Eye health is no child's play

Vision problems in childhood can affect a child's overall development. Here is what you need to know about common paediatric eye conditions and how you can protect your child's eyesight.

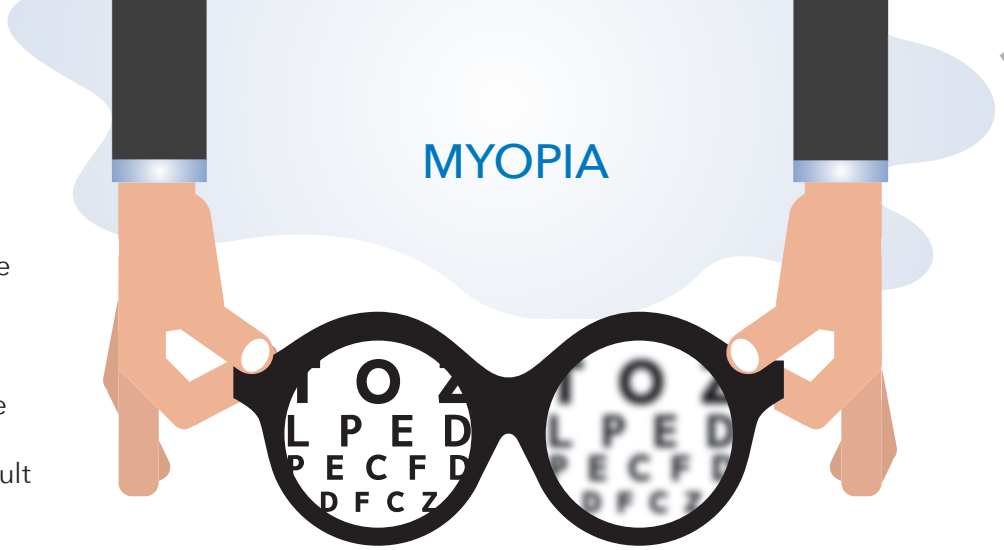
Every year of a child's life is precious, but the first five are very crucial for the development of the eyes, as well as that of the brain, ears, motor skills, and more.

If a child is not given the opportunity to use his or her eyes to their full potential in these early formative years, the ill effects can become permanent. Therefore, parents and caregivers have a major role in recognising and helping to nip eye problems in the bud.

SINGVISION speaks to Dr Yvonne Ling, Senior Consultant, and Dr Saadia Zohra Farooqui, Consultant, in SNEC's Paediatric Ophthalmology & Adult Strabismus department, on some common paediatric eye conditions and the importance of early intervention.

Dr Yvonne Ling performing an eye test

MYOPIA



MORE THAN MEETS THE EYE

Myopia (short-sightedness) is the most prevalent childhood eye condition in Singapore, while young patients with amblyopia, strabismus, and eye allergies are also commonly seen in SNEC's Paediatric Ophthalmology & Adult Strabismus department.

Myopia

Myopia in childhood is associated with rapid growth and elongation of the eyeball, hence the condition is irreversible. As myopia increases, the eyeball and layer at the back called retina become stretched and thin over time, which can lead to sight-threatening conditions, such as retinal detachment, glaucoma, early-onset cataract, and macular degeneration during a person's middle to late adulthood.

"Using glasses will further weaken a child's eyesight" is a common misconception among local parents. On the contrary, spectacles function as an aid to obtain clear vision, and it is not whether one wears glasses or not but how the eyes are being used daily that has significant impact on myopia progression.

Children in Singapore get a lot of screen time from a young age, with little or no outdoor activities. We are seeing children as young as two- or three-year-olds needing glasses for myopia. The WHO (World Health Organization) recommends no screen time for children under one year old, and up to one hour per day (or less) for toddlers.

Dr Ling, who is on the National Myopia Prevention Board, works with the Health Promotion Board (HPB) and Ministry of Education (MOE) to raise awareness of myopia's modifiable risk factors, including reducing near work and increasing outdoor time, which are facts supported by multiple studies.

"The earlier we start preventive measures, the less likely the child develops high myopia and all its attendant complications. In my clinic, patients fill in a questionnaire on their daily activities to help them understand where they can change some habits. We give out brochures with suggestions on how to engage the child with better eye habits.

Ophthalmologists can prescribe atropine eye drops, but it is difficult to get outdoor play arranged into the children's daily schedule outside of school hours. As such, the causative factors are not properly addressed. Ultimately, parents have to take charge and get to the root of the problem," said Dr Ling.

SNEC has dedicated Paediatric Ophthalmology and Strabismus clinics, which offer specialised eye care services for children and adults with eye misalignment. These services include:

- Vision assessment of children
- Diagnosis and management of strabismus (children and adults)
- Diagnosis and management of paediatric eye disorders including refractive errors (hyperopia, myopia and astigmatism), amblyopia, cataract, ptosis, glaucoma, retinoblastoma, and retinal and optic nerve diseases
- ROP screening and treatment
- Eye screening for paediatric systemic disease associated with eye disorders
- Orthoptic assessment
- Electrophysiology tests for children
- Early Intervention Vision Habilitation service for young children with low vision

It is also a misconception that LASIK surgery is a cure for myopia. Rather, it is a cosmetic procedure that reshapes the cornea so that one does not need glasses and contact lenses. However, the eye is still at risk of retina thinning and macula degeneration.

SNEC and SERI, its research arm, have been at the forefront of myopia research. At SNEC, facilities are constantly being updated and enhanced to meet the demand caused by the rising prevalence of myopia. With the launch of the Myopia Centre in Bedok that is specifically designed to provide myopia assessment and care, there has been visible improvement in waiting time, and patients are now able to receive treatment and counselling at one go.

More myopia centres are expected to open so that a larger number of patients can gain easy access to these specialised optometrist-led clinics. According to Dr Saadia, a new fellowship training programme targeted at myopia is in the works. "These ophthalmologists will be trained mainly to handle childhood myopia cases and myopia complications," she added.

Currently, SNEC is recruiting participants for ATOM3 (Atropine 0.01% in the Prevention and Control of early Myopia), an ongoing study to determine the safety and effectiveness of low-dose atropine in preventing the onset and progression of myopia in young children [see page 25].

Dr Saadia Zohra Farooqui is specially trained to handle childhood cases

Amblyopia

Amblyopia (lazy eye) is a disorder of vision development – the eye is unable to achieve normal visual acuity due to various causes. Its onset is from infancy to preschool age, and is responsive to treatment only in early childhood. Common causes are strabismus and high refractive errors, especially astigmatism. While less common, a droopy eyelid or cataract that blocks vision can also cause amblyopia.

Unilateral amblyopia often goes undetected, unless a vision check is done for each eye. Singapore children are fortunate as they have vision checks in kindergartens and polyclinics at about three to four years old.

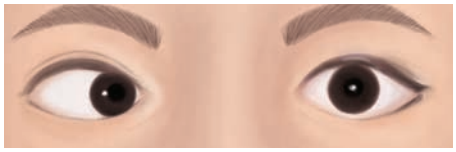
Glasses or surgery, if warranted, are first prescribed by the paediatric ophthalmologist. Patching, also known as occlusion therapy, is the gold standard of amblyopia treatment. By using an eye patch to cover the 'good eye' for a few hours each day, the amblyopic eye is given the chance to reach its full potential. Amblyopia cannot be corrected in adulthood.

Strabismus

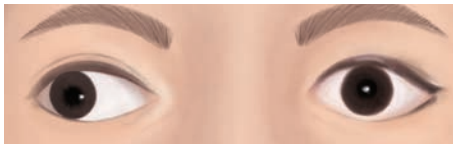
Strabismus (squint) is a condition where both eyes do not point in the same direction. Depending on the type of strabismus, treatment includes patching, orthoptic exercises, and surgery.

As stated above, strabismus can give rise to poor vision (amblyopia)

STRABISMUS



CONVERGENT SQUINT



DIVERGENT SQUINT

if one eye is constantly not being used. Early detection and treatment is critical for this group of patients.

One of Dr Saadia's most memorable cases was an eight-year-old girl with exotropia (outward deviation of eye) who underwent strabismus surgery to improve her binocular vision. She was shy and quiet, and would always hide behind her parents during consultation. Two months after the operation, she beamed with confidence as she eagerly shared her classroom stories.

"There was a marked difference in her demeanour. The surgery not only realigned her eyes, but also greatly boosted her self-esteem," Dr Saadia added.

Adult Strabismus

In the Paediatric Ophthalmology & Adult Strabismus subspecialty, SNEC's ophthalmologists not only manage children's eye diseases, but a large part of their work involve adult patients.

Adult strabismus may arise in childhood or may appear later in adulthood. The latter can be caused by stroke, tumour, injury, thyroid disease, or other muscle or nerve disorders, and often present with double vision that can be very disabling and disruptive to daily functioning. Adult strabismus is often more complex.

"In recent years, we have been seeing young people presenting with weak fusion and double vision, possibly a result of intensive and excessive near work habits. They eventually require strabismus surgery," said Dr Ling.

The management of acquired adult strabismus typically includes more extensive investigations and the use of other treatment modalities, such as fusion eye exercises, prism glasses, medications, Botox injections, as well as surgery.

Eye allergies and styes

Another common paediatric ophthalmology condition is eye allergy. Patients often have a family history of asthma, allergic rhinitis, and eczema. The most common cause is hypersensitivity to house dust mites. Trigger factors, such as soft toys, fabric furniture, cushions, carpets and other items that can trap dust, should be removed, while special anti-mite pillow and mattress covers should be used.

Recurrent styes may result from poor hand hygiene, such as rubbing eyes with dirty fingers. Patient education is important when it comes to management of eye allergies. Medication tends to be required for the long term.

A LOOK AT PREMATURE BABIES

Retinopathy of prematurity (ROP) is an eye disease of premature babies. It is a condition of abnormal growth of blood vessels in the immature retina, which can progress to bleeding, retinal detachment, and blindness.

Dr Ling, who was the first head of SNEC's Paediatric Ophthalmology & Adult Strabismus department, remembers the mid-1980s when Singapore General Hospital's Eye department (which later became part of SNEC) initiated ROP screening.

Back then, Dr Ling would go every week to the neonatal units of four public hospitals across Singapore after her clinic sessions to screen premature babies and do laser treatment if required. Today, there is a larger team of paediatric ophthalmologists who perform the screening. Paediatric retinal surgeons are also available at SNEC for babies who require further treatment.

Together with obstetricians and neonatologists, SNEC paediatric ophthalmologists have been instrumental in reducing the number of children blind from ROP. These children used to form a large group of students in the then Singapore School for the Visually Handicapped. The school was eventually restructured as Lighthouse School in 2007 to also take in students with hearing loss to make up for the declining enrolment of blind children.

VISION HABILITATION

Despite screening and early treatment of ROP, a few severe cases of the disease still end up with profound vision loss. For children whose vision cannot be saved, SNEC provides help so that they can grow up as normally as possible. "Because of the ROP babies, we started this service called Early Intervention Vision Habilitation that is now managed by orthoptists," said Dr Ling, who herself had undergone training in this area.

"There are children who may be blind in both eyes from a very young age but have no other impairment. These children need to be taught to utilise their other senses as early as possible. Motor development is mostly learnt through sight, so without vision, motor skills such as crawling, sitting, standing, walking and feeding are also delayed unless we intervene."

Dr Ling shared that when blind toddlers are left alone, they tend to develop bad habits like eye-poking, thumb-sucking, or rocking their bodies to and fro for self-stimulation. SNEC's trained orthoptists teach parents to stimulate the child through recognising sounds, using the sense of touch, raising spatial awareness, enhancing motor skills, and other strategies.

"You may notice that some blind people walk with a stoop. As a child, they could not observe how sighted people walk and they were not taught to lift up their heads. Loss of vision can affect all areas of development, so it is not only the eyes that we care about," she reiterated.

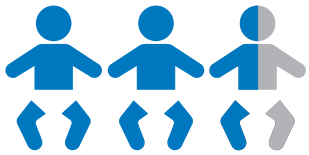
THE ART OF HANDLING CHILDREN

When treating children, Dr Ling makes an effort to give them as atraumatic an experience as possible. "I remember there was a child who had a bad experience in hospital. We had to bring our equipment to the car park and examine him there because he refused to get down from the car!" she recalled.

This incident inspired Dr Ling to consider different ways of dealing with young patients. "Sometimes we need to bring these little patients back more than once to get a full examination. They are more at ease when they become familiar with us. We give little rewards for their cooperation. I also generally avoid doing the air puff test (to measure eye pressure) on kids – they get startled and then they won't go near the slit lamp anymore."

Facts & Figures

SNEC's Paediatric Ophthalmology & Adult Strabismus department:



Conducts ROP screening in about ***250*** very premature babies in various hospitals across Singapore each year

Performs electroretinogram (ERG) and Visual Evoked Potential (VEP) tests for about ***60*** children each year

Treats patients with atropine eye drops to reduce progression of childhood myopia since ***2004***

Handles close to ***32,000*** outpatient attendances at SNEC and KK Women's and Children's Hospital each year

Eye care tips for children

Limit screen time
For children below one year old, screen time is not recommended. For those aged between two and four, screen time should not exceed one hour a day – the lesser, the better! Digital devices not only affect the eyes, but also a child's development. Kids with excessive screen time tend to have shorter attention span because they need to be constantly stimulated. Rather than letting children stay glued to devices, engage them in storytelling sessions or hands-on activities.

Eye screening
All children from three years old onwards should have their visual acuity test done as part of their Developmental Screening. Vision screening is incorporated into the annual age-appropriate health screening conducted by HPB's School Health Service (SHS) for primary school students.

Cultivate good eye habits
Parents should encourage their children to pick up good eye habits from young. Increasing daily outdoor activities and cutting down time spent on near work prevents myopia progression. As observed by Dr Ling over the years, outdoor activity under sheltered areas (such as small playgrounds) has less effect on myopia control than sports in large open areas exposed to sunlight, such as football and basketball.

Less near work where possible
As children already spend a lot of time on schoolbooks, consider switching from printed storybooks to audiobooks for leisure reading – just be mindful to keep the volume at safe levels.

Watch out for telltale signs
If you notice your child (especially preverbal) squeezing his eyes or going very close to an object to see it, he may be having problems with his eyesight. Another sign that he is not seeing properly is when he bumps into furniture or falls down in a dark room even though it is a familiar environment.