

Lazy Eyes and Not So Lazy Eyes: Amblyopia, Strabismus, and Common Pediatric Eye Conditions

Maanasa Indaram, MD

Medical Director, Pediatric
Ophthalmology and Adult Strabismus
University of California San Francisco

Leila H. Shirazi, OD

Associate Chief, Pediatric Optometry
University of California San Francisco

Pediatric Vision Screenings

- Who: pediatricians, family practitioners, nurses, technicians
- Other programs: daycares, schools, churches
- When:
 - First screening in newborn nursery
 - Thereafter, at well-check visits
 - Most effective when performed periodically throughout childhood



[Digital image]. Retrieved from <https://edhub.ama-assn.org/jn-learning/audio-player/14701050>

Why perform vision screening?

- 1/4 American school children have vision problems
- Young children do not realize it and will not be able to tell you
- Primary care providers are the first line of defense to detect vision loss in children
 - Timely referral to eye providers

Types of Pediatric Eye Providers

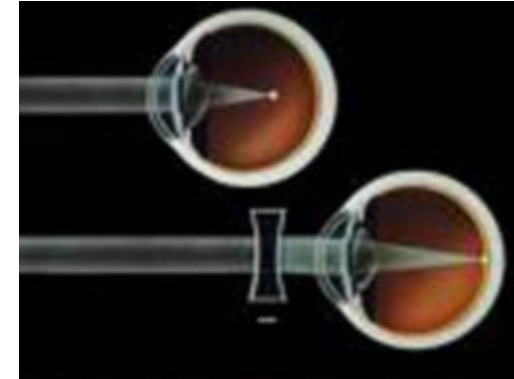
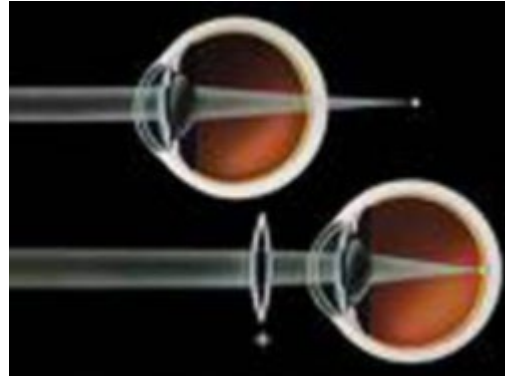
- **Pediatric optometrists:** extra training (residency in pediatric optometry) after optometry school
 - Comprehensive and screening eye examinations
 - Refractions: glasses, elective and specialty contact lens fittings
 - Medical management of pediatric eye conditions
 - Vision therapy*
- **Pediatric ophthalmologists:** extra training (residency in ophthalmology and fellowship in pediatric ophthalmology) after medical school
 - Surgical management of pediatric eye conditions
 - Medical management of patients who require complex levels of care

Common Pediatric Eye Conditions

- Refractive error
- Amblyopia (lazy eye)
- Strabismus
- Abnormal red reflex
- Chalazion (stye)
- Nasolacrimal duct obstruction

Refractive Errors in Children

1. Hyperopia (farsightedness)
2. Myopia (nearsightedness)
3. Astigmatism
4. Anisometropia

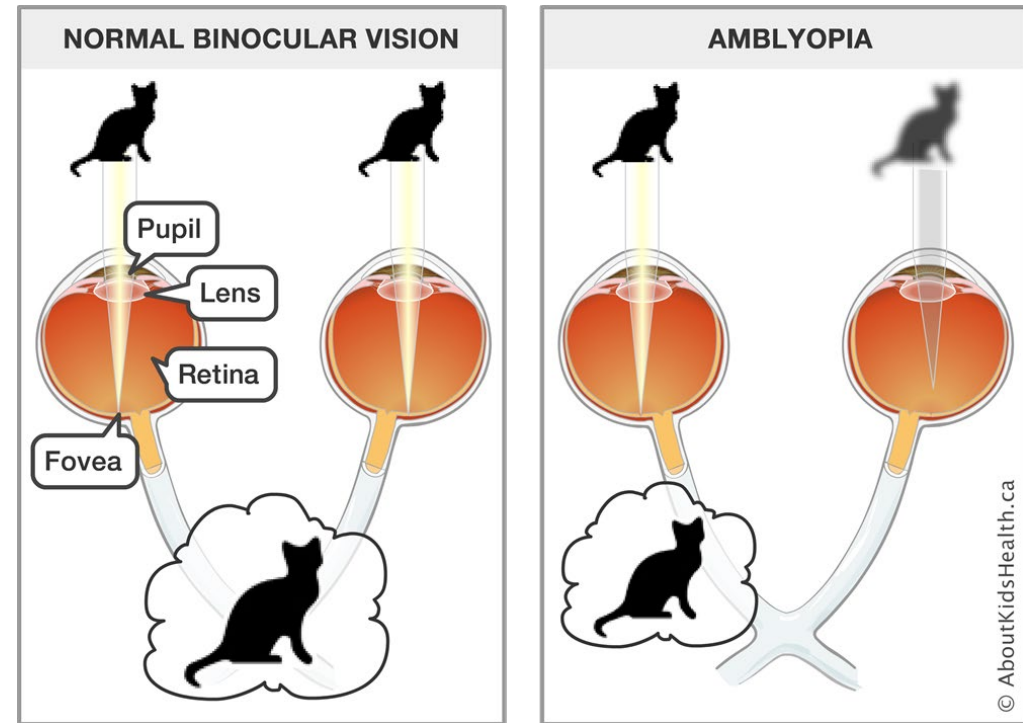


- How young can glasses or contact lenses be prescribed?



Amblyopia

- Also known as “lazy eye”
- Poor vision in an eye that has not developed normal sight
- Affects 2-3 of every 100 in the U.S.
- “Most common cause of monocular visual loss in children, affecting 1.3% to 3.6% of children”



Blurred View



Normal View

Types of Amblyopia

- Refractive
- Strabismic
- Deprivation



[Digital images]. Retrieved from
<https://drpatch.ca/eye-treatments/lazy-eye-treatment/>
<https://www.allaboutvision.com/conditions/congenital-cataracts.htm>

Treatment of Amblyopia

1. Eliminate the amblyogenic factor
2. Let the amblyopic eye “catch up” by covering the good eye

*Amblyopia is reversible only during the “sensitive period” of eye development between 0-7 years

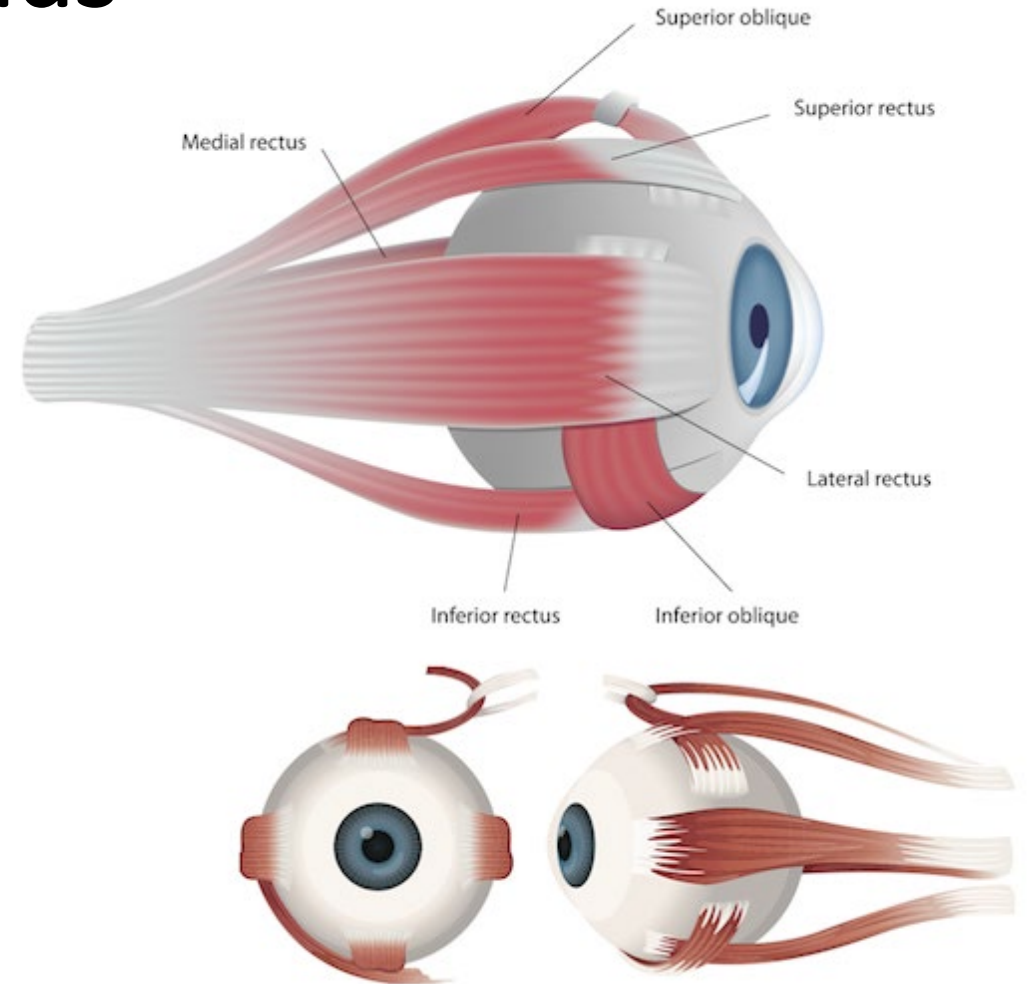
- 90% cured at age 3 years
- Harder to treat after age 10 years



[Digital image]. Retrieved from <https://blog.focusclinics.com/5-top-eye-patching-tips-parents>

Strabismus

- ❑ What: Misalignment of the eyes
- ❑ Prevalence: ~ 4% of the U.S. population
- ❑ Why: Abnormality of the brain's control of eye movement
- ❑ Risk Factors:
 - ❑ Family history
 - ❑ Premature birth
 - ❑ Other disorders that affect the brain (cerebral palsy, Down Syndrome, hydrocephalus and brain tumor)

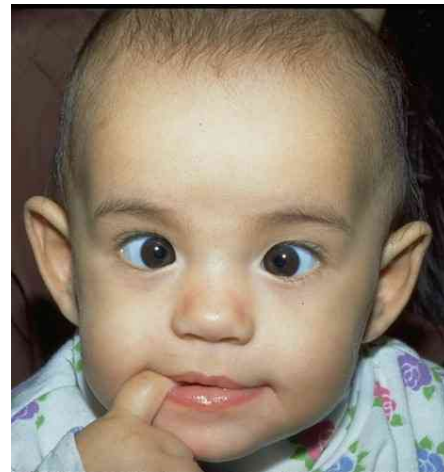


Types of Strabismus: Esotropia (crossing in)

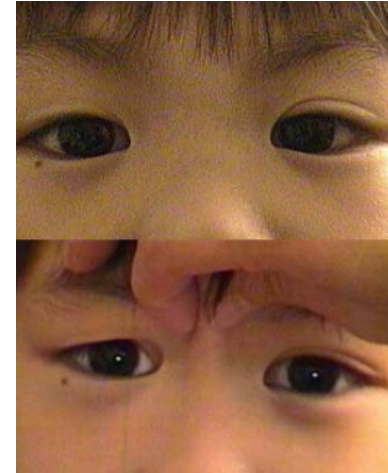
- Infantile Esotropia



- Accommodative Esotropia



Types of Strabismus: Pseudoesotropia

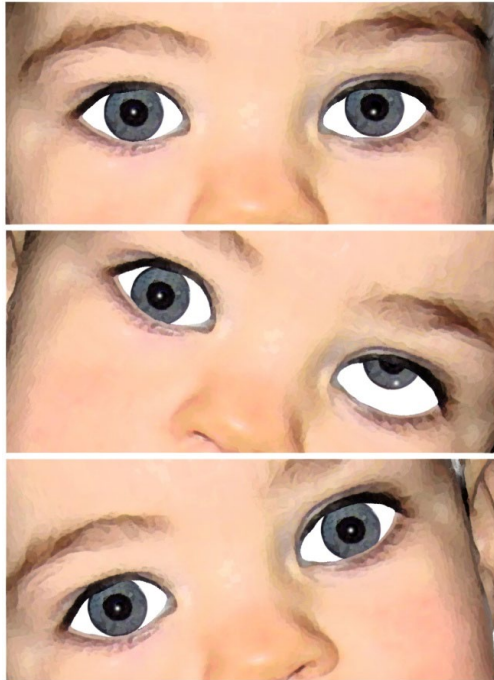


Types of Strabismus: Exotropia (outward drifting)



Types of strabismus: hypertropia (vertical)

- This type of strabismus can result in head tilting

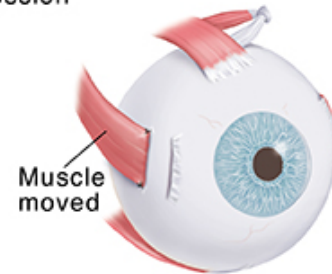


Strabismus Treatments

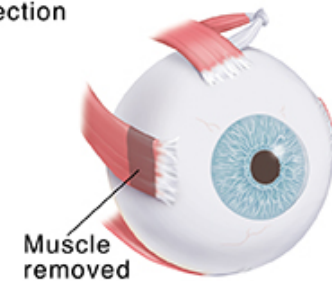
- Glasses
- Prism correction (rarely used in kids)
- Eye muscle surgery



Recession

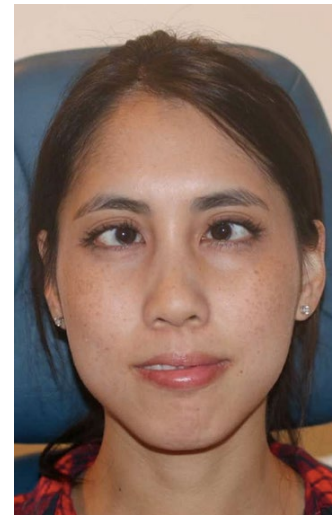
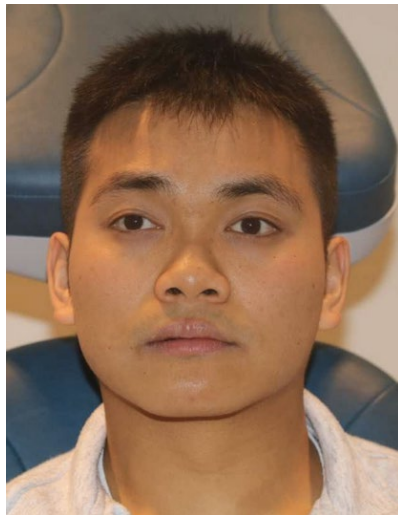


Resection



Why Treat Strabismus?

1. Prevent amblyopia
2. Improve binocularity (3D vision) or treat double vision
3. Reconstruction – restore normalcy, psychosocial impact of strabismus



Abnormal Red Reflex



- Causes:

1. Something in eye blocking vision: retinoblastoma (eye tumor), cataract, retinal detachment
 - These require urgent surgery!
2. Refractive error asymmetry (anisocoria)
3. Eye misalignment (strabismus)

Chalazion (Stye)

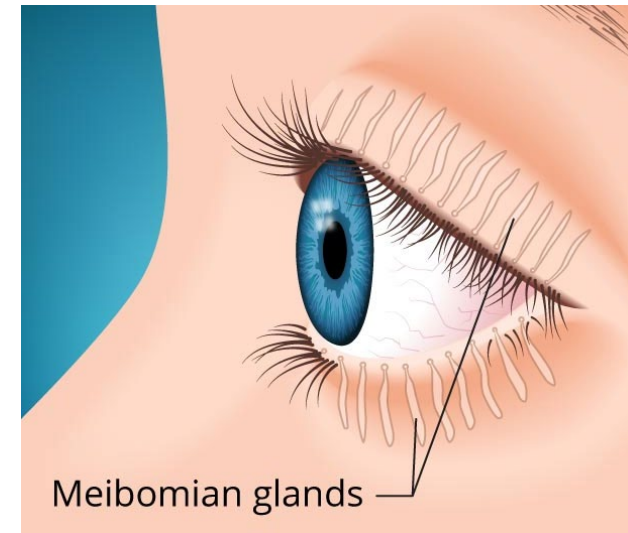
What: Localized bump on the eyelid

How: Blockage of a Meibomian gland

Why: thicker oil, poor lid hygiene

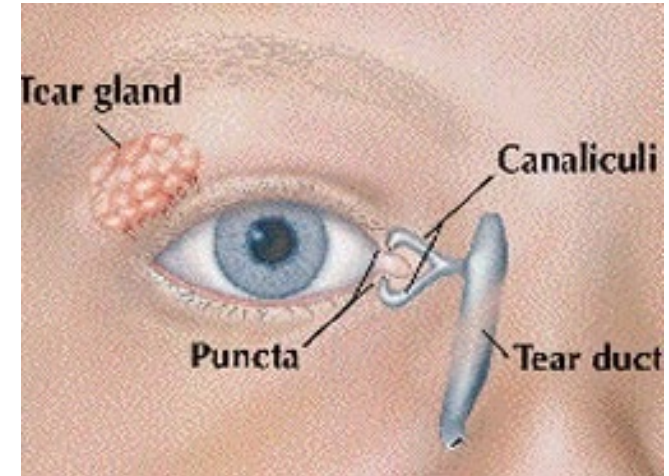
Treatment:

- Hot compress and lid hygiene
- May need surgical drainage if not resolved in 6-8 weeks (but does not prevent new styls)



Nasolacrimal Duct Obstruction

- What: Tearing and discharge from an infant's eye
- Why: Blockage of the tear ducts
- Prevalence: 5% of all infants. Over 90% resolve spontaneously within the first year of life
- Treatment:
 - Before 12 mo: Massaging
 - After 12 mo: Probing and irrigation



Pediatric Eye Exam Intervals (AAPOS)

Patient's Age	Referral Requirement (post-screening)
Birth to 12 months	<ul style="list-style-type: none">• Poor tracking after 3 months of age• Abnormal red reflex• History of retinoblastoma in a parent or sibling
12 to 36 months	<ul style="list-style-type: none">○ Presence of strabismus○ Infants with chronic tearing or discharge○ Children who fail photoscreening
36 months to 5 years	<ul style="list-style-type: none">✓ 36-47 months: VA worse than 20/50✓ 48-59 months: VA worse than 20/40✓ Children who fail photoscreening
5 years and older	<ul style="list-style-type: none">➤ VA worse than 20/32➤ Children not reading at grade level

Extra Resources

American Association of Pediatric
Ophthalmology and Strabismus (AAPOS)



American Academy of Ophthalmology (AAO)



American Optometric Association (AOA)



QUESTIONS?

