Bay Eye Care
Specialty Optometry

Orthokeratology at Bay Eye Care

What is Orthokeratology?

Orthokeratology (or orthoK) is a non-surgical, completely reversible procedure in which custom-designed contact lens devices are used to gently reshape the front surface of the cornea. The lenses are designed to wear while sleeping, giving you clear vision during the day once you have taken out the lenses.

OrthoK is suitable for children and adults with a wide range of prescriptions:

- Up to -8.00 dioptres of myopia (short-sightedness) and above
- Up to +4.00 dioptres of hyperopia (long-sightedness)
- Up to moderate amounts of astigmatism (-4.00D).
- Presbyopia (problems with seeing clearly up close as we get over the age of forty)

In some cases orthokeratology lenses can correct high astigmatism and when residual prescription develops following laser refractive surgery. At Bay Eye Care we custom design our orthoK lenses with specialised lens design software. This creates lenses with very high levels of accuracy in order to ensure that we have the best chance of success when fitting your lenses.

How does OrthoK work?

Lenses that work while you sleep!

Your custom-designed orthoK contact lens mold the front surface of the eye while you sleep. It uses the forces of the tear fluid beneath the lens to reshape the cornea into a similar shape as the back of the lens design. For treatment of myopia, the lens produces a flatter central cornea and steepens the peripheral cornea, correcting short-sightedness by decreasing the power of the eye. For hyperopia and presbyopia, the reverse geometry design of the contact lens steepens the central cornea and flattens the peripheral cornea, correcting long-sightedness by increasing the power of the eye.

Immediate Improvement

Improvements in vision can usually be seen the next day, with the procedure stabilising after generally one week. With high minus powers (myopia over -5.00D) the procedure takes two to four weeks to stabilise. Orthokeratology does not make any permanent changes to the eye surface. Your eyes will revert to their former state within one to four weeks if you stop using the lenses.

Comfort and Safety

OrthoK lenses are surprisingly comfortable to wear. Most people comment that they forget they have lenses in after the first week of wear. The risks involved have been shown to be no greater than any other contact lenses. With proper care, the risk of allergies and bacterial infections are minimal.

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Who Can Benefit From OrthoK?

OrthoK holds particular appeal for certain groups:

- people who play sports — especially contact and water sports
- people working in dusty or dirty environments
- people with dry eyes or allergies
- people who want freedom from their glasses
- children

In short, orthoK works best for people who don't want to or are unable to wear glasses or contact lenses all day, but don't mind wearing contact lenses while they sleep. Children and teenagers especially can benefit from the freedom to play sports and wear fashion sunglasses. This also means contact lenses or spectacles will not be left or lost at school or sport. OrthoK can be an excellent option for children with worsening myopia in order to slow and even halt its progression.

You must have a healthy cornea that is free of disease to wear orthoK lenses. These criteria are the same as for potential candidates for laser surgeries such as LASIK.

A consultation with our optometrist and contact lens specialist Mr Alex Petty will determine whether you are a candidate for orthoK. Contact us to book an appointment!

How Are the Lenses Designed?

OrthoK could not be performed without a corneal topographer. This measures the shape or topography of your cornea, enabling us to measure and describe changes during the orthoK process.

At your initial appointment we will take a range of measurements in each eye. This data is imported into our lens simulation software to design your lenses. This software customises each lens to your prescription and eye shape to a degree of accuracy smaller than 1 micron. Your optometrist will make changes to this lens until it looks optimal in the simulation before ordering. This simulation process means that more complex prescriptions can be treated with orthoK, and provides the greatest chance of successful lenses with fewer fitting appointments and lens changes.

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What Will Happen at OrthoK Appointments?

Delivery and Teach

At your lens delivery appointment, your optometrist will examine the design and fit of the lens on the eye then teach you how to insert, remove, clean and care for your lenses.

You will normally start orthoK wear the night of your teach appointment. Insert your lenses one to two minutes before going to bed to allow time for the lens to settle. Though it is common to feel uncomfortable with your eyes open at first, this will improve with time and you should not notice significant discomfort while sleeping.

First Morning

Your vision should be a little clearer; about 50% of the total refractive change occurs after just one night.
Your eyes may be sensitive and have some 'sleep' in them when you wake up. Take the lenses out immediately and this should improve. You may still need to use your glasses to drive to your appointment (this may be slightly blurry) or have someone take you. Your optometrist will check how your insertion and removal techniques went and assess your vision changes and eye health. Corneal topography will determine how well the orthoK lens is beginning to mold the eye.

The next appointment will typically be booked in one week. Most patients will need some vision correction during the first week; old glasses with lower prescriptions can be helpful for young patients. We also have loan spectacles or soft contact lenses with low prescriptions to 'top-up' your vision.

One week

At this stage many patients will be finding their vision is nearly 100%. Your optometrist will measure how well the lenses are performing and check the health of your eyes. High prescriptions may take two to three weeks to get to this level. If the treatment is going smoothly, your next appointment will be booked for one month later. If the visual result or the fit of the orthoK needs improvement, we may fine-tune your lens parameters and order you a replacement. This is covered under warranty on up to two occasions within the first three months.

Ongoing Follow ups

Follow up appointments will be scheduled after three months, then every six months. If you are experiencing any troubles please contact us to arrange another appointment. Follow ups are vital to the monitoring and success of your orthoK procedure. After your 6 month program is complete we recommend six-monthly follow ups to ensure that your lenses are clean, you are seeing well and your eye health is uncompromised. OrthoK lenses last much longer than soft lenses. Bay Eye Care recommends replacing them annually to ensure they work optimally and do not cause any adverse effects.

What to Expect From OrthoK

Treatment Time

The treatment time to achieve clear and stable vision is generally between one to two weeks, depending on the individual. Though lenses may be uncomfortable at first, like having a hair trapped in the eye, this feeling decreases with time and is only noticed while blinking. With closed eyes, most patients cannot feel their lenses.

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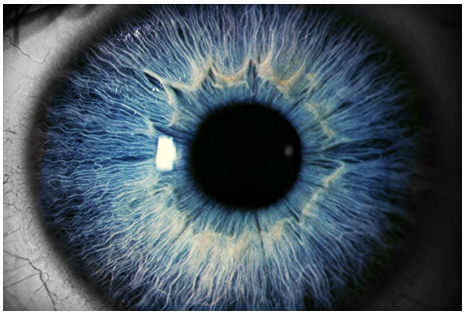
While your vision is in the process of being corrected you may need to wear spectacles/disposable contact lenses. We provide loan spectacles of 'in-between' powers to use as your prescription changes.

Follow-ups and Troubleshooting

Follow-up visits are scheduled regularly to monitor your treatment. It is extremely important to attend these and to diligently follow instructions provided by the optometrist to ensure your eyes remain healthy. Lens complications, though minimal when instructions are followed properly, include:

- mild lens binding on awakening (this can easily and safely be unbound)
- mild (superficial) corneal scratching which will normally heal after a few hours
- solution allergy (other care systems will be provided)
- fluctuating vision (if lenses have not centred properly or bubbles have been trapped under the lens)

Night Vision



Some patients, especially those with large pupils, notice halos and glare during the evening when using orthokeratology lenses. This is caused by the pupil enlarging in low light and allowing light rays from outside the lens treatment zone to enter the eye. This improves over the first one to two months as the orthoK effect stabilises. It can also be improved with certain eye drops if still noticeable. Our newest orthoK lens designs for adults have wider treatment zones than ever before to improve night vision.

When Treatment is Complete

When your treatment is complete you will wear your pair of orthoK lenses each night to maintain your vision during the day. Some patients with low prescriptions can still see well with the occasional night off!

Regular aftercare visits every six months are still necessary to ensure the health of your eyes remains uncompromised.

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Myopia Control in Children

Myopia — or shortsightedness — refers to poor distance vision but clear near vision. This occurs when the eyeball grows too long in relation to the power of the eye's lenses. The light rays then focus at a point in front of the retina, rather than directly on its surface. Myopia usually appears in childhood. The condition does run in families; however, some children are becoming shortsighted even though their parents have no vision problems. Genetics is therefore not the only contributing factor.

More than just genetics?

The development of myopia seems to also be influenced by environmental factors, such as near work. Studies show that the more near work performed, the more likely your child will become nearsighted. In one study, boys in Orthodox Jewish schools were found to have a higher rate of myopia (81.3%) compared with boys in general Jewish schools (27.4%). The boys in the Orthodox schools spent upwards of 16 hours a day studying. Lack of time spent outdoors has also been implicated.

Myopia Prevalence

The increase in myopia cases is worryingly high. There are approximately 1.4 billion people worldwide with myopia, by 2050 over 50% of the world are expected to have short-sightedness. Studies have shown that 93% of 18 year old girls in Taiwan are myopic. In Singapore, seven out of ten college graduates have the condition, and China is experiencing rates up to 78% among 15 year olds in urban areas. Closer to home in Australia, 30% of teenagers finishing school are myopic — and this percentage is on the rise.

Progression and associated risks

Adult-onset myopia (developing after 20 years of age) can progress over time, though youth-onset (before 20 years) generally shows more aggressive progression which continues until the eye stops growing. Typical sufferers are highly dependent on expensive, high-powered glasses or contact lenses and require frequent replacements as the condition escalates.

All levels of myopia increase the chance of blinding conditions such as retinal detachment, cataracts, glaucoma and myopia retinal degeneration later in life.

This risk escalates as the level of myopia increases. Myopic maculopathy, a progressive condition causing holes in the retina due to overstretching, is the fourth most common cause of visual impairment in the UK, ahead of diabetic eye disease.

Studies show the risk factor for eye disease due to myopia is comparable to the risk of cardiovascular disease due to untreated high blood pressure. The risk for glaucoma and cataract due to myopia compares to the risk of stroke from smoking over 20 cigarettes per day. For retinal detachment and myopic maculopathy, myopia carries a risk far in excess of any identified population risk factor for cardiovascular disease. Given that higher levels of myopia entail a higher risk of these conditions, halting this progression can broadly prevent a significant level of blindness.

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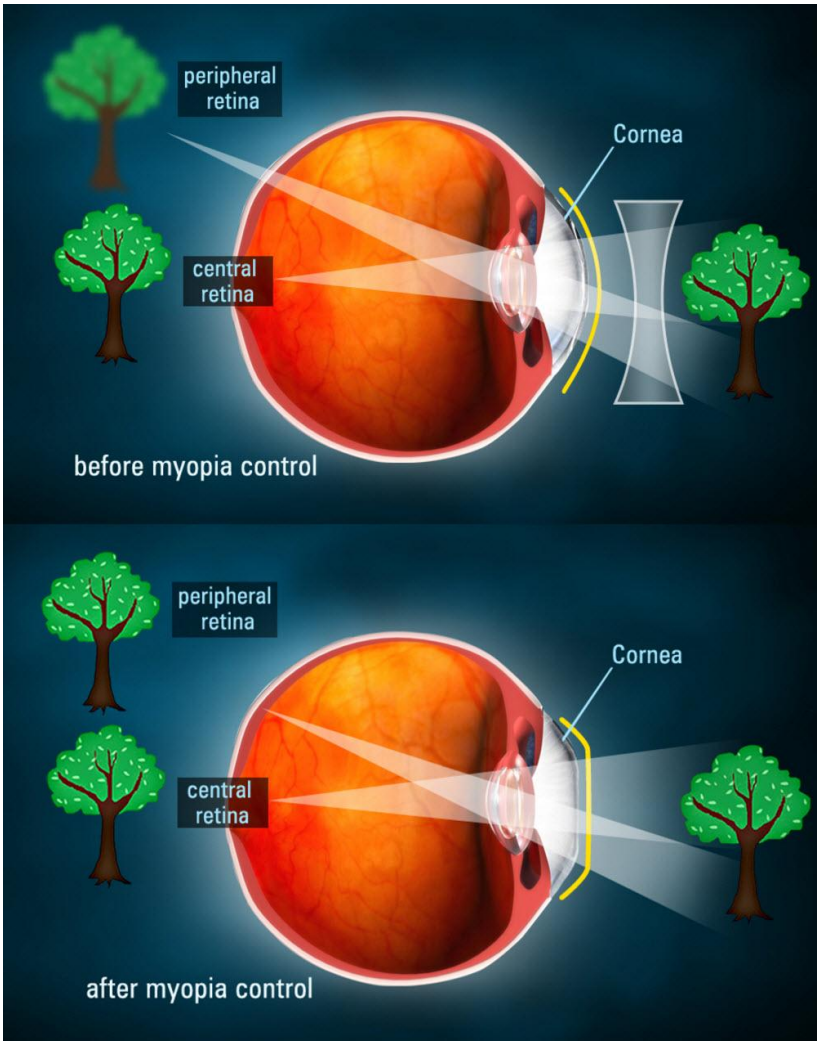
Myopia Control

Prescribing standard spectacle lenses or contact lenses will do nothing to halt the progression of myopia. Instead the person will require frequent lens updates and will be put at risk of sight-threatening problems in the future.
The lengthening of the eye which causes myopia cannot be reversed, making it absolutely critical to control myopia sooner rather than later. The good news is that evidence shows that certain treatments can slow and even halt progression. OrthoK is one of the most effective tools currently available for this purpose.

OrthoK for myopia control

Research shows a 32%-100% slowing in the rate of myopia progression through using orthoK depending on the study; most reports suggest a 50% average. Results in our practice and others in Australasia show complete halting of myopia progression in some patients.

When myopic eyes are corrected with conventional spectacles and contact lenses, light entering the eye centrally will focus at the retina; however, light entering off centre will focus behind the retina. This is thought to stimulate lengthening at the back of the eye as the retina tries to reach the focal point behind the eye, worsening the condition. OrthoK lenses can slow this growth by changing the shape of the eye surface, allowing central light to focus accurately at the retina and off-centre light to focus in front of the retina. The retina will no longer have the same stimulus to grow longer.



The effect of orthoK lenses on light entering the eye. *Courtesy of Rose Optometrists*

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Cleaning and Handling of Lenses

OrthoK lenses are different to other contact lenses you may have used and require special solutions and techniques to use them effectively.

Always wash and rinse your hands thoroughly and dry them with a lint-free towel/tissue before handling contact lenses. All traces of soap, perfumes, hair-spray, creams and lotions should be removed from your hands and around your eyes.

If you have never worn contact lenses, it can be helpful to practice some eye touching techniques prior to learning how to use your lenses

Wash your hands thoroughly first.

- Open the top and bottom eyelids wide with the middle finger of each hand.
- Look up and gently touch the white part of the eye with the tip of your index finger.
- Without using a lens, follow the insertion instructions mentioned in this booklet.
- Practise inserting lubricating eye drops, holding your eye open as the drop goes in.

Insertion

To avoid confusion, make a habit of inserting the same lens - generally the right lens - first. You will notice that the right lens is generally **green**, **grey** or **purple** and the left lens **blue**. Minimise the risk of lens loss by plugging the sink or using a paper towel over the drainage opening.

1. Starting with the right eye, remove the lens from your case. (If you are using AO Sept the lenses do not require a rinse as they are soaking in sterile saline after the neutralization process). Place the contact lens on the tip of the right index finger.
2. Place a drop of non-preserved lubricant (Hylo-fresh or Hylo-forte) in the lens - this helps to prevent air bubbles forming underneath the lens when it is inserted into the eye.
3. With your face down and pointed at the floor, place your right middle finger on the lower lid and the left middle finger on the top lid. Pull the lids apart and move the lens upwards so that you place the contact lens onto the cornea at the front of your eye. Make sure the solution stays within the lens.
4. Close the eyes gently. The lens should be centred on the eye. Gently close your eyes. You may experience some discomfort if the lens is not in place correctly on the eye or if a foreign body, such as an eyelash or make-up pigment, is trapped underneath the lens. If this is the case, remove the lens and re-insert.
5. Rinse your case out with hot water, wipe with a tissue and leave to dry upside down on a clean paper towel. Go to bed several minutes after inserting the lens and blinking as you would normally. It is not recommended to read looking down whilst wearing the lenses, as this movement will sometimes displace the lens on the eye and may cause a distorted imprint on the cornea.

Dislodged Lenses

Occasionally a lens may become dislodged within your eye. This may be uncomfortable but try not to panic.

- Look in a mirror to establish where the lens has moved to.
- Move your eyes in a direction away from where the lens is located. For example if the lens in your right eye is on the white of your eye nearest your nose, move your eyes to the right.

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- Then create a 'stop' on the other side of the lens by applying pressure on the lids with your fingers. This will prevent the lens moving so that when you slowly look towards where the lens is located it will be moved back onto your cornea.
- Sometimes it helps to nudge the lens with pressure applied through your lids. Avoid directly pushing the lens back into place as this can damage the surface of your eye.

Removal

- When you wake up, insert a drop of preservative free artificial tear solution into the eye to increase moisture within the eye and to assist with the lens movement.
- Use your index finger to push up your bottom eyelid and ensure that the lenses are not 'bound'.
- If the lens is bound it will not move - this means it may be necessary to manually loosen the lens. Bound lenses are stuck in place on your eye due to mucous adhesion – this is normal. To unbind a lens, press firmly on the white of your eye at the edge of your cornea at 12 and 6 o'clock several times.

Method 1 – Manual removal (preferred method)

1. Using your middle fingers, open the lids wider than the lens diameter (about 11mm). If you can see the whole of your iris (coloured part of your eye) this is generally wide enough.
2. Apply pressure to the lid margins (as close to the lashes as you can – you do not want to show any of the red inside surface of your lids), pushing in and together to move your lids under the lens and lever it out of the eye.

Method 2 – Suction Tool

A suction removal tool can be used to easily remove your lenses. These are simply placed on the lens and taken out of the eye. However, make sure you can remove your lenses manually in case you do not have a suction tool on your person. Suction tools should be replaced every 3 months.

Cleaning

Always clean your lenses after wear. An effective cleaning process is vital to ensure comfortable, hygienic and infection-free contact lens wear. With correct cleaning, contact lenses will feel better on your eyes, allow better eye health and vision, and dramatically reduce bacteria and other contaminants. There are several types of rigid lens cleaning solutions including Peroxide based systems like AOSept and multipurpose rigid lens solutions like Menicare and Boston Simplus.

Hydrogen Peroxide: AOSept with Hydraglyde

This is our recommended solution for all contact lenses. These solutions work by sterilising the contact lenses in 3% hydrogen peroxide. Over six hours the catalyst in the case converts the hydrogen peroxide into water and oxygen gas. When your lenses are removed from the case they require no rinsing as they are covered only in sterile, non-preserved water.

They also generally require no rubbing, which decreases the risk of accidental breakage. The case can be left to air dry when not in use, and should be replaced with each new bottle of solution. AOSept now also uses Hydraglyde, an ingredient which improves the wettability of your contact lenses, making them more comfortable when worn.

1. Fill the case up to the line with solution.

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2. Place your lenses in the cage-holder and submerge in the case, screwing it closed. Take care when transporting the case as sometimes the small gas-release hole can leak solution.

Care should be taken not to get the un-neutralised peroxide in your eyes as this will sting painfully. If this occurs rinse thoroughly with water and contact your optometrist if the pain persists or your vision is affected.

Multipurpose Solutions (Menicare and Boston Simplus)

This type of solution uses a preserved solution to clean and disinfect your lenses.

1. Clean: Place a few drops of rigid contact lens solution on the palm and the lens, then rub with your finger-pad for at least 10 seconds on each side. The back surface (concave) is best cleaned by moving your thumb across the surface. This step removes material that deposits on the lens during wear. Whilst OrthoK lenses are strong, with incorrect technique or too much force they can break.
2. Disinfect and condition: Place the lens in fresh solution in your lens case, ensuring the lens is completely submerged. This step kills microbes on your lenses and prepares the surface of your lens to stay wet throughout wear, increasing comfort. Store your lenses in this solution for at least 4 hours for the cleaning process to be complete.
3. NEVER rinse or store your lenses in tap water, as micro-organisms are plentiful and can cause infections in your eyes.

Regular Deep Protein Removal: Progent

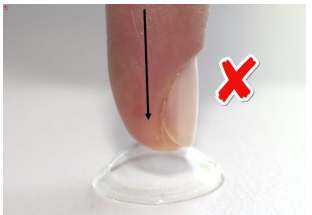
Patients are advised to use a deeper protein removal product such as Progent at least every month. To use Progent combine the A and B vials in a progent lens case and submerge your lenses in this for 30 mins. Ensure your lenses are thoroughly rinsed and cleaned after using Progent before inserting into your eyes.

Risk of Broken OrthoK Lenses

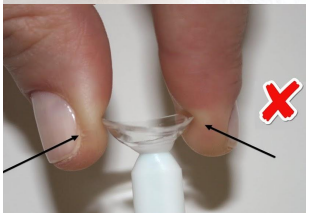
OrthoK contact lenses are made of a strong polymer which resists damage in normal wearing circumstances; however, it is still important to handle them carefully. To increase comfort and oxygen permeability, the lenses are designed to be as thin as possible without compromising their structural integrity: most are 0.2mm thick or less.

Because the lenses weigh very little, if you drop one it should not break unless it is then trampled on. If a lens falls on the floor, keep your feet still until you have spotted it. If you cannot see well without your lens, call to a friend or family member to help and remember to caution them to be careful where they tread! Also be aware that your lenses, being quite small, are prone to fall into difficult to retrieve places, such as down the sink hole!

The main handling habits that may cause a lens to break include:



- Pushing down on the convex side of the lens. This can occur if the lens lands on a mirror or flat surface. Instead of trying to grab the lens, gently slide it off to the edge of the surface or use a suction tool to suck it off the surface.



- Removing a lens too firmly from the suction tool. This is especially relevant for larger lenses. Slide the lens off the suction point instead, or release the suction by squeezing the body of the suction tool to reduce pressure.

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- Forcing the lens to bend while cleaning. Some force is required to clean a rigid lens using your cleaning solution, but not much – the friction of your skin surface will do most of the job. If you are pressing down on both sides of a rigid lens this will cause it to flex, eventually snapping if too much force is applied.

Useful Things to Remember!

- Do not modify the recommended cleaning/disinfection routine without consulting your optometrist.
- Short-cuts may save money, but may result in ineffective cleaning or disinfection. This could damage your lenses or lead to a potentially blinding infection of your eyes.
- Always use the same solutions you have been recommended. Other solutions may not be compatible and may cause discomfort or allergic reactions.
- Do not clean or store your rigid lens with soft contact lens solution. These products work in a different way to the rigid lens solutions and will not clean or condition your rigid lenses as well.
- Replace your lens case every 3 months to avoid microbial contamination.
- To avoid contamination do not touch the tips of solution bottles to anything. Replace caps after use.
- Stop lens wear if you experience persistent discomfort or redness – if in doubt consult your optometrist.
- If your eyes are very painful after hours, consult your local hospital or emergency eye clinic.

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Frequently Asked Questions

How recent is orthokeratology corneal reshaping?

The idea of corneal molding to correct myopia may have originated thousands of years ago when the Chinese used bags of sand resting on their closed eyelids to improve their vision. Modern orthokeratology has been around since the middle of the 20th century; however, this process originally took a long period of time, was unreliable, and compromised the healthy physiology of the eye. In the past 15 years, orthoK has reached a safe and predictable level. This is made possible with technological advancements to how we measure the shape of an eye, how accurately we can create contact lenses and how well new contact lens materials allow the eye to 'breathe' during wear.

Are there age restrictions for orthokeratology corneal reshaping?

There is no age limit for orthokeratology: children as young as six have been successfully and safely treated with these lenses by the optometrists of Bay Eye Care. As orthokeratology has been shown to slow the progression of myopia (short-sightedness), it is one of the most common methods of vision correction in teenagers and pre-teens in our practice.

I am over 40 years old. Can orthokeratology lenses help with the blur that I notice when reading?

It certainly can. A large proportion of our patients are adults who use orthokeratology to decrease their dependence on using reading glasses. Orthokeratology lenses are a great option for adults as orthokeratology lenses do not dry out the eyes like soft contact lenses and can be designed to give both distance and near vision.

Can the orthokeratology contact lenses damage my eyes?

Any contact lenses have the potential to damage your eyes or cause an infection. However, research shows that the rate of infection when using orthokeratology lenses is less than half as frequent as overnight wear of soft contact lenses. Correct hygiene, lens care regimes and replacement of lenses every year minimises the chance of any complications with orthokeratology lens wear. We have had no incidences of corneal infection in our orthokeratology patients. If the lenses are fitting poorly there is a chance long-term wear may harm your cornea. Our lenses are designed with computer software, rather than just taken out of a case and fitted with trial-and-error, making them far more likely to fit safely from the first lens.

How different are the orthokeratology contact lenses from soft disposable lenses?

Orthokeratology contact lenses are made from a specially designed highly oxygen-permeable rigid material that is quite different to soft contact lenses, making handling quite different. Although they appear like RGP hard contact lenses, the design is quite different on the back surface of the lens to enable programmed reshaping of the front surface of your eye.

Can I see with my orthokeratology contact lenses in?

Yes. One of the great features of orthokeratology lenses is that if you get up in the night, you will be able to still see reasonably well. We do not recommend extended day-wear, however, as this may compromise your eye health eventually.

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Do I need to wear my orthokeratology lenses every night?

During the initial period of therapy you will need to wear your lenses every night to ensure you have clear vision during the day. As your correction stabilises you may be lucky enough to get great day time vision by wearing the lenses only every second night! Patients with higher prescriptions before orthokeratology and those patients using orthokeratology to slow the progression of their short-sightedness should wear their lenses every night for optimum treatment.

What will happen if I forget to wear my lenses for a night?

Because the cornea slowly starts to change back to its pretreatment shape after the lenses are removed you are likely to find your vision is a little blurrier after a night without lens wear. For most patients with high prescriptions they may require low-powered spectacles or soft contact lenses for daytime wear if this is a regular occurrence.

How long does it take to reach good vision?

Most patients have rapid improvement in the first few days of therapy. Generally 50-70% of the required correction is achieved after only the first night's wear. Optimum, stable vision will generally require up to 10-14 days of treatment depending on the prescription.

Will my vision decrease throughout the day?

During the initial few weeks of treatment most patients may find their vision is a little worse in the evenings or in dim light. However after the corneal shape has stabilised there is very little change to vision noticed by patients during their waking hours. In most cases we deliberately over-correct your prescription at the point of waking so that as the corneal shape slowly alters during the day you can still see well. Some patients with very high prescriptions using orthokeratology may still notice some change to their vision at the end of the day which can be helped with low powered spectacles or daily soft contact lenses.

How often will I have to replace my orthokeratology contact lenses?

We recommend replacing your orthokeratology lenses every 12 months. This is to maximise the quality of the corneal molding, as wear and tear on the back surface of the lens compromises its effect over time, and to decrease the chance of infection or inflammatory events from using a scratched or dirty lens. You should bring your orthoK lenses to each 6 month follow-up appointment so that your optometrist can examine them under the microscope to check their condition.

What if my driver's license says I must wear glasses for driving?

Your driver's licence may state that corrective lenses are required for driving. Your optometrist can write a letter explaining that you are treated with a vision correction treatment that eliminates the need for corrective lenses while you are operating a motor vehicle. If driving you should ensure that you use your orthokeratology lenses the night before.

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I live a long distance away and will struggle to make all required appointments. Can I still have orthokeratology?

Regular appointments are very important when starting orthokeratology to ensure the best vision and eye health. We can, however, accommodate for long-distance patients in a number of ways, including extended appointments with in-office wear time rather than a following-morning appointment. This is assessed case-by-case by your optometrist.

Why should I not just get laser vision correction?

The cost of orthokeratology vision correction is roughly a third of the cost of laser vision correction. It also is completely reversible and does not have the potential to worsen your dry eyes to the same extent as laser correction. As patients reach their mid-forties and start needing help for their near vision, orthokeratology therapy can be modified to give clear vision at all distances without a pair of glasses, unlike a one-off laser procedure.

How long does the myopia control effect of orthokeratology last?

There should be a myopia control effect as long as your use your orthoK lenses. There is no research or anecdotal reports of patients 'rebounding' after stopping their orthokeratology contact lens wear. It is expected that patients who start orthokeratology contact lens wear for myopia control continue to use these until their late teens when myopia tends to stabilise. The decision to stop orthokeratology should be made with your optometrist, with your prescription and eye length closely monitored for possible regression. Of course most patients are so happy with their orthokeratology lenses that they continue to wear them well into adulthood!

How do I get started?

A full eye exam at Bay Eye Care is necessary prior to starting orthokeratology, even if you have had a recent eye examination at another optometrist. Several aspects of your eyes including health, vision and corneal shape will have to be assessed to establish if your eyes are suitable. If in the last 12 months you have had a full eye exam with Bay Eye Care, you may just need a measurement of your corneal shape and a quick discussion with your optometrist to see if orthokeratology corneal reshaping is right for you. Please contact us to arrange an assessment if you are interested.

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Troubleshooting

Trouble inserting the lens directly on the front of the eye

- Use a flat mirror.
- Keep both eyes open, looking closely at where the lens is going. If you close one eye or obscure your view with your hands, your eye may roll or close, making correct insertion challenging.
- When the lens touches your eye, close your lids gently rather than clenching them.

Soreness after the lens is inserted

- Some discomfort is normal as you get used to the feeling of an orthoK lens in your eye.
- There may be grit or dust on the back surface of the lens. This rubs on the cornea, causing irritation. Remove the lens and rinse with a few drops of Hylo-Fresh/Menicare (Not AOSept), and re-insert.
- If using AOSept, ensure the lens has been in the case for at least six hours and the case is not old. If you need to take the lens out early, rinse the lens thoroughly with saline before insertion.

Lens movement off the cornea during sleep

- Avoid sleeping face down or with a tight sleep mask on to avoid pressure shifting the lens position.
- Avoid rubbing your eyes with the lens in position.

Soreness on lens removal

- The lens may be bound by mucus from the tears sticking the lens onto the cornea. Insert a drop of Hylo-Fresh in the eye prior to removal. Press firmly on the white of the eye above and below the cornea three times before using the suction tool. Alternatively, use the manual method of removal.
- If soreness persists for several days of wear, stop using the lens and see your optometrist. Your removal technique may be causing some trauma to the eye, or the lens may need a modification.

AOSept case overflows as it starts to bubble

- Bubbling or fizzing is normal. Overflow can happen for the first few days of a new case.
- Try a different case if one causes excessive bubbles.

Lenses left in Progent for longer than the recommended 30 minutes

- This should not damage the lens but may cause some discolouration if left for longer than 24 hours.

Vision is more difficult at night

- Pupils enlarge in dim light. The orthoK treatment zone is centred over your pupil. For the first month, before the lens has stabilised at its widest point, your pupil may receive light from outside the treatment zone at night, contributing to blur, haze or halos around lights.
- A special orthoK lens with a wider zone may be required.
- We may recommend prescription eye drops to shrink the pupil for night driving or night sports.
- Patients with one eye focused for distance and the other for near may benefit from distance spectacles for night driving.
- Early mornings and late nights may extend non-lens time for too long, especially for high prescriptions. Top-up spectacles or disposable soft contact lenses may be used.

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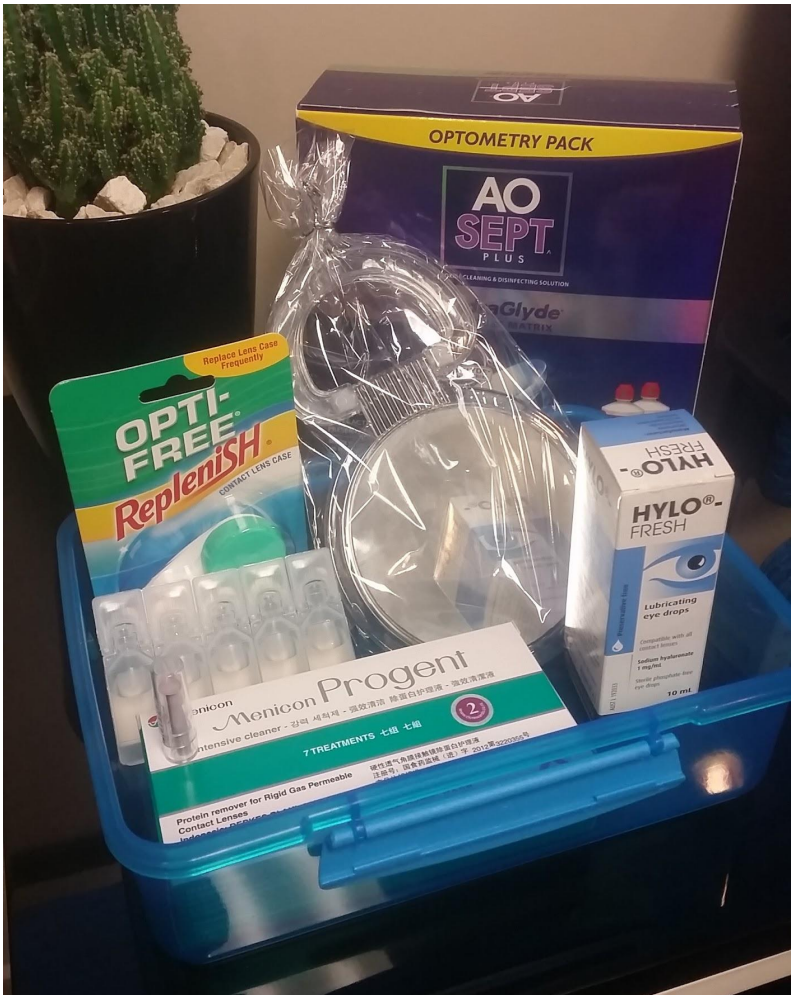
What should I do when travelling?

- It is not advisable to use your lenses during a flight unless you have a controlled and hygienic area to insert and remove them, such as a business class seat.
- Clean your hands with alcohol based hand-sanitiser when travelling.
- Take a spare set of lenses packed in a different piece of luggage in case of loss.
- Take enough solution to last your trip, or ask us about equivalent solutions overseas.

Vision is not as clear/staying as clear throughout the day as it used to

- Your lens may be dirty. Give the lens a Progent clean to check if this is the cause.
- Your lens may be warped or scratched from age. Have your optometrist inspect the lens under a microscope for defects. If the lens is getting close to 12 months of age it should be replaced regardless.
- Your prescription may have changed. Make an appointment if it has been six months since your last review.
- Ensure you have at least six hours sleep per night.
- Nights off using your lenses will decrease the stability of your new corneal shape, meaning the vision you have drops off faster. Using your lenses every night will provide the most stable vision.



An example of the starter pack of solutions included in your OrthoK fitting program.

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Bay Eye Care Orthokeratology Fitting Program

The fitting of an orthokeratology lens is unique to every eye. Regular consultations and reviews are required to provide you with a lens that offers the best vision possible while maintaining optimal health and comfort of your eyes.

Signing up to our Orthokeratology Program includes the following:

- All orthokeratology-related consultation time within the first 6 months. This includes lens design, teaching and reviews of treatment effect and eye health.
- Technology costs: ongoing corneal topography, anterior biomicroscopy photography and anterior optical coherence tomography measurements.
- Contact lens solution kit: AOSept Hydraglyde Value Pack, Progent, Rinsing Saline solution, Hylo-Fresh, lens suction holder, contact lens case for progent, mirror.

Cost

OrthoK lens and program costs depends on the complexity of the patient's prescription and the eye's parameters; this is established at your initial consultation by your optometrist. A complex case or lens design usually involves one of the following:

- myopia over -5.00DS
- astigmatism over -3.00DC
- hyperopia correction
- myopia control or multifocal correction

Your case will likely fall into one of the following programs, as advised by your optometrist:

- Standard OrthoK Fitting Program: $2090 ($990 program and 2 x $550 standard orthoK lenses)
- Complex OrthoK Fitting Program: $2390 ($1190 program and 2 x $600 complex orthoK lenses)
- Myopia Control OrthoK Fitting Program: $2190 ($990 program and 2 x $600 complex orthoK lenses)
- Single Eye OrthoK Fitting Program: $1540 -$1790 ($990-$1190 program and 1 x $550-$600 orthoK lens)

Your orthoK lenses are small and can be lost or damaged if mishandled. We strongly recommend having a spare lens for each eye. These are 50% off if ordered within 3 months of your first payment. Otherwise a replacement lens (with no design warranty) is 75% of the full lens price.

Payment

A minimum non-refundable deposit of $500 is required before commencing the program and ordering of lenses. The remainder of the cost of the program and lenses must be settled in full before the contact lenses can be taken away.

Refitting

If your prescription or eye shape changes dramatically in the future you may require a redesign of your lenses. The cost of refitting is $550: this covers the design work of your lenses and any orthokeratology-related consultation time within a 4 month period. The cost of new lenses are additional to this cost and will be $550-$600 each.

If you have any further queries, please do not hesitate to ask our friendly team. We look forward to having you in our Orthokeratology Treatment Program!

Bay Eye Care
Specialty Optometry

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Orthokeratology Program Agreement and Consent

The following consent information should be read in conjunction with the following resources contained within this document:

- General orthokeratology information
- Orthokeratology cleaning and handling instructions and Orthokeratology FAQ
- Orthokeratology Treatment Program outline

Please tick the boxes next to each statement to show that you agree. If you are signing on behalf of your child read through this with them carefully.

- ❑ I have read the orthokeratology resources fully and I understand and agree to the outline, terms and expectations of Bay Eye Care's Orthokeratology Treatment Program.
- ❑ I have been informed of my responsibilities as a patient using orthokeratology lenses and I understand the importance of following the instructions and advice from my optometrist.
- ❑ I understand that following the completion of my orthokeratology fitting I need to see my optometrist every 6 months for reviews to ensure my eyes are still healthy and the treatment is working correctly.
- ❑ I understand that during the early stages of the treatment my vision will fluctuate and I may require supplementary glasses or contact lenses to see clearly.
- ❑ I understand that I have to continue to wear my orthokeratology lenses each night for the correction of my vision to be most effective. I also understand that orthokeratology is completely reversible and that I may opt to stop the treatment at any stage.
- ❑ I understand that with any contact lens wear there is the risk of adverse eye health events, including corneal infection and possible vision loss. I understand that if I follow the instructions of my optometrist in regards to lens hygiene and wearing instructions then these risks will be minimised, but may still exist.
- ❑ I understand that I should never use water to clean or store my lenses, and that I should ensure my hands are dry after washing them before lens use.
- ❑ I understand the current policy on the orthokeratology program fees and lens replacement and I recognise that these costs may change in the future.
- ❑ I understand that the process of OrthoK corneal molding has its limitations. The quality of vision provided by orthokeratology lenses for my prescription may be limited by what is possible with the lens designs and technology available. My optometrist will do their best to provide optimal vision and comfort. I understand there is no full refund possible if my orthokeratology result is unsatisfactory. In this instance, at the discretion of Bay Eye Care, the unused value of the fitting package (minus the non-refundable deposit of $500) will be offered to me in the form of a supply of soft contact lenses or a practice credit.

Please make sure you have ticked all the boxes before signing below. If you need to ask more questions or you require more information before signing feel free to ask us in person, or via phone or email.

Name: _____ Parent/Guardian (if applicable) :_____

Signed: _____ Optometrist: _____

Date: _____ Optometrist Signature: _____