

# Leukocoria

## WHAT IS LEUKOCORIA?

Leukocoria literally means "white pupil." It occurs when the pupil (the round hole in the colored part of the eye) is white rather than the usual black [See figure 1].



Fig. 1: Leukocoria occurs when the pupil is white rather than the usual black.

## HOW IS LEUKOCORIA DETECTED?

In more obvious cases a white pupil may be detected simply by looking at a child's eye in good lighting. In other situations, the pupil may appear white only in certain circumstances such as when the pupil becomes larger in a darkened room or when the child looks a particular direction. Sometimes leukocoria is detected from photographs using a flash when one pupil has an abnormal or "white reflex" compared to the other eye having a normal "red reflex." Lastly, a routine pediatrician exam can catch leukocoria, specifically when they look into the eyes with a special instrument called an ophthalmoscope.

## WHAT IS A RED REFLEX?

When light enters the eye through the pupil, the retina absorbs most of the light. A small amount of light, however, is reflected by the retina back out of the eye through the pupil. The light is reddish orange, reflecting the color of normal retina. The "red reflex" is most easily seen when the observer's line of sight is aligned with the light source into the eye. An example is a camera in which the flash is mounted very close to the lens resulting in photographs with red pupillary reflexes.

The red reflex is either absent or white with leukocoria. This occurs because of abnormal reflection or blockage of light coming out of the eye. Pediatricians will refer



patients with “abnormal red reflex” on their exam for a more thorough exam by a pediatric ophthalmologist.

### HOW DOES AN OPHTHALMOLOGIST DETECT LEUKOCORIA?

Ophthalmologists utilize an ophthalmoscope to directly visualize the interior of the eye. Dilating eye drops are generally used to enlarge the pupil which enables a more thorough examination.

### WHAT CONDITIONS CAUSE LEUKOCORIA?

Many conditions cause leukocoria including [cataract](#), retinal detachment, [retinopathy of prematurity](#), intraocular infection (endophthalmitis), retinal vascular abnormality (such as Coat’s Disease), and intraocular tumor ([retinoblastoma](#)). Not infrequently, a referral for an abnormal red reflex ends up being nothing or something minor such as a difference in the power between the eyes, but it always warrants a careful, dilated exam to rule out the more concerning conditions listed above.

### ARE ANY OF THESE CONDITIONS SERIOUS?

All diseases which cause leukocoria represent a serious threat to vision and some pose a threat to life. Prompt evaluation of leukocoria by an ophthalmologist is always appropriate.

### HOW IS LEUKOCORIA TREATED?

Management of leukocoria involves treatment of the underlying condition (cataract, retinal detachment, infection, etc) responsible for the white appearing pupil.

Updated 05/2022