

## Binocular Vision

### Refractive Development

#### Some facts

- Average +2.32DS at birth
- Increase an average +0.231DS per year up to 7 years of age
- More than 80 per cent of 1 to 7 year olds have cycloplegic refractions of between +0.50DS and +3.00DS
- 5 to 7 year olds closest to emmetropia have greatest risk of juvenile onset myopia
- 15 – 30 per cent of 6 to 15 year olds myopic

#### Expected normal acuities

- Birth 6/300
- 6 months 6/60 to 6/36
- 12 months 6/24
- 18 months 6/18 to 6/12
- 36 months 6/9 to 6/6
- 5+ years 6/6 or more

#### Significant Inter-Eye Differences

- Keeler acuity cards (PL) 2 cards
- Cardiff acuity test (PL) 2 cards
- Kay Picture test (single matching) 2 lines
- Sheridan-Gardiner (single matching) 3 lines
- Sonksen-Silver (crowded matching) 2 lines
- Cambridge cards (crowded matching) 2 lines
- LogMAR test (crowded matching) 4 letters

#### Significant Refractive Errors

- Hyperopia  $>+3.50D$  in any meridian
- Hyperopia  $>+2.00D$  (children 4 years+)
- Astigmatism  $> 1.00D$
- Persistent anisometropia  $> 1.00D$

## American Academy of Ophthalmology Guidelines for prescribing (2-3 years)

[www.aao.org/education/library/ppp/index.cfm](http://www.aao.org/education/library/ppp/index.cfm)

- Hyperopia (no tropia) > +4.50DS
- Hyperopia with esotropia > +1.50DS
- Astigmatism > 2.00DC
- Aniso
  - hyperopia > 1.50DS
  - myopia > 2.00DS
  - astigmatism > 2.00DC
- Myopia > -3.00DS