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## VISION NEWSLETTER

June 2023



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The banner features a green bottle of optive FUSION Eye Drops on the left. The central text offers a choice between a year's supply of optive FUSION Eye Drops (for relief, comfort and sustained protection from Dry Eye symptoms, contact lens compatible) or two bottles of BIOTRUE SOLUTION. The BIOTRUE SOLUTION is shown in two boxes: one for Biofinity and one for Avalra Vitality, both by CooperVision.



## SEEING EYE TO EYE

Eye contact is one of the most rudimentary and fundamental modes of human communication. Like facial expressions, body language and gestures it is a non-verbal form of communication, which is an essential component of social interaction, helping to establish and maintain relationships. We can communicate with our eyes without saying a word, and convey a variety of emotions, such as trust, interest, empathy, or aggression. Eye contact helps to establish rapport, express empathy, and demonstrate confidence and sincerity. All of these values can be relayed in the blink of an eye depending on how you look (or don't look!) at someone. Words can take time to get to the point, while the eyes quickly express what one means. There are different types of eye contact, including dyadic eye gaze when one individual looks at another and triadic eye gaze when both people look at a shared object or person.



Eye contact serves an important social function for infants even before vocal responding begins to develop. The ability to make eye contact is innate, and it begins shortly after birth. New-borns pay more attention to faces with eyes gazing directly at them than faces with eyes looking away, helping them establish a bond with their caregivers. Children are affected to a large extent by how we look at them. What a child sees in our eyes is more powerful than what we say. This early interaction lays the foundation for future social development.

Studies have shown that eye contact activates specific regions of the brain associated with social cognition and emotional processing. When we look into someone's eyes, it triggers the release of oxytocin, a hormone associated with bonding and trust. This physiological response is essential in building and maintaining relationships.



The gaze of others has a powerful effect on our behaviour and self-awareness. Several studies demonstrate that feeling looked at inclines people to become more attuned to their own body's physiological responses, such as heart rate, sweating, and breathing, as well as how they might be perceived by others. Even images of eyes in paintings or pictures have been found to make us act in a socially acceptable or reputable manner.

As reported in a classic study in 1980, eye contact can improve learning - young students whose teachers made eye contact with them during lectures had improved recall of verbal material after the class.

Eye contact essentially comes down to three things: the duration of the gaze, how one looks away and what the eyes say about how one is really feeling. Holding eye contact is a sign of strength, so looking away every now and again suggests a healthy balance of power in the conversation. In a difficult conversation, one person can dominate by



deliberately not looking away. How a person looks away is important too - a brief sideways glance suggests they are collecting their thoughts, while perpetually looking down at their feet suggests they have something to hide. People who can't meet someone's gaze at all appear evasive, nervous or disinterested in what the other

person is saying. People who hold eye contact intensely can come across as hostile, angry or defiant.

Just as managing eye contact is essential when speaking, it is also a key aspect of listening. Avoiding eye contact with someone during a conversation can send them the message that you aren't listening to them and can even be seen as rude. Maintaining eye contact during a conversation helps to show interest in what the person is saying, show them you understand what they're saying, encourage them to continue the conversation and to be more open and honest with you.

The effective use of eye contact requires a balance between maintaining eye contact and avoiding it. Shared eye contact in conversations ensures that communication is clear and understood by both people; both people feel heard, respected, and understood, the intended messages are sent and received, neither person is accidentally offended, people remember what was said and lines of communication remain open in the future. Communication style can be adjusted according to social cues and the message is given credibility. When eye contact with someone you are talking to is not good, people are less likely to listen and understand what is being said, and miscommunications are more likely to occur.



While eye contact is a universal aspect of communication, its role and meaning vary significantly across different cultures and situations. Making too much eye contact or not enough can violate unspoken social norms and rules. In some cultures, direct eye contact is seen as a sign of respect and attentiveness, while in others, it can be considered rude or confrontational. Depending on a person's background, culture, and individual preferences, some people are more or less comfortable with eye contact. In

some instances, people may become uncomfortable or threatened when too much eye contact is made, and in other cases, they may be offended when eye contact is avoided. Gender also plays a role in the use of eye contact. Research has shown that women tend to use more eye contact than men, especially when they are listening. Men, on the other hand, are more likely to use eye contact to assert dominance or establish authority. In addition to cultural and situational factors, personal factors such as personality, mood, and emotional state can also impact the use of eye contact.

When we communicate with someone, we use a combination of verbal and nonverbal cues to convey or receive the message. Research has shown that nonverbal communication, including eye contact, accounts for a significant portion of our interpersonal communication.

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## NOT QUITE IN THE PINK?

Many of us remember waking up as children with crusted eyes, red and watering, painful to the touch, with bright light adding to the discomfort. These are typical symptoms of conjunctivitis. Conjunctivitis or pinkeye, as it is often called, is an infection or inflammation of the conjunctiva, the clear membrane over the white of the eye and the inner eyelids, causing them to become red or pink. Most frequently seen in children, it can occur in adults, adolescents and sometimes new-borns. While it may look and feel uncomfortable, it is usually not serious.

### What causes conjunctivitis?

There are three main types of conjunctivitis each with a different cause. Infectious conjunctivitis is most often caused by a bacteria or virus, often those associated with a cold or upper respiratory infection. Allergic conjunctivitis occurs commonly among people who have seasonal allergies and is usually an allergic reaction to organisms in the environment. It can occur in people who wear contact lenses. Irritants in the environment including swimming pool chemicals or air pollution can lead to chemical or reactive conjunctivitis.

### What are the symptoms of conjunctivitis?



As the name 'pink eye' implies, the classic symptom is red eyes.

Other symptoms include swelling, pain, itching, burning, watering, puffiness around the eyes, a gritty feeling in the eyes and sensitivity to bright light. There may be a discharge from the eyes and its nature depends on the cause – in the case of viral or allergic conjunctivitis, it is clear and watery, while the discharge with a bacterial infection is yellow or green and may crust the eyelids overnight.

Allergic conjunctivitis is often accompanied by symptoms such as coughing, sneezing and a runny nose in response to an allergen.

### Is it necessary to see a doctor?

It is advisable to seek medical intervention if the conjunctivitis does not clear after 3 – 4 days, if the eyelid becomes swollen and painful, if the child has a fever and is lethargic, or if he complains of problems with his vision.

### How is conjunctivitis diagnosed?

The doctor or optometrist will ask questions to determine the symptoms, when they began, the possible cause and whether any general health or environmental conditions may be contributing to the problem. The conjunctiva and other eye tissue will be examined, and a test of visual acuity may be done to assess whether vision has been



affected.

A smear of the conjunctiva or sample of the discharge may be taken to ascertain the virus or bacteria responsible for the infection and to indicate the appropriate treatment.

### How is conjunctivitis treated?



Treatment depends on the cause of the condition and has three main goals. These are to lessen discomfort, to reduce the course of the inflammation or infection and to prevent its spread. Conjunctivitis caused by a virus, like a cold, usually needs to run its course until it goes away without any specific treatment. If it is caused by bacteria it is treated with antibiotic eye drops or ointment or sometimes oral antibiotics.

For allergic conjunctivitis, antihistamine medication may be prescribed, either orally or in eye drops.

Careful flushing of the eyes with cold water or a saline solution is a standard treatment for chemical conjunctivitis, but severe chemical injuries, particularly alkali burns, are medical emergencies and need immediate medical intervention.



The discomfort of conjunctivitis can be eased by applying warm or cool compresses (or even cooled tea bags) to the eyes and wiping them gently several times a day with clean cotton wool soaked in warm water. Over-the-counter eye drops or artificial tears may help to soothe the eyes. Ask your optometrist to suggest the most suitable one.

It is advisable not to wear contact lenses until the conjunctivitis has cleared. It is usually recommended to keep children with contagious conjunctivitis out of school for a few days to prevent it spreading to other children. Remind children not to touch their eyes, to wash their hands regularly and to use a separate towel.

### How does conjunctivitis spread?



Bacterial and viral conjunctivitis are highly contagious and spread rapidly by direct contact with the eyes or contact with objects that were contaminated such as towels or used tissues. Like a cold, it is possible for it to spread by coughing and sneezing, and conjunctivitis in one eye can infect the other eye by rubbing or touching the infected eye.

Conjunctivitis caused by a bacteria can spread to others as soon as symptoms appear and for as long as there is discharge from the eyes.

Viral conjunctivitis is generally contagious before symptoms appear and can remain so as long as the symptoms last. Practicing good careful hygiene is the most effective way to control the spread of conjunctivitis.

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## HOW ANIMALS SEE THE WORLD

The animal kingdom is filled with unique and complex visual perspectives as animals have adapted their vision to survive in their specific habitat. Good eyes for one may not be so good for another. Some animals' vision is highly tuned to their environments of the air or sea, while others supplement their poor vision with their better senses. Senses such as ultraviolet vision, extra colour receptors, and echolocation (location of objects by reflected sound ) may be hard for humans to imagine, yet are part of the everyday life of hundreds of species of animals.

### Man's best friend

The dog's eyesight performs best in low light, as during daylight hours, their vision is a somewhat washed out due to their nearsightedness, as well as their lack of true colour vision. Contrary to popular opinion, dogs do not see in black and white; rather they see mainly violet, blue, yellow and shades of grey but are unable to see red and green. What they lack in colour vision, they make up for in their acute sense of smell.

### Feline vision



Similar to dogs, cats can see shades of blue and green and are very nearsighted, struggling with objects in the distance.

They are unable to see fine detail or rich colour but have a superior ability to see in the dark.

Cats have slightly better peripheral vision than humans, allowing them to see prey and predators around them.

### From the goldfish bowl

Goldfish are designed to see things extremely close-up. They can see almost a full 360 degrees around them, seeing the full fishbowl in one view; however, it would be very blurry and a great challenge to distinguish detail.

Studies show that goldfish are incredibly receptive to refractions of light, which is how they navigate when swimming as the light reveals where objects and other animals are.

### Horror movie eyes

In the movies, flies are often depicted as having honeycomb-shaped vision made up of small hexagonal views, but in reality, it's far more blurry, almost pixelated, as they have an extremely poor viewing distance.

They can however see a full 360 degrees, which isn't much use unless they are extremely close to their subject.



Despite this, flies have the fastest visual responses out of all animals, which is why they're so good at getting away from threats.

### Best vision in the animal kingdom



Eagles and other birds of prey are the kings of the animal kingdom when it comes to visual acuity. Whereas the human standard for perfect vision is 20/20, the eagle has the visual acuity of 20/5, making it four times stronger than ours.

With the sharpest distance vision of all creatures, eagles are able to focus in on small prey from up to 3 miles away.

Their cornea has the ability to change shape to focus more clearly.

In addition, they have near panoramic vision, can distinguish many more colours and more brilliantly than humans, and can see UV light.

### The most efficient hunter on the planet



The most efficient hunter on the planet is not the lion or shark, but the dragonfly, whose success rate is attributed to its eyesight. It is impossible for humans to see what the dragonfly sees, as its world looks very different from the human world.

Dragonflies have 30,000 compound eyes, which consist of a number of smaller visual units. These units present the dragonfly with one picture, not 30,000 little ones. The dragonfly eyes wrap almost all around its head, allowing it to see in all directions at once without moving its head.

The colours humans see are detected by 3 colour photoreceptors: red, blue, and green. Most species of dragonflies have up to 30 colour photoreceptors, which means they are able to see colours humans cannot even imagine. Dragonflies are able to see ultraviolet light and can also see through a polarising filter, allowing them to view prey that may be hiding underwater.

### Seeing with sound



Dolphins have reasonably good eyesight underwater as their eyes are located on either side of their head, giving them a wide range of vision.

It is still relatively unknown how detailed dolphin vision is, but dolphins navigate and find their food via echolocation or sonar, sending out sound waves and listening to the changed sound waves bouncing back.

Echolocation is believed to give the dolphin a 3-D picture.

When combined with regular sight, dolphins can determine shape, size, and the internal structure of objects near them.

## Best Underwater Vision



Shark eyes are dense with retinal rods, which allows them to see well in dark and murky waters. In addition, their eyes contain a layer of mirrored crystal tissue which reflects light back into the retina, amplifying the amount of available light in their underwater habitat. They have a clear eyelid, which helps them see while simultaneously protecting their eyes.

Added to that, they can detect electromagnetic fields emitted when animals move, allowing them to see prey hiding in the sand as well as locate swimming prey very effectively. They rely heavily on other senses, particularly smell, to detect and hunt

prey.

Sharks and humans share many structural qualities when it comes to the eyes, so much so, that their corneas are sometimes used in cornea replacement surgery in humans.

## Smelly feet



Although little research exists, it is believed that polar bears see about as well as humans, but they rely on their sense of smell to find prey and navigate their featureless environment.

One study showed that the feet of the polar bear have large sweat glands which could be used to mark a trail for other bears to follow.

A polar bear can smell a seal on the ice from 20 miles away or even buried in snow over a mile away.

It may seem surprising given their white-dominated landscape, but research suggests that polar bears have full colour vision, as well as good vision in low light conditions.

## Best Night Vision

The owl has an abundance of light-sensitive rod cells at a density of 5 times greater than humans. In addition, the owl's eyes are very large relative to the rest of its body. These factors allow the owl to have the best night vision in the animal kingdom.

## Broadest Field of Vision

The chameleon's ability to rotate each eye independently of each other allows it to see at nearly every angle without moving its head, allowing it to hunt without scaring off its prey.

## Best Colour Vision

Unlike the human eye which has cones to allow it to perceive colour, the butterfly retina contains 6 or more photoreceptor classes with unique spectral capabilities. While much is still to be learned about the complex vision of the butterfly, it is believed that many of these photoreceptors are used to detect very specific types of colour stimuli.

## Bug eyes

Insects have more eyes than humans. Butterflies have four eyes. Most spiders have eight eyes. Caterpillars have 12 eyes while houseflies have 4,000 lenses in each eye. A dragonfly's eye contains about 30,000 lenses.

The insect compound eye is like having lots of little eyes looking in different directions, but each little eye doesn't see very well.





The human eye can swivel, but it only looks in one direction at any given moment and the quality of its vision is much higher than that of a compound eye.

Most insects can only see light and dark, but a few, like bees, see more colours than humans, although they don't have the additional qualities of vividness and shading.



## CATARACTS: MYTHS AND FACTS

Although most people have heard about cataracts, there are many myths and misconceptions surrounding them. A cataract is a condition in which there is a build-up of protein on the normally clear lens of the eye, causing it to become yellow and cloudy. Cataracts are one of the leading causes of blindness, affecting 20 million people worldwide.

### **MYTH: Only old people develop cataracts.**

While cataracts are typically a disease of aging, affecting people over the age of 40, they can occur in younger people and children, and congenital cataracts can be present at birth.

### **MYTH: Too much screen time, reading or close work causes cataracts.**



Long-term screen exposure or close work may cause eye fatigue, concentration difficulties, or dry eyes, and trouble reading or doing close work in dim light may be due to cataracts, but these activities do not cause cataracts.

Risk factors that may lead to the development of cataracts include family history, eye trauma or previous eye injuries, long-term use of certain medications such as corticosteroids, exposure to the ultraviolet rays of the sun, smoking, and various

chronic diseases.

Congenital cataracts may be associated with a genetic cause or be due to certain infections in the mother during pregnancy.

### **MYTH: Cataracts are growths on the eyes.**

Cataracts don't grow over the lens or eye; rather they are permanent changes to the eye's natural lens. As we age, the proteins in the lens of the eye start to break down, clump together and deteriorate. This process, combined with slower cell regeneration in the lens, causes the lens to become cloudy and yellow.

### **MYTH: Cataracts can be "dissolved" with eye drops.**

Because cataracts are changes to the structure of the lens of the eye, they cannot be removed or "dissolved" with any type of eye drops or medication. The only way to treat cataracts is with surgery, which involves the removal of the defective lens and replacing it with an artificial synthetic lens. The type of synthetic lens used is based on a person's individual vision needs.

### **MYTH: Cataract surgery is dangerous and recovery can take months.**



Cataract surgery is a delicate operation, but it is one of the most common, safe surgeries and has a very high success rate with few complications.

Some people notice an immediate improvement in their vision after surgery, but most will continue to improve over a few days or weeks.

Apart from having to be careful with certain activities for a while, in most cases people are able to resume their normal activities after a few days.

If there are additional eye conditions such as glaucoma, recovery time may be longer.

### **MYTH: Cataracts can grow back after surgery.**

Once the defective lens has been removed, it is impossible for the cataract to return. Over time, some people develop cloudy vision again because the membrane that holds the new synthetic lens deteriorates with age and becomes cloudy. However, a short laser procedure quickly, safely, and easily resolves the problem.

### **MYTH: Cataracts should be removed as soon as they are diagnosed.**

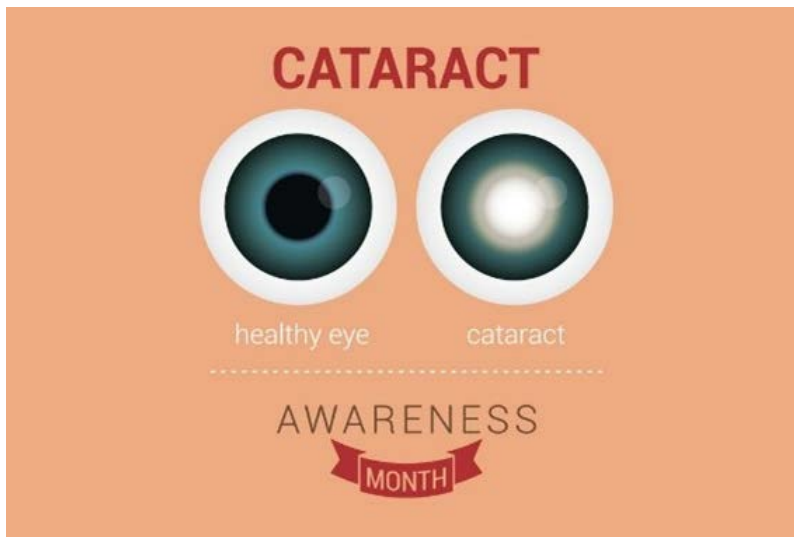
If a cataract is detected during an eye examination, it is generally not necessary to have surgery immediately. Cataracts develop over time and may not need to be removed unless or until they interfere with vision and impact daily activities. In some cases, cataracts are never removed. It is important to monitor the progress of the cataract and its effect on your vision by scheduling regular eye examinations with your optometrist, who will refer you to an ophthalmologist when surgery is indicated.

Congenital cataracts need removal as early as 4- 8 weeks and developmental cataracts also need to be dealt with immediately. Any cataract in children less than 7 years of age requires prompt intervention to avoid long-term permanent vision problems.

### **MYTH: Lifestyle changes can "cure" or reverse cataracts**

While a healthy lifestyle is beneficial for both eye health and overall health, once a cataract has developed it cannot be reversed and needs to be surgically removed. Healthy lifestyle choices such as regular exercise, a diet rich in fresh fruits and vegetables and protection against the harmful UVA and UVB rays of the sun can have a positive impact on general eye health. Regular eye examinations are important so that any problems or conditions in the eyes can be detected and treated early.

**JUNE IS CATARACT AWARENESS MONTH.**



If you notice any of the symptoms of cataracts, schedule an appointment with your optometrist for an eye examination. Symptoms include blurred vision, double vision, changes in colour vision, sensitivity to glare and bright light, halos around lights, difficulty with night vision, and frequent changes to the prescription of glasses or contact lenses.

The earlier a vision problem is detected, the earlier it can be treated, and the better the outcome is likely to be.



## LIVING IN A DIGITAL AGE

Our lives are dominated by screens of one kind or another – computers, televisions, phones and tablets – and the impact has been far-reaching. They have influenced how we work, learn, are entertained, even socialise. While the screens are less to blame than the time spent staring at them, there has been a dramatic rise in vision related problems in both adults and children, resulting in computer vision syndrome or digital eye strain.

### CAUSES OF COMPUTER VISION SYNDROME

Like any muscle in the body, the eyes become strained or fatigued from prolonged use, and this is more problematic with prolonged computer use as the eyes are required to work harder than with other close-up activities like reading. Viewing angles and distances are different from other common close-up activities. The eyes are required to constantly focus and refocus on the print which is made up of pixels or tiny dots. Often the letters on the computer are not sharply defined, the level of contrast between the letters and the background is reduced, and the presence of glare and reflections on the

screen may place increased demands on the visual system.



In addition, uncorrected vision problems, such as farsightedness, astigmatism, problems with eye coordination or changes due to aging, no matter how minimal, can increase the severity of eyestrain symptoms. Even people who wear glasses or contact lenses may find them unsuitable for the specific viewing distances of the computer screen.

When using a computer, most people tend to blink less frequently, causing the surface of the eyes to be insufficiently lubricated and become dry.

Children are more vulnerable than adults to computer vision syndrome because their eyes are still developing. Young children often lie on their bellies while engaged with a phone or hand-held device, causing strain on the eyes as well as on the back and neck.

## SYMPTOMS



The extent to which individuals experience visual symptoms often depends on their visual abilities coupled with the amount of screen time.

Symptoms of computer vision syndrome may include eyestrain, headaches, intermittent blurred vision, watering, burning, sensitivity to bright light and dryness.

Neck, shoulder or back pain may occur due to incorrect posture. Although uncomfortable and sometimes disruptive, many of the symptoms are temporary and will decline after stopping computer work.

However, some people may experience continued visual difficulties, such as blurred distance vision, even after stopping work at a computer, and these may interfere with daily activities or work productivity.

## DIAGNOSIS

Computer visual syndrome is usually diagnosed through a comprehensive eye examination. Testing, with special emphasis on visual requirements at the computer, may include a thorough patient history, visual acuity assessment, and evaluation of how the eyes move, focus and work together.

## MANAGEMENT DO'S AND DON'TS

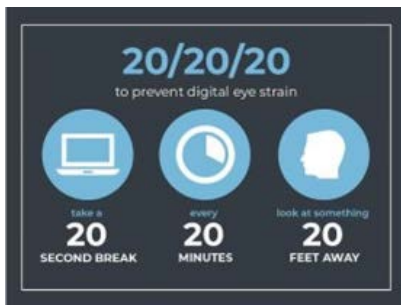
Many of the solutions to the problems associated with computer vision syndrome are common sense lifestyle solutions, but some require professional help. In some cases, people who do not require the use of glasses for other daily activities may benefit from glasses prescribed specifically for computer use. Sometimes, people already wearing glasses or contact lenses may find that their current prescription does not provide optimal vision for viewing a computer and may need a change of prescription or an extra pair of glasses. Regular eye examinations are always advisable to monitor eye health as well as specific vision conditions.

Although not always easy, limit screen time as much as possible. Take regular breaks by getting up, moving away from the computer and doing a task that does not have visual demands.

Follow the 20-20-20 rule: every 20 minutes look 20 feet ahead for 20 seconds.

Position the computer screen to avoid glare, particularly from overhead lighting or windows, or consider using an anti-glare filter. Adjust the brightness and contrast on the screen and, if necessary, enlarge the print.

Ensure the correct comfortable body posture, with the screen about 4 – 5 inches below eye level and 20 – 28 inches from the face.

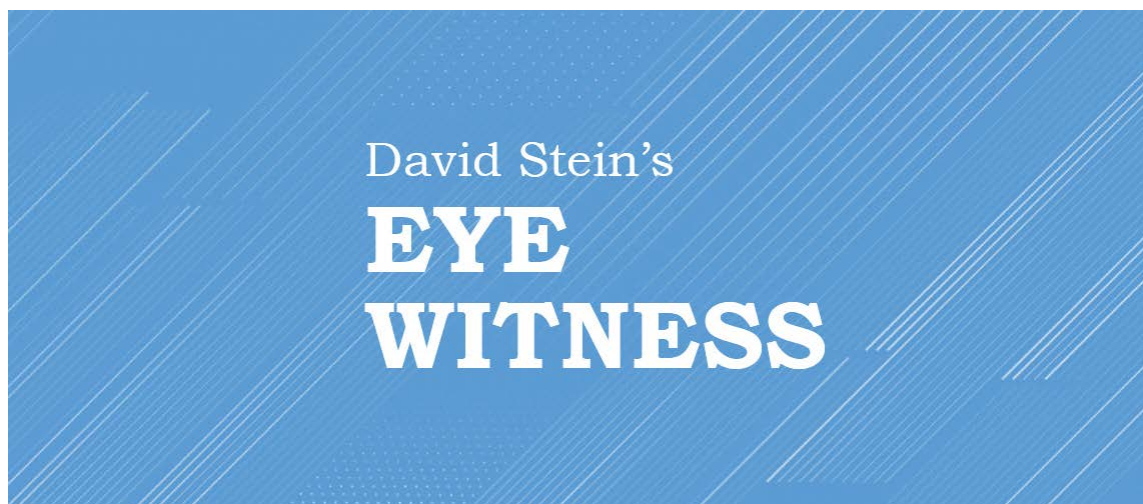


Most importantly, to minimise dry eyes, make a conscious effort to remember to blink often. If the eyes feel dry, use artificial tears or ask your optometrist to recommend lubricating eye drops. Increase the humidity of the air.

Following a diet rich in antioxidants and essential fatty acids or taking nutritional supplements can help improve eye health and reduce eye strain.



Don't stare at the screen for an extended period of time without a break. Don't work on the computer in a very bright or dimly lit environment. Don't forget to blink, blink, blink!



**LET THE GAMES BEGIN**

June is a big month for football. On Saturday the 10th, all eyes will be on Istanbul for the UEFA Champions League final. The world will witness all the action, all the excitement, and all the melodrama of players pretending their so-called "fouls" are much worse than they actually are.

Just in case you're feeling left out, here's a quick Soccer 101 to catch you up before kick-off.

## Eleven

That's how many players are on a soccer team. In case you forget, just think of it as a quarter of the number of people who helped a certain prisoner fake his own death and escape from a South African correctional facility. Although, as investigations continue, that number could run into the hundreds or even thousands. Scratch that - the case of the convicted criminal and his doctor girlfriend won't improve your soccer knowledge at all. Just remember the number eleven.

## Yellow card

When a player gets into a bit of trouble but not so much.

## Red card

When a player gets into big, big trouble and is pulled off the field. It's like a book being pulled off the shelves when the leader of a political party claims it was "unauthorised" but later admits he paid millions to the author. The political leader tries to back-pedal (if you'll excuse the mixed sports metaphors), but what's been said has been said and the damage is done.

So this one's simple. Big trouble = red card.

## Penalty

This is like a special gift that's given to a team, which gives them a good opportunity to score. It's like the time our Minister of Electricity was given even more executive powers during an energy crisis. It's almost the same thing, except the soccer player taking the penalty has a 50/50 chance of success. As for our Minister of Electricity... well, let's hope for the best.

## Home ground advantage

This is a tough one to explain when our home ground is plagued by aforementioned rolling blackouts (like, literally plagued - darkness is officially listed as a plague in the Old Testament). It's hard to sometimes see that our home ground has advantages. But look for them and they're there. (Insert optimism here.)

## Extra time

How to explain this one? It's kind of like when you reach the end of your two hours of loadshedding, only to discover that the country has been escalated to Stage 8 and you have two more hours of darkness ahead of you. Like any soccer player you're exhausted, you're emotional, and you think it's all over... but then it's not. So you cry a little and hug someone, and then you get back out there.

## The off-side rule

Finally, let's talk about the off-side rule. We have no idea what it is. But that's okay - nobody else knows either, and that's what's really important here. People may pretend to understand it when they "educate" you at a braai. But they don't. Because no one does.

So, if we haven't hit Stage 8 on 10 June or you happen to have an inverter, enjoy the game in the comfort of your home. Otherwise, go out somewhere and watch it with your fellow South Africans. And if anyone tries to explain the off-side rule, respond by explaining what is meant by "unplanned generation plant outages".

That'll keep them quiet.