جامعة المستقبل
كلية التقنيات الصحية والطبية
قسم تقنيات البصريات

First Stage 2023-2024

Anatomy of The Eye

Practical Lecture Title

Iris – Pupil

Lecture Number: 5 / course 2

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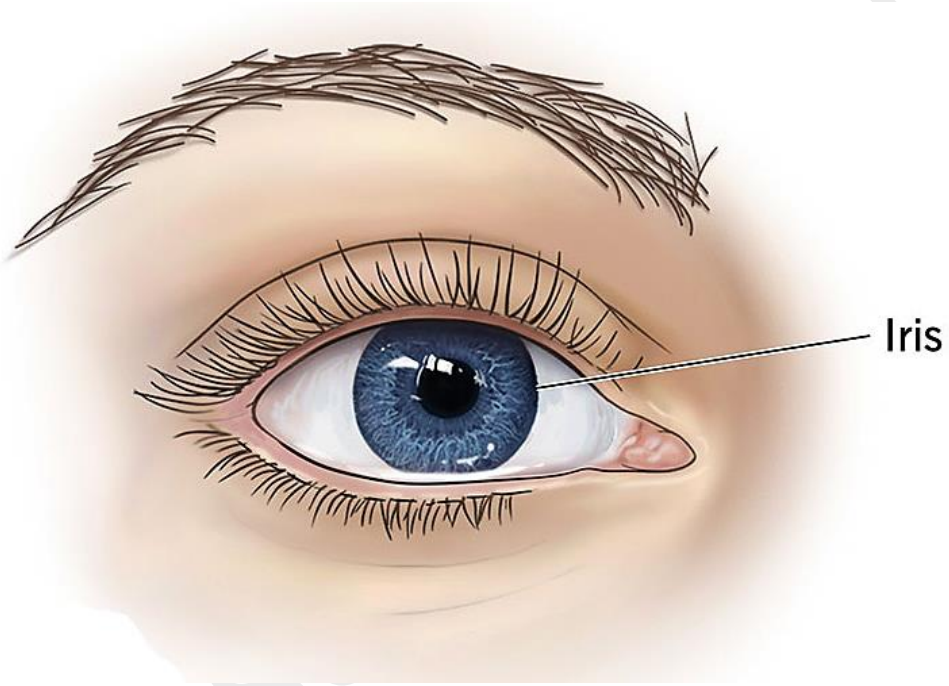
OPTOMETRIST

قزحية العين IRIS

The iris is the thin, circular structure in the eye that surrounds the pupil. It is the colored portion of the eye and gives our eyes their distinct color, ranging from shades of brown, blue, green, or hazel. The iris plays a crucial role in controlling the amount of light that enters the eye by regulating the size of the pupil.



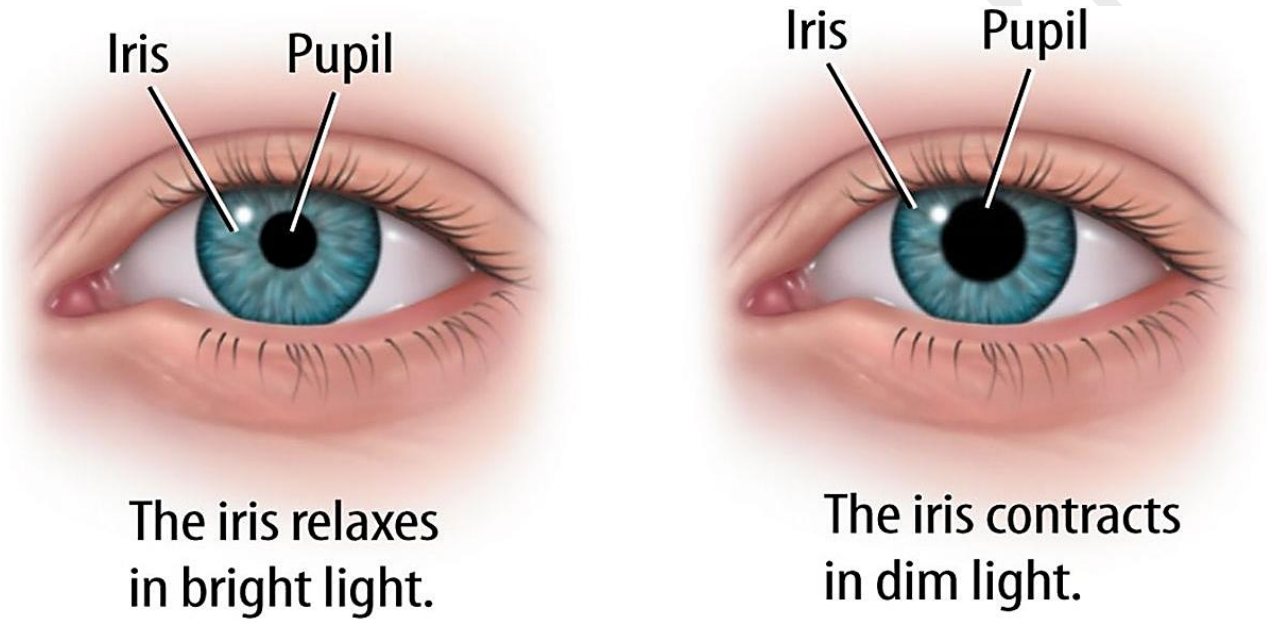
Structure of Iris

The iris is a distinct, colorful part of the eye that surrounds the pupil. It is a muscular structure that controls the amount of light entering the eye by adjusting the size of the pupil. The structure of the iris includes the following components:

1. Stroma: is the main tissue of the iris, composed of connective tissue fibers and pigment cells called melanocytes.

2. **Sphincter pupillae muscle**: This circular muscle, located near the pupil, is responsible for constricting the pupil in bright light conditions. When this muscle contracts, the pupil becomes smaller, allowing less light to enter the eye.

3. **Dilator pupillae muscle**: This radial muscle, located near the outer edge of the iris, dilates the pupil in low light conditions. When this muscle contracts, the pupil becomes larger, allowing more light to enter the eye.

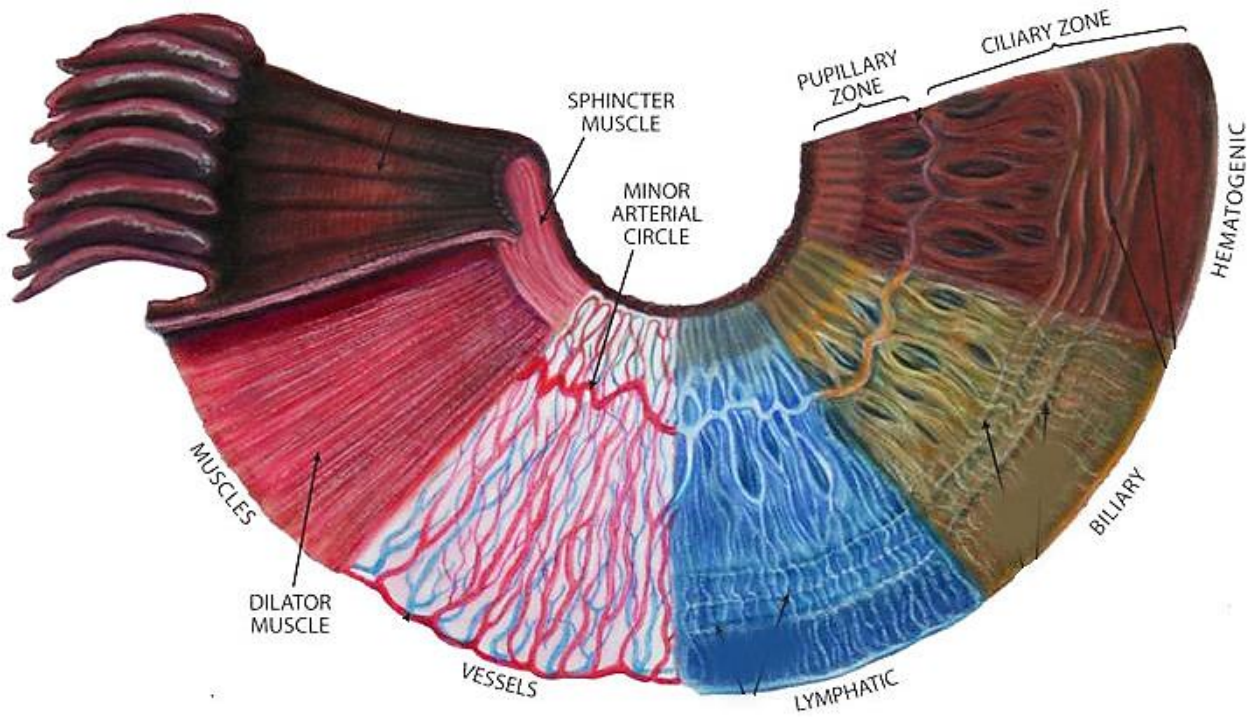


- The iris is connected to the ciliary body, which contains the muscles responsible for changing the shape of the lens for focusing on objects at different distances.
- Contraction and relaxation occur involuntarily in response to changes in light intensity.
- In the middle of the iris is an opening called the pupil, which is the opening that allows light to enter the eye and reach the retina.

- **The unique patterns and colors of the iris are genetically determined and are used for biometric identification purposes, as each individual's iris pattern is unique and remains stable throughout life.**

Color of Iris

The color of the iris is determined by the amount and distribution of pigment melanin within its layers. More melanin results in darker brown or black irises, while less melanin leads to lighter blue, green, or hazel irises.

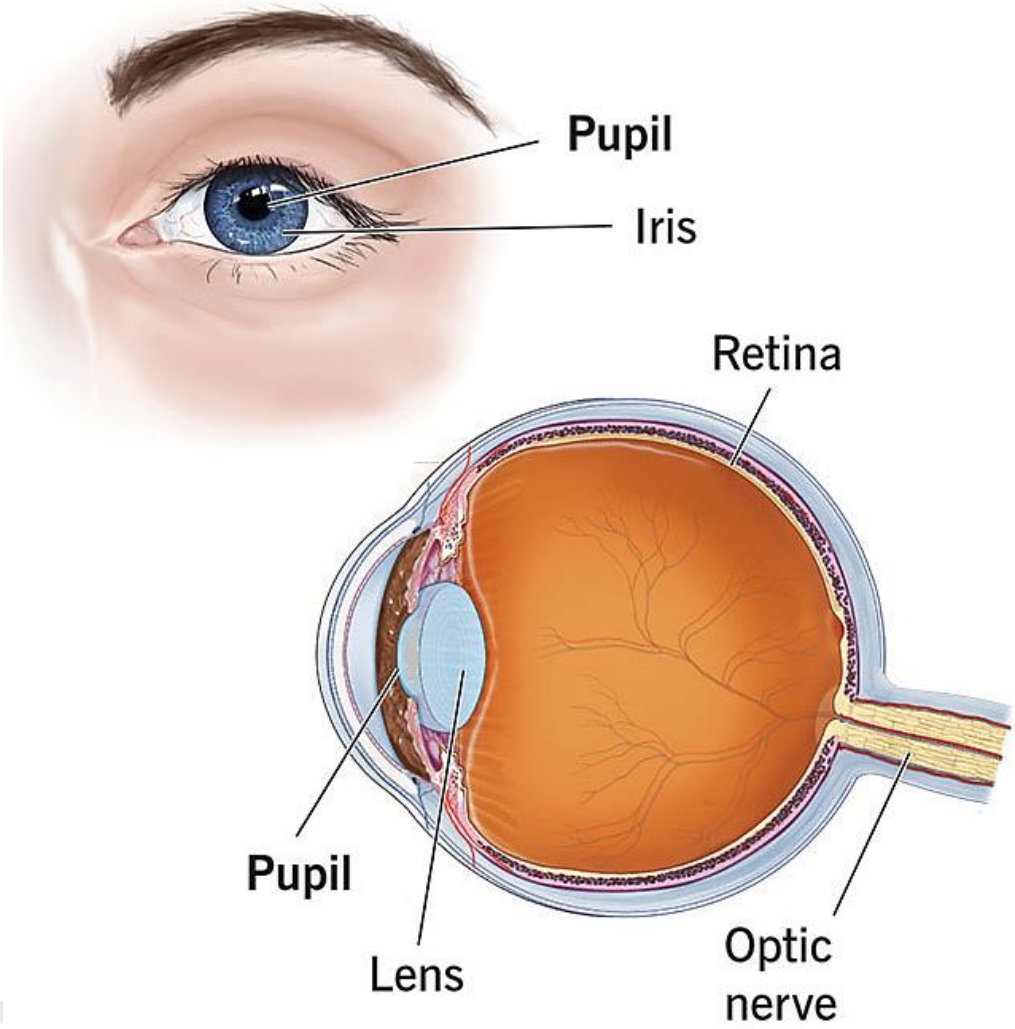


Disorders of Iris

- **coloboma (a gap or hole in the iris)**
- **aniridia (partial or complete absence of the iris)**
- **heterochromia (different colored irises in the same individual).**

بؤبؤ العين PUPIL

The pupil is the opening located in the center of the iris of the eye. It appears as a black circle that allows light to enter the eye and reach the retina.



1. Function

- **The primary function of the pupil is to regulate the amount of light entering the eye. In bright light conditions.**
- **The pupil constricts (becomes smaller) to limit the amount of light reaching the retina. In low light conditions.**

- **The pupil dilates (becomes larger) to allow more light to enter and reach the retina.**

2. Size variation

- **in normal room lighting, its diameter around 3-4 mm.**
- **in bright light conditions, its diameter about 1.5 mm**
- **in very low light conditions, its diameter about 8 mm**