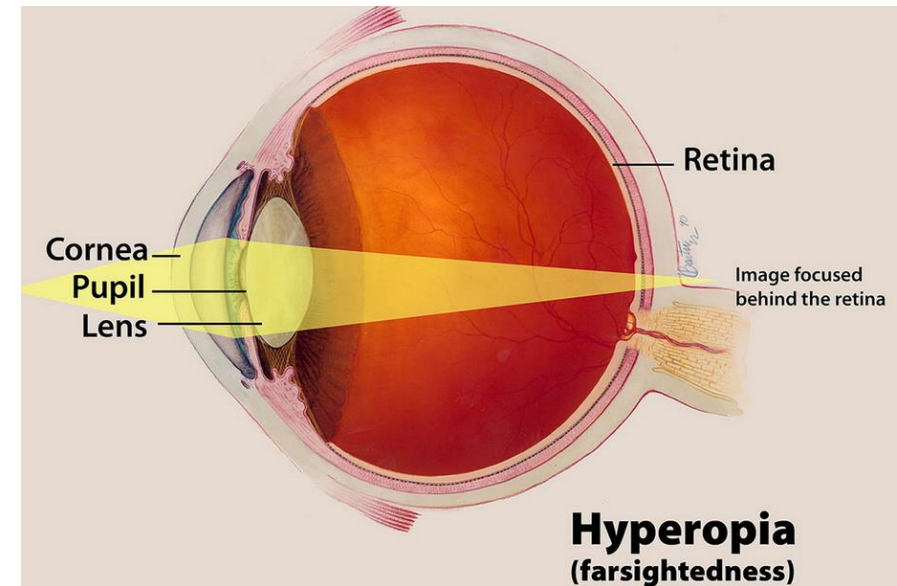


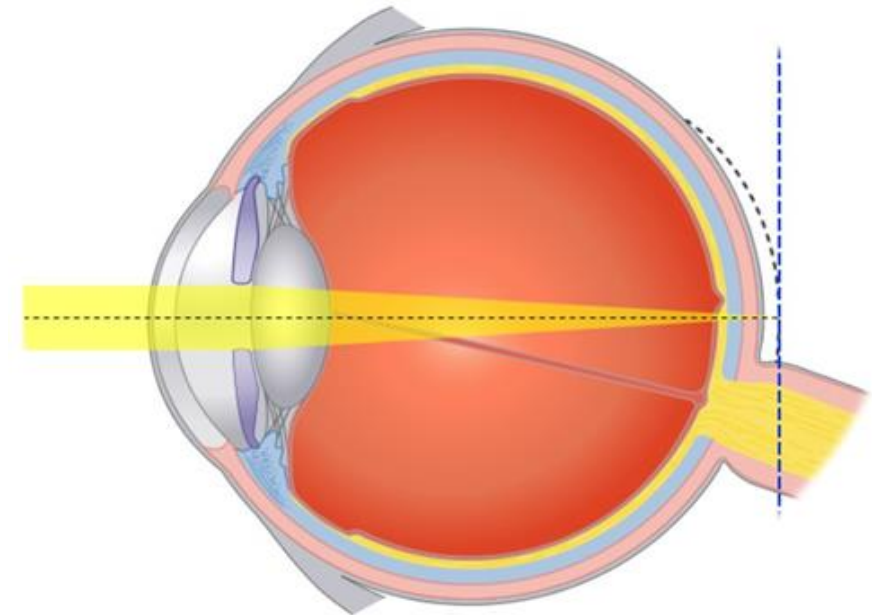
# Hyperopia

- Definition
- Optical condition of the hyperopic eye
- Classification
- Symptoms
- Signs of the hyperopic eye
- Correction

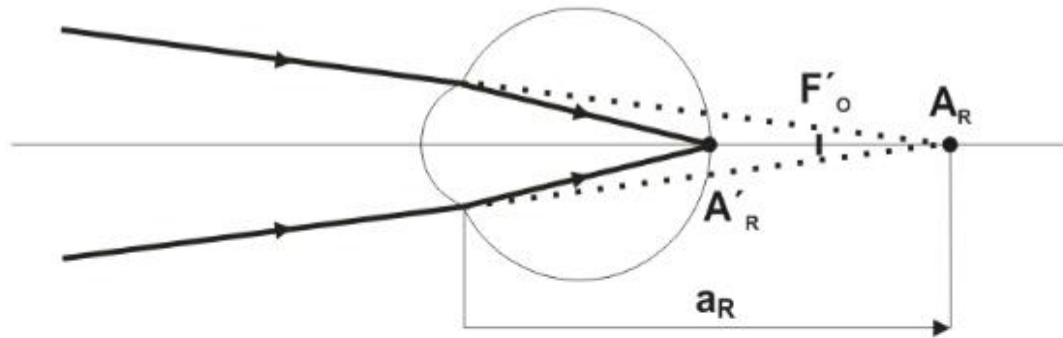


# Hyperopia

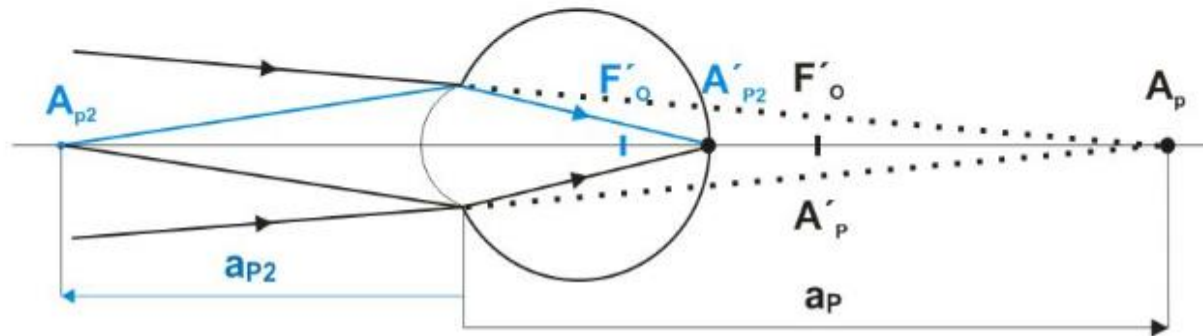
- Definition: Parallel rays of light are brought to a focus some distance behind the retina when the eye is at rest.
- It creates one step in the development of the eye. At birth practically all eyes are hyperopic ( +2,0 D/ +3,0 D).



# Optical condition of the hyperopic eye



The far point of hyperopic eye is at the optical axis in the final distance of the virtual space behind the eye.



The near point of the hyperopic eye is at the optical axis either at a considerable distance in front of the eye or behind the eye.

# Classification of the hyperopia

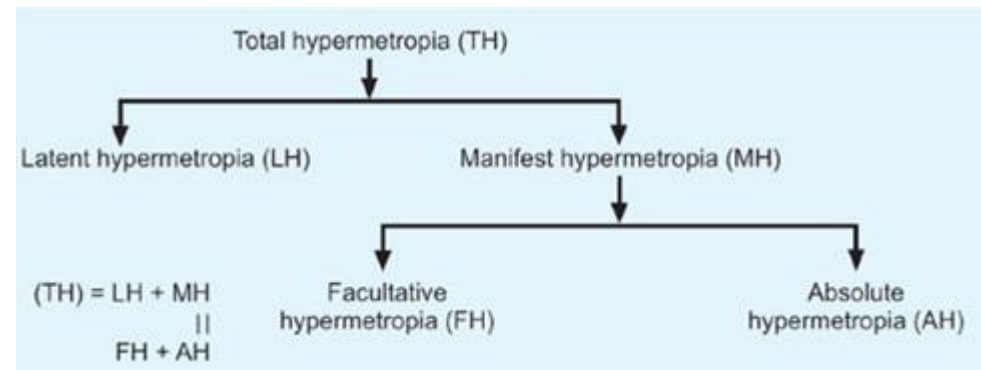
## Aetiology:

- **Axial hyperopia** – the greatest majority of cases, it is due to shortening of the antero-posterior axis of the eye
- The degree of shortening is not great and rarely exceeds 2 mm
- Each millimetre of shortening represents approximately 3 dioptres of refractive change, and thus a hyperopia of over 6 dioptres is uncommon
- **Curvature hyperopia** – occurs when the curvature of any of the refracting surfaces is unduly small (cornea plana or trauma)
  - About 1 mm increase in radius of curvature results in 6 D of hyperopia.



# Classification of the hyperopia

- It divides into:



- Total hyperopia = latent + manifest hypermetropia

That we would find out the value of the total hyperopia, we must eliminate musculus ciliaris, we must induce cykloplegia.

# Classification of the hyperopia

- **Latent hyperopia**
  - Is totally by eye's own accommodative ability, can be detected only by cycloplegia
  - Important by children
- **Manifest hyperopia** - we operate by objective or subjective measurement of the refractive errors (e.g AR or by presenting the highest + power lens, with its the patient sees 6/6)
  - **Facultative hyperopia** – active accommodation, overcome by an effort of accommodation, at an older age the facultative hyper. changes in absolute hyp.
  - **Absolute hyperopia** - cannot be overcome by accommodation - only with correction glasses

# Hyperopia - symptoms

- The symptoms vary depending upon the age of the patient and the severity of refractive error. Patient may be asymptomatic ( in the childhood).
- **In young adulthood (especially during longer work for near)**
  - Asthenopia (eyestrain)
  - Frontal or fronto-temporal headache
  - Red eyes
  - Blepharitis
  - Mild sensitivity to light
  - Blured vision ( rather to near distance)

# Hyperopic eye – the signs

- The hyperopic eye is typically small, not only in its antero-posterior diameter but also in all directions
- The cornea is small
- Shallow anterior chamber, narrower corneal-iris angle, hypertrophic musculus ciliaris - is predisposed to be closed – angle glaucoma (in old age)
- The lens is relatively large
- The retina in higher hyperopia tends to have an increased gloss (silk look of retina)
- Optical disk has not sharp borders (pseudopapillitis)
- In higher hyperopic anisometropies we often detect facial asymmetry

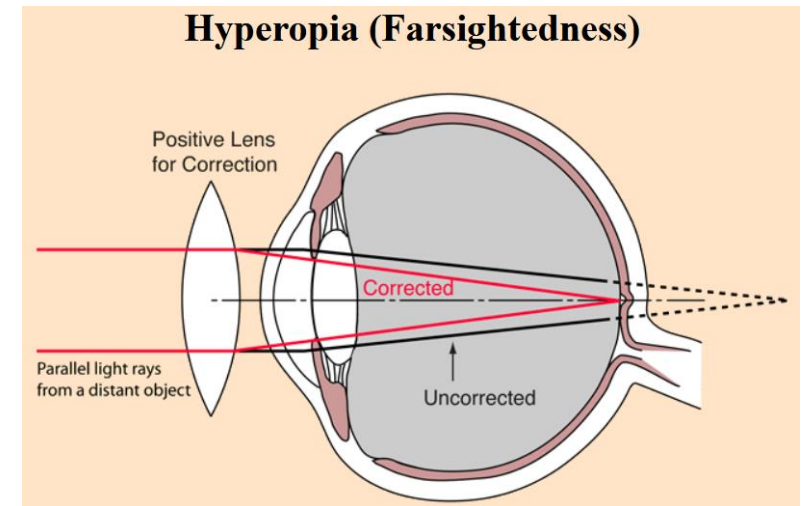


# The optical correction of the hyperopia

- We correct hyperopia with the highest + lens, with which the patient has the best long-distance VA (non-accommodating hyperopia)
- Children – cycloplegia (check - 1 per year)
- Glasses
- Contact lenses

## Next possibilities of correction of the hyperopia

- Surgery for hyperopia
- Non-corneal interventions



# Aphakia and pseudophakia

- the term suggests an absence of the lens
- homework