

RECEPTORS OF MAN

LEARNING OUTCOMES:

Students will be able to:

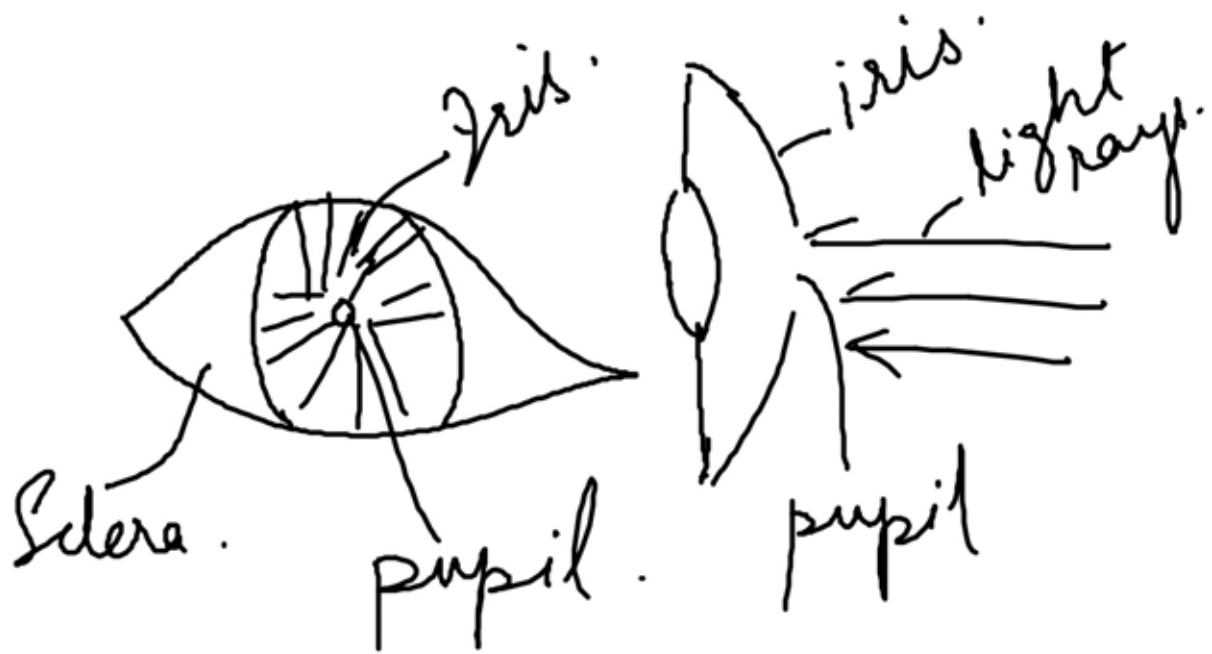
1. describe the structure of the human auditory and visual receptors;
2. describe the pupil reflex in dim and bright light;
3. explain the defects of eye (short sightedness and long sightedness);
4. state how short and long sightedness can be treated;
5. associate the role of Vitamin A with vision and effects of its deficiency on retina;
6. relate the contribution of Ibn-al-Haitham and Al-Ibn-Isa with knowledge about the structure of the eye and treatment of various ophthalmic diseases.

THE EAR

How does the ear work?

STRUCTURE OF THE EYE

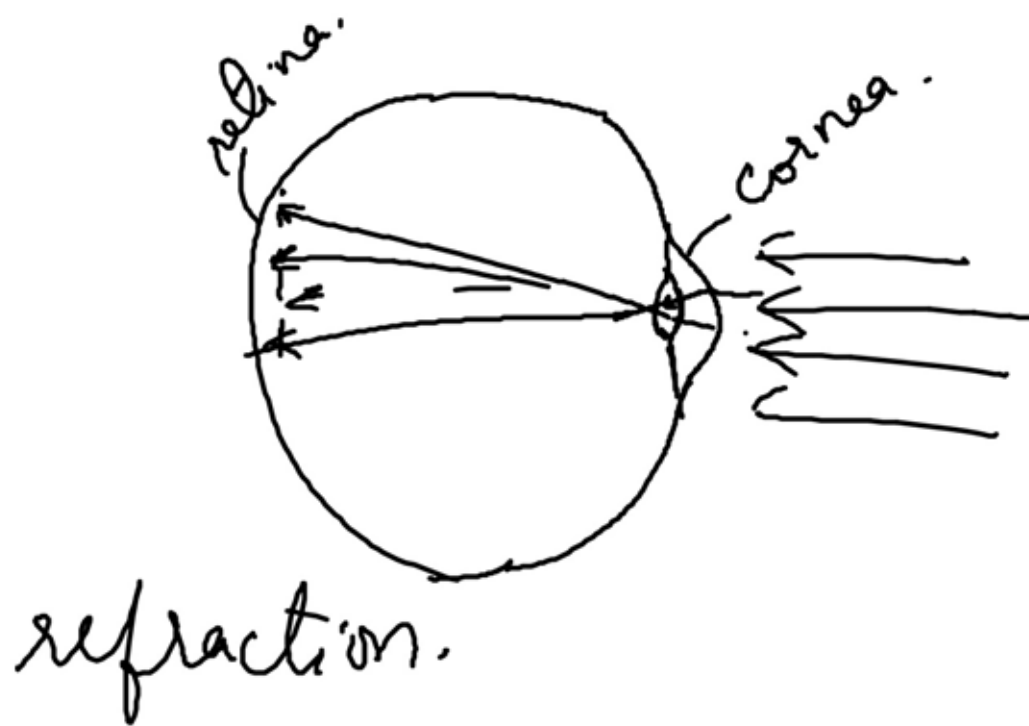
Pupil Reflex



DEFECTS OF VISION

Myopia

Hyperopia



Vitamin A

How does it help?

Deficiency of Vitamin A

Night blindness

IBN-AL-HAITHAM

In his massive study of light and vision, Kitab al- Manazir (Book of optics), Ibn al- Haitham submitted every hypothesis to a physical test or mathematical proof. To test his hypothesis that "lights and colours do not blend in the air", for example, Ibn al- Haitham devised the world's first camera obscura, observed what happened when light rays intersected at its aperture, and recorded the results. Throughout his investigations, Ibn al- Haitham followed all the steps of the scientific method.

AL-IBN-ISA

Al ibn Isa (940-1010AD) is considered as one of the most famous physicians of the tenth century.

Ibn Isa's book was one of the first, along with Hunayn ibn Ishaq's Ten Treatises on the Eye, to illustrate anatomy of the eye. Specifically, Ibn Isa illustrated the optic chiasm and brain. Ibn Isa was the first to describe and suggest treatment for an array of diseases.

Multiple Choice Questions

1. The bones of the ear

- A. are the smallest bones of the body.
- B. are the largest bones of the body.
- C. do not play a role in producing sound.
- D. are seven in number.

2. The pupil of the eye

- A. becomes bigger when the light enters into it.
- B. becomes smaller in dim light.
- C. is surrounded by the iris.
- D. is covered with the retina.

3. The sclera is

- A. the outermost layer of the eye globe.
- B. the innermost layer of the eye globe.
- C. also known as the retina.
- D. the layer right beneath the retina.