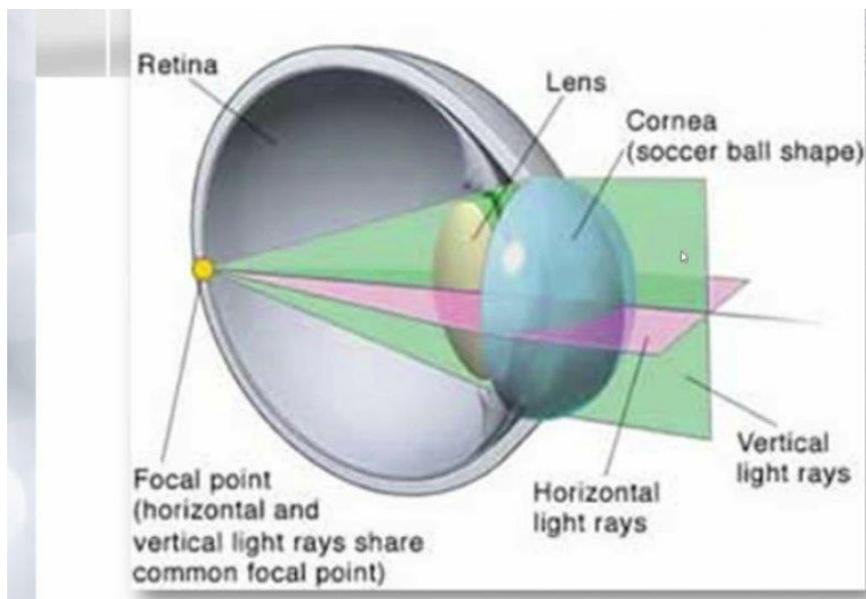


Practical Refraction Errors

Stage ۲

Lecture ۳: Astigmatism



By Optometrists

Zaid Majid & Mohammed Hassan

- The eye does not have the same power in all meridians.
- light gets focused at multiple focal points.
- This refractive error leads to blurry and distorted vision for far and near.
- There is no punctum remotum.

Aetiology:

1- Corneal Astigmatism (The most common):

A- physiological (about 0.5 to 1.0) D.C.

B- congenital (inherited).

C- Acquired:

1- keratectasia (following the refractive surgery): Surgery corneal facet.

2- Corneal scar (after inflammation or trauma).

3- Pressure on the eye globe or cornea (big chalazion).

2- Lenticular (less common):

A- Congenital.

- Congenital tilting of the lens.
- Lenticonus.
- subluxation (less curved or tilted).

B- Acquired:

- Cataract lens opacity.
- Traumatic subluxation.

Types of corneal astigmatism:

1- Regular Astigmatism:

- the maximal and minimal meridian powers are at right angle.
- Power between the two principal meridians changes in a gradual manner.

It can be categorized into:

- Simple astigmatism
- compound astigmatism
- mixed astigmatism.

2- Irregular Astigmatism:

- Maximal and minimal meridians are not at right angle of each other.
- Power between the two principal meridians changes in a gradual manner.

This type of astigmatism can be found in:

- Keratoconus.
- Corneal Scars.

Types of astigmatism according to the Rule:

- 1- **With The Rule Astigmatism (WTR):** The vertical meridian is more curved (less flat) which leads to more power. More common.
- 2- **Against The Rule Astigmatism (ATR):** The vertical meridian is less curved (more flat) which leads to less power. Less common.

Symptoms:

- 1- Accommodative asthenopia (in small degrees).
- 2- defective vision
 - running letters.
 - Tailed points.
- 3- patient can read certain symbols and not the others in the same line.
- 4- blurry and distorted vision.
- 5- unocular diplopia.

Signs:

- No signs in normal eyes.
- Bubble shape in keratoconus.
- oval pupil in high astigmatism.

Treatment:

1 - Optical:

- glasses.
- contact lenses.

2 - surgical.