

Sun Protective Clothing Fabric and Ultraviolet (UV) Radiation

Cancer Council ACT recommends clothing that protects the wearer from as much direct ultraviolet (UV) radiation as possible, such as collared shirts and at least three-quarter length trousers and three-quarter sleeve tops.

Clothes specially designed for sun protection will carry a UPF (ultraviolet protection factor) rating on their tags. The higher the UPF number, the greater the protection from UV radiation. UPF50+ gives the best protection.

Always use sun protective clothing with other sun protection measures: shade, hats, sunscreen and sunglasses.

Design

Choose clothing that covers as much skin as possible. Collared shirts and at least three-quarter length trousers and three-quarter length sleeve tops cover skin well.

A shirt with long sleeves and a large collar offers much better protection than clothing such as singlet tops. Loose-fitting clothes give better protection than close-fitting clothes and may be more comfortable to wear on hot days. Darker colours generally offer more protection than lighter colours.

What is UPF?

Clothing specially designed for sun protection will carry an ultraviolet protection factor (UPF) rating on their tags. The UPF rating tells you how much UV radiation will pass through unstretched, dry material.

For example, a material with a UPF rating of 20 would only allow 1/20th of the UV radiation falling on its surface to pass through it. This means that this material blocks 95% of UV radiation and transmits 5%¹.

The UPF rating doesn't refer to the design of the garment, just its material. Some fabrics may have their rating improved by being specially treated.

Any fabric rated above UPF 30 provides good protection against UV radiation, but 50+ is recommended. Fabrics that don't carry a UPF rating don't necessarily offer less protection than those that have been tested, but the rating system provides added assurance.

The Australian/New Zealand Standard for sun protective clothing (AS/NZS 4399) describes methods and labelling requirements for UPF rated clothing:

UPF rating	% UV radiation absorbed	Protection category
10	90.0	moderate
15	93.3	good
20	95.0	good
30	96.7	very good
40	97.5	excellent
50	98.0	excellent

(Source: Australian Radiation Protection And Nuclear Safety Agency 2003)

What should I look for when choosing sun protective clothing?

Composition

Different fabrics absorb UV radiation at different levels. Most cotton or cotton/polyester blend fabrics provide protection equal to about UPF 20 (which is about 95% protection from UV radiation). Fabrics offer less protection when wet.

Weave density

The closer the fabric's weave, the higher the UV radiation protection. Because the fibres of tightly woven fabrics are closer together, less UV radiation is able to pass through to the skin. Tightly woven, lightweight fabrics such as linen, cotton or hemp will also help keep you cool.

Repeated washing can improve the UPF of clothes, especially cotton, by shrinking gaps in the weave. However, old, threadbare or faded clothes may have a lower UPF rating.

Colour

Many dyes absorb UV radiation. Darker colours (black, navy, dark red) of the same fabric type will absorb UV radiation more than light pastel shades (white, sky blue, light green). They will therefore have a higher UPF rating, however darker material may also absorb more heat!

Tension

If a fabric is stretched, it will probably be less protective. This is common in knitted or elasticised fabrics. Take care to select the correct size for the wearer.

Moisture content

Many fabrics offer lower protection from UV radiation when wet. This depends on the type of fabric and the amount of moisture it absorbs. Generally, elasticine clothes retain higher levels of UV protection when wet than cotton or natural fibres.

UV absorbers

Some clothing is treated so it can absorb more UV radiation. Check the clothing label to see if your clothes have been treated.

Further information and resources

For further information and advice contact the Cancer Council Helpline on 13 11 20 or Cancer Council ACT on 6257 9999.

For more information on UV radiation and clothing visit ARPASA online.

UV protective clothing and accessories can be purchased at The Cancer Council ACT's Fairbairn shop.

This information can be photocopied for distribution.

Reference

1 Australian Radiation Protection & Nuclear Safety Agency (ARPANSA). *Resource Guide for UV Products*. Yallambie: ARPANSA 2003.

Cancer Council ACT acknowledges The Cancer Council Victoria for the original preparation of this information sheet.