

# Sun Safety

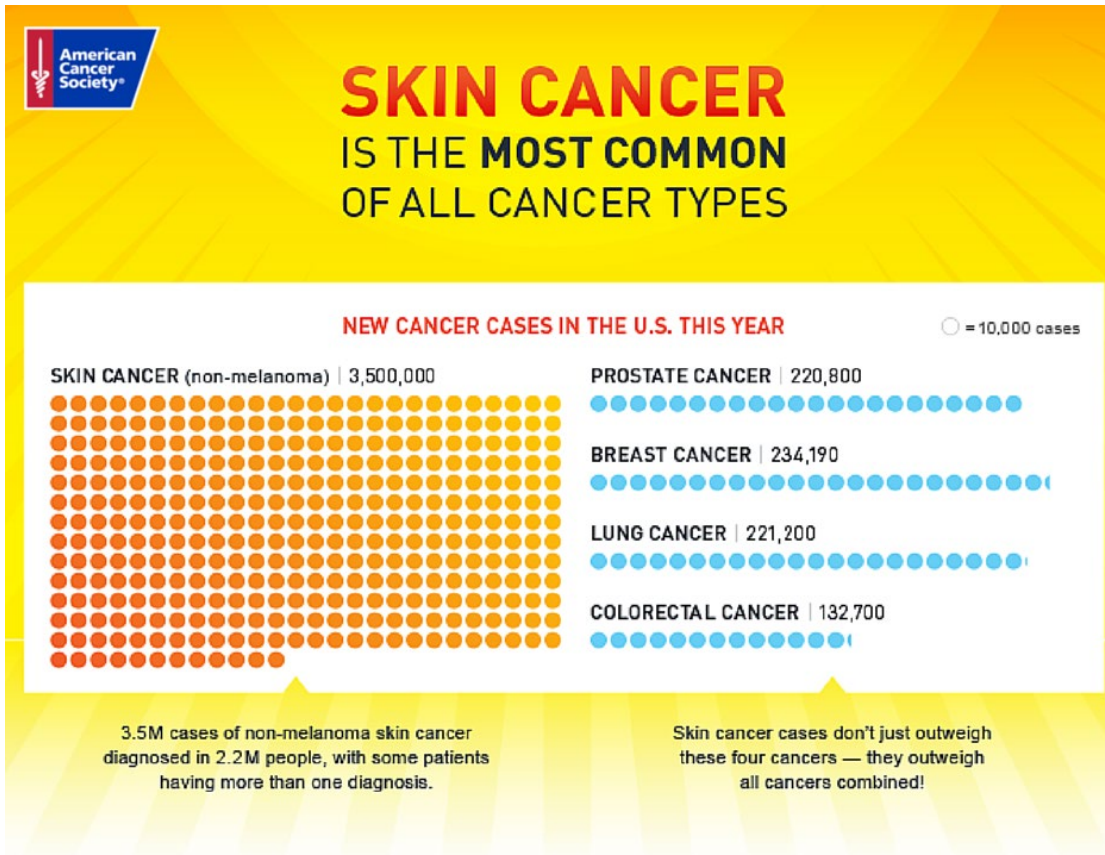
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# Objective

- The Skin Cancer Problem
- The Sun and Your Skin
- Assessing Your Personal Risk
- Practicing Sun Safety
- Spotting skin cancer early
- Sun Safety and Employees

# Skin Cancer Problem



# Skin Cancer Prevention is Now!



# Skin Cancer Facts

- Skin cancer is the most common cancer in the U.S.
- There are > 5 million new cases of skin cancer each year.
- One in five Americans will get skin cancer.
- Men get skin cancer more often than women.

Source:  
American Cancer Society



# Melanoma Facts

- Over 100,000 cases of melanoma will be diagnosed this year.
- There will be about 7,000 melanoma deaths.
- Melanoma increased 45% in the U.S. from 1992 to 2004.
- **THE MOST COMMON** cancer for young adults (25-29).

Sources: American Cancer Society & National Cancer Institute



# UV and Skin Cancer Facts

- Ultraviolet radiation is a carcinogen.
- UV causes 90% of all skin cancer.
- UV can be natural -- from the sun.
- UV can be artificial -- from tanning lamps.



# UV is a Carcinogen

Asbestos

Vinyl chloride

Chromium compounds

Radon

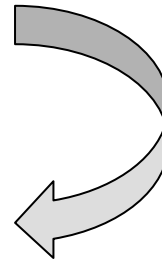
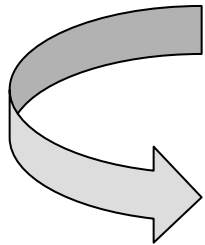
**Ultraviolet Radiation**

Benzene

Arsenic

National Toxicology Program

Department of Health & Human Services





# The Sun: Benefits and Harms

## BENEFITS:

- Heat
- Light
- Photosynthesis
- Outdoor environment for physical activity
- Production of vitamin D
- Happy & positive feelings; good mood

## HARMS:

- Suntan
- Sunburn
- Premature aging
- Freckles
- Liver spots
- Wrinkles
- Loss of elasticity
- Cataracts
- Immune system suppressant
- Skin cancer



# What Can You Do?

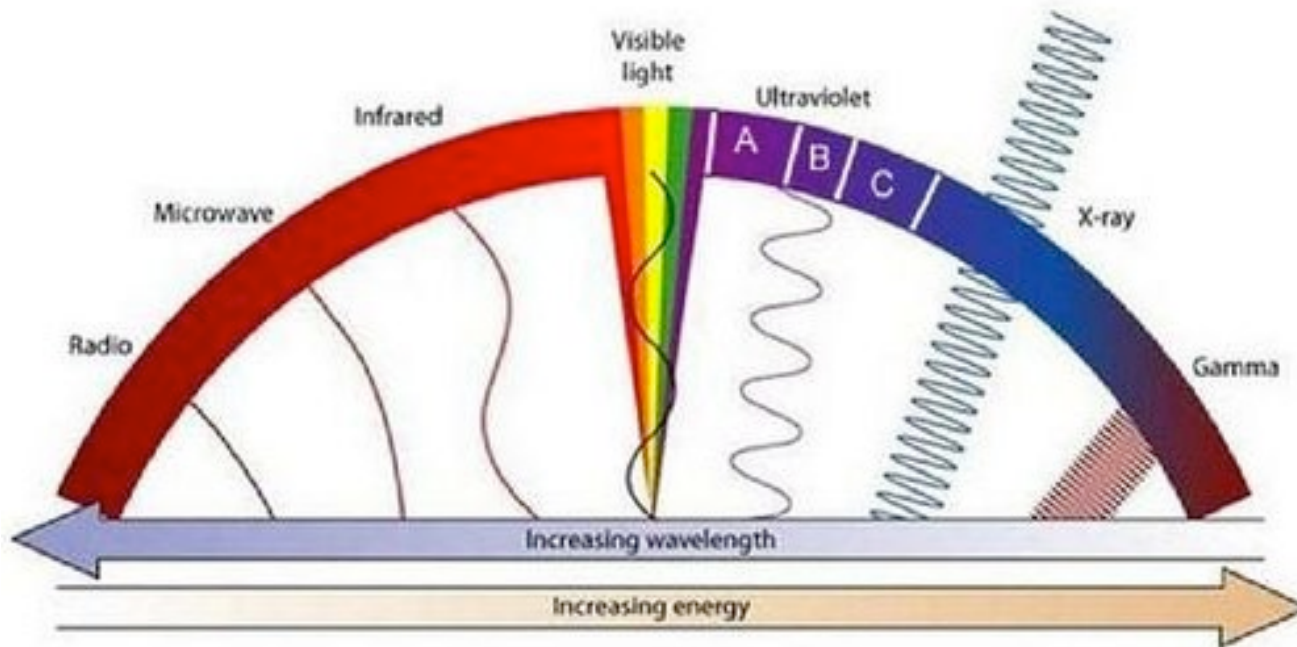
- Understand the connection between UV rays and skin cancer
- Know your personal risk
- Practice sun safety
- Be a role model for others



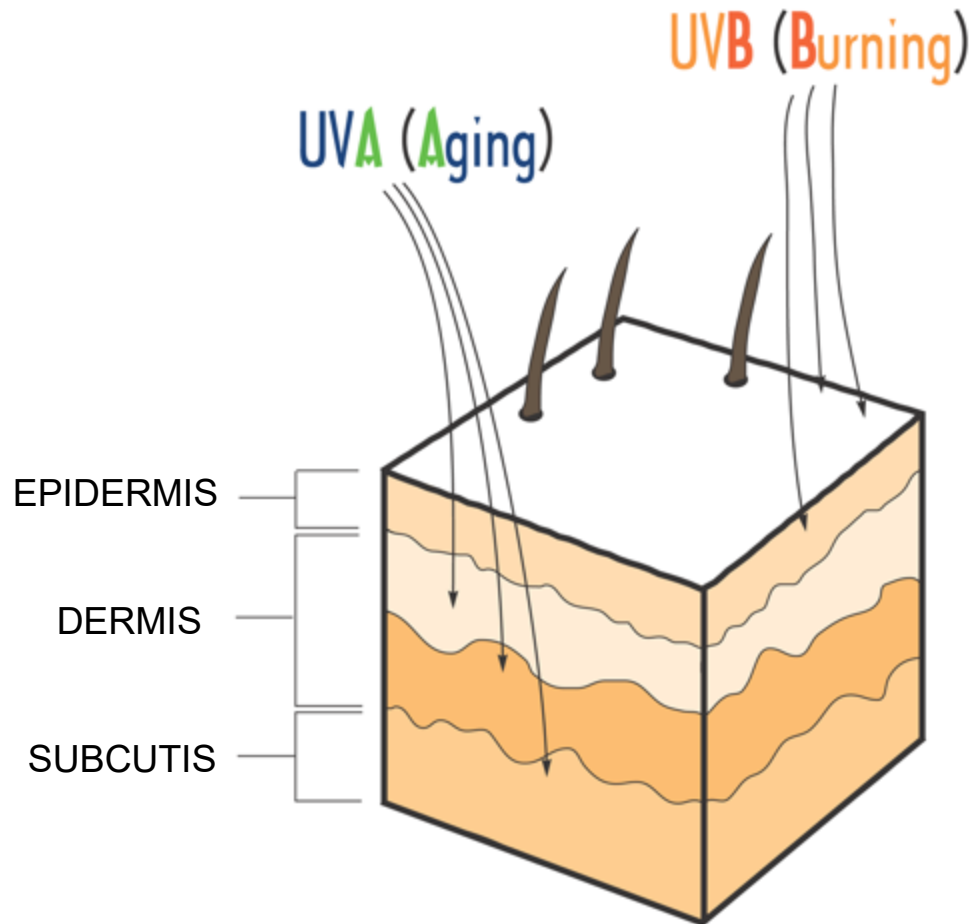
# The Sun and Your Skin



# UV and The Electromagnetic Spectrum



# UVA and UVB Radiation



Solar UV radiation is 95% UVA & 5% UVB.

UVA causes tanning, aging & skin cancer.

UVB causes burning & skin cancer.

Tanning beds emit 12 times more UVA than the sun.

Skin cancers occur in the epidermis.



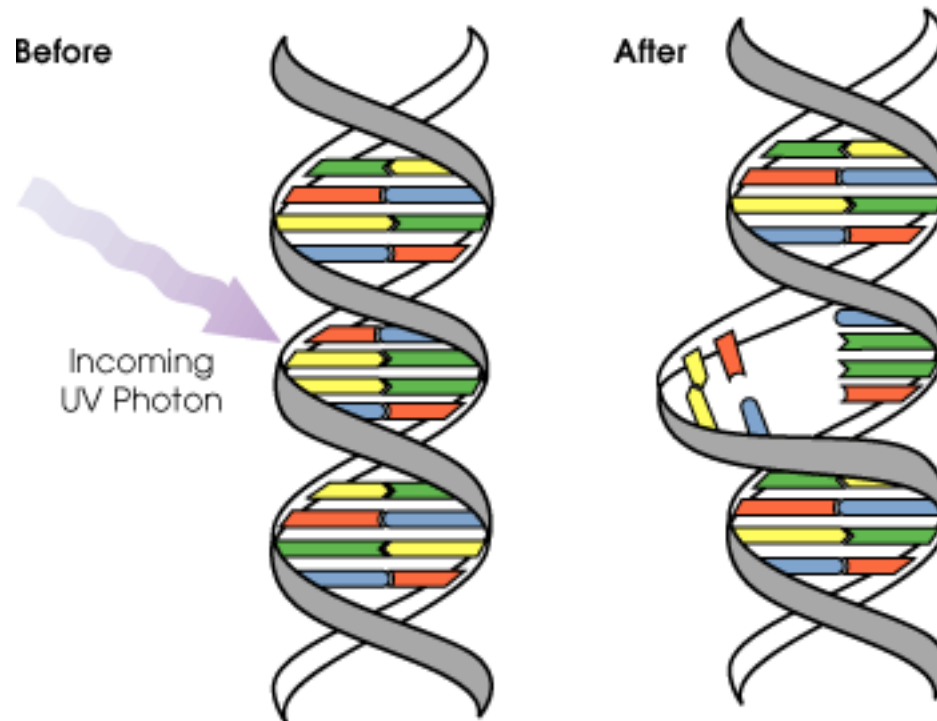
# How Skin Cancer Starts

- Cancers develop because of abnormal cell growth.
- Skin cancer develops because of abnormal growth of our basal, squamous or melanocyte cells.



# How Skin Cancer Starts

- UVA and UVB rays hit the epidermis.
- DNA in skin cells begins to break down.

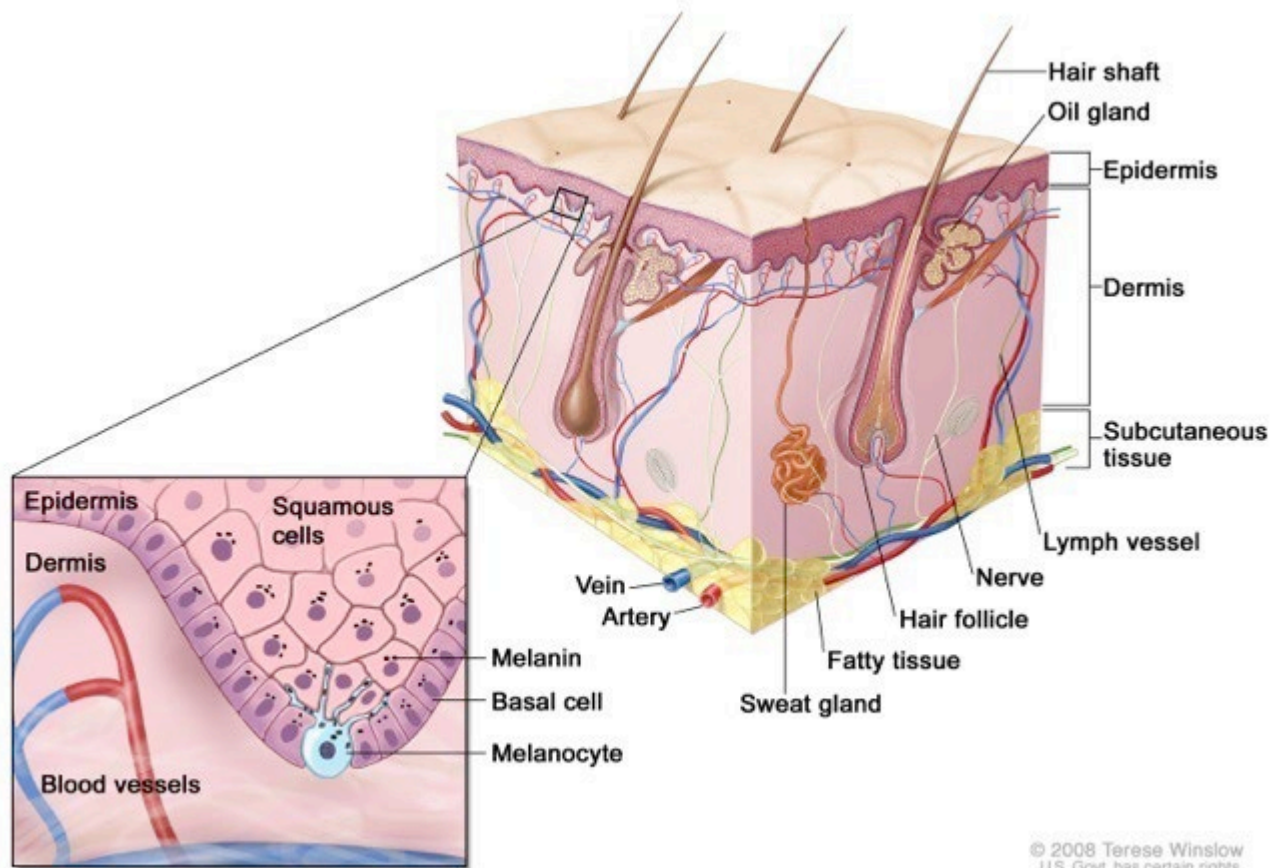


# How Skin Cancer Starts

- The breakdown causes the cells to grow out of control and form a mass of cancer cells.
- The immune system tries to repair the damage.
- More sun exposure hampers repair.
- Damaged cells can mutate into skin cancer within 5 years.







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# Types of Skin Cancer

- Non-melanoma Skin Cancer
  - Basal Cell Carcinoma
  - Squamous Cell Carcinoma
- Malignant Melanoma



# Basal Cell Carcinoma



# Squamous Cell Carcinoma



# Malignant Melanoma

Larger



Odd Shape



Varied Color



# Lessons Learned: Ban the Burn!

- Studies have shown that FIVE severe sunburns early in life may DOUBLE the risk for developing melanoma later in life.
- Avoid getting burned!



# Lessons Learned:

## There's No Such Thing as a Healthy Tan

- A suntan is your skin's way of trying to protect itself from damaging UV rays.
- Suntans give very little protection - about an SPF 3.
- Skin gets damaged while getting a tan, including aging from UVA rays and cumulative lifetime exposure.



# Most Skin Cancer is Preventable

- Know your risk
- Practice sun safety
- Examine your skin





# Assess Your Risk for Skin Cancer



# Understanding Your Risk

Your risk of getting harmed from over-exposure to UV is determined by:



# Who You Are: The Six Skin Types



- I. Always burns, never tans, sensitive to sun exposure
- II. Burns easily, tans minimally
- III. Burns moderately, tans gradually to light brown
- IV. Burns minimally, always tans well to moderately brown
- V. Rarely burns, tans profusely to dark
- VI. Never burns, deeply pigmented, least sensitive



# Highest Risk Factors

- Blond or red hair
- Blue, green or gray eyes
- Fair skin
- Skin that freckles easily
- Skin that burns easily and doesn't tan
- Many moles; large moles
- Family members with melanoma
- Male



# Sun Exposure Chart for Skin Type and UV Index

Type	Skin Color	Characteristics	UVI: 3 - 5	UVI: 6 - 7:	UVI: 8 - 10	UVI: 11+
I	White; very fair, red or blond hair; blue eyes; freckles	Always burns, never tans	10 - 15 minutes	5 - 10 minutes	2 - 5 minutes	1 - 2 minutes
II	White; fair; red or blond hair; blue, hazel, or green eyes	Usually burns, tans with difficulty	15 - 20 minutes	10 - 15 minutes	5 - 10 minutes	2 - 5 minutes
III	Cream white; fair with any eye or hair color; very common	Sometimes mild burn, gradually tans	20 - 30 minutes	15 - 20 minutes	10 - 15 minutes	5 - 10 minutes
IV	Brown; typical Mediterranean Caucasian skin	Rarely burns, tans with ease	30 - 40 minutes	20 - 30 minutes	15 - 20 minutes	10 - 15 minutes
V	Dark Brown - mid-eastern skin types; Black	Very rarely or never burns, tans very easily	40 - 60 minutes	30 - 40 minutes	20 - 30 minutes	15 - 20 minutes

# Where You Live:

- Sunny days.
- High elevation: UV intensity increases 5% every 1000 feet above sea level.
- An outdoor-oriented lifestyle.



# What you do: Outdoor Workers

- Get up to 8 times more UV than indoor workers
- Have a 60% greater risk of developing skin cancer
- Are at higher risk for non-melanoma skin cancer
- Indoor workers are at higher risk for melanoma



# Reflective Work Surfaces

- Flowers & lawn grass: 1-2%
- Clay soil: 4-6%
- Aged asphalt roadway: 5-9%
- Light concrete: 10-12%
- Weathered aluminum: 13%
- Sand: 15-18%
- Water: 20-25%
- White metal oxide house paint: 22%
- Fresh snow: 88%





# What else do you do ???

- Do you sunbathe to get a tan?
- Do you use tanning lamps?
- Do use sun protection?

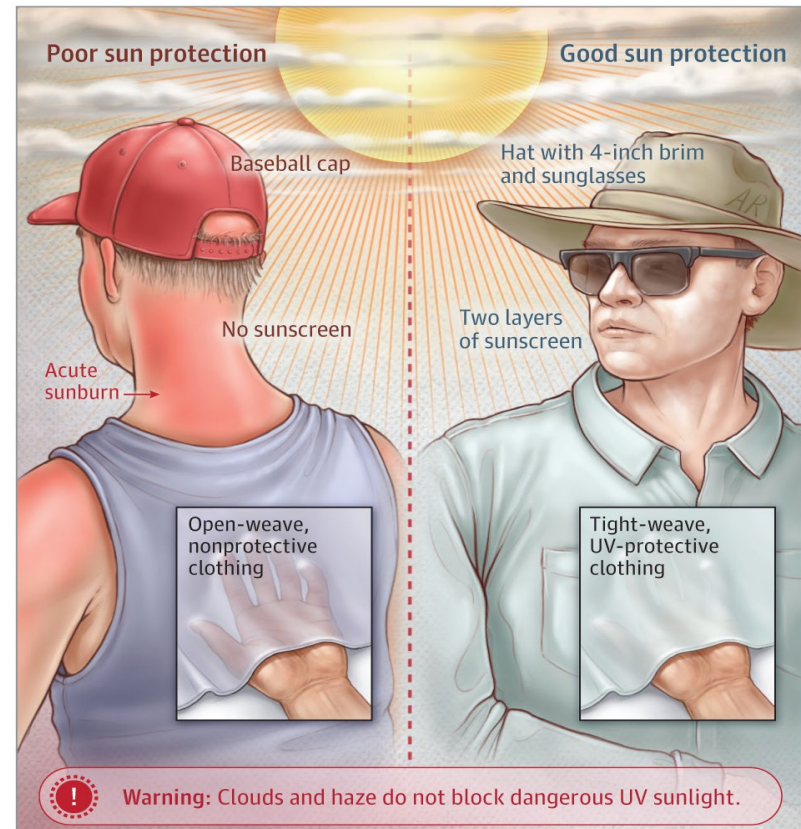


# Think Sun Safety!



# Checklist for Sun Safety

- Monitor UV
- Use Shade
- Cover Up
  - Clothes
  - Sunglasses
  - Hats
- Apply Sunscreen



# Monitor UV

- Check the UV Index for high UV days.
- Watch the clock for peak UV hours of 10:00 am to 4:00 pm.
- Check the weather; Clouds block only 20% to 40% of UV.
- Arrange work around peak sun hours if possible.



# Use Shade

- Bring portable shade cover to your job site.
- Attach a shade device to your road equipment.
- Seek shade structures or umbrella tables for breaks.
- Go indoors for lunch or meetings.
- Work inside during peak sun hours.
- If you work in a car or truck, the glass blocks UVB, but not all UVA.



# Skin Cancer and Driving

- More UV-related melanoma skin cancer occurs on the left side of the body in the US
- The left arm is more affected than the right arm
- An open window increases UV dose 5X more than a closed window



# Cover Up



- Long Sleeves
- Long Pants
- Sunglasses
- Hats
- Gloves



# Photo-damaged Skin



Changes in the skin from prolonged exposure to solar irradiation.





# Sun Protective Clothing

- Clothing can block 100% of UVA and UVB.
- Wear clothing that covers a large amount of your skin.
- Wear long-sleeved shirts and long pants.
- Choose fabrics with a tight weave that allows little or no light to pass through.
- A thin white t-shirt has an SPF of about 4.
- Wear darker colors because they absorb more UV.



# Hats



- Choose wide-brimmed hats.
- Any hat is better than NO hat!



# Sunglasses

- UV can cause cataracts, macular degeneration, blindness and melanoma of the eye.
- Wear large sunglasses that block 99%-100% of UV rays.
- Look for lenses labeled UV 400 or ANSI Z80.3.
- Lenses don't have to be dark or expensive.



# Apply Sunscreen



- Lotion
- Gel
- Stick
- Towelette
- Make up
- Lip balm



# New FDA Proposal

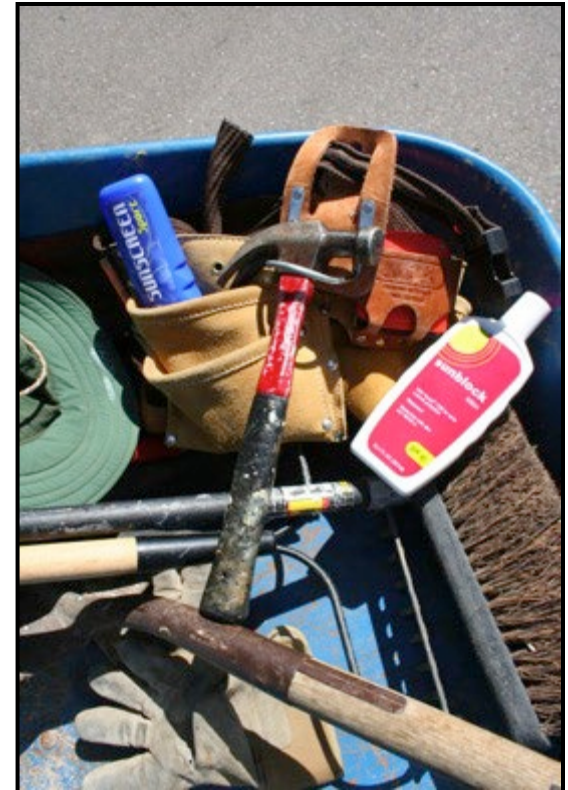
(Introduced February 2019)

- Broad Spectrum Protection SPF of 15 or higher – certified to protect against UVA.
- Limit exposure, especially between 10 a.m. and 2 p.m.
- Can longer use: Sunblock, Waterproof, All Day Protection, Sweat Proof.
- Apply 2 hours before going outside.
- Reapply every 2 hours.
- Water Resistant – 40 or 80 minutes.
- Check for expiration date if there is not one then discard after 3 years.



# Sunscreen Basics

- Choose SPF 30 or more for working outdoors.
- Use a broad-spectrum sunscreen for UVA and UVB.
- Make sunscreen a daily habit.
- And don't forget lip balm with SPF 15 or more.
- Sunscreen expiration date is 3 years from date of manufacture.



# What is SPF?

- SPF = Sun Protection Factor
- SPF tells you how much UV will be absorbed or reflected.
- SPF also tells you how long a sunscreen will protect your skin from sunburn.
- SPF is a measure of UVB protection, not a measure of UVA protection.



# Strength of Protection

- SPF 15 screens 93% of UVB
- SPF 30 screens 97% of UVB
- SPF 50 screens 98% of UVB
- SPF 70 screens 98.5% of UVB
- SPF 100 screens 99% of UVB
  
- *No sunscreen blocks 100% of UV.*





# Length of Protection

$$\begin{array}{l} \text{Your Time To Burn Without Protection} \\ \times \text{ SPF of your sunscreen} \\ \\ = \text{ \_\_\_\_\_\_ MINUTES OF PROTECTION} \end{array}$$

Examples (fair skin):

12 minutes x SPF 15 = 180 minutes (3 hours) until sunburn

12 minutes x SPF 30 = 360 minutes (6 hours) until sunburn

12 minutes x SPF 45 = 540 minutes (9 hours) until sunburn



# Two Types of Sunscreen

## Chemical UV Absorbers

- Chemicals that work like a sponge on your skin to absorb UV for a set amount of time
- Need time to bond with skin; do not work right away
- Harder to rub off

## Physical Reflectors

- Tiny metals that work like aluminum foil to reflect UV away from your skin
- Don't need time to bond with skin; work right away
- Easier to rub off

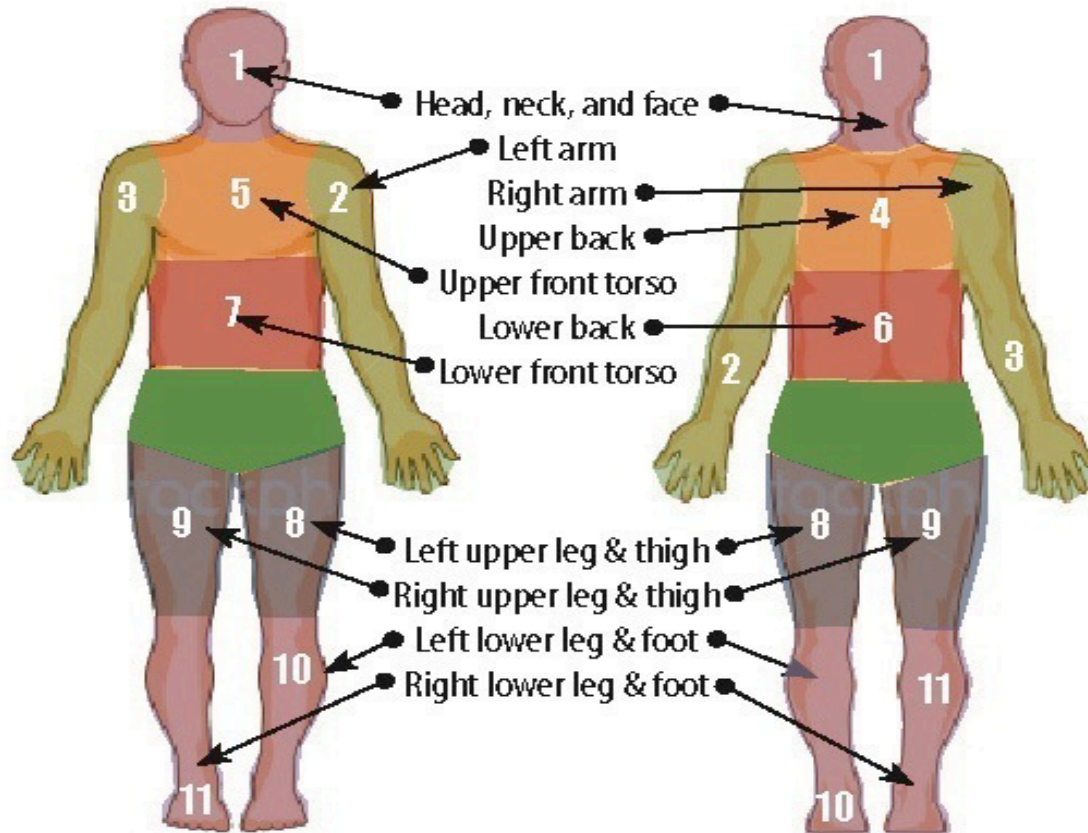
*Both work well; use what you like.*



# The Rule of Two Fingers: How Much Sunscreen to Apply

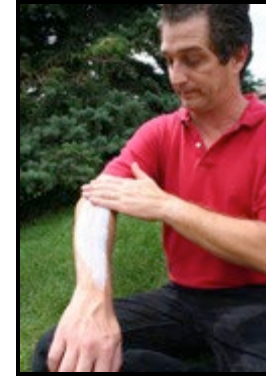


# The Rule of Two Fingers: Where to Apply Sunscreen



# How to Apply Sunscreen

- Apply it about 15-30 minutes before going out in the sun.
- Apply it on all exposed skin, but not open wounds.
- Don't forget places like ears, neck and hands.
- Don't rub it in too hard – it reduces effectiveness by at least 25%.



# When to Reapply

- Reapply after 20 minutes to cover missed spots.
- Reapply every two hours to keep it powerful.
- Reapply more often after sweating.



# Sunscreen and DEET Mosquito Repellent



- Use separate products
- Apply sunscreen first; then repellent
- Reapply sunscreen often; don't reapply repellent (25% DEET should last 5 hours)



# Practice Early Detection



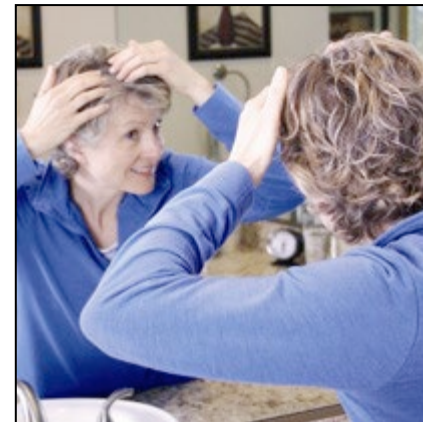
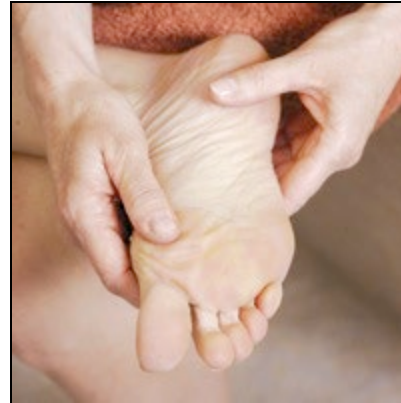
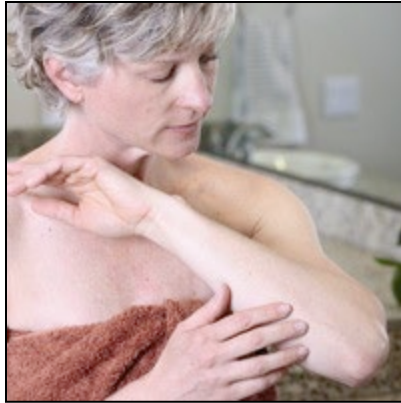


# Detect Skin Cancer Early

- At least 95% of skin cancer can be cured if detected early.
- Look for changes in spots or moles.
- Look for sores that don't heal.
- Report unusual findings to your doctor.



# Check Your Self !



# Know Your ABCDE' s for Moles

A= Asymmetry: One half of the mole or birthmark doesn't match the other.



B= Border: The edges are ragged, irregular, or poorly defined.



# ABCDE Rule Continued

C=Color: Color varies from one area to another and may have differing shades of brown, black, white, red or blue.

D=Diameter: Area is larger than 6 mm (about the size of a pencil eraser) and is growing larger.

E=Evolving: Show any changes in size, color, shape or texture of a mole (or any skin changes) to your doctor.



-- American Academy of Dermatology



# Take Aways

- Some UV exposure is healthy, but avoid over-exposure, sunburns and suntans.
- Limit your unprotected time in the sun, especially during peak UV hours at midday in the summer.
- Find shade or bring it with you.
- Use sunscreen with SPF 30 or higher every day.
- Wear cover-up clothing, hats and sunglasses.
- Don't use tanning beds or lamps.
- Check your skin for changes every year



# Sun Safety Apps

- There are some great products available to provide information on expected UV from the sun.
- EPA's SunWise UV Index App
  - <https://itunes.apple.com/us/app/epas-sunwise-uv-index/id466052686?mt=8>
- Robocat Ultraviolet UV Index
  - <https://itunes.apple.com/us/app/ultraviolet-uv-index/id445874481?mt=8&ign-mpt=uo%3D4>

# Environmental Health and Safety

## Programs and Services

- Fire Protection Engineering
- Life Safety & Emergency Preparedness
- Environmental Compliance
- Laboratory Safety
- Occupational Safety
- Occupational Health and Medical Surveillance
- Materials Management
- Industrial Hygiene
- Chemical Hygiene
- Safety Training

Location: University Health Services Bldg, Room 002 (basement)

Phone number: 744-7241

Email: [EHS@okstate.edu](mailto:EHS@okstate.edu)

Website: <http://ehs.okstate.edu/>



# Questions ?

