



SUN SAFETY

SUNBURN, SKIN CANCER &
HEAT-RELATED ILLNESS

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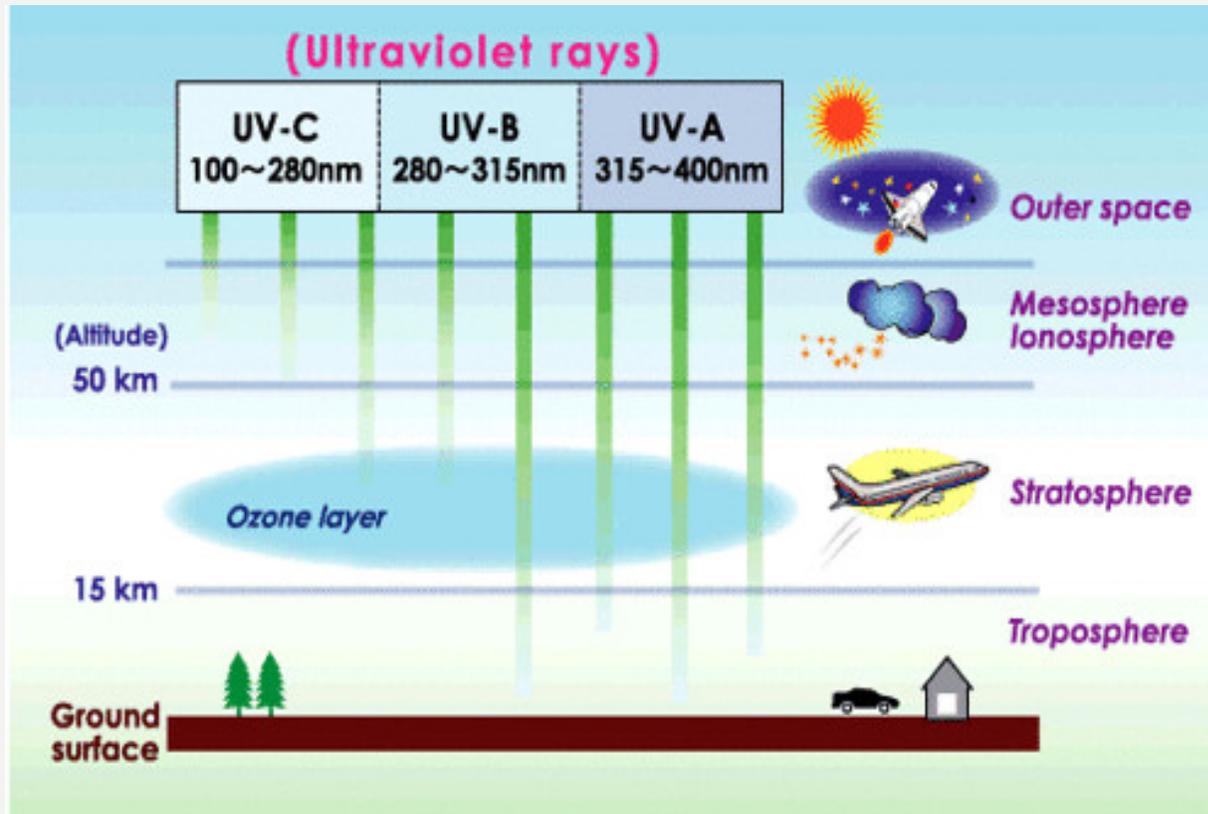


ULTRAVIOLET (UV) RAYS

- Sunlight is composed of about 50% infrared light, 40% visible light, and 10% ultraviolet light.
- UV rays are invisible radiation that comes from the sun and artificial sources such as tanning beds, mercury lighting and sunlamps.
- UV rays are present on sunny and cloudy days, and reflect off of surfaces like water, cement, sand, and snow.
- Because of damage to the earth's ozone layer, more UV rays are hitting the earth's surface.
- UV rays cause skin damage, not the outside temperature.
- They penetrate the skin and damage skin cells.
- They are also linked to eye conditions such as cataracts.



TYPES OF UV RAYS



UV-A Rays:

- Most UV rays reaching earth surface are UVA
- Reach deep into human skin
- Can damage connective tissue
- Can alter and damage the skin's DNA

UV-B Rays:

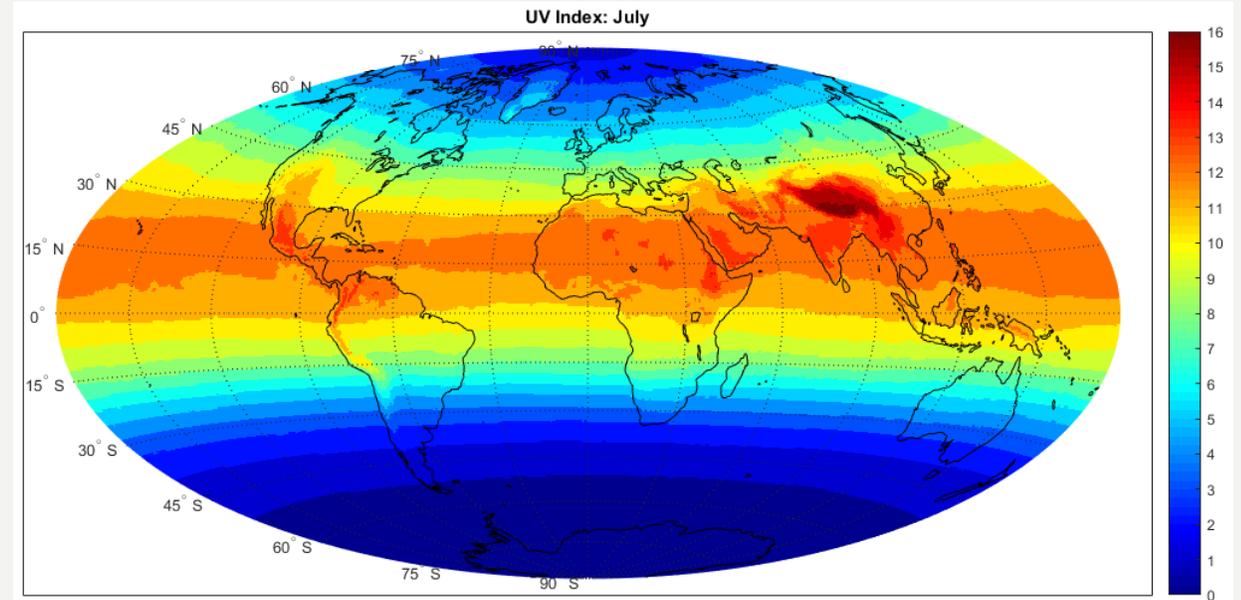
- Most absorbed by the ozone layer
- Fewer reach earth's surface vs. UVA rays
- Help produce vitamin D in the skin,
- Don't reach as far into the skin as UVA rays
- Can still cause sunburn and damage DNA

UV-C Rays:

- Very dangerous
- Absorbed by the ozone layer
- Do not reach the earth's surface

UV INDEX

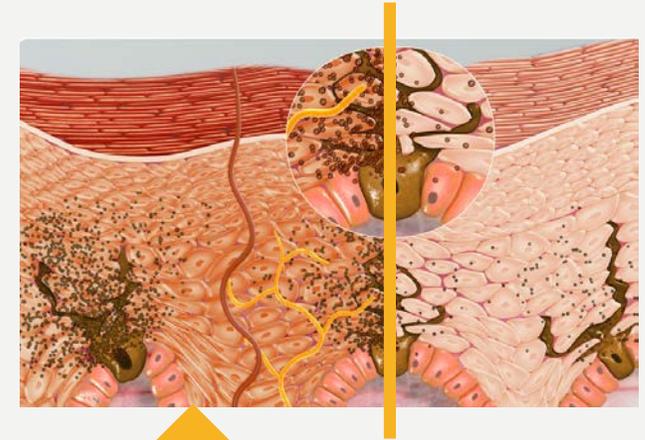
The National Weather Service and the Environmental Protection Agency developed the UV Index to forecast the risk of overexposure to UV rays.



- The UV Index helps determine the amount of precaution needed when spending time outdoors.
- It predicts exposure levels on a 0 to 16 scale; higher levels indicate a higher risk of overexposure.
- If the UV index is 3 or higher, sun protection is needed.
- The UV Index includes clouds and other local conditions that affect the amount of UV rays reaching the ground.

EFFECT OF UV RAYS

- Causes sun burning & sun tanning
- Can change skin texture
- Has a cumulative effect on the skin
- Causes premature aging of the skin
- Leads to skin cancer
- Can cause cataracts



This shows how skin tone becomes darker due to the production of more melanin to overcome DNA damage caused by UV radiation.

Hear more about UV Rays and the effects

<https://vimeo.com/35119320>

SUN PROTECTION

YEAR-ROUND ATTENTION

- Sun protection is important all year round and can include different methods.
- No matter what outdoor activity you are doing – exercising, working or relaxing, sun safety should be an everyday habit.
- Avoid getting sunburn to reduce aging to your skin and to lower your chance of getting skin cancer.



SOURCES OF SUN PROTECTION

- Products with Sun Protection Factor (SPF)
- Sunscreen
- Shade
- Clothing
- Hats
- Sunglasses

SUN PROTECTION FACTOR

- SPF is a number assigned to products with sunscreen protection in their effectiveness in blocking UV rays.
- Higher numbers offer more protection. SPF 15 means a person can stay in the sun 15-times longer before burning.
- The **American Academy of Dermatology** recommends sunscreen with **SPF 30 or higher** to protect against sunburn.
- Choose a “broad spectrum” to protect against ultraviolet A (UVA) and ultraviolet B (UVB) rays, both of which are harmful and cause skin cancer.

| SPF SELECTION GUIDE | | | | | |
|---------------------|---------------------------------------|-----------------------------------|------------------------------|---------------------------|----------------------|
| Hours Outdoors | Skin Tone | | | | |
| | Very Fair Never tans, always burns | Fair Tans slowly, burns easily | Light Usually burns first | Medium Burns minimally | Dark Rarely burns |
| 1 | SPF 30 | SPF 15 | SPF 15 | SPF 8-14 | SPF 8-14 |
| 2 | SPF 30 | SPF 30 | SPF 30 | SPF 15 | SPF 8-14 |
| 3 | SPF 50+ | SPF 50+ | SPF 30 | SPF 15 | SPF 15 |
| 4 | SPF 50-100 | SPF 50+ | SPF 30 | SPF 30 | SPF 15 |
| 5 | SPF 50-100 | SPF 50-100 | SPF 50-100 | SPF 50+ | SPF 30 |



RECOMMENDED



All Coolibar fabrics are recommended as effective UV protectants only for covered areas. Coolibar is the first clothing company to receive The SCF Seal of Recommendation.

SUNSCREEN

- Sunscreen chemicals shield the skin by absorbing, reflecting or scattering sunlight
- Many cosmetics, lip balms and hair sprays have added sun-protective ingredients to provide daily protection the face, lips & scalp
- If one sunscreen product causes skin irritation, try others since they do not have the same ingredients.
- Always check the expiration dates
- Reapply every 1-2 hours depending on the SPF, the sun's intensity, and if you are swimming or sweating.
- “Water resistant” sunscreen lasts about 40 minutes; “very water resistant” lasts about 80 minutes
- Use sunscreen lotion or spray with an SPF of at least 15 daily to all exposed skin before going outside, even when cool or cloudy.



SHADE, CLOTHING, HATS & GLASSES



SUNBURN

SYMPTOMS & TREATMENT



SUNBURN SYMPTOMS

- Signs and symptoms of sunburn are not immediately apparent.
- Symptoms usually start about 4 hours after sun exposure, may worsen in 24–36 hours, and usually resolve in 3–5 days.

SUNBURNED SKIN

- Red, tender and swollen skin
- Blistering
- Headache
- Fever
- Nausea
- Fatigue



SUNBURNED EYES

- Sunburned eyes become red, dry, painful, and feel gritty
- Chronic eye exposure can cause permanent damage, including blindness



SUNBURN TREATMENT



- Take aspirin, acetaminophen, or ibuprofen to relieve pain, headache, and fever
- Drink plenty of water to help replace fluid losses
- Comfort burns with cool baths or the gentle application of cool wet cloths
- Avoid further sun exposure until the burn has resolved
- Use of a topical moisturizing cream, aloe, or 1% hydrocortisone cream to provide additional relief



If blistering occurs:

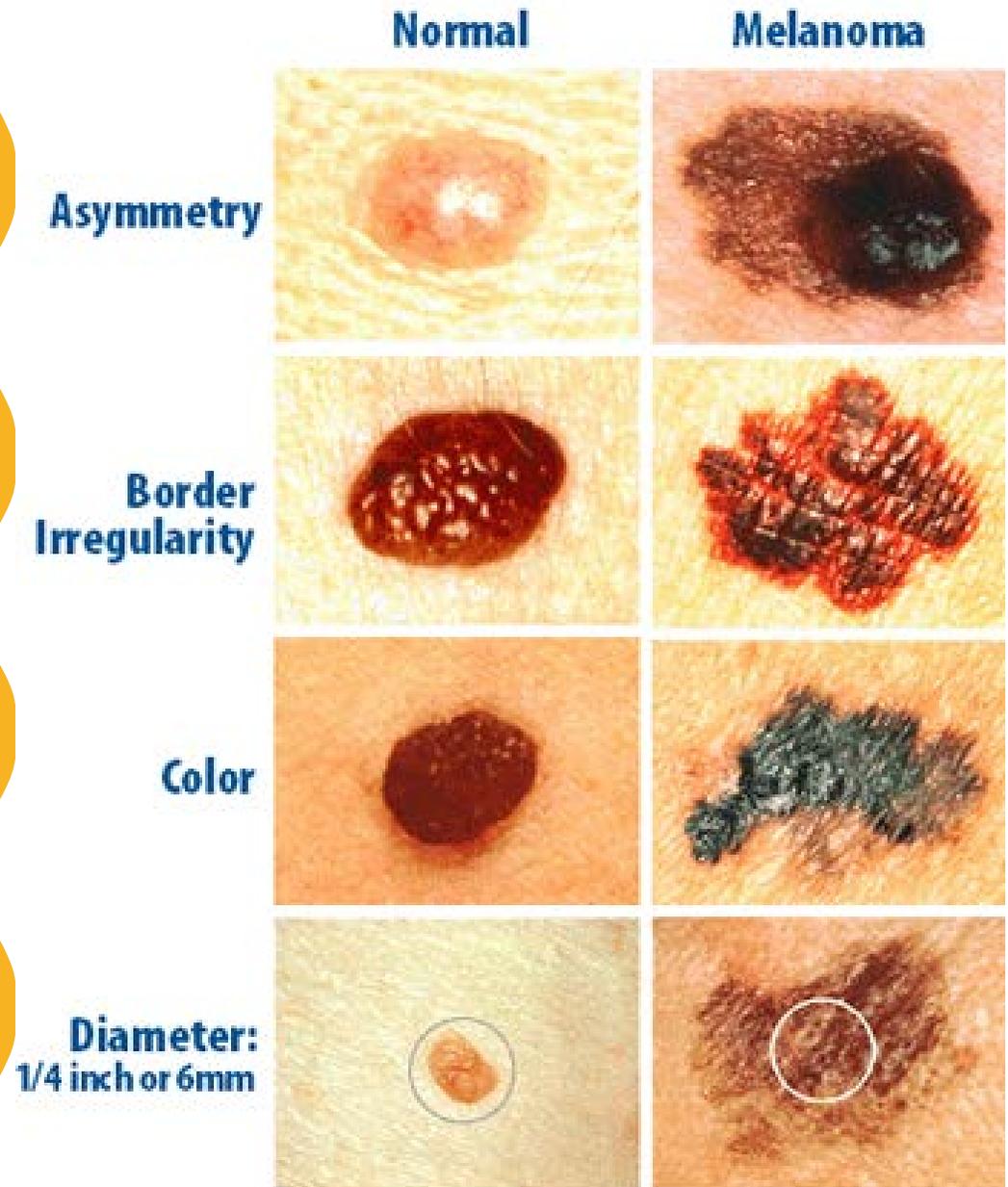
- Lightly bandage or cover the area with gauze to prevent infection
- Do not break blisters - this slows healing and increases risk of infection
- When the blisters break and the skin peels, dried skin fragments may be removed and an antiseptic ointment or hydrocortisone cream may be applied

Seek medical attention if:

- Severe sunburn covers more than 15% of the body
- Dehydration
- High fever ($>101^{\circ}\text{F}$)
- Extreme pain that persists for 48 hours or more

SKIN CANCER

FACTS · RISK FACTORS · TYPES ·
INDICATORS · TREATMENT



SKIN CANCER



FACTS

- Skin cancer is the most common cancer in the U.S. and includes different types
- 1 in 5 Americans will develop skin cancer in their life
- Each year, nearly 5 million Americans are treated for skin cancer at a cost of about \$8.1 billion
- Most skin cancers can be prevented by avoiding too much exposure to UV rays from the sun or indoor tanning
- Anyone can get skin cancer but men have a higher incidence than women due to the amount of time they spend outdoors in their lifetime

RISK FACTORS

- Genetic factors increase risk
- Light skin, red or blond hair and blue or green eyes
- Family history of skin cancer
- Lifetime exposure to sun and UV rays, including tanning beds or sun lamps

DID YOU KNOW

Women's personal care products, such as moisturizer, makeup, and some hair sprays, often contain sunscreen, while many products for men do not

TYPES OF SKIN CANCER

SQUAMOUS CELL & BASAL CELL CARCINOMAS

- These are highly curable but can be disfiguring and costly to treat
- Squamous cell carcinoma begins in the squamous layer of the skin
- Basal cell carcinoma begins in the basal cell layer of the skin



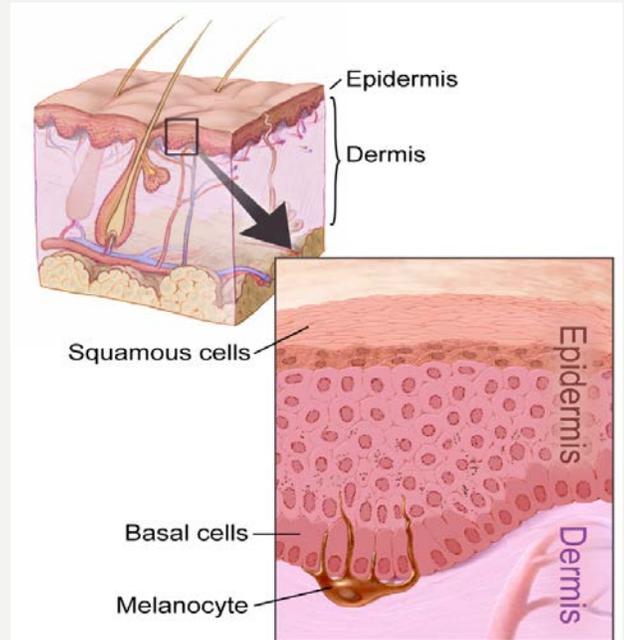
Basal Cell



Squamous Cell



Melanoma



National Cancer Institute

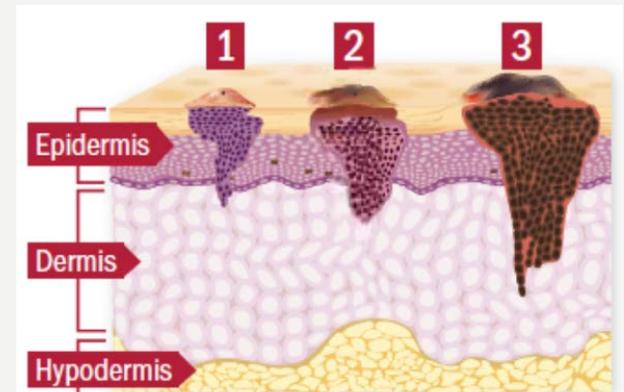


Image: © solar22/Getty Images

- 1-Squamous cell
- 2-Basal cell
- 3-Melanoma

MELANOMA

- This is third most common skin cancer
- It is more dangerous and causes the most deaths
- Begins in the melanocytes, which are the cells that make melanin, the pigment that gives skin its color

INDICATORS & PREVENTION

INDICATORS OF SKIN CANCER

- Irregular borders on moles (ragged, notched, or blurred edges)
- Moles that are not symmetrical (one half doesn't match the other)
- Colors that are not uniform throughout
- Moles that are bigger than a pencil eraser
- Itchy or painful moles
- New moles
- Sores, lesions or patches that bleed and do not heal
- Red patches or lumps

! Important: When in doubt, ask your PCP to check the affected area

SKIN CANCER PREVENTION

- Avoid prolonged exposure to the sun when possible.
- Wear sunscreen with a minimum of SPF 15.
- Wear clothing with a tight weave or high-SPF clothing.
- Wear wide-brimmed hats and sunglasses with UV protection and side panels.
- Take breaks in shaded areas.



TREATMENT

TREATMENT OPTIONS

- Specialized treatment by a dermatologist is required to treat skin cancer with a variety of topical therapies and drugs that can be injected, infused intravenously or taken orally.
- Procedures can include surgeries, laser and light-based treatments and radiation therapy.
- Other therapies may include cryotherapy, chemotherapy or biological therapy using your immune system.
- Some cancers will require surgical procedures involving a plastic surgeon.
- Treatment can be costly and may result in disfigurement but also life-saving.



The Mayo Clinic provides description of these therapies at their site:
<https://www.mayoclinic.org/diseases-conditions/skin-cancer/diagnosis-treatment/drc-20377608>

MELANOMA

**THE DEADLIEST KIND OF SKIN
CANCER**



MELANOMA

FACTS

The incidence rates of melanoma are increasing despite efforts to inform the dangers of sun exposure and tanning

- Many children and adults are still not protected enough from the sun, and that some groups, including young women, are still using indoor tanning. (CDC, 2019)
- For every 100,000 people in the US, 22 new skin Melanoma cases were reported in 2016 and 2 died



RISK FACTORS

- Most cases of melanoma could be prevented.
- Research has clearly shown that exposure to UV radiation raises melanoma risk.
- Fair-skinned adults aged 65 and older and people with a large number of moles or unusual moles are more likely to get melanoma.



What's Your Risk?

- Take the Melanoma Risk Assessment on the last page



Melanoma Risk Assessment Tool

INDICATORS & PREVENTION

INDICATORS

- Change to an existing mole
- New spot or patch on your skin
- A spot that looks like a changing freckle or age spot
- Dark streak under a fingernail or toenail
- Band of darker skin around a fingernail or toenail
- Slowly growing patch of thick skin that looks like a scar



MELANOMA PREVENTION

- Avoid getting too much sun exposure
- Avoid indoor tanning
- Perform monthly skin check self-exams
- Know the “**ABCDEs**” of melanoma:

Asymmetry: one side is different from the other side

Border: the edge is irregular or scalloped

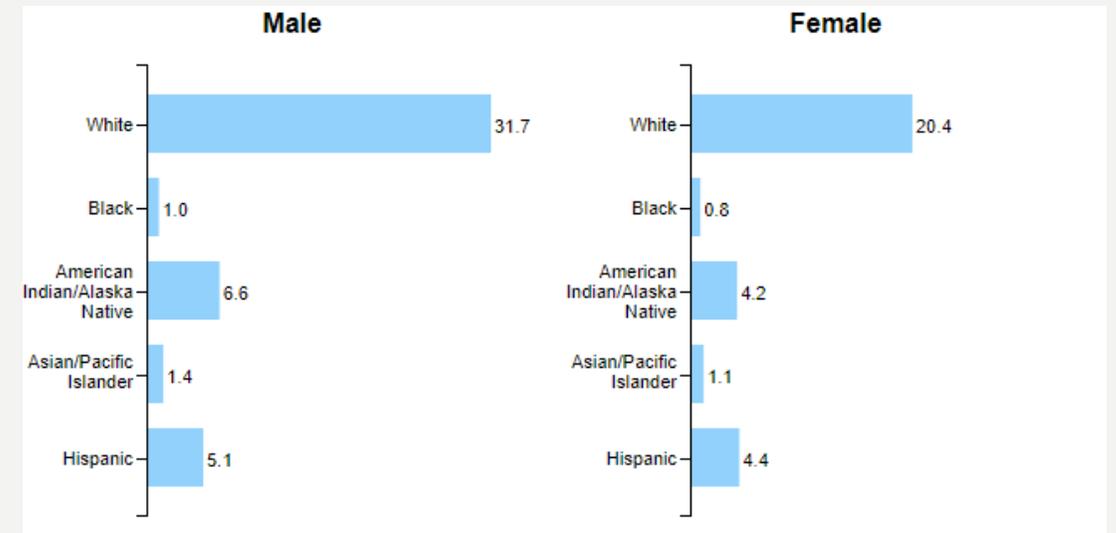
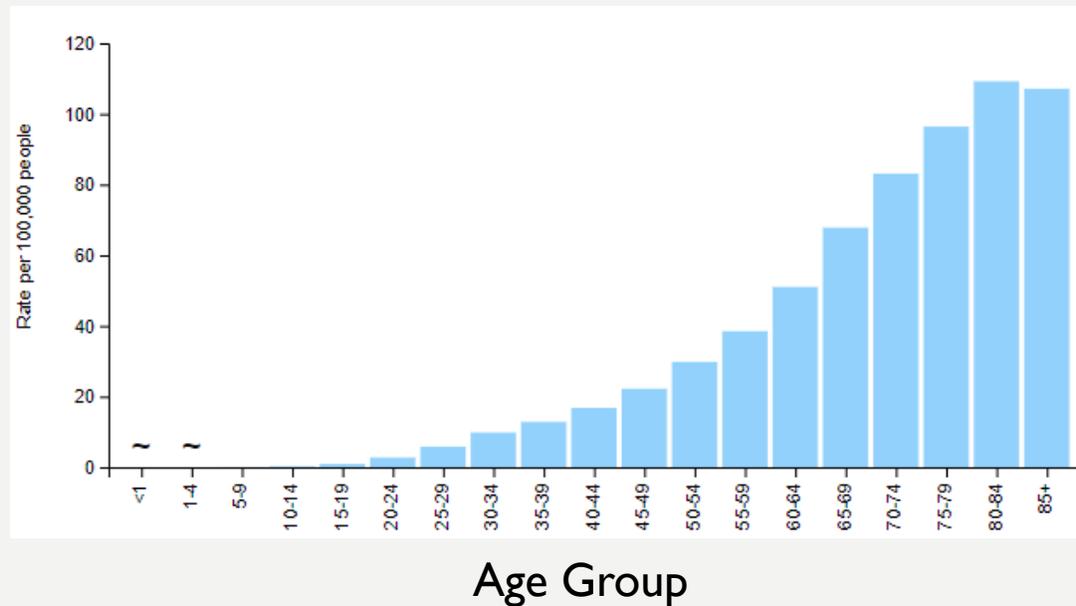
Color: has variation in shades of tan, brown, black, or sometimes white, red or blue

Diameter: may be larger than diameter of a pencil eraser but can be smaller

Evolving: changes size, shape or color over time

MELANOMA & POPULATION HEALTH

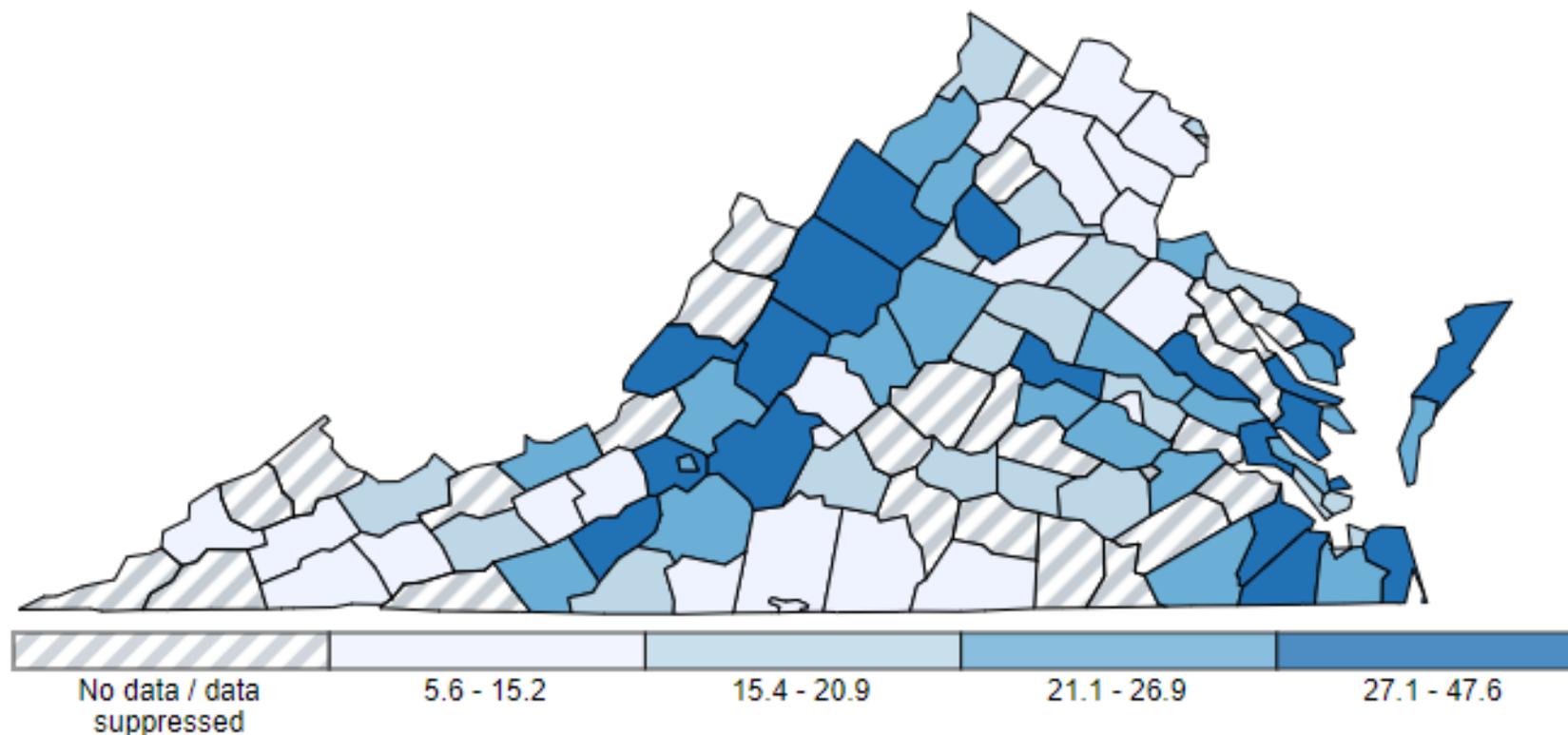
Rate per 100,000 people in the U.S.



U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2018 submission data (1999-2016): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; www.cdc.gov/cancer/dataviz, June 2019.

MELANOMA OF THE SKIN IN VIRGINIA

Melanomas of the Skin, All Ages, All Races/Ethnicities, Male and Female, 2012-2016
Rate per 100,000 people



U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on November 2018 submission data (1999-2016): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; www.cdc.gov/cancer/dataviz, June 2019.

HEAT-RELATED ILLNESS

HEAT CRAMPS
HEAT EXHAUSTION
HEAT STROKE



PRECAUTIONS TO AVOID HEAT-RELATED ILLNESS



Heat-related illness can be very dangerous and lead to death if precautions are not taken.

Illness from heat is preventable.

- Engage in heavy physical activity in the early morning or at night
- Consider if you are in good physical condition or not to withstand the heat stress
- Bring plenty of water or sports drinks to maintain hydration
- Drink small frequent amount throughout the day. Avoid thirst!
- Avoid drinking alcohol
- Wear loose, breathable clothing made of natural fibers, such as cotton or linen
- Wear a hat, use sunscreen
- Take regular breaks to cool off in the shade or in a cool place
- Bring an umbrella or have a plan for seeking shade
- Opt for having access to a fan or air-conditioning

- <https://vimeo.com/232070895>



HEAT CRAMPS

SYMPTOMS

- Heavy sweating during activity
- Muscle pain, cramps or spasms

TREATMENT

- Stop the activity
- Move to a cool place, seek shade if in the sun
- Drink water or sports drink with electrolytes
- Wait for muscle pain to stop before resuming activity
- **Get medical care if: Muscle cramps continue for more than 1 hour or person has known heart-related illness**



HEAT EXHAUSTION

SYMPTOMS

- Profuse sweating
- Cold, clammy and pale skin
- Weak, faint, fast pulse
- Muscle cramps
- Fatigue
- Dizziness and/or fainting
- Headache



TREATMENT

- Move to a cool place if possible or out in the sun to shade
- Loosen or remove clothes
- Apply cool, wet compresses or get in a cool bath
- Sip cool water
- Get medical care if: vomiting, symptoms last longer than 1 hour or get worse

HEAT STROKE

A Life-threatening Condition



SYMPTOMS

- Body temperature of 103°F or higher
- Red, hot, dry or damp skin
- Fast, strong or bounding pulse
- Headache
- Dizziness
- Nausea with or without vomiting
- Confusion or disorientation
- Loss of consciousness

TREATMENT

- Call 911 immediately
- Get to a cooler place
- Apply cool cloths or cool bath; wet the person's clothes with cool water
- Do NOT give the person anything to drink



HEAT EXHAUSTION VS. HEAT STROKE

Serious condition!

| HEAT EXHAUSTION | OR | HEAT STROKE |
|---|--|---|
| Faint or dizzy |  | Throbbing headache |
| Excessive sweating |  | No sweating |
| Cool, pale, clammy skin |  | Body temperature above 103° Red, hot, dry skin |
| Nausea or vomiting |  | Nausea or vomiting |
| Rapid, weak pulse |  | Rapid, strong pulse |
| Muscle cramps |  | May lose consciousness |
| <ul style="list-style-type: none">• Get to a cooler, air conditioned place• Drink water if fully conscious• Take a cool shower or use cold compresses | | CALL 9-1-1 <ul style="list-style-type: none">• Take immediate action to cool the person until help arrives |

*Life threatening -
Take action!*

PHOTO- SENSITIVITY

**SOME MEDICATIONS COMMONLY REACT
WITH THE SUN CAUSING
PHOTOSENSITIVITY**



PHOTOSENSITIVITY

- This is a high sensitivity to UV rays from the sun.
- If a medication has a warning to avoid sunlight or mentions photosensitivity as a possible side effect, don't ignore it.
- A person can be more sensitive to sunlight and get sunburns more easily or may appear as a rash on parts of the body when they take certain medications.
- It can be a different sunburn and could be worse even with little sun exposure.
- Can be more sensitive to other light sources, including indoor fluorescent lights.
- The reaction to UV or fluorescent lights can cause itchy spots, rash, areas of redness, or swelling on patches of exposed skin.



COMMON MEDICATIONS CAUSING PHOTSENSITIVITY



- 1. Antibiotics:** Sulfamethoxazole, tetracycline, doxycycline, ciprofloxacin and the UTI drug nitrofurantoin.
- 2. Psychoactive medications:** Amitriptyline, imipramine, and other Tri-cyclic antidepressants. Also sertraline (Zoloft), venlafaxine (Effexor), mirtazapine (Remeron) and alprazolam (Xanax). Aripiprazole (Abilify) has been associated with skin eruptions and sensitivity.
- 3. Accutane and Retin A:** These are used to improve skin, but they can lead to a skin-damaging photosensitivity reaction.
- 4. Allergy meds and antihistamines:** Cetirizine, diphenhydramine, and loratadine
- 5. Blood pressure medications:** Enalapril and amlodipine may cause Subacute Cutaneous Lupus Erythematosus, a painful skin eruption. Others include Vasoretic, Lotensin HCT, Dyazide and Hyzaar. Beta-blockers, diuretics and vasodilators require extra sun caution.
- 6. Diabetic drugs:** Glipizide, glyburide, tolbutamide, glimepiride and others. Metformin does not usually cause any problem.
- 7. Birth control pills or menopausal drugs:** There are hundreds, patches and pills, and all of them can cause a reaction.
- 8. Statin cholesterol drugs:** All of them including, atorvastatin, fluvastatin, lovastatin, pravastatin, simvastatin have the ability.
- 9. Diuretics:** Many of them are skin sensitizers, however the popular HCTZ (hydrochlorothiazide) can cause a dangerous reaction called “Subacute Cutaneous Lupus Erythematosus.”
- 10. Anti-inflammatory (NSAID) drugs:** Ibuprofen, ketoprofen, naproxen and celecoxib.

Source: <https://healthiertalk.com/10-drugs-that-can-turn-a-day-in-the-sun-into-a-disaster/>

PHOTOSENSITIVITY PRECAUTIONS

- Reduce your sun exposure and avoid direct exposure to the sun
- Avoid tanning beds as they can be as bad or worse than direct sun exposure
- Wear sunscreen and protective clothing when outdoors
 - Long sleeves, pants, hats, and sunglasses
- If sunburn occurs, try cool compresses, and topical corticosteroids (hydrocortisone) to relieve skin irritation



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