

THE EYES HAVE IT!



U.S. Army Medical Research
& Materiel Command

U.S. Army Aeromedical
Research Laboratory

1000 people will suffer an eye injury today . . . Will you be one of them?

2.4 million Americans a year will suffer eye injuries. There are 40 to 75 thousand people per year left with significant visual impairment.



Eye injury is the #1 cause of preventable blindness in the United States.

Over 90% of all injuries could have been prevented with the use of eye safety protection.

- ❑ 3/5 of those injured **were not** wearing eye protection.
- ❑ 40% of those wearing protection wore the **wrong kind**.
- ❑ Over 100,000 of the injuries will result in either temporary or permanent vision loss.
- ❑ Eye injuries cost over \$300 million per year in medical expenses, lost productivity and worker compensation.

Why is eye safety important to aviators?

Good eyesight is vital for pilots and preserving it should be a priority for you and your family.



When do most aviators receive eye injuries?

The majority of eye injuries occur to aviators while off duty. Sports account for the largest number of injuries, with home-related injuries also being common.



What causes eye injuries?

❑ Flying particles

According to the Bureau of Labor Statistics, flying and falling objects or sparks striking the eye cause 70%

of all accidents. 3/5 of these objects are smaller than the head of a pin.

❑ Chemicals

Splashes in unshielded eyes account for 20% of all injuries.

❑ Attached or swinging objects

Objects hanging from ropes or chains account for many accidents. Tree limbs cause many injuries.



What are some flight hazards?

❑ Dust and debris inside the cockpit can cause injuries to unprotected eyes.

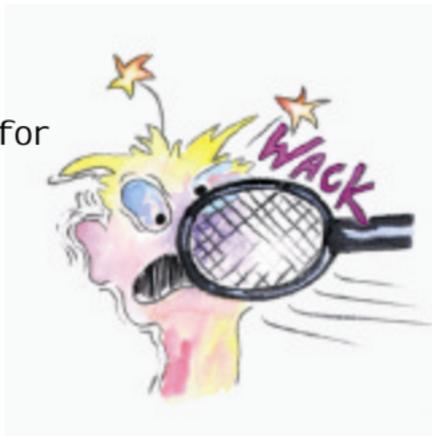
❑ Bird strikes can result in cockpit penetration and facial injuries.



❑ During emergency landings, the head can impact the interior of the aircraft, as well as objects loose in the area.

What are some off-duty hazards?

❑ Sports account for most aviator eye injuries. Basketball and baseball cause the most injuries.



❑ Home-related accidents involving power tools, gardening equipment, chemicals, and hand tools contribute to thousands of eye injuries each year.

❑ Long hours in the sun without proper eye protection increase the chances of developing eye problems (e.g., cataracts).

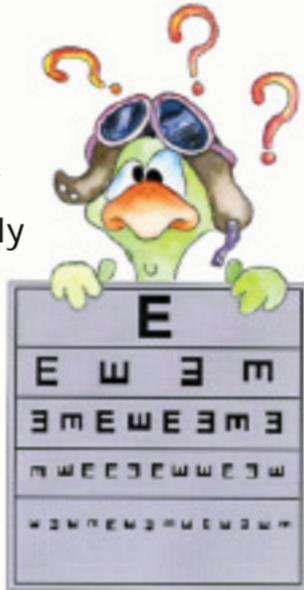
❑ Fireworks are the cause of nearly 10,000 eye injuries annually. Bottle rockets account for 82% of all fireworks accidents.

What can “eye” do?

❑ Prevent eye injuries

Wear protective eyewear when working in potentially hazardous situations:

1. Hunting and fishing
2. Playing sports
3. Motorcycling
4. Snow skiing
5. Using chemicals
6. Working in yard/workshop
7. Hammering, sawing, chopping, etc.
8. Jump-starting a car
9. In sun glare
10. Around fireworks



❑ Wear the correct eye protection for the job

• Protective visors

When in flight, visors (tinted or clear) should be worn to protect from dust and debris, glare, and possible impact injuries.

• Impact resistant goggles

Wear American National Standards Institute (ANSI) certified protective goggles when needed. Remember normal eyeglasses, sunglasses, flight glasses, and contacts ARE NOT eye protection.



- **Sports eye guards**
Wear American Society of Testing and Materials (ASTM) approved eye protection if you play a contact, racquet, or ball sport.

- **Shields and helmets**
Face shields and helmets should be worn along with other eye protection. Not alone!

- **Sunglasses**
Only buy sunglasses that have stated UV protection. Mirror coatings, wrap-around, blue-blocking, and polarized may not provide UV protection unless stated. Military sunglasses provide only partial UV protection.



□ **Know correct eye first aid**

- **Specks in the eye**
Don't rub that eye! Blink repeatedly and let the eye clear itself. If the speck remains, irrigate and seek medical help.

- **Blows to the eye**
Apply a cold compress to reduce swelling. If vision is blurred or doubled, seek medical attention.

- **Cuts to the eye or eyelid**
Shield the eye and seek medical attention! (Do not wash the eye, attempt to remove any foreign material, or press against the eye itself.)

- **Chemical Burns**

Flush the eyes immediately with water. Continue flushing gently for at least 15 minutes. Do not bandage. Seek medical attention.

- **Sports injuries**

Don't rub it! Use cold compresses for swelling. If vision does not improve after a few moments, seek medical attention immediately.

- **Know fact from fiction**



Myth: Eating carrots is healthy for vision.

Fact: It is true that carrots are a good source of Vitamin A (a basic vitamin for sight), but carrot for carrot, only a small amount is needed for good vision.

Myth: Reading in faint light will harm your eyes.

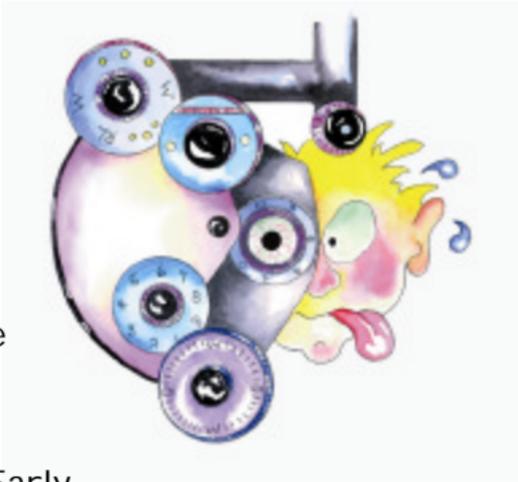


Fact: Dim light reading can cause eye weariness, but it will not hurt your eyes.

Myth: If you don't wear your glasses, you will damage your eyes.

Fact: Using your eyes without glasses will not hurt them. It's true your vision will not be as clear, but no damage will result.

Myth: If your eyes aren't bothering you, you don't need to go to the doctor.



Fact: Annual eye examinations can ensure good eye health for life. Early detection of eye conditions such as glaucoma can save your eyesight.

Refractive Surgery . . . Learn before you leap!



What is refractive surgery?

Refractive surgeries reshape the cornea, which is the clear tissue at the front of the eye. Reshaping the cornea is intended to correct nearsightedness, farsightedness, and astigmatism.

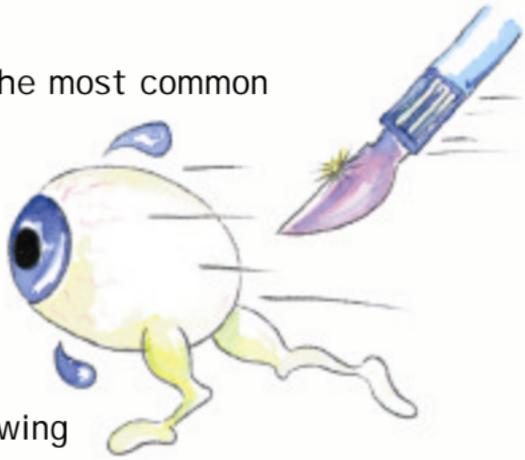
Are there different kinds of refractive surgery?

Yes. The most common are the traditional RK (radial keratotomy), PRK (photo refractive keratectomy) and the newest procedure LASIK (laser assisted in-situ keratomilieusis).

What is the difference?

Until recently the most common surgery was RK.

Surgeons used a scalpel to make a series of incisions in the cornea, allowing it to flatten out. Patients normally healed quickly and vision changes occurred within days. Many RK patients see well enough to not need glasses, but vision changes over the years cause many to go back to glasses.



PRK and LASIK are done with a computer-guided laser rather than a scalpel to reshape the cornea. With layers of the cornea being actually removed, healing takes longer. Because of the more invasive nature of these surgeries, chances for infection increase.

Patients should be cautioned that all refractive surgeries involve cutting into a normal, healthy eye. **Many find themselves still having to wear glasses, experiencing daytime glare and night vision problems!**

Can refractive surgery affect present or potential flight status?



Yes.

This type of surgery is unauthorized. If you are presently on flight status, you will be grounded; and potential flight status will be forfeited. Students having refractive surgery are subject to being dropped. (AR 40 - 501)

Test your safety “Eye-Q”

True or False?

1. Aviators are at most risk for an eye injury while flying nap-of-the-earth.
2. A pair of polarized sunglasses can protect the eyes from harmful UV rays.
3. Bottle rockets are the most dangerous type of fireworks.
4. Most objects that cause eye injuries are smaller than the head of a pin.
5. Eye injuries occur to off-duty personnel more often than on-duty.
6. The most dangerous sport for eye injuries is football.
7. Wearing a visor can provide protection from bird strikes as well as UV rays.
8. Eye diseases, such as glaucoma, are the leading cause of blindness in the US.
9. Refractive surgeries (RK, PRK, and LASIK) can decrease night visual performance.
10. Colored contact lenses provide adequate protection from harmful UV rays.

- ANSWERS
1. False. Aviators are at most risk when involved in off-duty activities.
 2. False. Polarized sunglasses do not block UV rays, they only decrease the amount of light entering the eye.
 3. True
 4. True
 5. True
 6. False. Basketball and baseball cause the most eye injuries.
 7. True
 8. False. Eye injury is the leading cause of blindness.
 9. True. Night vision is severely affected by this UNAUTHORIZED surgery.
 10. False. Most contact lenses do not provide adequate protection from UV rays. Eye health organizations recommend they be worn with UV blocking eyewear.

Research Physicist, Visual Sciences Branch

Director, Aircrew Health and Performance
Division

U.S. Army Aeromedical Research Laboratory
P.O. Box 620577
Fort Rucker, AL 36362-0577

U.S. Army Medical Research & Materiel
Command
504 Scott Street
Fort Detrick, MD 21702-5012

January 2000



The views, opinions, and/or findings contained in this brochure are those of the author, and should not be construed as an official Department of the Army position, policy, or decision.

