

Radiation and Skin Care

3

Starting Point

These days, everyone knows that spending too long in the sun without applying sun block is dangerous. But why? And how dangerous?

People also talk about skin cancer and ultra-violet (UV) rays a lot. What are UV rays, and how might they cause skin cancer?

Task 1



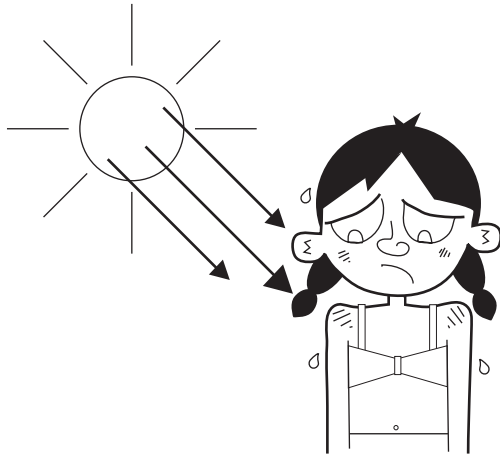
Before going any further, do a short piece of writing called *Skin Care: What I Know*. Include what you have been told, how to look after yourself in the Sun and why you think this is important.

Ultra-Violet (UV) Rays

The Sun sends out (radiates) lots of energy to the Earth all the time. We can see it as light energy, and we can feel it as heat energy. But it sends out more types of energy than this.

We can't see ultra-violet rays (UV rays), but the Sun sends them out all the same. UV rays have a lot of energy in them, and our skin tries to protect us from this energy. That is why we tan in the Sun - it is our skin's way of protecting us from too much Sun.

Some people tan easily - their skin can handle more Sun. Some people burn straight away - their skin can't handle much Sun at all. However, everyone will be damaged by the UV rays from the Sun if they stay out in it too long.



UV rays are **non-ionising**. This means they're not as dangerous as things like X-Rays and are unlikely to change the cells in your body. But too much UV will damage or kill skin cells.

Task 2



Find and compare some bottles of Sun Block. You can do this by going to a supermarket or pharmacy and making notes about what each one does. Which *brand*, and what *factor*, would you use? Why?

The Debate

The main debate about radiation and skin care is not whether it will damage your skin or not - most people agree that spending too long in the Sun will damage your skin. What people discuss most is how bad the effects of UV radiation are. Can some people stay in the Sun longer than others? Can anyone go out in the Sun with no protection and be unaffected? Are people aware of the dangers or do they ignore the information available?

Task 3



Do some first-hand research. Take a survey of friends to find out:

- who uses Sun Block,
- what factor they use and why,
- their opinion on whether they risk skin cancer by sunbathing.

Main Task

Write an essay on **Radiation and Skin Care**.

Do an Introduction, describing what kind of radiation you are exposed to when you go out in the sun. Put as much science in here as you can.

Compare what different people say the dangers are, and comment on whether they agree.

Do a section on any sources you find that think there isn't too much danger, and why they say this.

Use your survey from Task 3 to write a short section on whether the people you know are aware of the dangers.

Do a Conclusion to finish the essay. From the information you have gathered, are people aware of the dangers? Is there a real danger? What can we do to stay safe? Have your opinions on the dangers of UV radiation changed at all? What do you think?

o p i n i o n

Most people agree that staying in the Sun too long can cause skin cancer, as well as other skin diseases, and diseases of the eye. But does everyone think so? And is it all bad news? Here are three sample sources to help you decide. Remember that there are many more, and it is impossible to show everyone's opinion here!

Source 1

Health effects of Sun exposure: a global concern

UV radiation causes sunburn and skin cancer and accelerates skin ageing. Overexposure to UV radiation can lead to inflammations of the cornea and the conjunctiva in the eye, and causes or accelerates cataract development. A health issue of growing concern is that UV radiation can reduce the effectiveness of the human immune system.

From Who website.

<http://www.who.int/mediacentre/factsheets/fs261/en/>

Source 2

UVA - UVB RAYS: AN INVISIBLE THREAT

The Sun emits three types of radiation: a) infra-red rays which produce heat; b) visible rays which are light rays; and c) ultra-violet rays which are not visible to the human eye. The Sun's UV rays, which most affect our skin, allowing it to tan, but also destroying the skin's layers, are of two types:

- ultraviolet A rays (UVA),
- ultraviolet B rays (UVB).

The UVA rays, which constitute 95% of solar radiation, do not cause any burns like the UVB rays, but they can penetrate the skin more easily and more deeply and produce tanning at a slower rate. Usually, it is a percentage of UVB rays that destroys the skin, while UVA rays cause wrinkling and loss of elasticity, leading to premature ageing. UV radiation is linked to skin cancer. The intensity of UVB radiation increases as we move closer to the equator, or climb to higher altitude.

From a Greek information website, Greek Coasts Online.

<http://www.thalassa.gr/2002/to/en/e07.asp>

Source 3

Small amounts of UV radiation are beneficial for people and essential in the production of vitamin D. UV radiation is also used to treat several diseases, including rickets, psoriasis and eczema. This takes place under medical supervision and the benefits of treatment versus the risks of UV radiation exposure are a matter of clinical judgement.

Prolonged human exposure to solar UV radiation may result in acute and chronic health effects on the skin, eye and immune system. Sunburn and tanning are the best known acute effects of excessive UV radiation exposure; in the long term, UV radiation-induced degenerative changes in cells, fibrous tissue and blood vessels lead to premature skin ageing. UV radiation can also cause inflammatory reactions of the eye, such as photokeratitis.

Chronic effects include two major public health problems: skin cancers and cataracts. Between two and three million non-melanoma skin cancers and approximately 132,000 melanoma skin cancers occur globally each year.

From Global Solar UV Index: A Practical Guide.

Your Views

Now you've gathered lots of information and looked at it more closely by doing the 3 tasks, you should be almost ready to write about what you've found. You will need to use more sources than the 3 articles given here, so keep looking and make notes on any useful articles you find. Ones with different opinions in, and ones with clear science, are especially useful.

More Sources of Information

Try these places for more info:

Google key phrases: Skin Cancer, Radiation and Sunbathing, UV Radiation, Skin Care and Sunbathing.

The Tropospheric Emission Monitoring Internet Service:

<http://www.temis.nl/uvradiation/info/uvhealth.html>

TASK 1

Skin Care: What I know

TASK 2

Find and compare different brands and factors of Sun Block. Which would you choose and why?

TASK 3

Skin Care Awareness Survey

Name	Do you use Sun Block? If so, what factor?	Do you think you might get skin cancer by sunbathing too much? What do you think is too much?