FLIGHT SAFETY FOUNDATION

HUMAN FACTORS & AVIATION MEDICINE

Vol. 47 No. 2 *For Everyone Concerned with the Safety of Flight* March–April 2000

Contact Lenses Present Flight Crewmembers With Benefits, Unique Risks

Improved vision without eyeglasses or surgery is among the benefits; risks include increased sensitivity to light and eye irritation, which can cause discomfort during flight. Some types of contact lenses are not approved for use by pilots.

William A. Monaco, O.D., Ph.D.

New materials and lens designs are making contact lenses an increasingly viable option for people requiring vision correction, but airplane crewmembers, especially pilots, must be aware of the potential risks, as well as the benefits, of wearing contact lenses while flying.

The main benefit of contact lenses is improved vision without eyeglasses and without surgery. But the potential risks can affect crewmembers in unique ways; for example:

- The dry air that circulates in pressurized aircraft can irritate the eyes of contact-lens wearers;

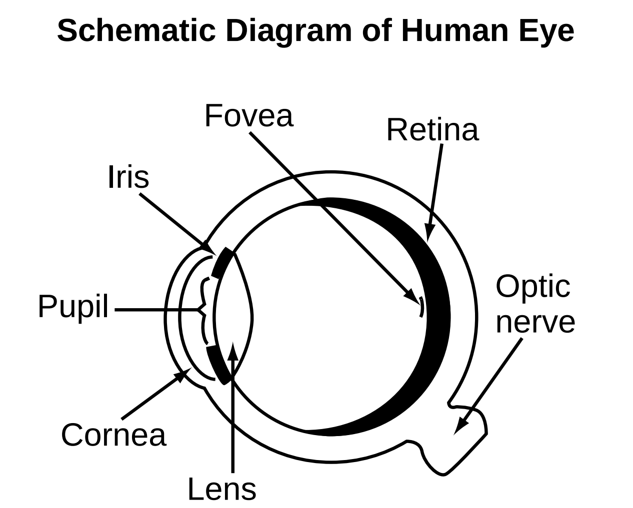
- Contact lenses may increase the eyes' sensitivity to light and glare (such as the glare of runway lights during a night approach to landing);

- A contact lens can slip out of place or may need to be removed if a foreign object — such as a particle of dirt or dust — enters the eye, becomes trapped beneath the contact lens and causes pain in the eye; reinserting a lens while flying an airplane can be difficult and distracting; and,

- In most countries, some contact lenses, including bifocal contact lenses and monovision contact lenses, which correct one eye for distance vision and the other eye for near vision, are not approved for use in aviation. The use of monovision contact lenses has been cited as the probable cause of one accident involving a commercial jet airplane.

These issues are important to anyone in the aviation industry who wears contact lenses or is considering wearing contact lenses; the issues are especially important to pilots.

Contact lenses fit directly on the cornea, the transparent tissue over the front of the eyeball that covers the pupil and the iris (Figure 1, page 2). Because contact lenses are on the cornea — and not away from the eyeball as eyeglasses are — they reduce the distortions that typically are associated with eyeglasses and in those cases may produce a clearer image on the retina. For a person wearing eyeglasses to correct myopia (also known as nearsightedness, or the ability to see clearly at close range but not at a distance) (Figure 2, page 2), the visual image presented to the retina — the eyeball's light-sensitive innermost lining — appears smaller than it really is. So even



Source: Stanley R. Mohler, M.D., and Flight Safety Foundation

Figure 1

when a myopic pilot can correct his or her vision to 20/20[1] (or the metric equivalent of 6/6) by wearing eyeglasses, the image, while clear, is smaller than that seen by a normal eye or a hyperopic (farsighted) eye. (Someone who is farsighted has the ability to see clearly at a distance but not at close range.) Contact lenses correct vision with little effect on image size.[2]

Information gathered for a 1988 study by the U.S. Federal Aviation Administration (FAA) Civil Aeromedical Institute (CAMI) — the most recent data available — showed that 3.13 percent, or 21,458, of the 685,552 active pilots in the United States wore contact lenses. That number was included among the 48 percent, or 326,757 pilots, who wore either eyeglasses or contact lenses.[3] The report also said that contact lens-wear among pilots was becoming more prevalent. (Data were not available on the number of pilots worldwide who wear contact lenses.)

Claus Curdt-Christiansen, chief of the International Civil Aviation Organization (ICAO) Aviation Medicine Section, said that, over the years, contact lenses have become "entirely acceptable" for pilots and that, in many instances, contact lenses provide the wearers with better vision than they would have with eyeglasses.[4]

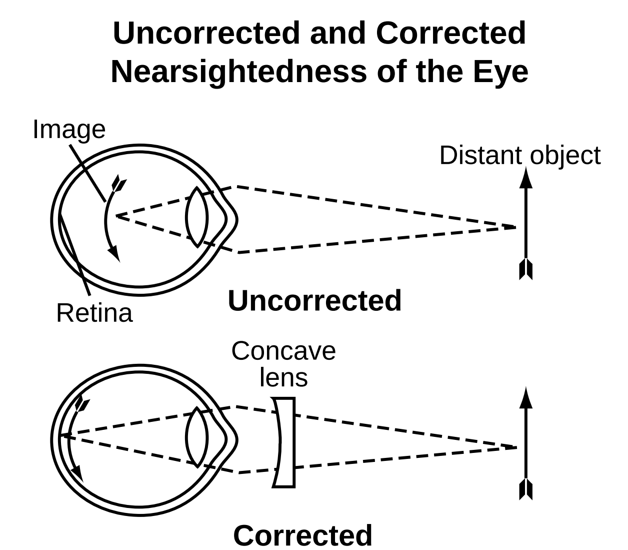
There are two basic types of contact lenses available today: rigid gas-permeable lenses made of silicon and soft lenses made of a gel-like polymer. Both types of lenses are designed to fit so that they conform to the curvature of the cornea, but soft lenses typically are available in a limited number of manufacturer-specified curves, and rigid lenses are made according to the specifications of an eye-care specialist (either an ophthalmologist, a physician who specializes in treatment of the eyes, or an optometrist, a specialist who examines the eyes and prescribes corrective lenses) for the radius of the curves.

Soft contact lenses generally are considered more comfortable because they have a water content of about 55 percent. The water content is the percent of fluid that is retained in the lens material. If the water content increases, the lenses tend to collapse, to lose their shape and to become difficult to handle. Some wearers may have difficulty determining whether the correct side of the lens is on the cornea. (In these circumstances, the best indication that the contact lens has been inserted correctly is that the wearer can see; if the wrong side of the lens is on the cornea, vision is impaired.)

Soft contact lenses continuously absorb moisture from the tears in the eyes, and if the eyes become too dry, they may itch; blinking may distort the shape of the soft lenses, requiring the eyes to refocus after each blink. Soft lenses also are more likely to be torn and may absorb protein and contaminants that become trapped in the lens material.

Unlike soft lenses, rigid gas-permeable contact lenses are designed to generate a reservoir of tears between the contact lens and the cornea. The tear reservoir helps cushion the rigid lenses to make the eyes more comfortable, but the extra moisture also can be responsible for the wearer's increased sensitivity to light.

At night, wearers of rigid contact lenses (particularly younger pilots, whose pupils often are larger than those of older pilots) may observe halos or may experience glare from light sources reflecting off the layer of moisture created by the contact lens. Generally, glare can be eliminated or reduced when an eye-care specialist improves the fit of the lens by making the lens more stable, enlarges the lens or alters the curves on the edges of the lens.



For illustrative purposes; principles of correction are the same for eyeglasses and contact lenses.

Source: Stanley R. Mohler, M.D., and Flight Safety Foundation

Figure 2

Glare related to contact lenses has been cited in at least one U.S. night-landing accident, which occurred in October 1985. The pilot of a Piper PA-28R, a single-engine airplane, told investigators that, after she asked air traffic control (ATC) at Buchanan Field in Concord, California, to brighten the approach lights, she experienced excessive glare that she attributed to her contact lenses. The airplane was landed short of the runway and collided with approach lights and an airport boundary fence. The airplane was damaged substantially; the pilot, who was the only person aboard the airplane, received minor injuries.[5]

Because of their rigidity, rigid gas-permeable contact lenses hold their shape better than soft contact lenses and often are prescribed for patients with astigmatism, a vision problem that occurs when the cornea is irregular in shape. The irregularity prevents light from focusing properly at a single focal point on the retina, leading to blurred vision at all distances.

Toric contact lenses also may be prescribed for patients with moderate astigmatism. Toric contact lenses, which are available as either soft contact lenses or rigid contact lenses, are designed to merge the separate focal points that cause blurred vision attributed to astigmatism into an unblurred image.

Rigid contact lenses also can be used to correct minor myopia through orthokeratology, a process in which an individual is fitted over a period of time with a series of sets of rigid contact lenses — each set slightly flatter than the previous one — that bend the cornea to flatten the corneal bulge that is characteristic of myopia. By reducing the bulge, myopia can be reduced, or sometimes eliminated. When the desired result is achieved, the patient wears a “retainer” lens at night to maintain good vision throughout the day. Careful monitoring of the molded cornea is required to ensure that it does not become distorted; a distortion could cause the patient’s vision to deteriorate.

Bifocal contact lenses sometimes are prescribed for patients with presbyopia (Figure 3), the gradual loss of the ability to focus on near objects, which usually becomes apparent for people in their 40s. But regulations in most countries do not permit pilots to wear bifocal contact lenses.

Curdt-Christiansen said that the problem with bifocal contact lenses for pilots is that — more than regular contact lenses — they rely on gravity to keep them in the proper position in the eye, and that gravitational forces on pilots vary.

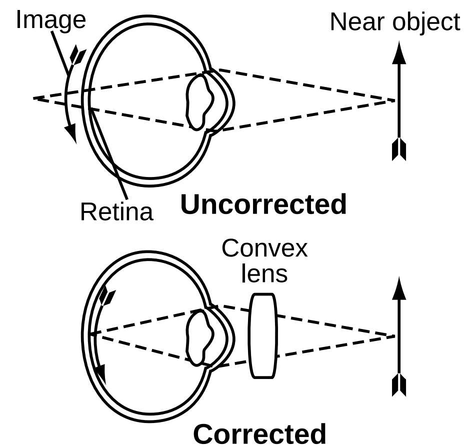
“The direction of gravity is … going to move around when you fly,” said Curdt-Christiansen.[4]

Instead, pilots generally wear contact lenses to correct their distance vision and have eyeglasses available during flight to wear over their contact lenses to correct their near vision.

Typically, bifocal contact lenses (available as either soft contact lenses or rigid gas-permeable contact lenses) have a small central zone for reading and surrounding zones that permit clear vision at intermediate distances and long-range distances (Figure 4).

Monovision contact lenses, which sometimes are prescribed for people with presbyopia, are designed to correct the eyesight to allow for near vision in one eye and distance vision in the

Uncorrected and Corrected Presbyopia of the Eye

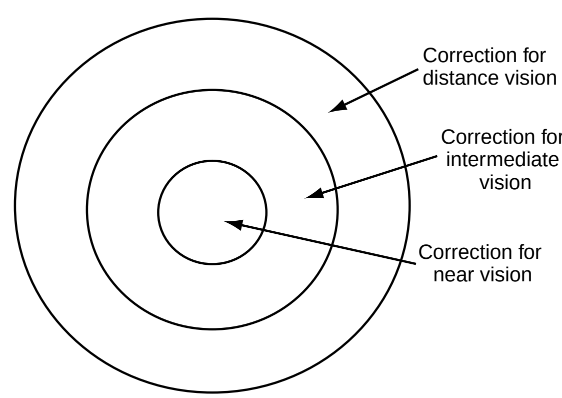


For illustrative purposes; principles of correction are the same for eyeglasses and contact lenses.

Source: Stanley R. Mohler, M.D., and Flight Safety Foundation

Figure 3

Vision-correction Zones Of a Bifocal Contact Lens



The prescription for a bifocal contact lens calls for a small central zone to correct the wearer’s near vision and for gradual adjustments to the edge of the contact lens to correct for intermediate vision and distance vision.

Source: William A. Monaco, O.D., Ph.D.

Figure 4

other eye. The process also is known as "monofit" because of the vision-correction strategy involved. The process may interfere with the contact lens-wearer's three-dimensional vision. Regulations in most countries prohibit pilots' use of monovision contact lenses, said Curdt-Christiansen.

The U.S. National Transportation Safety Board (NTSB) said that a pilot's use of monovision contact lenses was the probable cause of an accident involving a Delta Air Lines McDonnell Douglas MD-88 that struck an approach light structure and the end of the runway deck on a late-afternoon approach to LaGuardia Airport in Flushing, New York, U.S., in October 1996. Three of the 60 people on the airplane received minor injuries, and damage to the airplane was substantial.[6]

The NTSB accident report said that the captain, "because of his use of monovision contact lenses, [was unable] to overcome his misperception of the airplane's position relative to the runway during the visual portion of the approach."

The misperception occurred because of "visual illusions produced by the approach over water in limited light conditions, the absence of visible ground features, the rain and fog, and the irregular spacing of the runway lights," said the report.

A contributing factor was "the incomplete guidance available to optometrists, aviation medical examiners and pilots regarding the prescription of unapproved monovision contact lenses for use by pilots," said the report.

After NTSB issued the report, the American Optometric Association issued information to optometrists in the United States, reminding them that pilots should be aware that federal regulations prohibit them from using monovision contact lenses during flight.

Several months after the accident, U.S. Federal Air Surgeon Jon L. Jordan said that FAA was concerned about the increasing use of monovision contact lenses by pilots.[7]

When one eye is corrected for distance vision and the other eye is corrected for near vision, "this may significantly alter depth perception," Jordan said.

Jordan said that an individual who wears monovision contact lenses is, in effect, using one eye at a time but has not achieved the long-term adaptation to monocular vision that is typical of an individual who is anatomically monocular — that is, an individual who has only one eye.

"We believe this poses a serious safety risk to airmen," Jordan said.

Curdt-Christiansen said that the ICAO Aviation Medicine Section also opposes use of monovision contact lenses by pilots.[4]

Monovision lenses should "absolutely not" be used in aviation, he said, because their use "breaks the cooperation of the two eyes," said Curdt-Christiansen, who said that he was unaware of other accidents attributed to the use of monovision contact lenses or standard types of contact lenses.

The 1990 CAMI report said that FAA conducted three studies in the 1970s to determine whether any relationship existed between pilots' use of contact lenses and aircraft accidents. The last of the studies, a 1979 study of general-aviation pilots, said that those who wore contact lenses had "less-than-average accident experience." But the difference in accident rates experienced by pilots who wore contact lenses, compared with pilots who did not wear contact lenses, was "not significant," and evidence of any association between contact lens wear and the risk of aviation accidents was "inconclusive," the 1990 CAMI report said.[3]

Nevertheless, the report said, "Despite lack of conclusive accident risk, contact lens use merits constant vigilance by the FAA. Civil aviators may experience problems with contact lenses while flying, such as irritation while using full-face self-contained breathing apparatus or other protective devices; dislodged lenses while performing acrobatic maneuvers; visual performance decrement in aviation physiologic environments … [such as the low-oxygen levels of hypoxia, the low barometric pressure of hypobaria and the dryness of low relative humidity; and] additional demands on accommodation inherent from contact lenses to presbyopic airmen."

The report also cited a study by the U.S. Consumer Product Safety Commission that estimated that more than 30,000 injuries related to contact lens wear occurred in 1988, including reports of bruises, cuts and foreign particles in the eyes. Those injuries were indicators of the "inherent hazards" of contact lenses, said the report.[3]

Contact lenses are mentioned rarely as a factor in aviation accidents. But one pilot of a small transport airplane filed a voluntary report with the U.S. National Aeronautics and Space Administration Aviation Safety Reporting Service (ASRS)[8] that described an April 1997 event during which a contact lens fell from his eye onto the cockpit floor shortly after a supply tube disconnected from his oxygen mask and he felt symptoms of hypoxia. He had assistance from the second pilot in the airplane, and they flew the airplane from 20,000 feet to a lower altitude.[9]

"To correct the situation, I intend to add a 'check oxygen-mask connections' [item] to my post-takeoff checklist," the pilot said. "I also intend to put [a] pair of [eye]glasses in the cockpit."

When crewmembers discuss contact lenses with their eye-care specialists, they should ensure that the specialists are aware of the special visual demands on crewmembers. For example, pressurized aircraft circulate dry air that makes contact lenses less comfortable because the dry air evaporates some of the moisture that normally is in the eyes. Because of changes in hormonal balance, female pilots and female flight attendants who take birth-control pills or are pregnant may be more susceptible to dry-eye symptoms. Women also tend to be bothered more by dry-eye problems as they age. Tear-supplement eye drops may be needed to maintain comfort while wearing contact lenses.

Crewmembers who wear contact lenses while working in sunny, windy or dusty environments should wear sunglasses for added comfort and protection against bright light and particles of dust that might be blown into the eyes. Sunglasses with larger lenses than usual or sunglasses designed to cover the front and sides of the eyes sometimes are useful in helping to keep windblown particles of dust or other foreign objects from entering the eyes. In some instances, foreign objects irritate the eye so much that the wearer must remove the lens. If this occurs during flight, or if a lens becomes dislodged, a pilot may need to reinsert the lens during flight. To be prepared, pilots should practice reinserting their lenses without looking in a mirror, because they might not have access to a mirror during flight. Pilots also should carry eyeglasses, in case a lens cannot be re-inserted in the eye.

Contact lenses may interfere with the normal functioning of the cornea and may make the cornea cloudy, giving the wearer a sensation of looking through a smoke-filled room and increasing his or her sensitivity to light. The cloudiness, which is most likely to occur after contact lenses have been worn too many hours — more than 14 hours to 16 hours a day — is a result of the contact lens's interference with the normal flow of moisture around the cornea and the subsequent disturbance of cornea's transparent fiber structure.

Another problem is "spectacle blur," which may occur immediately after contact lenses are removed for the day and may last up to one hour. Spectacle blur is a result of a swelling of the cornea, which may occur when contact lenses deprive the eye of some of the oxygen it needs to function properly. (The eyes absorb oxygen from their tears; the tears in turn, primarily absorb oxygen from the air.) The swelling disappears within an hour after contact lenses are removed, as the moisture that normally is in the eye brings with it a new supply of oxygen. A small amount of spectacle blur is acceptable; however, the eye-care specialist and the pilot should monitor the problem to ensure that there is no interference with the pilot's performance, especially while flying at night, when spectacle blur may cause the eyes to be more sensitive to glare.

Contact lenses tinted for cosmetic purposes are designed to allow the wearer to see through the untinted centers of the lenses, which are surrounded by an opaque tint. But a possibility exists that a pilot flying at night, when pupils enlarge for better night vision, could find that the opaque portion of the contact lenses restricts his or her vision.

The American Optometric Association, in a comparison of contact lenses and eyeglasses, said that contact lenses have several advantages over eyeglasses, including:[10]

- They move with the eye, allowing a natural field of vision;
- They have no frames to obstruct vision;
- They reduce the distortion that can be present with eyeglasses, especially those that are made with strong prescriptions to correct nearsightedness. Eyeglasses are designed for optimal vision when the wearer looks through the center of the lens; when the wearer looks through some part of the lens other than the center, that can lead to distortions in side vision and peripheral vision; and,
- They do not fog up because of changes in temperature, and are not as readily splattered by rain or mud.

A 1993 CAMI report lists other considerations for pilots, including a suggestion that rigid lenses may provide improved distant vision. The report also said that soft contact lenses may be advisable for those who do aerobatic flying, because soft lenses are not as easily dislodged as rigid lenses. The report said, however, that soft lenses might not be advisable for agricultural-aircraft operators who are exposed to harmful pesticides, because soft lenses may absorb chemicals in the pesticides.[10]

Contact lenses typically are worn for 16 hours, removed at night, cleaned and stored in a special solution until morning, when they are reinserted. The wearing schedule is different for "extended-wear" lenses —contact lenses that are designed to remain in the eyes continuously, including during sleep, for a week or longer, when they are discarded and replaced with new lenses. (Extended-wear contact lenses may not correct all vision problems, and vision with extended-wear soft contact lenses may not be as satisfactory as vision with rigid lenses.)[11]

A crewmember, like anyone else making the transition to contact lenses, typically would begin by wearing contact lenses between four hours and six hours a day and wearing eyeglasses the rest of the time. Contact lens wearing time would increase by one hour or two hours a day, up to a maximum wearing time of 14 hours to 16 hours a day. During the first few days, the contact lenses should be worn when the crewmember is not flying, to allow him or her to adjust to the contact lenses in a non-flight environment. Generally, the lenses should be inserted about one hour after the wearer wakes up and removed about one hour before bedtime to give the corneas time for maximum oxygen exposure before contact lenses are inserted or the eyelids are closed.

The key indication of any contact-lens problem is pain, often accompanied by red eyes, tears and sensitivity to light. If these problems are experienced, the lens should be removed, moistened with fresh wetting solution and re-inserted onto the eye. If the problems persist, they may be an indication of a problem with the lens or the eye, such as an eye infection or a scratch on the cornea, and the wearer should see an eye-care specialist.

If the lenses are worn despite pain, a problem could intensify: The cornea could be scratched more extensively or an infection could occur. An injury that goes untreated could result in ulceration that could penetrate the full thickness of the cornea and could result in permanent corneal scarring. This is a medical emergency that requires immediate treatment.

A simple formula for successful contact lens wear is to follow a consistent wearing schedule and to keep the lenses in good condition by following an eye-care specialist's instructions. A variety of solutions are available to clean, wet and soak contact lenses; the choice of solutions depends on the eye-care specialist's instructions about the preferred solutions for each type of lenses (see "Guidelines for Contact Lens Wearers").

A U.K. Civil Aviation Authority report describes a 1994 incident in which a flight attendant on a British Airways Boeing 767 was incapacitated after cleaning soft contact lenses with solution manufactured for rigid lenses. The flight attendant experienced sore eyes. The flight attendant's condition worsened after eye drops from an aircraft medical kit were used instead of the recommended eyewash, the report said.[12]

If the lenses are not properly cleaned and stored, there will be a buildup on the contact lens surface of proteins that are found in the eye, and the lens eventually will become unwearable, at least until it has been cleaned.

When contact lenses are properly cared for, a pair of rigid lenses will last at least a year. They may become scratched during routine use; often, an eye-care specialist can polish the lenses to remove scratches. Soft lenses typically must be replaced after one month or two months, depending on the type of lens; in some countries, including the United States, government agencies have issued guidelines on the frequency of soft-lens replacement.

Contact lenses are worn by millions of people every day with comfort and excellent vision. The key to success with contact lenses is to follow an eye-care specialist's recommendations on the use and care of the lenses. Nevertheless, for airplane crewmembers, especially pilots, use of contact lenses can present risks that are unique to the flight environment and that require special vigilance.♦

Guidelines for Contact Lens Wearers

The following are general guidelines for caring for contact lenses:

- Follow the instructions of your eye-care specialist (an ophthalmologist or an optometrist) on how long to wear contact lenses and how to clean them;
- Use only the types of contact lens cleaners and soaking solutions approved by your eye-care specialist. Do not mix one type of solution with another, and do not use saliva to wet the contact lenses;
- Wash and rinse your hands, preferably with fragrance-free soap, before handling contact lenses. With proper hygiene, eye infections are no more common in people who wear contact lenses than they are in anyone else. Do not allow cosmetic lotions, creams or sprays to touch the contact lenses, and do not allow fuels or chemicals that may be present around an airplane to be transferred from the hands to the eyes;
- Clean and store the contact lenses properly every time they are removed from the eyes, even if they are removed several times a day;
- Clean, rinse and air-dry the contact lens storage case, according to your eye-care specialist's instructions, every time the lenses are removed from the case. Then add fresh soaking solution. Replace the case every six months;
- Have your eye-care specialist's approval before using medicines, including over-the-counter eye drops, that might affect the eyes or the contact lenses;
- Remove the contact lenses and consult your eye-care specialist if you experience pain in the eyes or have vision changes, redness of the eyes or excessive tearing;
- Do not wear contact lenses while swimming or in a hot tub, unless you also wear properly fitting swimming goggles. Water could wash the lenses out of the eyes or present a risk of infection from bacteria or other microorganisms in the water. Soft lenses can absorb chlorine or other eye-irritating chemicals that may be present in the water; and,
- Do not wear daily-wear contact lenses (as opposed to extended-wear contact lenses) during sleep, not even during a short nap. During sleep, the amount of oxygen reaching the corneas and the amount of moisture in the eye are limited, and the cornea could be damaged.♦

— William A. Monaco, O.D., Ph.D., and
U.S. Food and Drug Administration

Notes and References

1. A person with 20/20 vision has what is considered normal visual acuity and is able to see clearly at 20 feet what the normal eye sees at 20 feet. A person with the metric

equivalent of 6/6 vision is able to see clearly at six meters what the normal eye sees at six meters.

2. Dully, Frank E. Jr. “Contact Lenses in Aviation.” *Human Factors & Aviation Medicine* Volume 37 (September–October 1990): 1–4.

3. Nakagawara, Van B. *The Use of Contact Lenses in the Civil Airman Population* DOT/FAA/AM-90/10. U.S. Federal Aviation Administration (FAA) Civil Aeromedical Institute (CAMI). September 1990.

4. Curdt-Christiansen, Claus, M.D. Telephone interview by Werfelman, Linda. Alexandria, Virginia, U.S., March 10, 2000. Flight Safety Foundation, Alexandria, Virginia, U.S.

5. U.S. National Transportation Safety Board (NTSB) accident report LAX86LA015.

6. NTSB accident report NYC97MA005.

7. Jordan, Jon L. “Eyes, Right.” *Federal Air Surgeon’s Medical Bulletin* (Summer 1997): 2.

8. The U.S. National Aeronautics and Space Administration (NASA) Aviation Safety Reporting System (ASRS) is a confidential incident-reporting system. The ASRS Program Overview said, “Pilots, air traffic controllers, flight attendants, mechanics, ground personnel and others involved in aviation operations submit reports to the ASRS when they are involved in, or observe, an incident or situation in which aviation safety was compromised. … ASRS de-identifies reports before entering them into the incident database. All personal and organizational names are removed. Dates, times and related information, which could be used to infer an identity, are either generalized or eliminated.”

   ASRS acknowledges that its data have certain limitations. ASRS *Directline* (December 1998) said, “Reporters to ASRS may introduce biases that result from a greater tendency to report serious events than minor ones; from organizational and geographic influences; and from many other factors. All of these potential influences reduce the confidence that can be attached to statistical findings based on ASRS data. However, the proportions of consistently reported incidents to ASRS, such as altitude deviations, have been remarkably stable over many years. Therefore, users of ASRS may presume that incident reports drawn from a time interval of several or more years will reflect patterns that are broadly representative of the total universe of aviation-safety incidents of that type.”

9. NASA ASRS accession no. 365350.

10. Nakagawara, Van B. *Vision Impairment and Corrective Considerations of Civil Airmen*. DOT/FAA/AM-93/21. FAA CAMI. December 1993.

11. American Optometric Association. “Advantages and Disadvantages of Various Types of Contact Lenses.”

12. U.K. Civil Aviation Authority Safety Data Department occurrence no. 199402469.

About the Author

William A. Monaco, O.D., Ph.D., is an optometrist in private practice with a specialty in aviation optometry. Monaco in December 1999 was appointed as a special consultant to the U.S. Federal Aviation Administration federal air surgeon on vision physiology and related issues. He holds a Ph.D. in vision science and is a former dean of the College of Optometry at Northeastern State University in Tahlequah, Oklahoma, U.S. He is a former director of research for the Heart and Lung Institute at St. Vincent’s Medical Center in Jacksonville, Florida, U.S., and the Naval Aerospace Medical Research Laboratory in Pensacola, Florida, U.S. He holds a commercial pilot certificate and a flight instructor certificate with a rating in airplanes.

Further Reading From FSF Publications

Mohler, S.R. “Laser Eye Surgery Gains Popularity Among Nearsighted Pilots Seeking Better Vision.” *Human Factors & Aviation Medicine* Volume 46 (September–October 1999): 1–4.

FSF Editorial Staff. “MD-88 Strikes Approach Light Structure in Nonfatal Accident.” *Accident Prevention* Volume 54 (December 1997): 1–15.

Mohler, S.R. “Cockpit Crew Members Can Overcome Common Eye Problems.” *Human Factors & Aviation Medicine* Volume 42 (September–October 1995): 1–4.

Mohler, S.R. “Aviation Careers May Hinge on Vision Protection.” *Human Factors & Aviation Medicine* Volume 41 (January–February 1994): 1–4.

What's Your Input?

In keeping with FSF's independent and nonpartisan mission to disseminate objective safety information, Foundation publications solicit credible contributions that foster thought-provoking discussion of aviation safety issues. If you have an article proposal, a completed manuscript or a technical paper that may be appropriate for *Human Factors & Aviation Medicine*, please contact the director of publications. Reasonable care will be taken in handling a manuscript, but Flight Safety Foundation assumes no responsibility for material submitted. The publications staff reserves the right to edit all published submissions. The Foundation buys all rights to manuscripts and payment is made to authors upon publication. Contact the Publications Department for more information.

Human Factors & Aviation Medicine

Staff: Roger Rozelle, director of publications; Mark Lacagnina, senior editor; Wayne Rosenkrans, senior editor; Linda Werfelman, senior editor; Karen K. Ehrlich, production coordinator; Ann L. Mullikin, production designer; Susan D. Reed, production specialist; and David A. Grzelecki, librarian, Jerry Lederer Aviation Safety Library.

Subscriptions: One year subscription for six issues includes postage and handling: US$240. Include old and new addresses when requesting address change. • Attention: Ahlam Wahdan, assistant to director of marketing and business development, Flight Safety Foundation, Suite 300, 601 Madison Street, Alexandria, VA 22314 U.S. • Telephone: +1(703) 739-6700 • Fax: +1(703) 739-6708