

Understanding Low Vision

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Key concepts, causes, assessment, and management strategies

1. Definition

- **Low vision:** A visual impairment that cannot be fully corrected with standard glasses, contact lenses, medication, or surgery, and that interferes with daily activities.
- Visual acuity **worse than 20/70** (6/21) but **better than 20/400** (6/120) in the better eye, **or** a visual field $<20^\circ$ diameter, **or** loss of contrast sensitivity that hampers functional tasks.
- Classified as **moderate**, **severe**, or **profound** based on the degree of functional loss.

2. Epidemiology

Population	Approx. Prevalence*
Adults ≥ 40y	2–5% (global)
Elderly ≥ 65y	5–10%
Children (congenital/early onset)	0.5–1%

*Numbers vary by region, definition, and access to eye care services.

3. Common Causes

Category	Typical Conditions	Typical Visual Deficits
Refractive & Media	Cataract, uncorrected high myopia, corneal scarring	Blurred vision, glare
Retinal	Age-related macular degeneration (AMD), diabetic retinopathy, retinitis pigmentosa, hereditary maculopathies	Central vision loss, reduced contrast, night vision problems
Optic Nerve	Glaucoma, optic neuritis, ischemic optic neuropathy	Peripheral field loss, tunnel vision

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Category	Typical Conditions	Typical Visual Deficits
Neurological	Stroke, brain tumor, traumatic brain injury	Visual field cuts, visual neglect
Congenital/Developmental	Congenital cataract, albinism, microphthalmia	Variable; often combined central? peripheral deficits

Note: Many patients have **multifactorial** causes (e.g., cataract + AMD).

4. Functional Impact

Activity	Typical Difficulty	Example Adaptations
Reading	Small print, reduced contrast	Large?print books, high?contrast text, electronic magnifiers
Mobility	Obstacles, uneven surfaces	Orientation & mobility (O&M) training, white cane, tactile paving
Driving	Reduced glare tolerance, limited peripheral vision	Cessation of driving, use of public transport, driver?rehab programs
Daily Living (ADL)	Identifying objects, managing medication	Labeling with Braille/large print, audio reminders, assistive devices
Social Interaction	Recognizing faces, facial expressions	Use of facial recognition apps, verbal cues

5. Assessment & Diagnosis

1. History

- Onset, progression, occupational/educational demands, safety concerns.

2. Visual Acuity

- Snellen or LogMAR with best correction.

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3. Contrast Sensitivity

- Pelli-Robson chart or similar.

4. Visual Field Testing

- Humphrey 30-2, Goldmann kinetic perimetry, or portable devices.

5. Ocular Examination

- Slit-lamp, funduscopy, OCT, fluorescein angiography (as indicated).

6. Functional Vision Assessment

- Real-world tasks (reading speed, navigation, ADL).

7. Low-Vision Questionnaire

- NEI-VFQ-25, Low Vision