

# Microbial keratitis



Microbial Keratitis Microbial keratitis, or corneal infection, is a very rare but serious complication of contact lens wear. This website provides information on the infection and its symptoms, how to minimise your risk, and what to do if you suspect you have an infection. The website provides information resulting from the Australian and New Zealand Microbial Keratitis Study, which concluded in 2005. This was a major study looking at the rate and risks of microbial keratitis, which collected information from 30, 000 households and all optometrists and ophthalmologists in the two countries.

Corneal Infection Corneal infection is a bacterial infection of the front surface of the eye (the cornea). It is also known as Microbial Keratitis, or MK. Corneal infection associated with contact lenses occurs when the lens is contaminated by micro-organisms (usually bacteria, but can also be fungi or amoebas), and when these micro-organisms then attack the cornea. Corneal infection is the most serious possible complication associated with contact lenses, as it can cause vision loss. However corneal infection is very rare, affecting around 5 in 10, 000 contact lens wearers each year.

You can significantly reduce your risk of infection by following good lens care and hygiene practices. WHAT ARE THE SYMPTOMS? Corneal infection is associated with pain, which usually develops rapidly, and severe redness. Other symptoms can include Tearing or discharge Sensitivity to light Puffiness of the lids Decreased visual acuity. WHAT DO YOU DO? If you have any discomfort remove your lenses. If you continue to experience pain and redness go to an eyecare practitioner as soon as possible. Your eye needs to be examined with a microscope to make an accurate diagnosis.

Urgent expert medical attention and treatment is paramount in preventing permanent damage to your vision. SEE AN EYECARE PRACTITIONER AS SOON AS POSSIBLE If you experience any pain and redness you should visit your eyecare practitioner immediately. If an infection is left untreated it can quickly become severe, leading to permanent damage to the infected eye. Infection associated with virulent organisms can cause severe destruction of the cornea within 24 hours. WHAT IS YOUR RISK? Almost 700, 000 people in Australia wear contact lenses, and perhaps 100 million around the world.

Contact lens related corneal infections are rare, and affect approximately 5 in 10, 000 contact lens wearers annually. However these infections can have serious outcomes such as permanent vision loss and in severe cases, blindness. The study found that loss of vision from corneal infection occurs in almost 1 in 10, 000 contact lens wearers annually. HOW CAN YOU REDUCE YOUR RISK? You can significantly reduce your risk of infection by following good lens care and hygiene practices. Remember that a contact lens is a foreign body placed in your eye, and you need to take care to make sure it stays uncontaminated.

**HYGIENE** Hygiene is vitally important to preventing infection. Always wash and rinse your hands thoroughly before handling your lenses. In the study, simple measures such as hand-washing prior to touching contact lenses were found to significantly reduce the likelihood of getting an infection.

Alarmingly, the study shows that 25% of patients didn't always wash their hands, and 12% never washed their hands before handling lenses. Don't soak or rinse your lenses in tap water or saline, use fresh lens disinfecting solution. Don't place a lens in your mouth for cleaning or wetting.

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Clean your lenses on a regular basis as indicated by your eyecare practitioner. Discard all solutions one month after opening, even if there is still solution remaining. Clean your lens storage case in warm soapy water at least once a week, and leave to air-dry with the lid off every day. Replace your lens case every month (new lens cases are often sold as a package with bottles of solution). **SWIMMING** Wear good fitting goggles if you go swimming with your contact lenses. If you have gone swimming without goggles, make sure you remove and thoroughly clean and disinfect your lenses at the first opportunity before re-inserting them.

**SLEEPING IN LENSES** An important finding of the study is that sleeping in contact lenses continues to be a major risk factor for corneal infection, even for high oxygen permeable materials. Patients considering the convenience of extended wear lenses should realise that they increase their chances of getting a corneal infection by 4-7 times if they sleep in their contact lenses. If you have extended wear lenses, lower your risk by maintaining good hygiene, and follow your eyecare practitioner's advice as to lens wear and replacement schedules. In particular, don't sleep in your lenses if there is any discomfort.

**SLEEPING IN LENSES IF YOU ARE UNWELL** If you have extended wear lenses, you should avoid wearing them overnight if you are unwell, as this can have an impact on how your eyes cope with contact lenses. If you have a cold, flu, sinusitis, gastroenteritis, fever, or are feeling generally unwell or rundown, we strongly advise that you do not sleep in your lenses. If the illness is severe, all contact lens wear should be suspended. The lenses should be cleaned after removal and stored in fresh disinfecting solution. If the lenses

are stored for more than five days, they should be recleaned and disinfected prior to reuse.

Alternatively, they should be discarded and new lenses inserted when you have recovered from illness. **TAKE CARE WHEN TRAVELLING** Many people relax their usual hygiene routines when they travel. Make sure that you have enough solution, a clean case and spare pair of glasses whenever you travel. If there is a problem, don't wait until you get home - see an eyecare practitioner as soon as possible. **SEEK PROFESSIONAL ADVICE** Contact lenses are a medical device and it is important that you get the right advice in selecting and caring for your lenses. The study found that those who developed infections were five times more likely to have purchased their contact lenses over the internet, highlighting the importance of professional advice on contact lens prescribing, care and maintenance. **DON'T BECOME COMPLACENT** It is easy to relax when you have worn contact lenses for some time. You need to maintain hygiene and general care of your lenses to ensure that your risk of corneal infection remains low. **TYPES OF LENSES** Daily disposable contact lenses (lenses worn once and thrown away) or rigid gas permeable contact lenses worn daily, were shown to have the lowest risk of infection, approximately 1 in 10, 000.

New highly oxygen permeable soft lenses have provided certain ocular health benefits, however, the risk of infection remains higher in extended wear regardless of the lens material. All forms of vision correction, including refractive surgery, carry some risk of problems that could lead to reduction of visual acuity. Individuals should discuss the risks and benefits of all vision correction alternatives with their eyecare practitioner. **WHAT YOU SHOULD**

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**DO EVERY DAY** When you are wearing your contact lenses, check every day and ask: 1. Do my eyes LOOK good? 2. Do my eyes FEEL good? . Do my eyes SEE well? If there are ANY problems, if your eyes are red, watering, uncomfortable or painful; remove the lenses AND contact your eyecare practitioner as soon as possible. **WHAT TO LOOK FOR** Some of the signs and symptoms of adverse reactions to your contact lenses can be subtle, and your vigilance and prompt action is important to minimise the risks. By regularly checking the condition of your eyes any problems can be quickly assessed and treated. The most important things you should check for each day are: Redness: A red eye indicates an irritated eye.

You may not feel any discomfort so always check in the mirror. Compare the eyes - increased redness in one eye is highly suspicious and should be checked at once. Watering: This is typically associated with discomfort, but not always. Light sensitivity: Most contact lens wearers find their eyes are slightly more sensitive to light at first. You may need to wear sunglasses more often. However be cautious if you notice a sudden increase in the sensitivity of your eyes to light. Discomfort: Never ignore discomfort in your eyes.

Some things like a speck of dust or lint under the lens can be easily removed by sliding a soft contact lens onto the white part of the eye or by removing, rinsing and reinserting the lens. More serious problems will cause a progressive increase in discomfort. The sooner this is assessed and treated the better. **WHAT TO DO IF YOU ARE TRAVELLING** Maintain lens hygiene. Take sufficient lens solutions, as well as a clean lens case and spare pair of glasses in case of problems. Don't wait until you get home to see a

practitioner if you suspect there is a problem. DOs AND DON'Ts OF CONTACT LENS WEAR Do

Always wash and rinse your hands thoroughly before handling your lenses or touching your eye. Use a mild non-cosmetic (oil and fragrance free) soap, and dry your hands with a lint-free cloth or tissues. Clean your lenses after removal as indicated by your eyecare practitioner. Use only the recommended solutions. Clean your lens storage case in warm soapy water at least once a week. Rinse thoroughly and wipe dry using a clean tissue. When handling your lenses, work over a clean flat surface. Put the plug in the sink if working over a sink. If you drop a lens, clean and rinse before reapplying.

Remember the importance of good blinking. Regular and complete blinking will help you to keep the lens moist and clean. Consult your eyecare practitioner if you experience any unexplained redness, persistent pain, discomfort, change in vision, excessive tearing, light sensitivity or unusual eye secretions. Discard all solutions one month after opening, even if there is still solution remaining. Carry your storage case and solution with you at all times if possible. Always keep your spectacles up to date so that you can use them if you lose or break a lens, or if you are advised not to wear lenses for any period of time.

Take care or close your eyes when using cosmetics or aerosol sprays, such as hairsprays, while wearing your lenses. Such products may leave a residual film on the lens. Use swimming goggles when swimming with contact lenses. Wear protective glasses or goggles if you are in any situation where dust,

sand grit or other foreign matter could enter your eye, such as bike riding, gardening, sanding or grinding, or working in a dusty environment. If you have been in a situation where there was an opportunity for foreign matter to enter your eye, clean and replace your lenses.

If you are not sure that you have completely removed any foreign matter contact your eyecare practitioner. Don't Continue wearing your lenses if you are unwell. Continue wearing your lenses if your eyes are uncomfortable or unusually red. Place a lens in your mouth for cleaning or wetting. Use tap water to soak or rinse your lenses. Rub your eyes vigorously while wearing lenses. Mix up your lenses. The best way to avoid this is to always deal with the right lens first, whether inserting or removing, and ensure that it is safely on your eye or in the storage case, before attempting the left.

Expose your lenses or storage case to undue heat. DOs AND DON'Ts OF COSMETIC USE WITH CONTACT LENS WEAR Do Apply cosmetics after you insert your lenses. Apply eye make-up sparingly and take care so as not to risk soilage or damage to a lens. Apply eye make-up on the outer lid margin only, not the inside. Remove lenses before removing make-up. Remove all make-up daily with an oil-free hypo-allergenic remover. If you should get any make-up on your lenses, clean immediately. Use eye make-up that has been specially formulated to be oil and fragrance free.

Use a non-oily mascara which is waterproof, to prevent flaking and excessive smudging. Mascara with lash-building fibres should be avoided. Replace mascara and eyeliner products every three to six months to avoid contamination. Consult your eyecare practitioner if any redness, swelling



pain or irritation occurs. Don't Apply cosmetics if you have red or swollen eyes or an eye infection. Allow make-up to come in contact with your lens. Use water or saliva to lubricate the make-up applicator. This could cause infection. Apply eyeliner to the inner margin of your eyelid.

Use an oil-based remover. Use make-up with preservatives if you have any allergies. Share cosmetics. Expose cosmetics to heat. Use aerosols with eyes open after lens insertion. FOR MEDICAL PRACTITIONERS As corneal infection is so rare, and the initial symptoms non-specific, it can be difficult to diagnose and treat appropriately. However prompt treatment is vitally important in this condition. The study found that how quickly a patient received treatment with intensive appropriate topical antibiotic therapy, was critical to whether or not they lost any vision.

More severe disease is associated with a delay in treatment, and infection associated with virulent organisms can cause severe destruction of the cornea within 24 hours. The actions of the health professional who first sees the patient can save someone's sight. Any painful episode associated with contact lens use should be examined carefully and promptly referred to a practitioner with appropriate expertise and equipment (a slit-lamp biomicroscope) to diagnose and treat a possible corneal infection.