



Hughston Health Alert



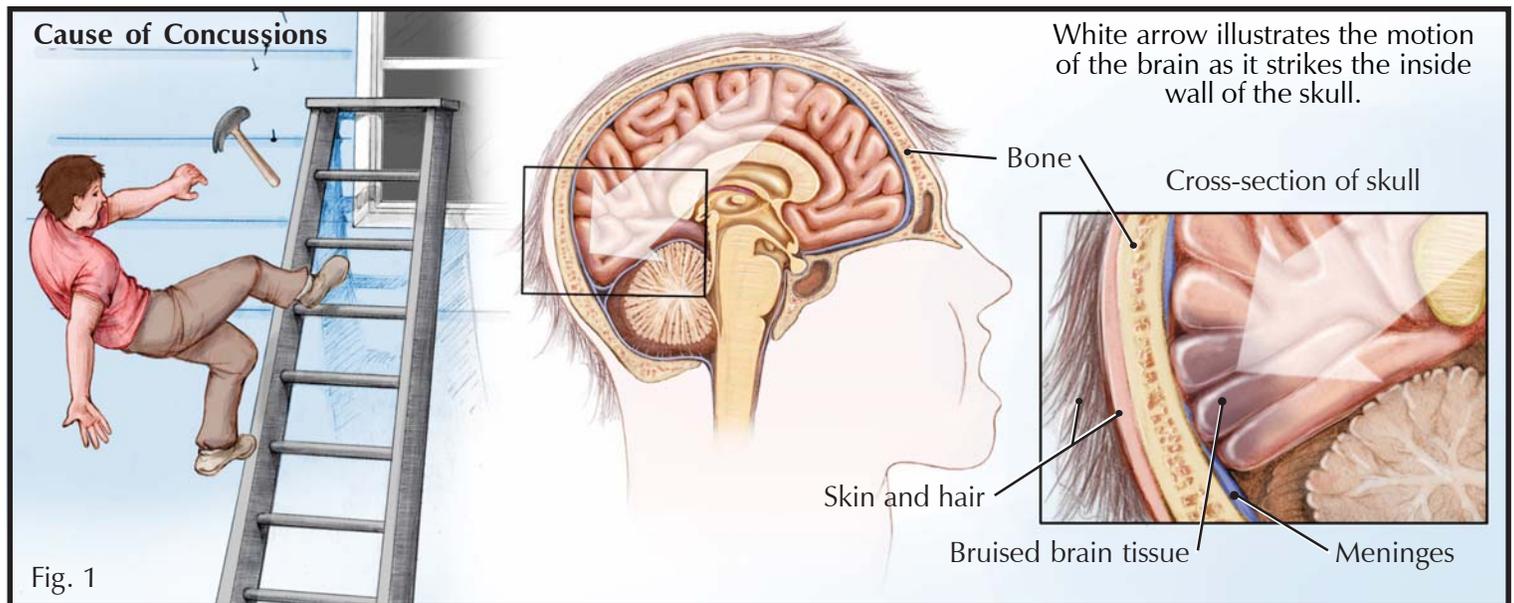
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STAYING SAFE IN THE SUMMER



Concussion

When the skull just isn't protection enough

Football and soccer players tend to be at risk for a concussion, however, the injury can happen to anyone. In

fact, every 21 seconds, one person in the United States experiences a traumatic brain injury (TBI).¹ A TBI can be a serious head injury causing permanent disability or death; however, of the 1.5 million Americans who sustain a TBI each year, 75% of the injuries are concussions or other minor head injuries.²

Any blow or jolt to the head, some of which seem harmless, can cause a concussion. Falling off a ladder, falling in the bathtub, or tripping on a rug are just a few ways you can sustain a concussion in your home. A concussion can also occur while playing a contact sport such as baseball or football, while skating, or while riding a skateboard.

What is a concussion?

A concussion is not just a bump on the head or a rattling of the brain. It is a mild brain injury that results in a temporary change in brain function. The brain is composed of soft tissues encased within the hard bone of the skull. A concussion occurs when your head is hit or jolted and your brain's soft tissue moves in reaction to the sudden force. At impact with the skull, the brain can become bruised, tissues can be torn, and minor swelling can occur (Fig. 1). An injury to the brain can cause neurons (nerve cells) and nerve tracts (neurological pathways) to change or not function properly. The changes in brain function can change the way you think, act, or feel.

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- Patrick J. Fernicola, MD

FOR A HEALTHIER LIFESTYLE

Three membranes, collectively called the meninges, provide protection by separating the brain's soft tissue from the rigid wall of the skull. Three layers cover the brain; the **dura**, a tough, leathery outer covering; the **arachnoid**, a thin inner layer with threadlike strands that attach it to the pia mater; and the **pia mater**, which is a thin, delicate layer tightly attached to the surface of the brain (Fig. 2). In addition to the protection of the layers, cerebrospinal fluid surrounds the brain and cushions it as well. Even with these protections, the meninges and deeper tissues within the brain can become bruised when there is a blow or jolt to the head or when the head is severely jarred or shaken.

How do you know you have a concussion?

You cannot be absolutely sure you have a concussion until a physician examines you and a computerized axial tomography (CAT) scan or a magnetic resonance imaging (MRI), a scan that shows the bones, muscles, tendons, and ligaments, is completed and viewed. After a head injury, you should watch for signs and symptoms of a concussion and let your physician know what you have experienced. Your brain is as unique as you are and no two injuries are exactly alike; therefore, you can experience a variety of symptoms after a head injury. Some signs and symptoms of a concussion are a headache that does not go away easily or is more severe than normal, a stiff neck, nausea and vomiting, confusion that does not improve or gets worse, difficulty walking and using your arms, difficulty talking, and unusual sleepiness. Usually, you will not lose consciousness; however, loss of consciousness often means you

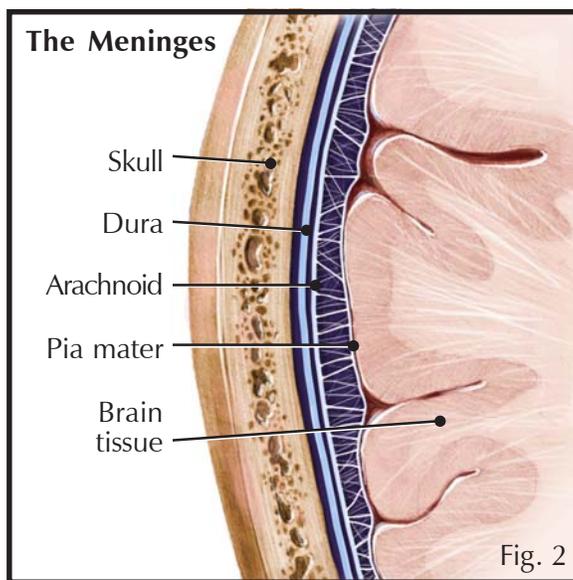


Fig. 2

sustained a more serious head injury.

Immediately after you injure your head, you may feel dizzy or confused and your head will probably hurt. A bruise or bump can appear very quickly and you may feel nauseated. Your vision may be blurred and you may not remember exactly what happened. If the symptoms of a concussion do not last very long, it does not mean you are uninjured. Some symptoms appear right away, while others do not show up for days or weeks after the injury.

Screening and diagnosis

To diagnose your injury, your doctor will examine the site of impact, and he or she will test your strength, balance, reflexes, sensation, and memory. The physician will ask you and anyone who witnessed the injury about how it occurred and about your behavior after the injury. A CAT or MRI scan will be taken to detect any bruising or swelling of the brain.

Treatment

A concussion heals with time and plenty of rest. For headaches, you can take acetaminophen, such as Tylenol™, but avoid aspirin, blood thinners, and any drug that causes drowsiness. Your doctor may assign a responsible family member or friend to wake you every

few hours while you sleep to monitor any increase or change in your symptoms. Until all symptoms have subsided and your doctor has cleared you, you should avoid activities that might jolt your head again, such as playing a sport or riding an amusement park ride.

Second-Impact syndrome

Second-impact syndrome often occurs when an athlete returns to play too soon after a concussion. If an athlete has suffered a head injury, all signs and symptoms of a concussion should be resolved before he or she returns to play.

Second-impact syndrome can cause permanent disability and death if a second injury occurs before the first has healed. Even a mild second injury can cause a loss of automatic control of blood vessels to the brain, causing severe swelling and damage to brain tissues.

If your first head injury is mild, you can sometimes return to your sport during the game; however, depending upon the severity of your injury and the symptoms, you may not return to the sport for days or weeks. After numerous head injuries, your physician may recommend that you find another sport. Second impact syndrome can occur when anyone, not just athletes, sustains a second or third concussion before the previous head injury has healed. Therefore, it is important that you receive clearance from your doctor before you return to any activity that can put you at risk for another head injury.

You are at a higher risk for a concussion to occur if you play a contact sport; however, more concussions occur off the field than on each year. Falls in your home and automobile accidents top the list of causes of head injuries. To avoid a concussion, do what you can to protect yourself; wear a seatbelt and wear a helmet when riding a bike,

motorcycle, horse, or skateboard. Make your home as fall-proof as possible by removing area rugs that slide, installing handrails, and using non-slip mats in the bathtub and shower.

For more information about brain injuries and how to prevent them, visit the Brain Injury Association of America's Web site at www.biausa.org and the Centers for Disease Control and Prevention's (CDC) Website at www.cdc.com.

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References:

- 1) Brain Injury Association of America. www.biausa.org/Pages/what_is_brain_injury.html. Accessed 5/3/05.
- 2) Centers for Disease Control and Prevention. www.cdc.gov/. Traumatic Brain Injury-Fact Sheet. Accessed 5/3/05.

Heat Illness

Early prevention is the key

Corey Stringer was the epitome of a National Football League (NFL) All-Pro Offensive Lineman. Standing 6 foot 4 and weighing 330 pounds, it's easy to see how this massive man became a NFL star. It's no wonder his death sent shock waves throughout the world. How could a 27-year-old professional athlete die from the heat? Could his death have been prevented? The answer seems simple and obvious, but overexposure to the heat takes the lives of approximately 400 Americans annually, and most of them are not athletes.

Heat illness covers a wide variety of signs and symptoms the body displays when it is subjected to the heat and humidity of our environment. Athletics is a common arena for heat illness, but it is not the only place heat injuries occur. Many non-athletes are treated every year because of over exposure to the heat. Understanding the causes, signs and symptoms, prevention methods, and common treatments of heat illness can help save someone's life. Maybe even your own.

Heat-related illnesses can occur with one incident in a hot environment or the symptoms can appear after several days in a hot

environment. It is important to recognize the first symptoms of heat illness, because your symptoms can become increasingly worse and become a serious health emergency. Recognizing the progressive stages of heat illness—heat edema, syncope, cramps, exhaustion and stroke—can save your life.

Heat edema

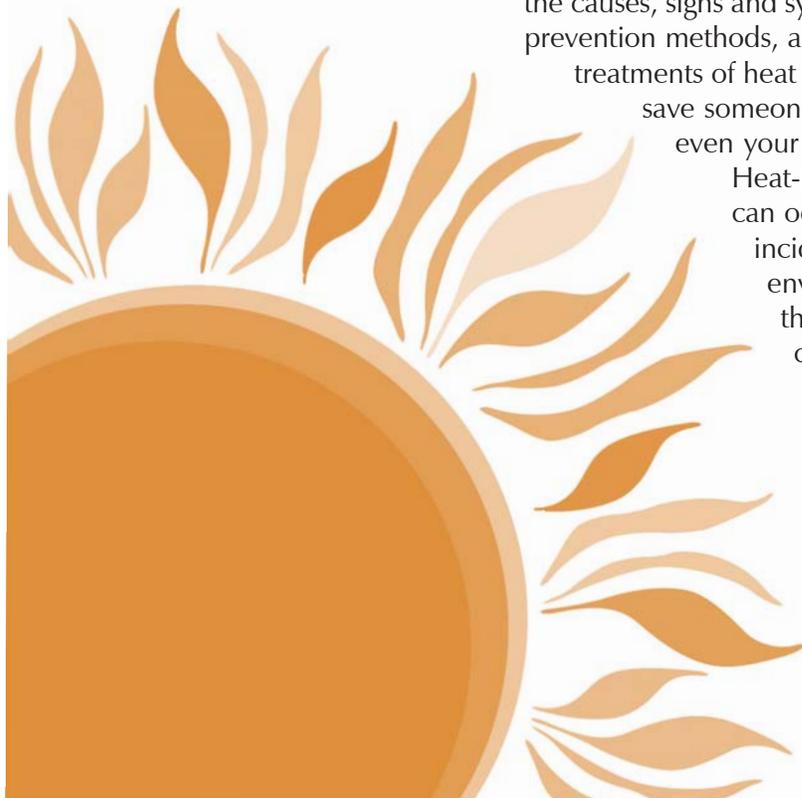
Heat edema (swelling) is usually seen in an unacclimated person who is not use to the hot weather. If you begin to sweat profusely, show extreme redness in the face, have low water and sodium retention, and begin to swell in the lower legs, feet, and hands get out of the heat and move to a cool, shady place. Drink cold water and elevate your legs. Your symptoms should resolve quickly once you cool down. To help prevent heat edema, get your body used to being in the heat slowly and steadily over time.

Heat syncope

Heat syncope (fainting or lightheadedness) usually occurs at the end of exercise. If you begin to feel faint, get out of the heat and rest in a cool, shady place. Lie down, elevate your legs, and drink cold water. Acclimatization, an exercise cool-down period, and drinking plenty of water before, during, and after exercise will help prevent heat syncope. Feeling faint or lightheaded can be an early warning sign of heat exhaustion; therefore, if you experience the symptoms, you should use extreme caution with further activity in the heat or you should avoid it completely.

Heat cramps

Tight muscles or spasms during or after intense exercise are signs of heat cramps. The cramping can be very painful and occurs most often in the lower extremities, but they can



also occur in the stomach and in the muscles between the ribs. If you have any cramping, get out of the heat, rest in a cool, shady place, massage and stretch the cramped muscle, and drink cold water. For extreme cases, intravenous fluids, under the supervision of a physician, may be needed to rehydrate the body. Muscle cramps can be a sign of impending heat exhaustion; therefore, continued exercise or activity in the heat is not advised until the body is accustomed to the climate and is better hydrated.

Heat exhaustion

Heat exhaustion usually occurs when you sweat a lot and do not drink enough liquids to replace the lost fluids. Heat exhaustion can be accompanied by heat syncope and heat cramps and you may experience nausea and vomiting, headache, blurred vision, a fast heart rate, and fast breathing. Additional symptoms might include mild confusion, agitation, and poor coordination. Many heat exhaustion victims still attempt activity although it is obvious they are impaired. Most heat exhaustion cases are a combination of sodium depletion and water depletion. For treatment, rest in a cool, shaded environment, use moving air to cool the body faster, remove as much of your sweat-soaked clothes as possible, use cold, wet towels to cool the skin, elevate the lower limbs, and drink water to rehydrate or a sports drink to replenish electrolytes. Rapid cooling, such as ice baths, are not recommended. You should see a health-care professional to evaluate your body functions and to determine your return to activity. For prevention you should acclimatize, hydrate, and follow a diet with a little table salt added to your food.

Heat stroke

Heat stroke is the second leading cause of death in athletes, although it is totally preventable. Right before your

eyes, heat exhaustion can progress to heat stroke and cause moderate to severe physical impairment, such as hysterical behavior, memory loss, delirium, seizures, coma, loss of consciousness, headache, dizziness, confusion, and weakness. Suspect it in a person whose behavior, mental status, or physical abilities change during heat stress. In most cases of heat stroke, the sweating mechanism is still working. It is a myth that the difference between heat stroke and heat exhaustion is signaled by dry skin, or no sweating in those experiencing heat stroke. If someone shows signs of a heat stroke, cool the body as quickly as possible and call 911. While you wait for emergency medical personnel to arrive, you can move the victim to a cooler place with circulating air, remove as much clothing as you can, and use ice-cold baths, running water, cold towels, ice packs, etc, to cool the body. Massage can be effective to increase circulation in the extremities. If the victim starts to shiver, remove all cooling devices because shivering can increase the core temperature, which you are trying to lower. Dry towels may be needed to make the skin feel warm and eliminate shivering. Do not attempt to transport the victim yourself. Intravenous fluids are needed and emergency medical personnel can provide them onsite and on the way to the emergency room.

To prevent heat stroke, stop exercising when heat cramps or heat exhaustion are evident, become accustomed to the heat slowly, drink plenty of fluids, avoid activity when heat and humidity are severe, follow a proper diet, do not exercise with fever or illness, and do not exercise after heat illness until you are fully rehydrated.

Corey Stringer died of heat

stroke. While it may seem easy to look back at his situation and figure out what went wrong, it basically comes down to this: we all have to know our limitations. The human body is an amazing machine; yet, we can use our minds to push our bodies far beyond the natural limits we have. Now that you know the signs and symptoms of heat illness, make sure you protect yourself and the ones you love from becoming the next victim.

Bruce Getz,
Columbus, Georgia

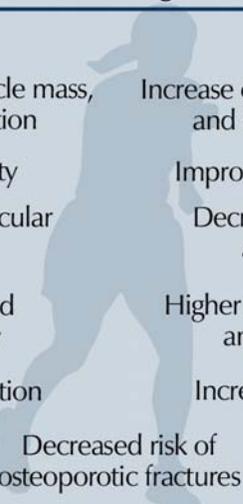
The Ageless Athlete

An exercise program for your later years

With all the fad diets, infomercial exercise products, and exercise controversy, it's easy to become confused and frustrated when selecting a good exercise program. Also, as you age, your body's tolerance to certain types of exercise changes, which can cause you to avoid exercise all together. This is a concern because inactivity in the elderly has significant negative effects on the body's systems. The positive health benefits of a regular exercise program, however, far outweigh the negative, as you can see in Figure 1.

Exercises once recommended by your gym teacher or coach are unlikely to be beneficial at this stage in your life. Performing such activities can put stress on your muscles, tendons, bones, and joints, which are more prone to injury than they once were. Tissue damage, pain, and inflammation can result if you exceed your level of tolerance. Other factors, such as progressing too quickly, poorly fitting equipment, and poor

Positive Results of Exercising in the Older Person



Improved strength, muscle mass, and body composition	Increase of oxygen uptake (VO ₂ max) and cardiorespiratory fitness
Increased flexibility	Improved mental reaction time
Enhanced neuromuscular performance	Decreased resting heart rate and blood pressure
Positive mood and reduced anxiety	Higher HDL-C (good cholesterol) and lower triglycerides
Increased insulin action	Increased immune function
Decreased risk of osteoporotic fractures	

Fig. 1

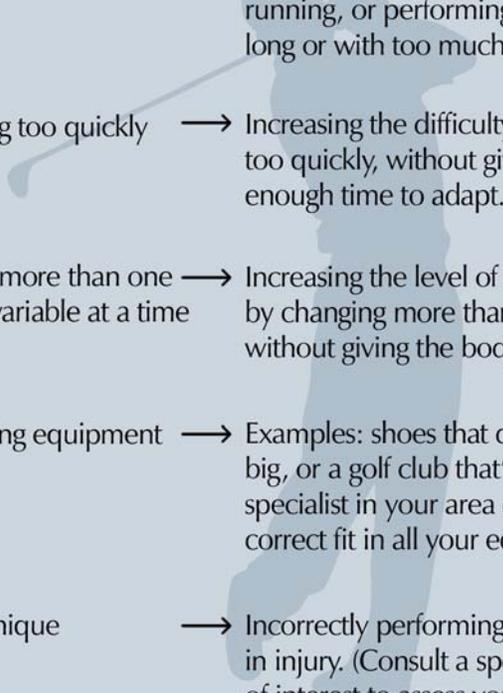
technique can also cause exercise-induced injuries (Fig. 2).

Exercise prescription

Intensity, duration, and frequency are the three main variables used during the creation and progression of an exercise program. **Intensity** is the *level of effort* required to perform a particular activity, **duration** is defined

as the *length of time* required to complete the activity, and **frequency** is *how often* a particular activity is performed over a specific period of time. When adjusting an established exercise program, change only 1 of these variables at a time. Failing to do so will introduce too many unaccustomed stresses and can cause tissue injury.

Factors that can cause exercise-induced injuries



Performing stressful exercises	→ Performing a high impact activity, such as running, or performing an exercise for too long or with too much weight.
Progressing too quickly	→ Increasing the difficulty level of an exercise too quickly, without giving your body enough time to adapt.
Changing more than one exercise variable at a time	→ Increasing the level of difficulty of an exercise by changing more than one variable at a time without giving the body time to adjust.
Poorly fitting equipment	→ Examples: shoes that don't fit, a bat that's too big, or a golf club that's too short. (Consult a specialist in your area of interest to find a correct fit in all your equipment.)
Poor technique	→ Incorrectly performing an activity can result in injury. (Consult a specialist in your area of interest to assess your technique.)

Fig. 2

The rule for changing your exercise program is to increase 1 variable and decrease the other 2 variables. For example, if you lift 25 pounds during 3 sets of 15 repetitions and you want to increase the weight to 30 pounds, you should do it in 3 sets, but you should reduce your repetitions to 10. With the additional weight, muscle soreness can occur. To avoid possible injury, you should participate in this particular exercise once a week instead of twice, until the body has adapted to the changes in your program. A similar rule associated with the adjustment of a cardiovascular training program would be to increase the mileage of an established and well-tolerated distance by only 10% to 15% of your previous workout distance. The slower progression provides the body with an acclimation period to prevent excessive stress and injury.

Finally, when designing an exercise program, variety is very important for several reasons. First, the body is less likely to become accustomed to a particular mode of exercise, therefore, it will be constantly challenged to adapt through improved strength and cardiovascular gains. Second, alternating exercises that involve specific tissues or joints helps prevent repetitive stress and possible *wear-and-tear* injury. For example, a person who previously trained by running 5 days per week could alternate the mode of training in a 5-day cycle. The individual could run on day 1, bike on day 2, swim on day 3, use an elliptical trainer the next day, and complete the cycle with a rowing machine before beginning the sequence all over again. Another example for strength training could consist of lifting weights for the upper body 1 day, and then alternating with a lower body workout the next day.

Despite your best efforts to create a well-designed exercise program, errors do occur and injury can result. When this happens, you should follow the acronym **RICE**, which stands for **R**est, **I**ce, **C**ompression, and **E**levation. Applying ice along with compression and elevation helps control swelling and helps prevent additional inflammation. Using non-steroidal anti-inflammatory drugs (NSAIDs), as prescribed by your physician or as directed on the label, also helps to decrease swelling and speed recovery.

Despite the common belief that complete rest is the key to recovery, inactivity can be nearly as detrimental as continuing with the stressful activity. During the recovery process, maintain the mobility of the involved body part, as well as the strength and flexibility of the surrounding muscles. This can be accomplished by using the sore or injured area during normal daily activities within a pain-free range of motion.

Stretching can also help prevent complications such as decreased flexibility and muscle atrophy after an injury. Continued participation in all exercises that do not stress the painful structure(s) is encouraged. For example, if pain occurs while jogging, try swimming or pool running. As symptoms resolve, a gradual return to full activity is encouraged, allowing pain to guide you in the progression back to your pre-injury exercise level. If symptoms fail to resolve following these guidelines, seek the attention of a qualified health-care professional.

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Summer Skin Care

Get your vitamin D in moderation!

What's the largest organ of your body? Your skin, of course. The skin is more than a shell that covers our bones, tissues, and organs. It serves as a barrier against infection and injury, regulates our internal temperature, produces vitamin D, removes waste products from our body, shields us against the sun's radiation, and provides us with a sense of touch.

Our skin has 3 main layers, the epidermis, dermis, and subcutaneous fat tissue that protects our inner tissues from the harshness of the outside world (Fig. 1). The **epidermis** is the translucent (allows light to partially pass through it), thin, outside layer. The epidermis has 4 or 5 microscopic thin layers that do not contain blood vessels; it gets its oxygen and nutrients from the deeper layers of the skin. Underneath the epidermis lies the **dermis**, a thick layer composed of connective tissues containing nerves, lymphatic tissue, blood vessels, hair follicles,

sweat glands, and sebaceous glands. Beneath the dermis is a layer of **subcutaneous fat**. The subcutaneous fat lies on our muscles and bones and attaches the skin structure using connective tissues.

Care for our skin should be one of our top priorities, but sadly it is often neglected. Many of us neglect our skin through unprotected sun exposure, putting us at risk for skin damage, immune system suppression, and even cancer.

Sun safety

We all need sun exposure; it's our primary source of vitamin D, which helps us absorb calcium for stronger, healthier bones. However, it doesn't take much time in the sun for most people to get all the vitamin D they need. After that, the risk of over-exposure can begin. Most children get between 50% and 80% of their lifetime sun exposure before age 18, so it's important for parents to teach their children how to safely enjoy fun in the sun.

Sunlight consists of 3 types of ultraviolet (UV) rays: UVA, UVB, and UVC (Fig. 2). UVA rays are most common and cause skin aging and wrinkling. Tanning beds usually use

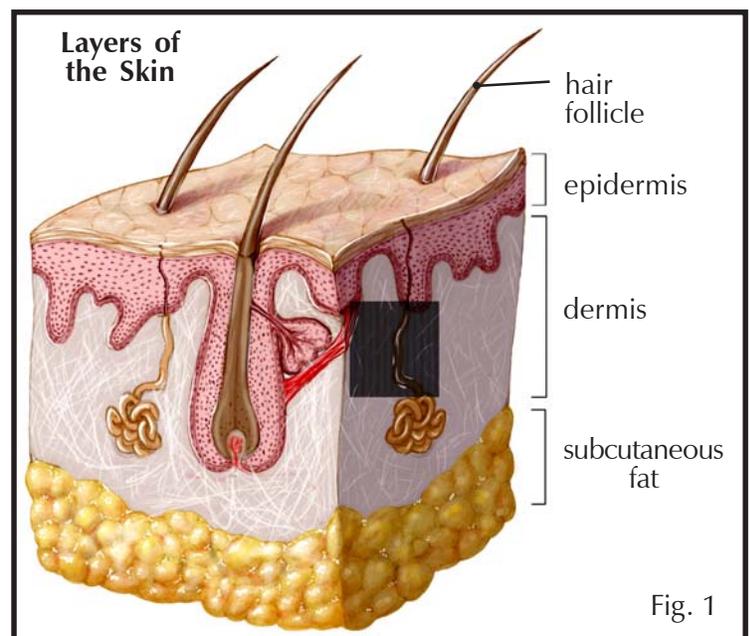
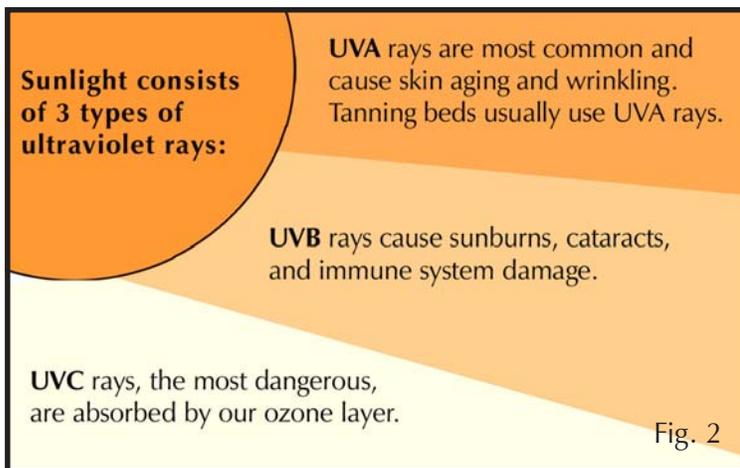


Fig. 1



UVA and are not safer than the sun. UVB rays cause sunburns, cataracts, immune system damage, and contribute to skin cancer. UVC rays are the most dangerous; but fortunately, they are absorbed by our ozone layer; and therefore, can't harm us.

UV rays react with the pigment melanin in most people's skin. This pigment is your first defense against the sun. It absorbs dangerous UV rays before they do serious harm. The lighter your natural skin color, the less melanin you have to absorb UV rays. A sunburn develops when the amount of UV exposure is greater than what can be protected against by the skin's melanin. Both light- and dark-skinned individuals need protection against burning.

You should talk to your doctor or pharmacist about any medications you are taking that may increase your skin's sensitivity to UV rays. Many medications, prescribed and over-the-counter, increase sun sensitivity. Extra precautions are necessary in these situations.

Once burned

If you are sunburned, stay in the shade until the burn is healed. Take a cool bath to alleviate pain. Try pure aloe vera gel on the burn and take acetaminophen or ibuprofen for pain control. Apply topical moisturizer

cream to rehydrate the skin and help reduce swelling.

What are the risk factors for skin cancer?

Risk factors for non-melanoma and melanoma skin cancers include the following:

- Unprotected

or excessive exposure to ultraviolet (UV) radiation

- Fair complexion
- Occupational exposures to coal tar, pitch, creosote, arsenic compounds, or radium
- Family history
- Multiple or atypical moles
- Severe sunburns as a child

What are the signs and symptoms of skin cancer?

Skin cancer can be found early, and both doctors and patients play important roles in finding skin cancer. If you have any of the following symptoms, tell your doctor.

- Any change on the skin, especially in the size or color of a mole or other darkly pigmented growth or spot, or a new growth.
- Scaliness, oozing, bleeding, or change in the appearance of a bump or nodule.
- The spread of pigmentation beyond its border such as dark coloring that spreads past the edge of a mole or mark.
- A change in sensation, itchiness, tenderness, or pain.

Can skin cancer be prevented?

The best ways to lower the risk of melanoma skin cancer are to avoid intense sunlight for long periods of time and to practice sun safety. You can continue to exercise and enjoy the outdoors while practicing sun safety at the same time.

- Seek the shade. Avoid the sun between 10 AM and 4 PM. Look for shade, especially in the middle of the day when the sun's rays are strongest. Practice the **shadow rule** and teach it to children. If your shadow is shorter than you, the sun's rays are at their strongest.

- Slip on a shirt. Cover up with protective clothing to guard as much skin as possible when you are out in the sun. Choose comfortable clothes made of tightly woven fabrics that you cannot see through when held up to a light.

- Slop on sunscreen. Use sunscreen with a sun protection factor (SPF) of 15 or higher. Apply a generous amount (about a palm full) and reapply after swimming, toweling dry, or perspiring. Use sunscreen even on hazy or overcast days.

- Slap on a hat. Cover your head with a wide-brimmed hat, shading your face, ears, and neck. If you choose a baseball cap, remember to protect your ears and neck with sunscreen.

- Slide on the shades. Wear sunglasses with 99 to 100 percent UV absorption to provide optimal protection for the eyes and the surrounding skin.

This summer, don't neglect your skin, and don't put you or your family at risk for skin cancer. Take the precautions to protect your skin from UV rays on sunny and cloudy days.

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American Academy of Family Physicians. familydoctor.org Web site. www.kidshealth.org. Sun Safety. 2004.

Patrick J. Fernicola, MD, is a native of New Jersey. He received his undergraduate and medical degrees from Georgetown University and Georgetown University School of Medicine in Washington, DC. He completed his internship and orthopaedic residency at the Madigan Army Medical Center in Ft. Lewis, Washington. Dr. Fernicola served in the United States Army for 13 years. He was stationed at Ft. Benning in Columbus, Georgia, for 6 years. There, he rose to the rank of Lieutenant Colonel and was Chief of Orthopaedic Surgery at Martin Army Community Hospital. While at Ft. Benning, Dr. Fernicola received specialty training in shoulder surgery and sports medicine at The Hughston Clinic, PC. Dr. Fernicola is board certified by the American Board of Orthopaedic Surgeons and is a fellow in the American Academy of Orthopaedic Surgeons. His specialties include orthopaedic surgery, shoulder surgery, and sports medicine. Dr. Fernicola and his wife, Regina, have 5 sons. In his free time, he enjoys wakeboarding, boating, and spending time with his family.



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