

Ultraviolet Radiation

Exposure and Protection

presented by
BWC Division of Safety and Hygiene



Objectives of This Ultraviolet Radiation Program

- TO MAKE EXPOSED WORKERS AWARE OF THE HAZARDS OF ULTRAVIOLET RADIATION
- TO CHANGE AT RISK BEHAVIOR TO PROTECTIVE BEHAVIOR

WARNING

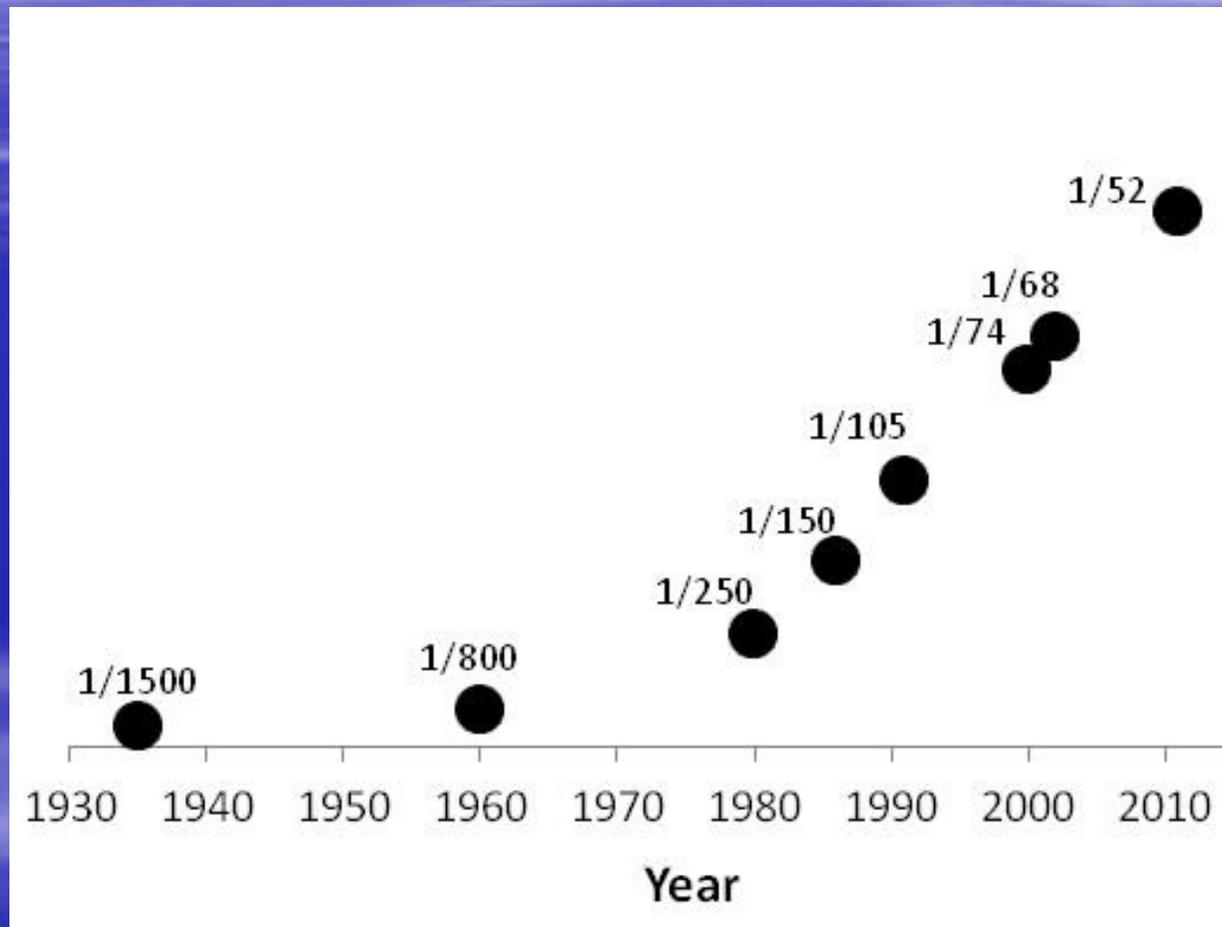
**THE SURGEON GENERAL HAS DETERMINED
THAT ANYTHING, ANYWHERE, ANYTIME MAY
BE HAZARDOUS TO YOUR HEALTH.**



Hazards of UVR



Lifetime Risk of Malignant Melanoma

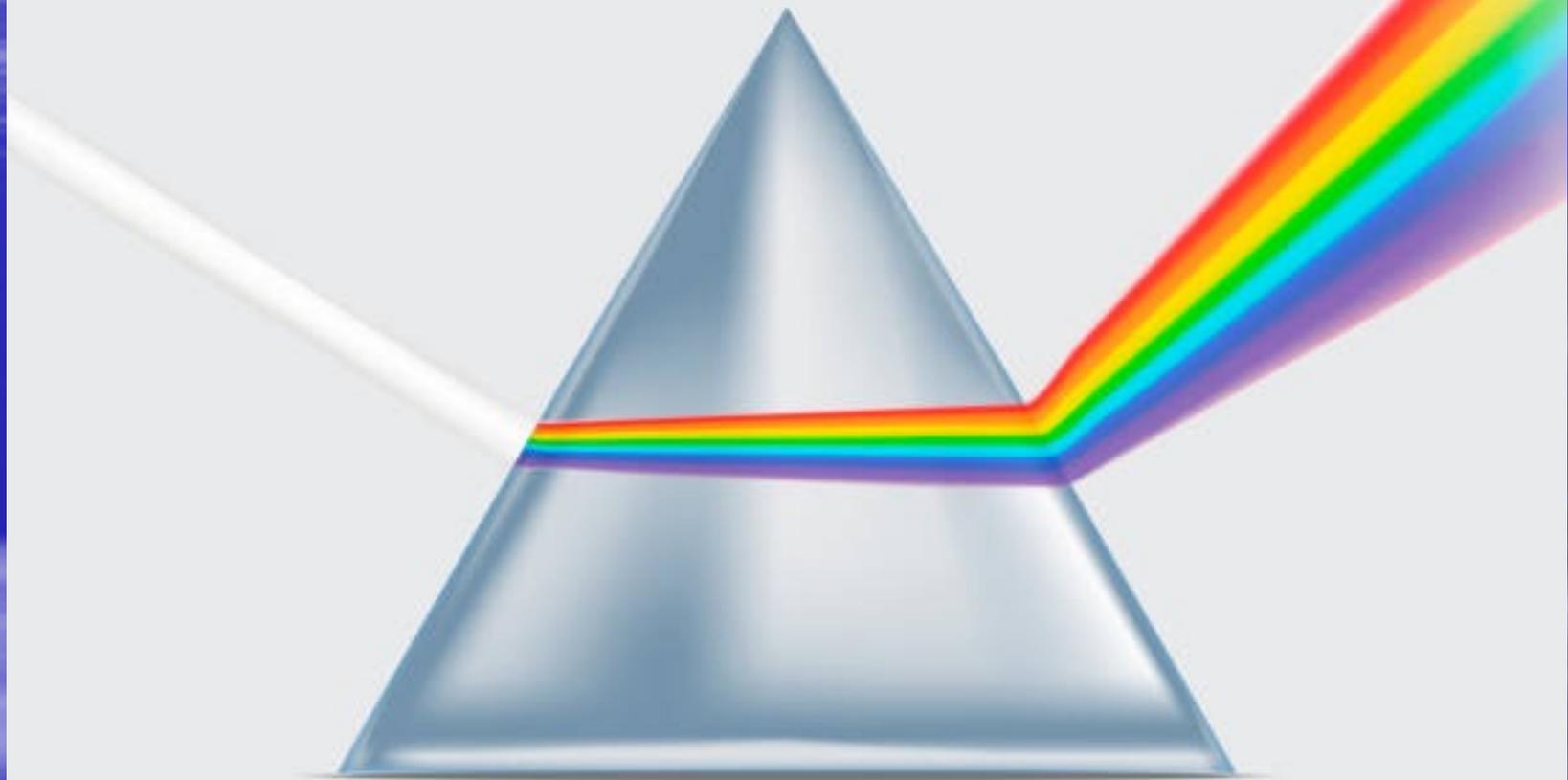


US. Data are reported as lifetime risk and are taken from NCI SEER reports.

<https://www.intechopen.com/books/recent-advances-in-the-biology-therapy-and-management-of-melanoma/melanoma-epidemiology-genetics-and-risk-factors>



ABOUT UVR





VISIBLE AND INVISIBLE LIGHT

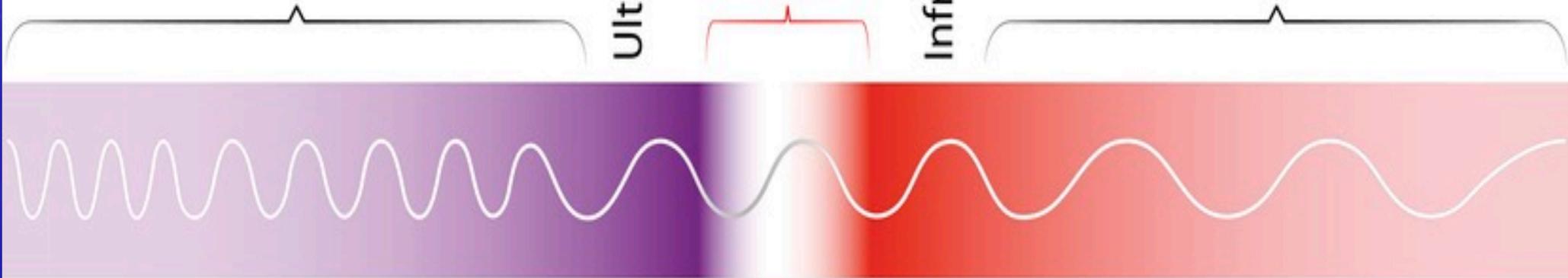
X-RAYS

Ultraviolet

VISIBLE SPECTRUM

Infrared

RADIO WAVES



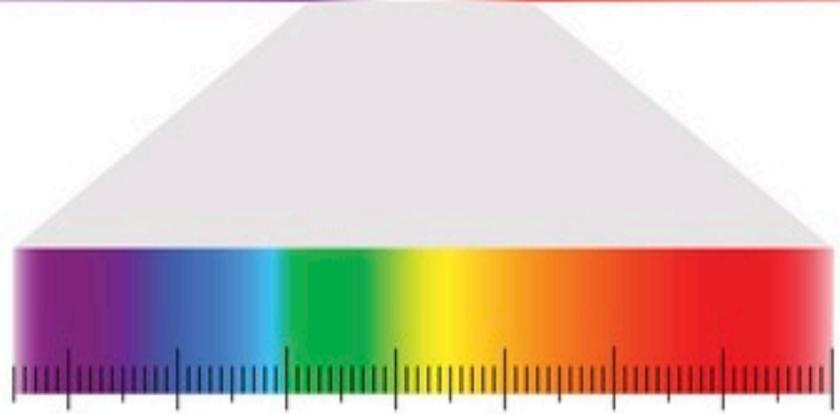
Wavelength
(nm)

400

500

600

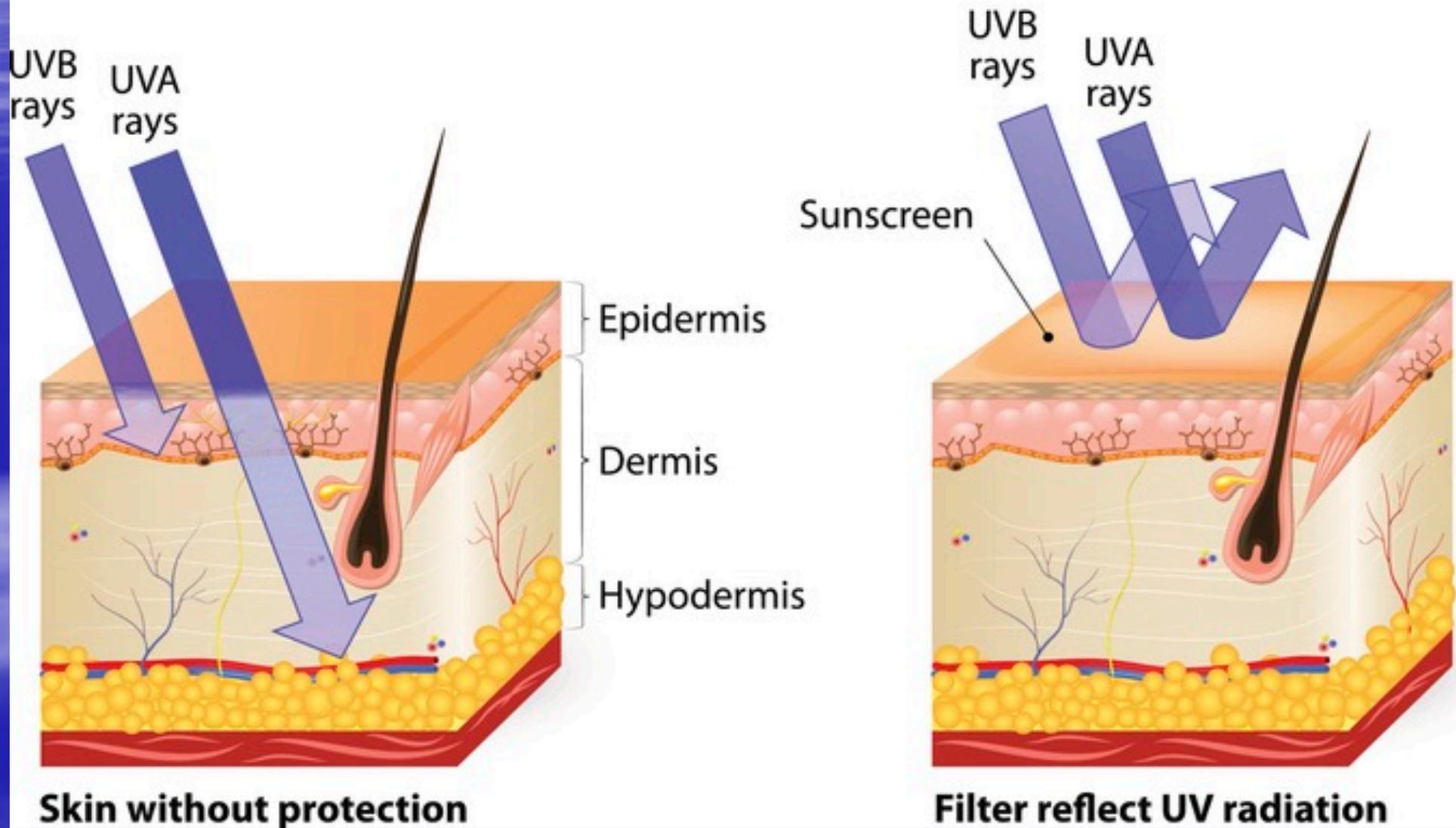
700



Risk Factors

An aerial photograph showing a vast, dense sea of white, fluffy clouds stretching to the horizon. The sun is positioned low on the horizon, creating a bright, golden glow that illuminates the clouds and the sky. The sky transitions from a pale yellow near the horizon to a clear blue at the top. The overall scene is serene and expansive.

UV penetration into the layers of the skin





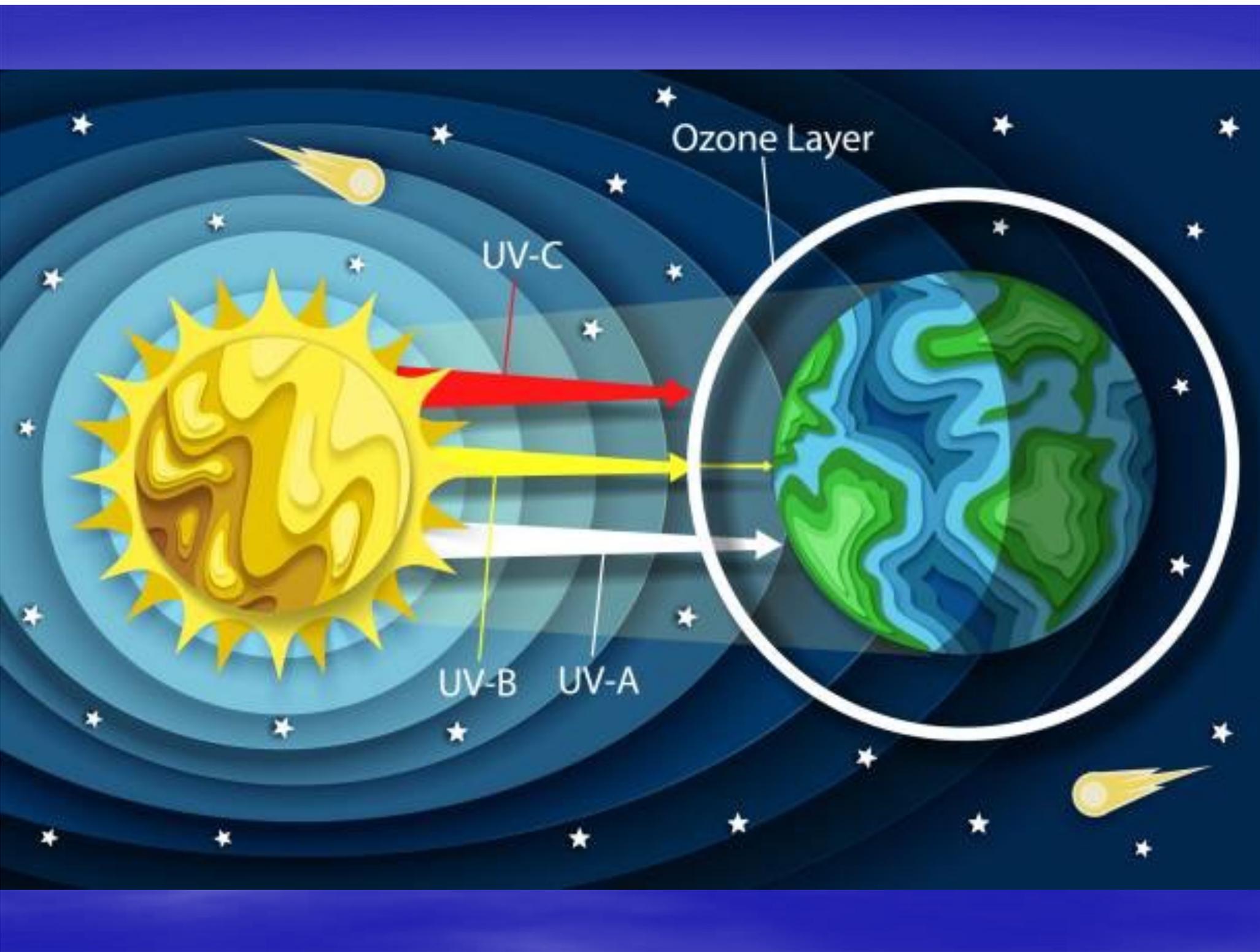












Make a List

RISKS

Sunburn

Skin Aging

Skin Cancer

Damage to

Immune System

Eye Injuries

BENEFITS

Fashion

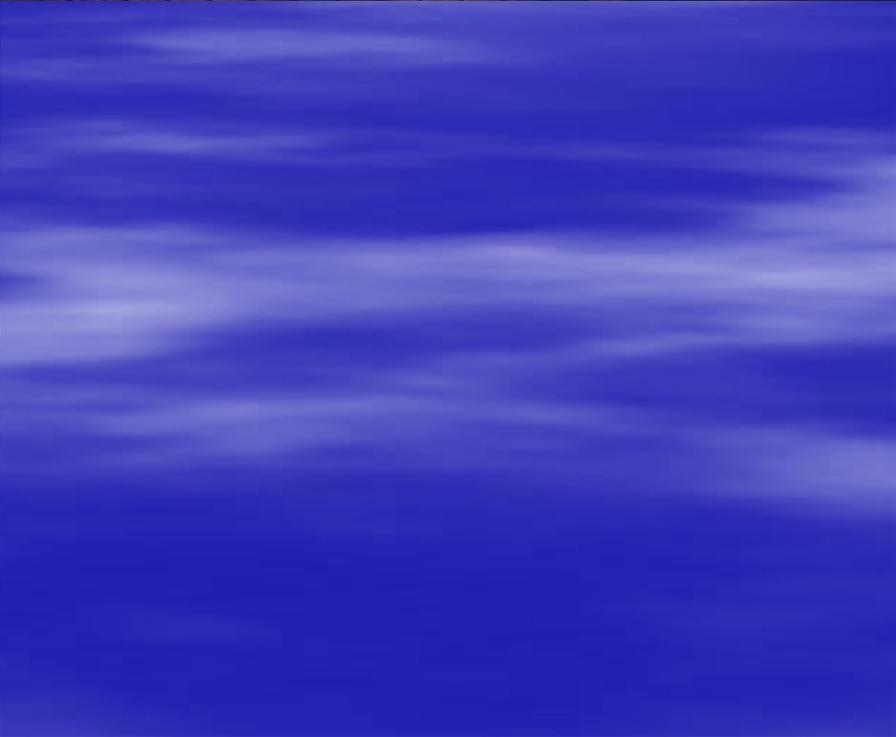
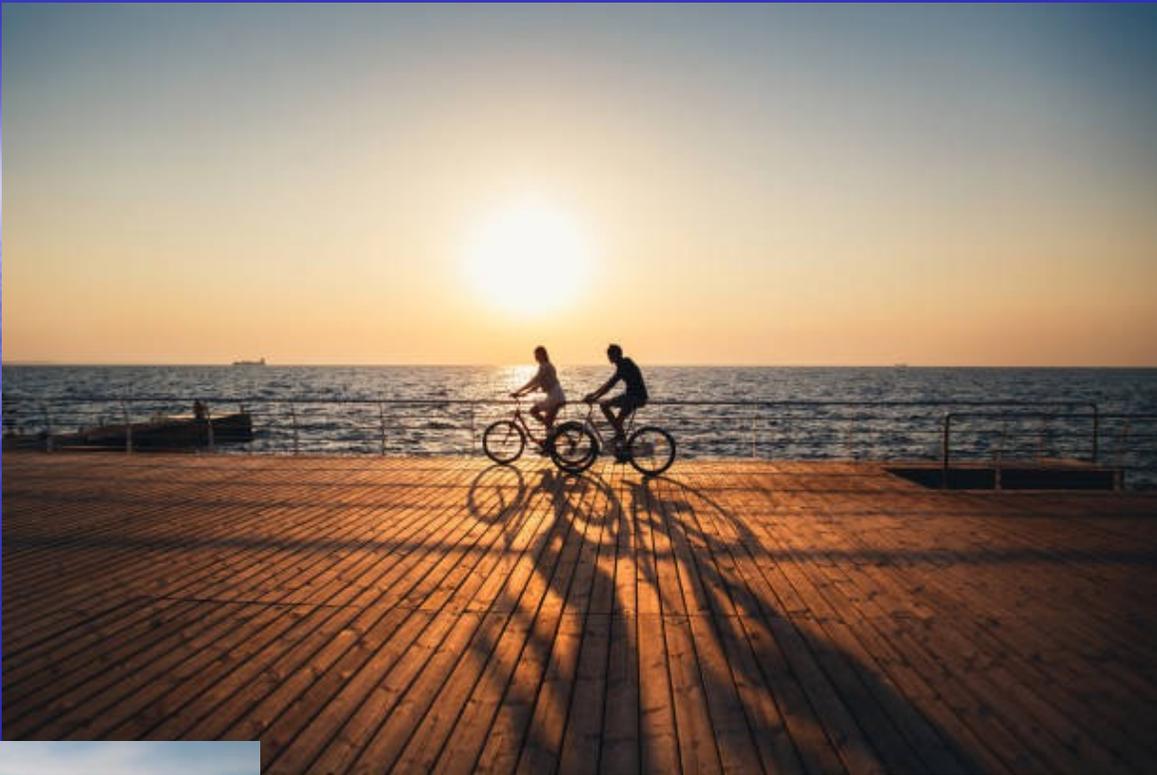
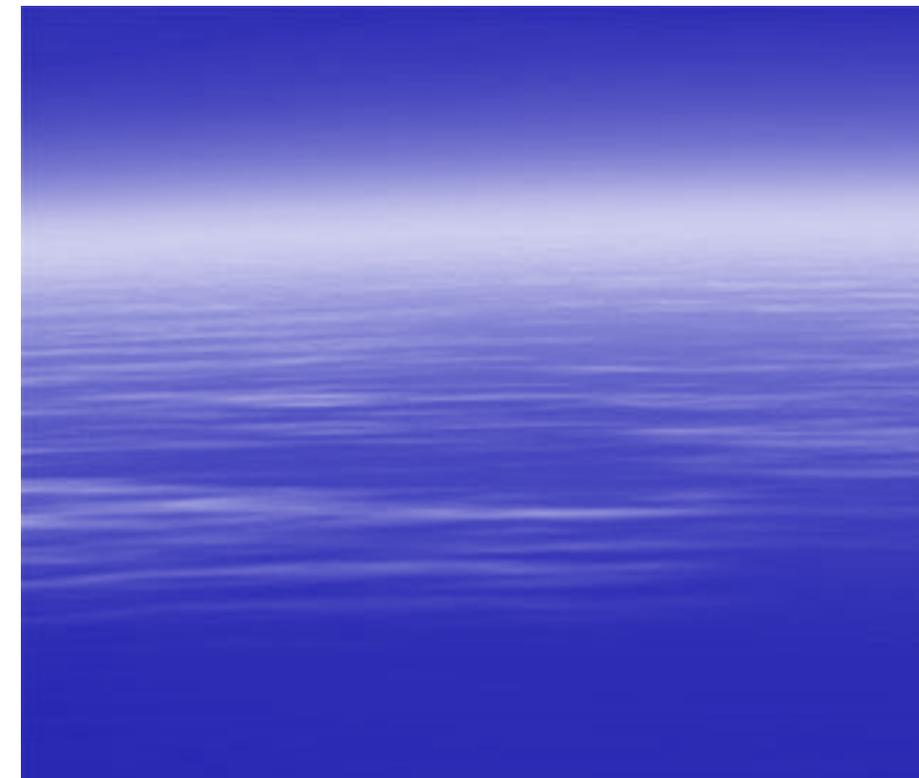
Vitamin D

Mental Health







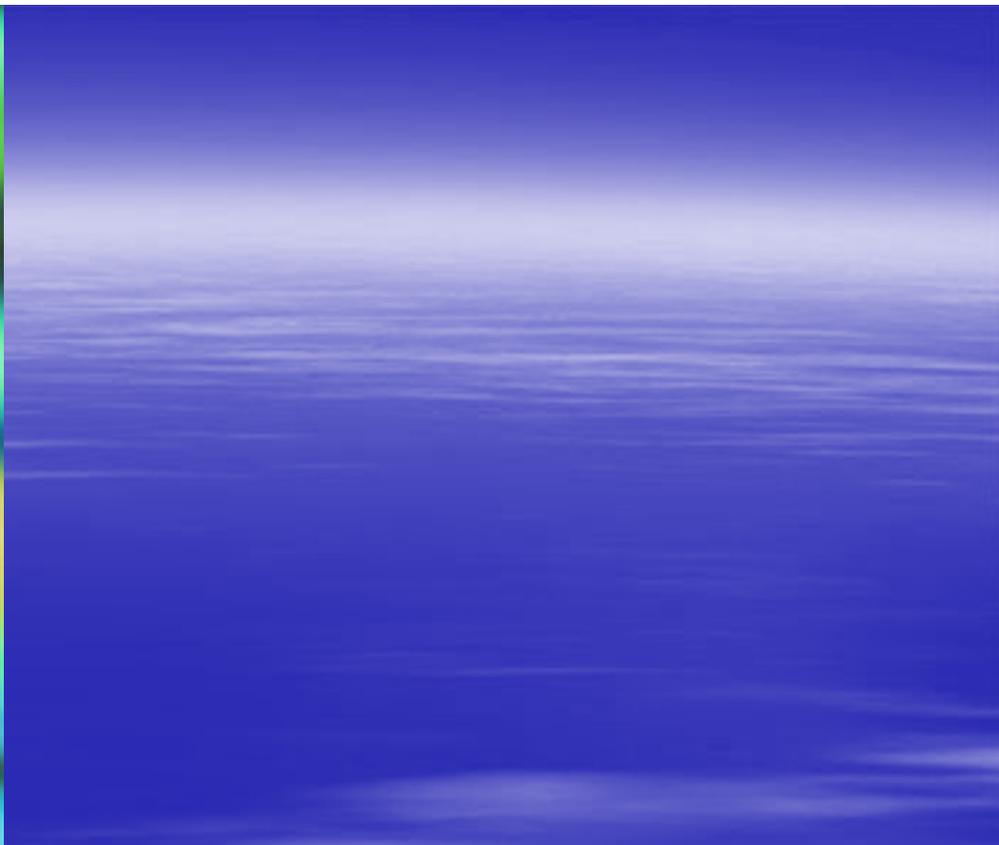
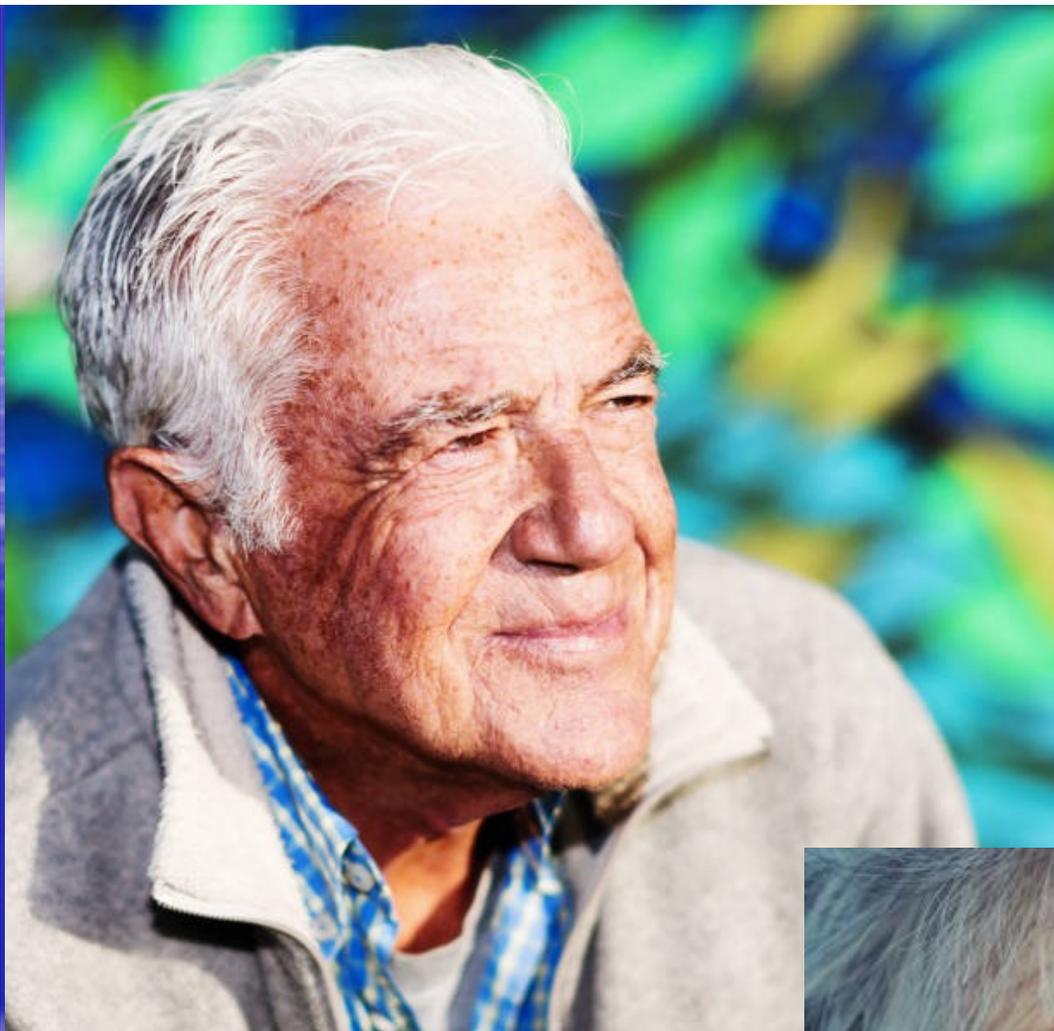




UVR and the Skin



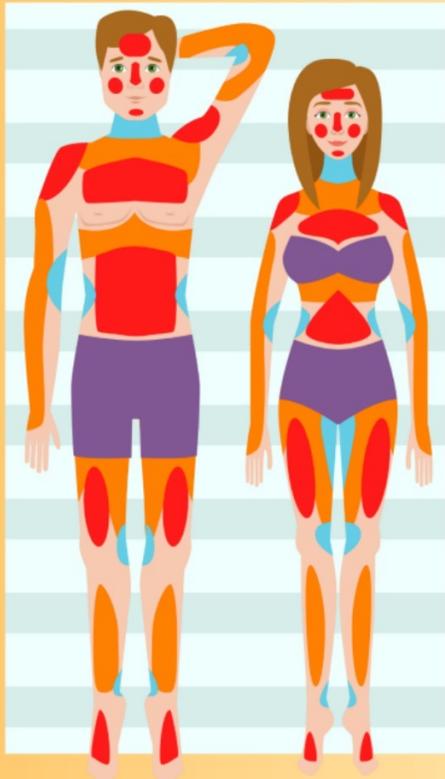




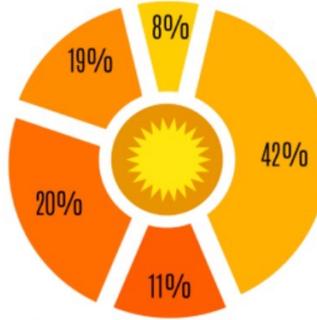
SUN PROTECTION INFOGRAPHIC

Places prone to sunburn

● Strongly burns ● Medium burns ● Slightly burns



Foods that promote tanning

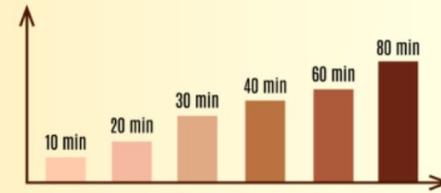


- Melon
- Watermelon
- Seafood
- Tomatoes
- Carrot
- Apricot
- Spinach
- Asparagus

Tomatoes, sweet potatoes, cantaloupe and apricots. Like carrots, these carotenoid rich fruits and veggies improve your skin's color while providing other health benefits



Recommended time for tanning



Some people think about sun protection only when they spend a day at the lake, beach, or pool. But sun exposure adds up day after day, and it happens every time you are in the sun.

 **Kingwood**
EMERGENCY HOSPITAL

Types of protection from the sun

(832) 777-6165
23330 Hwy 59N Feeder Road
Kingwood, TX 77339



Hat, sunglasses

Apart from skin damage, sun exposure also damages the eyes. This can lead to cataracts later in life. Wear sunglasses with 100% UV Protection to protect the eyes.



Water

UV-B, the frequency range of ultra-violet light that causes sunburn, is absorbed by water but you need a few metres of it to provide adequate protection.



Sunscreen

The Sun Protection Factor (SPF) of a sunscreen is used to determine how effective it is in protecting the skin from the sun's UV rays. Use a sunscreen with at least SPF 15 or higher.



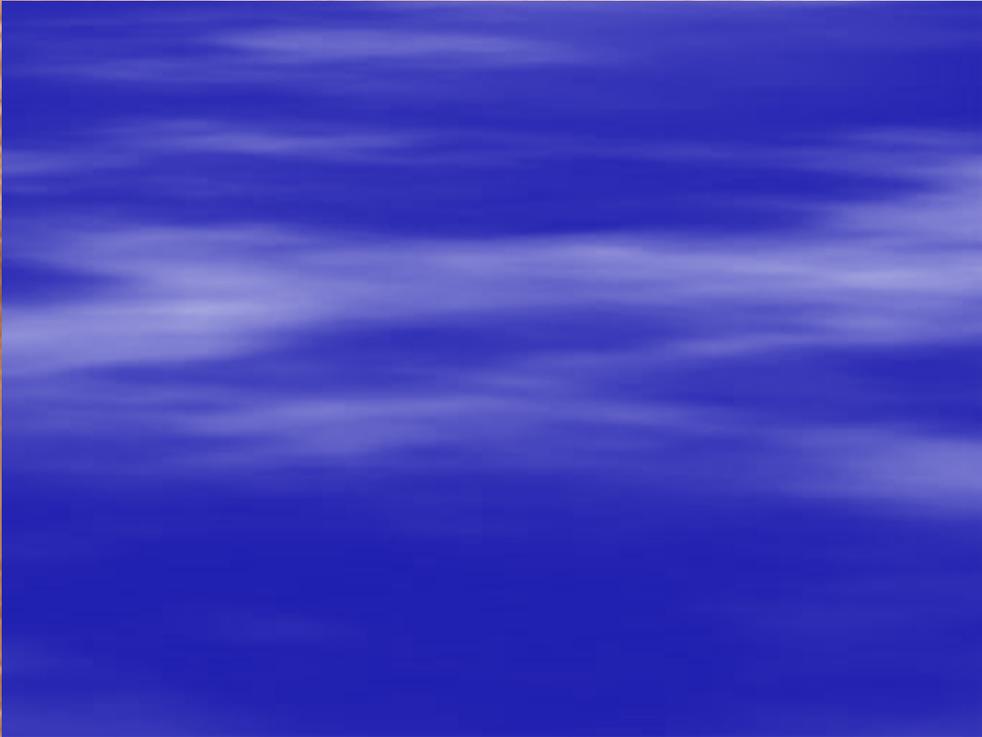
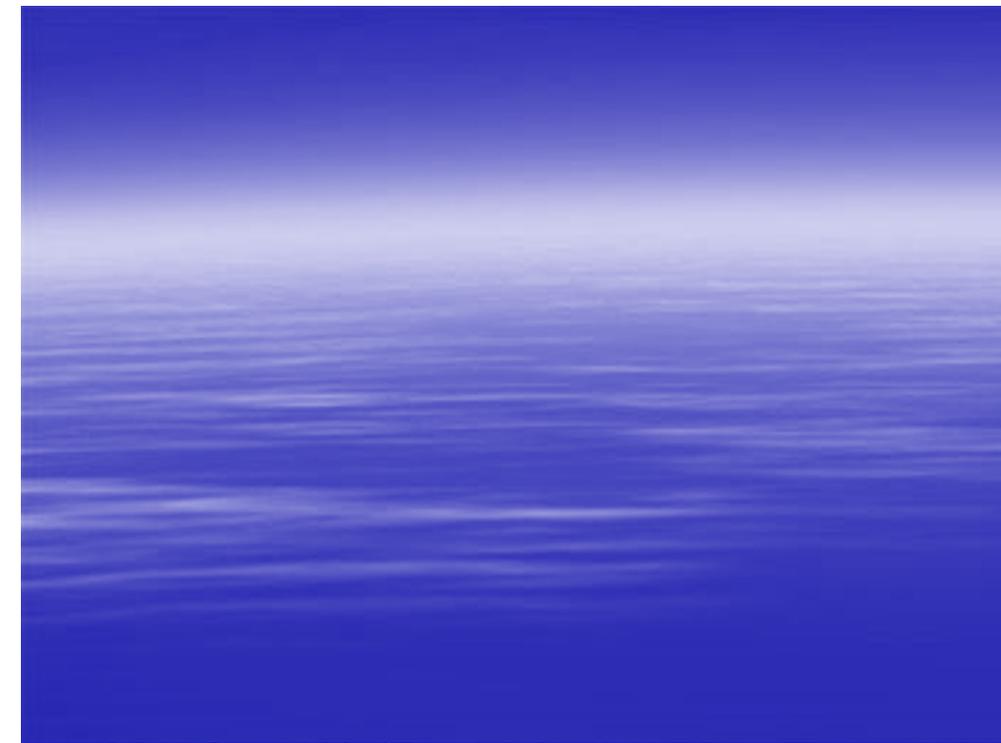
Right time

The sun's rays are strongest between 10 am and 4 pm and it is important to limit sun exposure during this time. Even if the days are cloudy or cooler, UV rays remain strong and it is best to plan indoor activities during these hours.



Shadow

A simple but effective way to determine when to stay out of the sun is the shadow rule: Seek shade if the shadow is short.







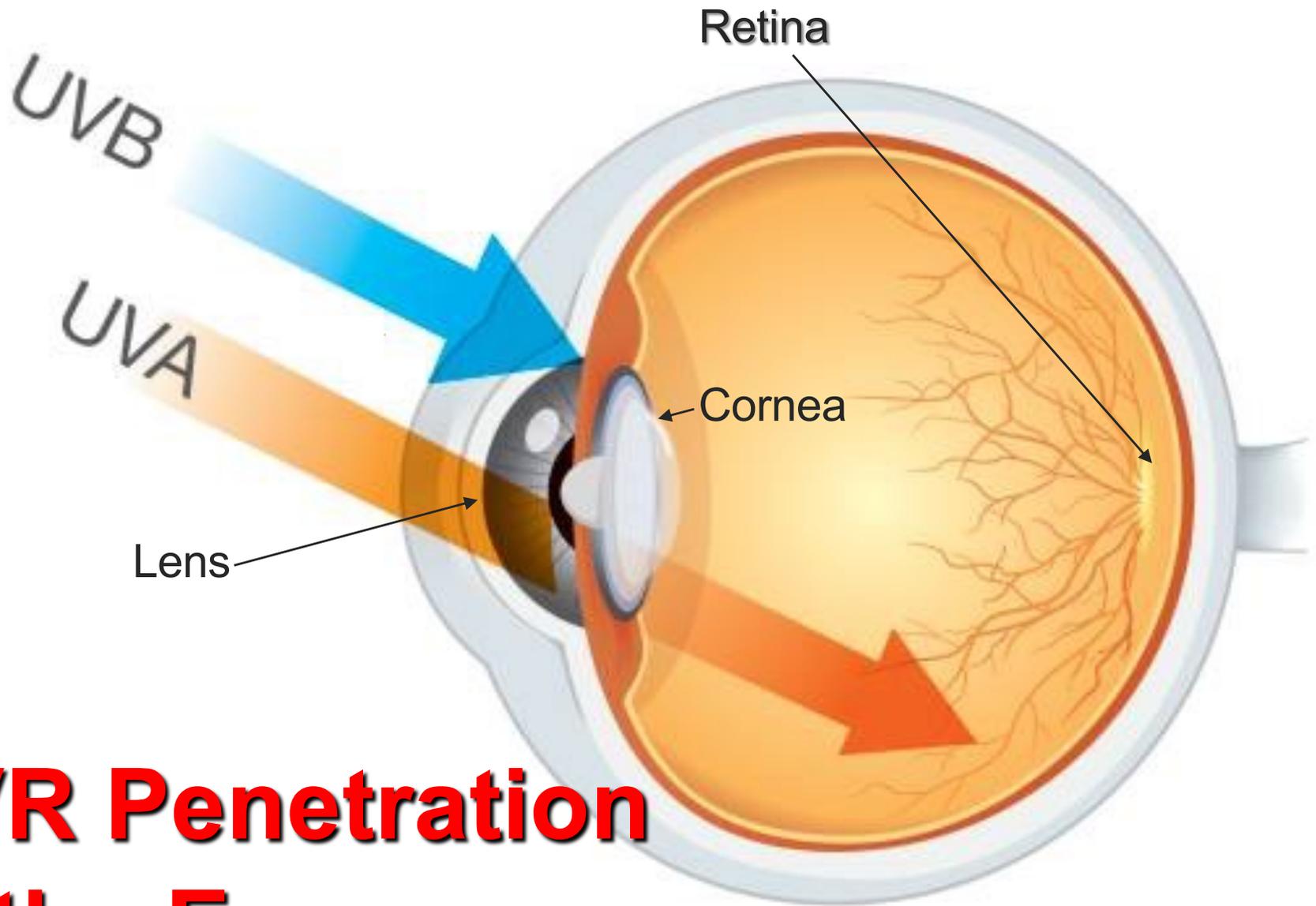






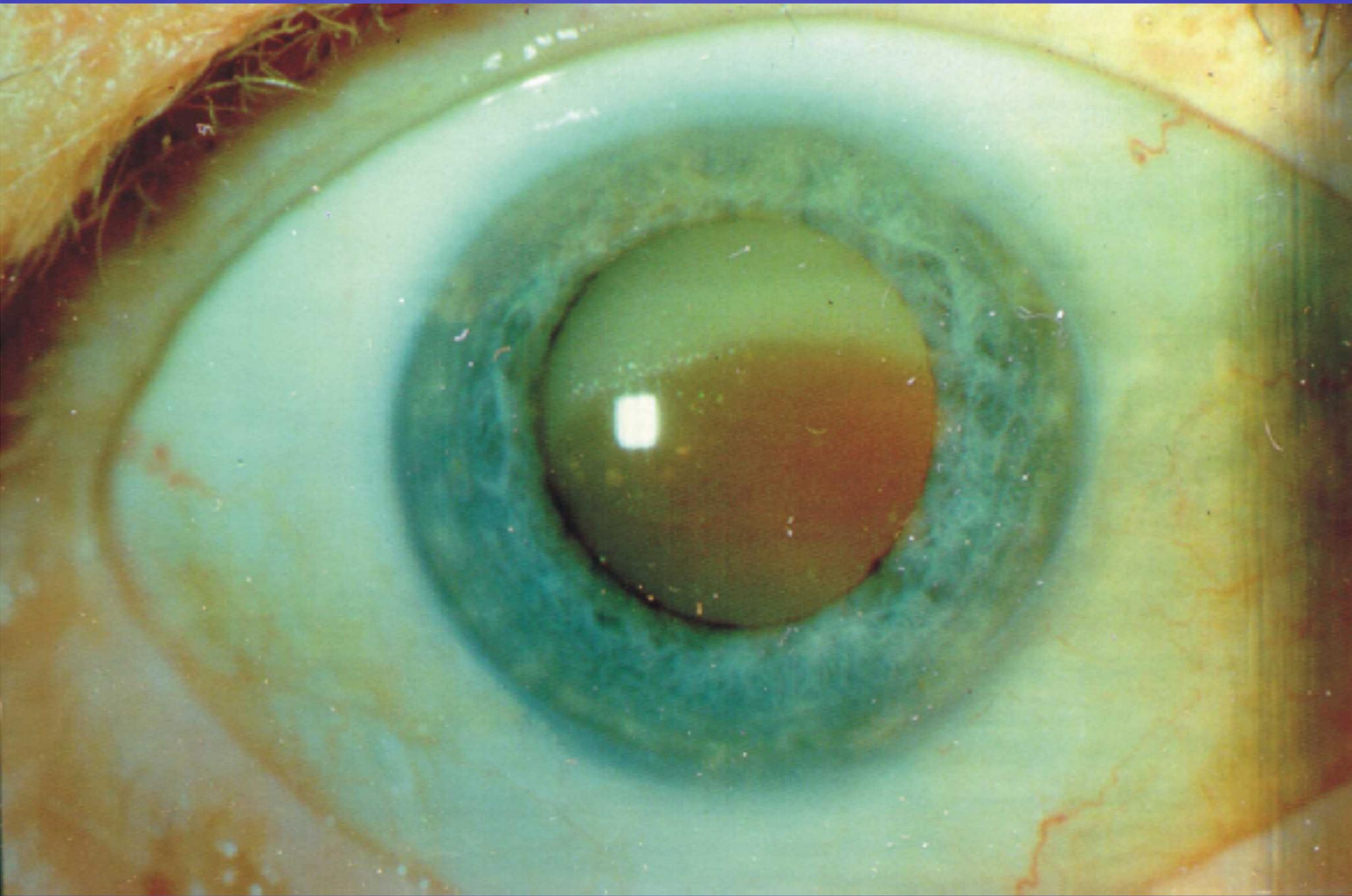
UVR and the Eyes





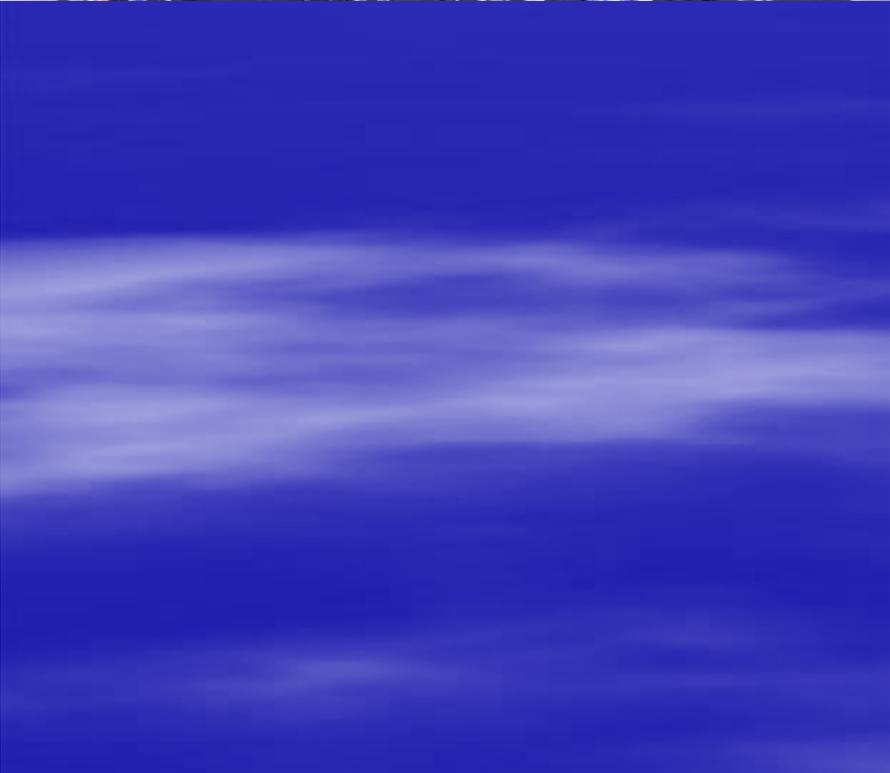
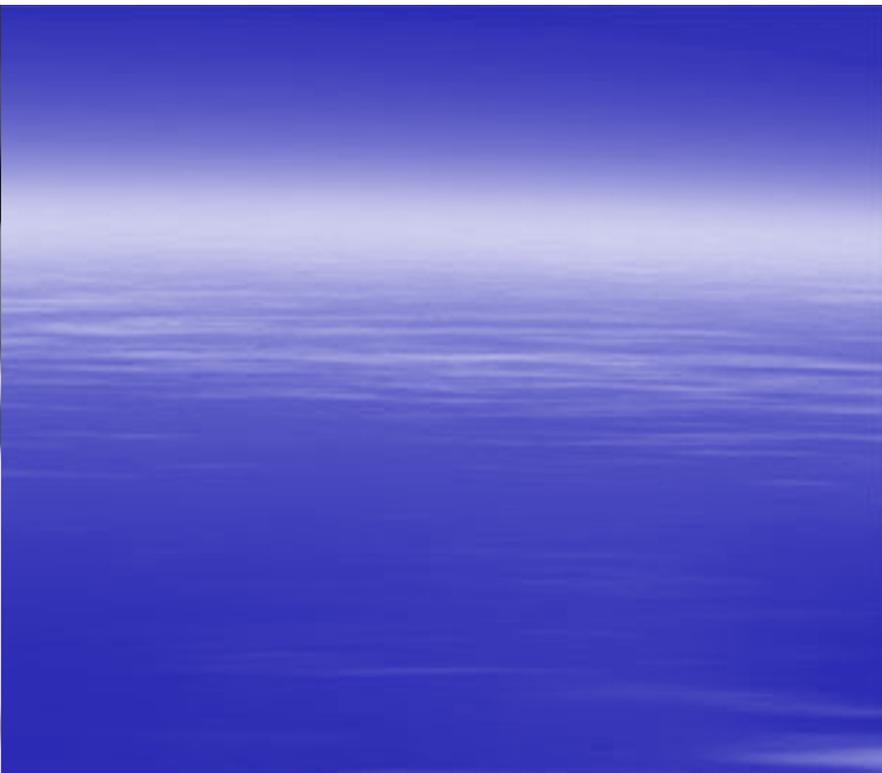
UVR Penetration of the Eye













Sun and Skin Protection



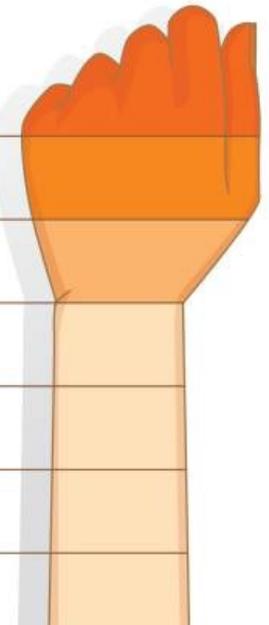
SPF

Sun Protection Factor



SPF 5 to 60 and beyond

- ☀️ SPF 5
- ☀️ SPF 10
- ☀️ SPF 15
- ☀️ SPF 30
- ☀️ SPF 50
- ☀️ SPF 60



MED: Minimum Erythema Dose



SUNSCREEN INFOGRAPHICS



USE SUNSCREEN
EVEN ON
CLOUDY DAYS



1 IN 5 PEOPLE DO NOT USE
SUNSCREEN AND WILL BE
DIAGNOSED WITH SKIN
CANCER IN THEIR LIFETIMES

PROTECT AGAINST:

UVB SUN RAYS
WHICH CAUSE
REDNESS AND
BURNING

UVA SUN RAYS
WHICH CAUSE SKIN
CANCER AND PREMATURE
SKIN AGING



USE SPF 30 OR HIGHER. THE HIGHER
THE SPF, THE GREATER THE PROTECTION.
IF YOU'VE HAD SKIN CANCER OR A PRE-
CANCER, OPT FOR SPF 45 OR HIGHER.

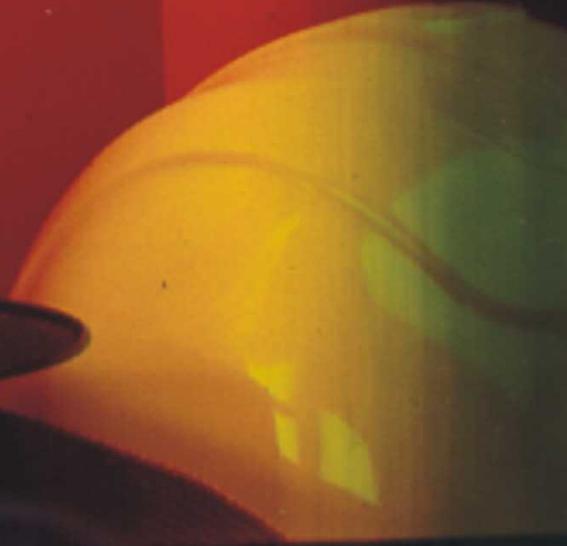
WHO NEEDS TO WEAR SUNSCREEN?

100% EVERYONE!
NO ONE IS IMMUNE
TO SKIN CANCER.



NEVER TOO LATE.
IT'S NEVER TOO LATE TO
START WEARING SUNSCREEN.

USE SUNSCREEN. YOUR SKIN
WILL THANK YOU FOR IT





BE SUN SMART!



SEEK! out shade 

SLIP! on a shirt 

SLAP! on a hat 
& sunglasses

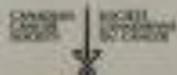
SLOP! on sunscreen 



B.C. ASSOCIATION
OF OPTOMETRISTS



BRITISH COLUMBIA
MINISTRY OF HEALTH AND
HEALTH SERVICES



CANADIAN COUNCIL OF HEALTH
SERVICES

Canadian
Dermatology
Association





“SUN SAFE” BEHAVIOR REVIEW

- AVOID EXPOSURE BETWEEN 10 a.m. AND 3 p.m.
- WEAR SUNSCREEN AT LEAST 15 SPF
- WEAR SUN PROTECTIVE CLOTHING
- WEAR PROPERLY CONSTRUCTED SUNGLASSES WITH MAXIMUM UV PROTECTION
- AVOID TANNING BEDS
- SELF-SCREEN



Resources:

AMERICAN CANCER SOCIETY

AMERICAN ACADEMY OF DERMATOLOGY

iSTOCK PHOTOS

KINGWOOD EMERGENCY HOSPITAL

NATIONAL FARM MEDICINE CENTER

O.U. COLLEGE OF OSTEOPATHIC MEDICINE

O.S.U. OPHTHALMOLOGY DEPARTMENT

DIVISION OF SAFETY AND HYGIENE

RESOURCE CENTER

NATIONAL INSTITUTE FOR OCCUPATIONAL

SAFETY AND HEALTH

