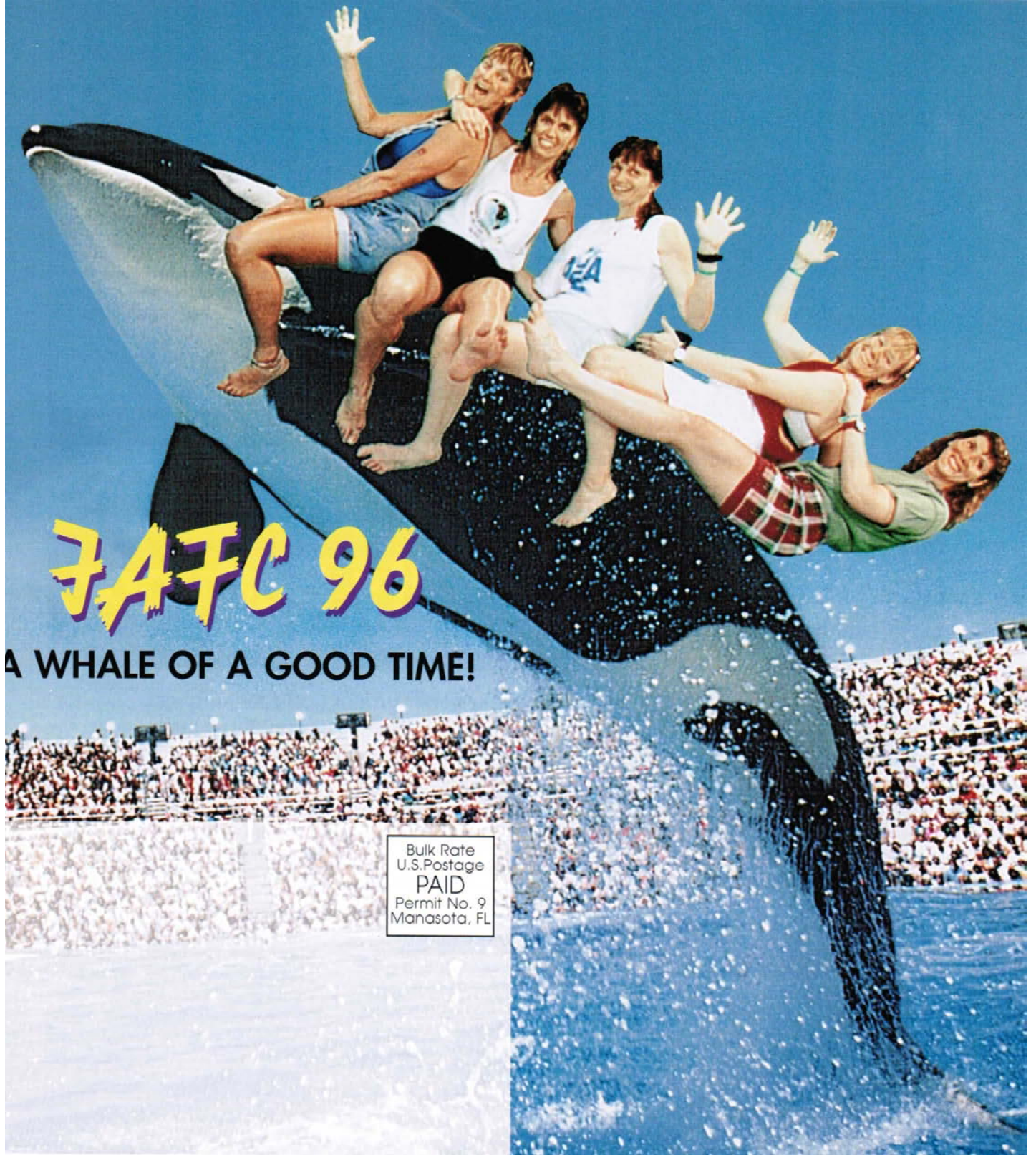


the AKWA letter

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7AFC 96

A WHALE OF A GOOD TIME!

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SUN, WATER AND YOUR EYES

by Ruth Sova, M.S.

The glorious sunshine that helps to create our food also has a "dark" side. Ultraviolet rays are becoming more important now that the ozone layer is diminishing. We recognize the importance of using sun block for our skin but may not realize that the sunlight can damage our eyes. Not only does the sunshine present a problem for many aquatic exercisers but the glare from the reflective water (yes, even in indoor pools) and the pool chemicals increase the risk of eye damage. You can get eye burn from the sun's reflection off the water. Infrared light rays cause eye fatigue and accelerate the effect of the UV (ultraviolet) rays. Prolonged UV light exposure can cause inflammation of the cornea and may lead to the development of cataracts.

What's the solution? Hats, visors, glasses and the football player's black streak under the eyes! Glasses which can cost \$7 to \$200 should offer good vision (not distort or dampen visual contrast) and still protect our eyes. Polarized, brown contrast, lightweight wraparounds seem best. Double radiant filters are good too. The glasses should offer good depth perception, be lightweight and provide space for ventilation. If you're swimming in an outdoor pool, wear polarized and tinted goggles to filter out the sun's destructive rays.

The lenses of sunglasses, no matter what they're made of, must meet shatter tests established by the FDA. Sports glasses are usually made of a plastic called polycarbonate. They refract light but don't distort, they're strong, break-resistant, and lightweight. The polycarb glasses are easy to scratch. Some have anti-scratch coating so look for that. Use a soft cloth and commercially available lens cleaner (for example *sun shade optique* containing isopropanol) for cleaning plastic lenses and to prevent streaking on anti-reflective coating. Glass lenses offer the best possible vision in all conditions. They're fairly scratch proof and shatter-resistant but they can break and they're usually heavy and uncomfortable.

Here are some terms that might help you when selecting glasses!

Polarized means that the lenses will eliminate reflective glare from the large amounts of light hitting the water. Polarized lenses are best against the glare of the water and they block the UV rays.

Gradient means that the lens is darker at the top than the bottom. They're not ideal for water but they're good protection from overhead sun. Unless they're also polarized they don't block the UV rays.

Double gradient means that the lens is darker at the top and at the bottom but clear in the middle. They're better for the water but not so good if the sun is directly in the horizon. Unless they're also polarized, they don't block the UV rays.

Flash reflective lenses have a mirror-like finish of silver, blue, rose or green. They reflect the light away instead of absorbing it like the other lenses.

Sport shields are usually wrap around and shield the eyes from above, below and the sides. They are made to protect the eyes from water, sweat, hair, dust and debris. They may help lessen the exposure to chlorine. These are the culprits behind the funny looking "raccoon eye" suntans!

Cosmetic lenses are usually lightly tinted. They're generally not for pools because they don't offer enough protection.

General purpose lenses are usually medium to dark tint. They're not good enough for aquatics unless they're used exclusively inside with only sunshine exposure through windows.

High index, polycarbonate and UV tinted lenses block 99% of UV rays, offer maximum protection, and are considered best for aquatics.

What about contacts? Johnson and Johnson is working on disposable contacts that darken when exposed to light.

Just as you have different equipment for golf, hockey, mountain biking and aquatics, you'll probably need different sunglasses for each. Glasses are becoming more sport-specific. Be sure the glasses you use at the pool give you the best protection possible.

WHY DO MY EYES BURN AFTER BEING IN A POOL?

- Eye irritation is a major cause of bather discomfort and source of complaints about pools
- Often incorrectly attributed to too much chlorine in the water
- Prevention
 - Swim in properly maintained, sanitized and balanced pools
 - Use eye drops containing antihistamines after leaving the pool
 - Wear goggles while swimming
 - Outdoors, wear good polarized goggles to filter out destructive rays of the sun while swimming, or sunglasses and a hat while working.

Most likely causes of eye irritation

- Chloramines
- Unbalanced water
- Excessive debris or turbid water coming into contact with the cornea
- Friction of water against the cornea and disruption of the tear film
- Sun
 - Eye burn from sun reflection off the water
 - Prolonged ultraviolet light exposure causes inflammation of the cornea and can lead to development of cataracts.
- Air pollution – windblown debris, smog, pollen

WHY DO I SEE HALOS AROUND LIGHTS AFTER SWIMMING?

- Since pool water is less salty than tears (hypo-osmotic), pool water moves by osmotic pressure into the eye
- The clear part of the front of the eye becomes swollen and fills with water. This accumulation of fluids in the eye is called corneal edema.
- Some cells are lost off the surface of the cornea causing: blurred vision and photophobia.
- 2/3 of swimmers typically see rainbows or halos around lights within 15 minutes of entering a pool.
- This light sensitivity usually disappears within 30 minutes of leaving the pool.
- To lessen the effects of corneal edema, wear goggles while swimming in pools and fresh water lakes.

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RESOURCES

American Foundation for the Blind, 11 Penn Plaza, Ste. 300, New York, NY 10001; 800-232-5463, TDD 212-502-7662
National Association for Visually Handicapped, 22 W. 21st St., New York, NY 10010; 212-889-3141
Prevent Blindness America, 500 E. Remington Rd., Schaumburg, IL 60173; 800-331-2020.
Association for Macular Diseases, Inc., 210 E. 64th St., New York, NY 10021. Send business-size SASE.
Foundation Fighting Blindness. Local affiliates nationwide. 800-683-5555, TDD 800-683-5551. Free Amsler grid (a printed vision test), pamphlets, information on support networks and/or referrals for people with retinal degenerative disease.
Glaucoma Research Foundation, 490 Post St., Ste. 83, San Francisco, CA 94102-1409; 800-826-6693. Material on glaucoma; newsletter; eye donor and phone support networks.
National Eye Institute, National Institutes of Health, 2020 Vision Pl, Bethesda, MD 20892-3655. Free pamphlets on diseases and research.

Ruth Sova, M.S., an internationally known speaker, author and consultant, is founder of six businesses was the recipient of the 1987 IDEA Outstanding Business Award.

Side bar by Alison Osinski.

Alison Osinski, Ph.D. is the principal owner of Aquatic Consulting Services. Dr. Osinski's educational background includes degrees from the University of Maryland (Ph.D.), Florida International University (M.S.), and Hillsdale College (B.S.) in Physical Education with a specialty in Aquatics.

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IS IT SAFE TO WEAR CONTACT LENSES WHILE IN THE POOL?

Loss of lenses

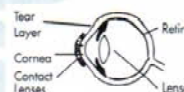
- Osmotic pressure of pool water forces out the saltier water content of soft or disposable contact lenses. Lenses tend to shrink and fit the cornea more tightly. Adherence becomes stronger with increased length of exposure to pool water.
- Wearing hard contact lenses while swimming is not recommended. Loss of hard lenses is common in both chlorinated and salt water.
- Loss of soft lenses is common in salt water, but uncommon in chlorinated fresh water, and extremely unlikely if you splash pool water into your eyes before entering the pool.

Damage to lenses

- No damage to the lenses themselves.

Vision Damage

- No change in vision
- Less blinking while in the pool, but normal blinking returns within 30 minutes of leaving the pool.



Infection or eye injury

- Eye infection is possible if lenses become contaminated from absorption of contaminated water
- Corneal abrasions may result from rubbing irritated eyes if suspended debris gets under the lenses
- Corneal damage may occur if lenses are removed too soon after leaving the pool. Because of the firm adherence of lenses to the cornea due to the hypotonicity caused by the pool water:
 - Wait at least 30 minutes after leaving the pool to remove lenses.
 - Use saline solution or artificial tears before trying to remove lenses.