

Introduction to Pediatric Optometry

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Key concepts, clinical considerations, and practical guidelines for eye care professionals working with children.

1. Why Pediatric Optometry Matters

Aspect	Importance
Vision Development	The first 8–10 years are critical for visual acuity, binocular function, and visual-motor skills.
Learning & Social Impact	Uncorrected refractive errors or amblyopia can hinder reading, school performance, and peer interaction.
Early Detection	Many ocular diseases (e.g., strabismus, congenital cataract, retinoblastoma) are asymptomatic early but treatable if caught promptly.
Long-Term Eye Health	Early intervention reduces risk of permanent visual loss and future ocular morbidity.

2. Normal Visual Development Milestones

Age	Visual Milestone	Typical Findings
Birth – 1?mo	Fixation & tracking	Fixates on high-contrast objects; follows slow moving targets.
1–3?mo	Binocular coordination begins	Begins to converge; occasional crossed eyes (physiologic).
3–6?mo	Depth perception (stereopsis) emerges	Able to reach for objects; prefers faces.
6–12?mo	Visual acuity ~20/200 (?6/60)	Starts to recognize familiar faces at distance.
1–2?yr	Acuity improves to ~20/80?20/60	Begins to name objects; enjoys picture books.
3–5?yr	Near-adult acuity (?20/40)	Can copy shapes, begin writing, identify colors.
6?yr+	Adult-level acuity (?20/20)	Ready for formal school vision screening.

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Clinical tip: Use age-appropriate tests (e.g., Teller acuity cards, Lea symbols, HOTV, Snellen) to match developmental level.

3. Common Pediatric Refractive Errors

Condition	Typical Age of Onset	Signs & Symptoms	Management
Hyperopia (farsightedness)	Present at birth; often hidden by accommodation	Near-work fatigue, squinting, eye-turning, delayed milestones	Full-time glasses; low-plus lenses for infants; monitor for amblyopia.
Myopia (nearsightedness)	Usually emerges 6–12-yr, accelerates in adolescence	Difficulty seeing distant objects, frequent squinting	Single-vision or bifocal lenses; consider myopia control (orthokeratology, multifocal soft lenses, low-dose atropine).
Astigmatism	Can be congenital	Blurred or distorted vision, eye strain	Cylindrical correction; ensure axis stability before prescribing.
Anisometropia	Any age	Unequal refractive power ? risk of amblyopia	Full correction; consider contact lenses or refractive surgery in older children if needed.

4. Amblyopia (“Lazy Eye”)

Type	Etiology	Critical Period	Treatment Options
Strabismic	Misalignment ? suppression	0–7-yr	Occlusion therapy, penalization, vision therapy, alignment surgery.
Refractive	High unilateral or anisometropic error	0–7-yr	Full refractive correction, occlusion/penalization if needed.

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