Common Pediatric Vision Disorders

Binocular Vision Disorders
Disorders that limit the eyes' ability to work together as a team

Amblyopia - “Lazy Eye”
Definition
Decreased vision in one or both eyes without any ocular disease

2% of the population
**Amblyopia**

- **Causes**
  - Very large prescriptions
  - Large difference in prescriptions
  - One eye turn
  - Deprivation

- **Warning signs**
  - Much poorer vision in one eye vs. the other
  - Resistance to occlusion

- **Treatment**
  - Glasses
  - Patching
  - Atropine
  - Vision Therapy

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**Strabismus - "Eye Turn"**

- **Definition**
  - Misalignment of the eyes

- **Prevalence**
  - 2-4% of the population

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**Strabismus**

- **Types**
  - **Exotropia**
    - 2.1%
  - **Esotropia**
    - 1.2%
  - **Hyper tropia**
    - <<1%
Strabismus

Causes
- Amblyopia
- Large refractive error
- Muscle imbalance
- Disease

Warning signs
- Parents’ report
- Photos/video
- No stereopsis

Treatment
- Vision therapy
- Prism in glasses
- Over-minusing
- Surgery

Not to be confused with:

Convergence Insufficiency

Definition
Inability to bring the eyes inward together when looking at close objects

3-5% of the population

Symptoms
- Headaches: frontal
- Eyestrain (discomfort)
- Double vision**
- Fatigue
- Avoidance of reading

Treatment
- Vision therapy
- Base-in prism
Accommodative Insufficiency

Definition
Inability to focus on near objects

2-3% of the population

Symptoms
- Headaches: frontal
- Eyestrain (discomfort)
- Blurred vision
- Fatigue
- Avoidance of reading

Treatment
- Vision therapy
- Reading-only glasses
- Bifocals

Oculomotor Dysfunction

Definition
Poor eye movements side-to-side or while tracking a moving object

22-24% of the population
Oculomotor Dysfunction

Symptoms
- Words move on page
- Skipping lines/words
- Slow reading speed
- Poor comprehension
- Tracking with finger
- Excessive head movements
- Poor attention

Treatment
- Vision therapy
- Reading-only glasses

What is Vision Therapy?

The American Optometric Association:
"Vision therapy is a sequence of neurosensory and neuromuscular activities individually prescribed and monitored by the doctor to develop, rehabilitate and enhance visual skills and processing."

- Individualized therapy based on the patient’s diagnosis
- Improves control, stability and accuracy
- In-office and at home practice
- Compliance is KEY!
- Many different activities/tools
  - Prisms
  - Virtual Reality
  - Lenses
  - Computer Programs
  - Work Sheets
Pediatric Concussions

What is Post-Concussive Syndrome?

Population with the highest incidence: Adolescents

60% increase from 2007 - 2014

Definition

Prolonged symptoms (>10 days) following a concussive incident
Symptoms include:

- Headaches
- Blurred vision
- Double vision
- Dizziness
- Poor attention

- Difficulty reading
- Words move on page
- Skipping lines/words
- Poor comprehension

Sound familiar??

Convergence Insufficiency
- Headaches (frontal)
- Eyestrain (discomfort)
- Double vision
- Fatigue
- Avoidance of reading

Accommodative Insufficiency
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Oculomotor Dysfunction
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Visual Perceptual Disorders
Disruption of neural processing that's required in order to interpret and respond to the visual world.

- Spatial disorientation
  - Directional confusion
- Poor visual-motor integration
  - Poor handwriting
  - Difficulty copying assignments from the board
  - Slow pace on written exams
- Inaccurate visual memory
  - Difficulty remembering work that is repeated
  - Poor short-term memory
- Lack of coordination and balance
  - Loss of attention/concentration
Returning to Learn

**Difficulty with reading?**
- Increased font size
- Printed materials
- Reduce exposure to computers and smart boards
- Extended time on tests
- Frequent breaks in quiet areas
- Extra set of books at home

**Difficulty with navigation?**

**Difficulty with normal activities?**

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Diseases/Ocular Health Disorders

**conjunctivitis - “pink eye”**

Viral infection on the front surfaces of the eye

HIGHLY contagious while the eyes are red/tearing
- Avoid touching the eyes
- Frequent hand-washing
- Wash sheets, towels and pillowcases
- Limited exposure to others (stay home from school/activities)

Resolves without treatment after 1-2 weeks (drops may help with symptoms)

- Redness
- Itching
- Grittiness
- Tearing
- Burning
- Irritation
Corneal abrasions

One of the most common ocular injuries in children
Scratch on the cornea of the eye
- Fingernail
- Tree branch
- Foreign body - dirt, metal, pebbles

In most cases, the eye heals without permanent damage after 24-72 hours
- Antibiotic drops or ointment to prevent infection

Tearing
- Very painful
- Redness
- Sensitivity to light

Leukocoria - White pupil

Strabismus
- Eye turn results in altered reflex
- Requires treatment with glasses, vision therapy or surgery

Congenital cataract
- Densely opacified lens appears white
- Can lead to amblyopia if left untreated (deprivation)
- Requires surgical removal and glasses following surgery

Retinoblastoma
- Malignant tumor of the retina
- Most common ocular cancer in children

Treatment options (try to save vision):
- Chemotherapy
- Radiation
- Enucleation

More than 90% survive with early detection
1. Amblyopia is a condition in which the eye cannot see 20/20.
2. Strabismus is a lack of alignment between the two eyes.
3. Binocular vision disorders are prevalent and often cause difficulties associated with academic performance.
4. Vision therapy has been proven to be effective.
5. Optometry has an important role to play in concussion management.
6. Conjunctivitis is a highly contagious ocular disease.
7. Corneal abrasions are the most common pediatric eye injury.
8. A white pupil should be evaluated immediately!