

# Cancer Association of South Africa (CANSA)



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## Fact Sheet and Position Statement on Sunless Tanning

### Introduction

Sunless tanning- also known as UV-free tanning, self-tanning, spray-tanning (when something is applied topically) or fake-tanning - refers to the application of chemicals to the skin or making use of chemicals that are taken by mouth or per injection, to produce an effect similar in appearance to a suntan. The popularity of sunless tanning rose since the 1960s after links were made by health professionals between exposure to the sun and other sun tanning methods, such as sunbeds or tanning beds, and the incidence of skin cancer.

(Wikipedia).

Chung, *et al.* (2010) published a paper in *Dermatologic Surgery* in which they tested the premise of whether a tanned individual was perceived to be more attractive than a person who did not have a tanned appearance. They took photos of 45 women, and posted these on the 'Hot or Not Website' (a site wherein individuals could offer 1-10 attractiveness ratings of submitted photos). Furthermore, using an Adobe Photoshop option, the authors artificially created tanned versions of the 45 photos. Accordingly, ratings were elicited for both the 'untanned' (n = 6,228) and 'tanned' (n = 8,988) versions of the photos. The authors analysed the data in three ways, all of which yielded the same conclusion: The population who logged onto the website considered tanned people to be more attractive.

### Sunless Tanning



When matching the abovementioned data within individuals, 12 of the 45 individuals saw an increase in their attractiveness (when tanned), 2 of the 45 individuals yielded a decrease in attractiveness (when tanned), and the remaining photos did not yield a statistically significant change (within-individuals).

Topical self-tanning products are available as lotions, creams, sprays, and pledgets (towels or wipes). Commercial preparations typically contain between 3 and 5 percent Dihydroxyacetone (DHA), a sugar molecule that bronzes the very top layer of the skin. The browning effect occurs within a few hours. The effect is temporary - the colour fades in 7-10 days as the skin naturally sloughs off.

(Skin Cancer Foundation; Mayo Clinic; Canadian Cancer Society).

## Types of Sunless Tanning

There are a variety of types of sunless tanning. These include:

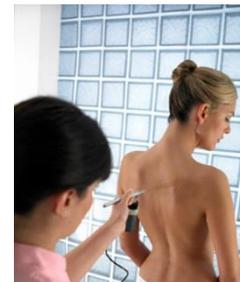
**Bronzing powders** - a cosmetic applied to the skin to simulate a temporary and short lived sun tan. Face powder is a cosmetic powder applied to the face to set a foundation after application. It can also be reapplied throughout the day to minimise shininess caused by oily skin. There is translucent sheer powder, and there is pigmented powder. Certain types of pigmented facial powders are meant to be worn alone with no base foundation. Powder tones the face and gives an even appearance. Besides toning the face, some powders with sunscreen can also reduce skin damage from sunlight and environmental stress. It comes packaged either as a compact or as loose powder. It can be applied with a sponge, brush, or powder puff. Uniform distribution over the face is achieved more easily when a loose powder is applied.



[Picture Credit: Bronzing Powder]

Because of the wide variation among human skin tones, there is a corresponding variety of colours of face powder. There are also several types of powder. A common powder used in beauty products is talc (or baby powder), which is absorbent and provides toning to the skin.

**Spray bronzers** – this is the application of a fast drying, brown spray-on colour solution. The change in colour is visible the moment the product is applied to the skin using an airbrush or spray.



[Picture Credit: Spray Bronzer]

**Stick bronzers** – this looks similar to deodorant sticks. These products can be stroked right onto the legs for instant colour. It is said that using a concealer with the leg bronzer will help hide scars, spider veins, and other leg imperfections. Also, leg bronzers can be set with translucent powder to keep the colour from rubbing off



[Picture Credit: Stick Bronzer]

**Tanning Wipes** (also known as tanning towelettes) – these are said to be convenient and easy to use. It is said to create a streak-free, natural looking tan-like effect. With enough self-tanner for one application, each towelette can be used at home or on-the-go. The tan is usually two shades darker than one's natural skin tone. Results may vary.



[Picture Credit: Tanning Wipes]

**Tanning tablets** – it usually contains canthaxantines, and can make one yellow/orange if one takes too much. It is NOT APPROVED by the FDA as too high dosages causes pigment to concentrate in the retina of the eyes (canthaxanthine retinopathy). It can cause liver disease and bone marrow suppression. The dosage provided on the bottle of the tanning tablets are usually too high for safe use.

[Picture Credit: Tanning Tablets]



Although the FDA has approved the use of canthaxanthin in food, it does not approve its use as a tanning agent. When used as a colour additive, only very small amounts of canthaxanthin are necessary. As a tanning agent, however, much larger quantities are used. After canthaxanthin is consumed, it is deposited all over one's body, including in the skin, which turns an orange-brown colour. These types of tanning pills have been linked to various side effects, including hepatitis. (HowStuffWorks).

**Tanning capsules** – these are similar to tanning tablets described above. The main difference being that the product is presented in a capsule instead of a compressed tablet form.

[Picture Credit: Tanning Capsules]



**Tanning nasal spray** – a spray that is usually squirted up the nostrils twice a day. It is said to assist in the creation of a beautiful tan within days. There are different types of tanning nasal sprays on the market – some contain melanotan whilst others contain herbal extracts. Their safety have not been adequately researched.

[Picture Credit: Tanning Nasal Spray]



**Sunless tanning lotion** – a lotion applied topically to stain the skin to a desired tone. Although lotions that contain DHA are said to be the most reliable and useful, there are dozens of other types of products on the market.

[Picture Credit: Sunless Tanning Lotion]



Tanning accelerators - lotions that usually contain the amino acid tyrosine - claim that they stimulate and increase melanin formation, thereby accelerating the tanning process. At this time, there is no scientific data available to support these claims. (HowStuffWorks).

**Tanning injections** - A synthetic hormone injected to “top up tans” is illegal and should not be used. Widespread coverage has been given to the news that Melanotan, injected under the skin to encourage the skin to darken, has never been safety tested by any Western government healthcare agency.



[Picture Credit: Tanning Injections]

The drug is sold online or under the counter at gyms and beauty salons and because the drug is self-injected, there are fears that users are putting themselves at risk of infections such as hepatitis or HIV. There are different 'versions' of the product, namely Melanotan and Melanotan-II.

CANSA would like to warn the public against this product. Melanotan-II is a dangerous laboratory-made chemical that is similar to a hormone found in humans. Care should be taken not to confuse Melanotan-II with melatonin.

Melanotan-II has been used to produce erections in men with erectile dysfunction (ED), and lately also to tan the skin without exposure to the sun (sunless tanning).

Melanotan-II is similar to a substance found in our bodies, called "melanocyte-stimulating hormone", which increases the production of skin-darkening pigments. Melanotan-II is thought to work on the brain to stimulate erections in men.



[Picture Credit: Melanotan-II]

Melanotan-II is possibly safe when used under medical supervision for treating erectile dysfunction. There is, however, insufficient information to know whether it is at all safe for other uses. Adverse effects which may occur with the use of melanotan-II include nausea, stomach cramps, decreased appetite, flushing, tiredness, yawning, darkened skin, spontaneous erections of the penis, and other side effects. Cases of malignant melanoma (the most dangerous type of skin cancer) have been described following the use of Melanotan-II.

[Picture Credit: Sunless Tanning with Melanotan-II]

Women who are pregnant or breastfeeding should not use Melanotan-II at all.

Anyone currently using Melanotan or Melanotan-II should stop doing so immediately for their own safety. The drug has not been safety tested. Users are advised to consult their health professional for advice.

(NHS Choices UK; eMedicineHealth).



### How Sunless Tanning Products Work

Sunless tanning products, also called self-tanners, can give one's skin a tanned look without exposure of the skin to harmful ultraviolet (UV) rays. These products are often sold as lotions and sprays that one can apply to one's skin. Professional spray-on tanning is also available at many salons, spas and tanning businesses.

The active ingredient in many of these sunless tanning products is the colour additive, dihydroxyacetone. When applied to the skin, dihydroxyacetone reacts with the dead cells in the surface of the skin to temporarily darken the skin. This colouring typically wears off after 7 to 10 days.

Some sunless tanning products contain sunscreen which is effective only for about 2 hours. The tanned effect of the sunless tanning product DOES NOT provide any protection to the skin against ultraviolet rays from the sun. Should a person, who has applied a sunless tanning product, want to spend time outdoor, application of a sunscreen becomes essential. (HowStuffWorks; Canadian Cancer Society).

### **Effects of Active Ingredients of Sunless Tanning Products**

A summary of the effects of active ingredients of sunless tanning products includes:

Canthaxanthin – is a naturally occurring chemical, which is most commonly utilised as a colourant for food and dyes or in skin bronzing agents. Its most prevalent impact on human health is canthaxanthin retinopathy, which appears as birefringent, yellow to red crystals surrounding the macula of the eye. This occurs with increasing, dose-dependent exposure. Generally, patients remain asymptomatic (without symptoms) and findings may only be evident on fundoscopic examination of the eye. Cessation of canthaxanthin ingestion appears to reverse the retinopathy, but the time until crystal disappearance is variable. Despite a usually favourable outcome, long-standing visual changes may occur with significant visual loss secondary to canthaxanthin retinopathy (Beaulieu, Warwar & Buerk, 2013).

Melanotan – this product is available via the Internet and has three main formulations (Melanotan I, Melanotan II, and bremelanotide). Melanotan I increases melanogenesis (increase in melanin) and eumelanin content to produce sunless tanning. Melanotan II also increases skin pigmentation but also produces spontaneous penile erections and sexual stimulation. Bremelanotide is a variation of Melanotan II that is specifically designed for sexual stimulation. Melanotan results in systemic toxicity including apparent sympathomimetic symptoms (mimic the effects of transmitter substances of the sympathetic nervous system such as catecholamines, epinephrine (adrenaline), norepinephrine (noradrenaline), dopamine, etc. Such drugs are used to treat cardiac arrest and low blood pressure, or to delay premature labour, and also rhabdomyolysis. Rhabdomyolysis is a condition in which damaged skeletal muscle tissue breaks down rapidly. Breakdown products of damaged muscle cells are released into the bloodstream; some of these, such as the protein myoglobin, are harmful to the kidneys and may lead to kidney failure, and renal dysfunction (malfunctioning of the kidneys).

There have been reports of dysplastic naevi and melanoma associated with the use of melanotropic peptides.

(Nelson, Bryant & Aks, 2012; Ong & Bowling, 2012).

Dihydroxyacetone (DHA) – this is the active browning ingredient in some sunless tanning lotions. It reacts with the amino groups of proteins to form a brown-coloured complex. Furthermore, DHA also causes DNA damage (Petersen, *et al.*, 2004).

Research by Armas, *et al.* (2009) found that DHA-induced melanoidins in skin act as a topical sunscreen which attenuates the formation of 25(OH)d (Vitamin D).

DHA has been approved for cosmetic use by the US Food and Drug Administration (FDA), the Canadian Health Ministry, and the EU Nations. It is considered non-toxic and non-carcinogenic. Because it does not use the skin's melanocytes to make the skin 'tan', it is

recommended as a cosmetic remedy for improving the appearance of vitiligo. DHA-based sunless tanning has been recommended by the Skin Cancer Organization, American Academy of Dermatologists, Canadian Dermatology Association, The American Cancer Society and the American Medical Society.  
(Traditions Resorts).

Tyrosine - Tyrosine is one of the amino acids, which are the building blocks of protein. The body makes tyrosine from another amino acid called phenylalanine. Tyrosine can also be found in dairy products, meats, fish, eggs, nuts, beans, oats, and wheat.

Tyrosine is used in protein supplements to treat an inherited disorder called phenylketonuria (PKU). People who have this problem can't process phenylalanine properly, so as a result they can't make tyrosine. To meet their bodies' needs, supplemental tyrosine is given.

People take tyrosine for depression, attention deficit disorder (ADD), attention deficit-hyperactivity disorder (ADHD), the inability to stay awake (narcolepsy), and improving alertness following sleep deprivation. It is also used for stress, premenstrual syndrome (PMS), Parkinson's disease, Alzheimer's disease, chronic fatigue syndrome (CFS), alcohol and cocaine withdrawal, heart disease and stroke, ED (erectile dysfunction), loss of interest in sex, schizophrenia, and as a suntan agent and appetite suppressant

Some people also apply tyrosine to the skin to reduce age-related wrinkles.  
(WebMD).

### **CANSA's Position**

- CANSA does not promote the perception that a tanned skin is more desirable or makes a person more attractive than when having a pale skin
- CANSA wishes to discourage individuals from making use of the following under any circumstance:
  - Tanning tablets
  - Tanning capsules
  - Tanning nasal sprays
  - Tanning injectionsas the safety of their ingredients have been insufficiently researched
- CANSA firmly believes that topical sunless tanning products should NOT be applied to children's skins under any circumstance
- CANSA is of the opinion that individuals who choose to make use of any form of topical sunless tanning (a fake tan) should be aware that:
  - Sunless tanning stains the skin a darker colour, but that this darker colour does NOT provide any protection against the UV rays of the sun
  - Sunless tanning products that contain sunscreen provides relevant protection for a maximum of two hours after application and NOT for the duration of the sunless tan
  - None of the sunless tanning products that are available have been scientifically proven to stimulate the production of melanin in the skin

- CANSA is also of the opinion that individuals who make use of one or other form of topical sunless tanning must be aware that:
  - They need to always protect their skin when exposing their skin to UV radiation from the sun by using an appropriate sunscreen
  - They must stay in the shade whenever possible
  - Wear a broad brimmed hat, sun protective clothing and approved sunglasses
  - Use a broad spectrum sunscreen with an appropriate SPF (20 – 50) at least 20 minutes before they go into the sun
  - Re-apply the sunscreen at least every two hours especially when perspiring or going into the water
  
- CANSA further believes that individuals who make use of a topical sunless tanning product that contains Dihydroxyacetone (DHA), must be aware that it does not protect the skin against the harmful UV rays of the sun whilst it will prevent the formation of Vitamin D in the skin during sun exposure.

### **Medical Disclaimer**

This Fact Sheet and Position Statement is intended to provide general information only and, as such, should not be considered as a substitute for advice, medically or otherwise, covering any specific situation. Users should seek appropriate advice before taking or refraining from taking any action in reliance on any information contained in this Fact Sheet and Position Statement. So far as permissible by law, the Cancer Association of South Africa (CANSA) does not accept any liability to any person (or his/her dependants/estate/heirs) relating to the use of any information contained in this Fact Sheet And Position Statement.

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### Bronzing Powder

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### **Spray Bronzer**

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### **Stick Bronzer**

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### **Sunless Tanning Lotion**

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### **Tanning Injections**

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### **Tanning Nasal Spray**

[https://www.google.co.za/search?q=tanning+nasal+spray&source=lnms&tbm=isch&sa=X&ei=nkD8U6HSFqf07AaT4oG4DA&sqi=2&ved=0CAYQ\\_AUoAQ&biw=1517&bih=714&dpr=0.9#facrc=\\_&imgdii=\\_&imgrc=O41Fylq7jZaoaM%253A%3BzMGVffu-HUK-QM%3Bhttp%253A%252F%252Fmedia-cache-ak0.pinimg.com%252F236x%252Fc8%252Faa%252Ff6%252Fc8aaf6caf48b7c5224cb9b4355c71e49.jpg%3Bhttp%253A%252F%252Fwww.pinterest.com%252Fannamegatan%252Fmelanotan-nasal-spray%252F%3B190%3B285](https://www.google.co.za/search?q=tanning+nasal+spray&source=lnms&tbm=isch&sa=X&ei=nkD8U6HSFqf07AaT4oG4DA&sqi=2&ved=0CAYQ_AUoAQ&biw=1517&bih=714&dpr=0.9#facrc=_&imgdii=_&imgrc=O41Fylq7jZaoaM%253A%3BzMGVffu-HUK-QM%3Bhttp%253A%252F%252Fmedia-cache-ak0.pinimg.com%252F236x%252Fc8%252Faa%252Ff6%252Fc8aaf6caf48b7c5224cb9b4355c71e49.jpg%3Bhttp%253A%252F%252Fwww.pinterest.com%252Fannamegatan%252Fmelanotan-nasal-spray%252F%3B190%3B285)

### **Tanning Tablets**

[https://www.google.co.za/search?q=tanning+tablets+south+africa&source=lnms&tbm=isch&sa=X&ei=hj\\_8U7jnAcyI7Aby2YGwBw&sqi=2&ved=0CAYQ\\_AUoAQ&biw=1517&bih=714&dpr=0.9#q=tanning+tablets&tbm=isch&facrc=\\_&imgdii=\\_&imgrc=ky3505vLp85X-M%253A%3BWSLMHxHPJiKj0M%3Bhttp%253A%252F%252Fimages.vitaminimages.com%252Fhb%252Fvf%252Fproductimages%252FHb%252FH200W000%252FHb006495\\_R\\_H200W000.gif%3Bhttp%253A%252F%252Fwww.hollandandbarrett.ie%252Fbrand-330%3B96%3B200](https://www.google.co.za/search?q=tanning+tablets+south+africa&source=lnms&tbm=isch&sa=X&ei=hj_8U7jnAcyI7Aby2YGwBw&sqi=2&ved=0CAYQ_AUoAQ&biw=1517&bih=714&dpr=0.9#q=tanning+tablets&tbm=isch&facrc=_&imgdii=_&imgrc=ky3505vLp85X-M%253A%3BWSLMHxHPJiKj0M%3Bhttp%253A%252F%252Fimages.vitaminimages.com%252Fhb%252Fvf%252Fproductimages%252FHb%252FH200W000%252FHb006495_R_H200W000.gif%3Bhttp%253A%252F%252Fwww.hollandandbarrett.ie%252Fbrand-330%3B96%3B200)

### **Tanning Topical Spray**

[https://www.google.co.za/search?q=tanning+topical+spray&source=lnms&tbm=isch&sa=X&ei=OUH8U7viLsGI7Aa7nYHoBw&ved=0CAYQ\\_AUoAQ&biw=1517&bih=714&dpr=0.9#facrc=\\_&imgdii=\\_&imgrc=qUCpCzqmww344M%253A%3BmY9ZsNuCp4m9NM%3Bhttp%253A%252F%252Fhealthwyze.org%252Fimages%252Fspray\\_tan.jpg%3Bhttp%253A%252F%252Fhealthwyze.org%252Findex.php%252Fcomponent%252Fcontent%252Farticle%252F354-is-spray-tanning-really-the-healthy-option.html%3B191%3B206](https://www.google.co.za/search?q=tanning+topical+spray&source=lnms&tbm=isch&sa=X&ei=OUH8U7viLsGI7Aa7nYHoBw&ved=0CAYQ_AUoAQ&biw=1517&bih=714&dpr=0.9#facrc=_&imgdii=_&imgrc=qUCpCzqmww344M%253A%3BmY9ZsNuCp4m9NM%3Bhttp%253A%252F%252Fhealthwyze.org%252Fimages%252Fspray_tan.jpg%3Bhttp%253A%252F%252Fhealthwyze.org%252Findex.php%252Fcomponent%252Fcontent%252Farticle%252F354-is-spray-tanning-really-the-healthy-option.html%3B191%3B206)

### **Tanning Wipes**

[https://www.google.co.za/search?q=tanning+wipes&tbm=isch&tbo=u&source=univ&sa=X&ei=Aj38U7-IObCg7AbOu4HABQ&sqi=2&ved=0CCQqSAQ&biw=1517&bih=714&dpr=0.9#facrc=\\_&imgdii=\\_&imgrc=IUYB7d3dLjNmRM%253A%3B4OgRCcMESzR40M%3Bhttp%253A%252F%252Fwww.onesteptan.com%252Fimage-files%252FFull%252520leg%252520wipe%252520on%252520sofa.jpg%3Bhttp%253A%252F%252Fwww.onesteptan.com%252F%3B230%3B213](https://www.google.co.za/search?q=tanning+wipes&tbm=isch&tbo=u&source=univ&sa=X&ei=Aj38U7-IObCg7AbOu4HABQ&sqi=2&ved=0CCQqSAQ&biw=1517&bih=714&dpr=0.9#facrc=_&imgdii=_&imgrc=IUYB7d3dLjNmRM%253A%3B4OgRCcMESzR40M%3Bhttp%253A%252F%252Fwww.onesteptan.com%252Fimage-files%252FFull%252520leg%252520wipe%252520on%252520sofa.jpg%3Bhttp%253A%252F%252Fwww.onesteptan.com%252F%3B230%3B213)

### **Traditions Resorts**

<http://www.traditionsresort.com/tan.html>

### **WebMD**

<http://www.webmd.com/vitamins-supplements/ingredientmono-1037-tyrosine.aspx?activeingredientid=1037&activeingredientname=tyrosine>

### **Wikipedia**

[http://en.wikipedia.org/wiki/Sunless\\_tanning](http://en.wikipedia.org/wiki/Sunless_tanning)