostatin, Fulcin).
- The retinoids, such as isotretinoin (Roaccutane, Accure, Isotrex Gel), tretinoin (Retin A, ReTrieve, Stieva-A) and etretinate (Tigason).
- The phenothiazine group of drugs, such as prochlorperazine (Stemetil) and chlorpromazine (Largactil).
- The thiazide diuretics, chlorothiazide (Chlotride), hydrochlorothiazide (Dichlotride) and bendrofluazide (Aprinox).

Which cosmetics can cause a photo-

sensitive reaction?

Some oils and fragrances used in cosmetics and other products have been identified as possible photosensitisers. These include:

- angelica root oil
- bergamot oil
- cumin oil
- lemon oil
- lime oil
- orange oil bitter
- rue oil
- cedarwood oil
- lavender oil
- neroli oil
- orange peel oil
- sandalwood oil
- musk ambrette

Are there regulations for operators of solariums and sunlamps?

There is no regulated training for solarium operators and there is no legal requirement for their equipment to be regularly checked or serviced.

A new Australian Standard relating to the installation, maintenance and operation of solarium for cosmetic purposes (AS/NZ 2635:2002) was published in April 2002.

The new Standard was developed in consultation with a broad cross-section of solarium industry representatives, manufacturing interests, UV radiation specialists and public health professionals including The Cancer Council Australia. The Standard sets out the requirements for the installation, maintenance and operation of solariums.

Some of the key points in the new Standard include:

- No person under the age of 15 shall be allowed to use a solarium or sunbed.
- Consumers aged between 15 and 18 require parental consent. (These age restrictions reflect general concerns about the negative health consequences associated with UV exposure in adolescence and the risk of skin cancer.)
- People with fair skin which burns and who are unable to tan shall not use a solarium.
- Claims of health benefits cannot be made in

Fact sheet 11: Solariums (cont.)

the advertising or promotion of solariums.

- Unsupervised, automatic solariums do not comply with the Australian Standard.
- Warning notices must be displayed to ensure consumers are adequately informed of the risks associated with solarium use.
- Clients must sign a consent form.
- Solarium operators must be properly trained.
- The allowed effective irradiance (solarium UV output) has increased from 0.3 watts per metre square to 1.5 watts per metre square. (This means that the UV radiation from solariums can be up to 5 times stronger than the mid-summer sun at noon.)

Further information about the Standard can be found at <www.standards.com.au>

Sunlamps that are sold for use at home are not controlled by any such guidelines. These lamps often emit high levels of UVB and may even emit the more damaging UVC. These products should only be used on the advice of a doctor and then only under strict medical supervision.

Key points

- A solarium tan is induced by ultraviolet (UV) light.
- All forms of UV light contribute to skin cancer.
- All forms of UV light cause premature ageing of the skin. This may be evident as wrinkling, loss of elasticity, sagging, yellowish discolouration and brown patches.
- No solarium can give a safe tan.
- Artificial UV light exposure is not necessary for optimal vitamin D production in Australia.
- There is no scientific evidence in humans to indicate that solarium usage lowers the chance of developing cancers such as breast or bowel cancer.
- The Australasian College of Dermatologists and The Cancer Council Australia do not support the use of solariums.

