

PhotoScreener, Inc.



One in 20 children, approximately five million in the United States alone, has a serious eye disorder that can lead to a lifetime of impaired vision or even blindness.

Early vision screening
enables treatment when it
can still be effective.

Without early intervention and treatment, children with eye disorders will suffer from learning disabilities and possibly permanent vision damage, as well social, emotional, and educational disadvantages. If a child with an eye disorder reaches a certain age, the likelihood of effective and successful treatment decreases drastically. The sooner a problem is detected, the easier it is to treat—or even cure.



816 South Queen Street, Lancaster, PA 17603
717-548-0261; Fax 717-548-0263
www.photoscreener.com



The PhotoScreener™ is a simple yet effective vision screening system for children. It is a fully portable, battery-operated camera especially designed for the detection of vision disorders in young and even preverbal children and infants. It can screen for conditions that can lead to disorders such as “lazy eye” (amblyopia), crossed eyes (strabismus), and other visual disorders. All of these conditions can be treated if detected at an early age when treatment is most effective.

The PhotoScreener™ uses the process of “photo refraction” and features a unique focusing system and flashing fixation light to assure accuracy. The results are instantly produced on high speed Polaroid® film. Results can be interpreted by trained laypersons and lead to referrals to ophthalmologists for further diagnosis and treatment.

Every PhotoScreener™ is shipped in a hard-sided carrying case with a custom-cut foam interior and includes the camera, comprehensive manuals on operating the camera and interpreting the photos, an AC/DC charger and one box of Polaroid® film. Each case has ample room inside for the storage of film. The system is compact and ready to use. Each PhotoScreener™ comes with a one year warranty.

Common Eye Disorders

Amblyopia, or “*lazy eye*,” is a difference in the images sent to the brain from each eye. The brain “discards” the blurry or unfocused image in favor of the “correct” image. Over time the weaker eye’s development slows down. Amblyopia is usually treated with eye patch therapy, glasses, or in some cases eye surgery.

Strabismus, or “*crossed eyes*,” can result in the two eyes crossed inward toward the bridge of the nose, or one pupil crossed upwards, downwards, or to the far edge of the eye (“*wall eye*.”) Children with strabismus will often turn their eyes or tilt their head, and may complain of frequent headaches. Strabismus is treated through patching, glasses, or surgery.

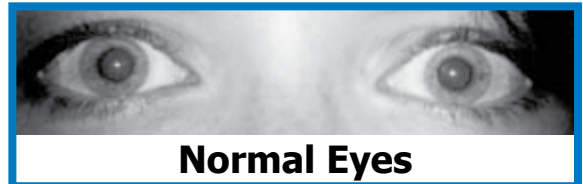
Refractive Errors include **Myopia** (*near-sightedness*), **Hyperopia** (*far-sightedness*), and **Astigmatism**. These conditions occur when there are problems in the way the lens and the cornea focus light on the retina. Light rays bringing images to the brain need to be focused directly on the center of the retina. In myopia, the light rays focus toward the front of the retina, while in hyperopia, they are focused behind. Astigmatism occurs when the cornea’s shape is distorted, so that the light reflection to the retina is distorted as well. Refractive errors are most often treated with glasses, contact lenses, or in some cases by flexing the eye muscles inside the eye.

Media Opacity occurs when the cornea, lens, and other clear, refractive areas of the eye become “opaque” leading to blurry vision and/or reduced visual acuity.

Anisometropia occurs when a child’s eyes have unequal vision, such as when one eye is near-sighted and the other is far-sighted. Anisometropia can lead to amblyopia if left untreated.

Photo Interpretation

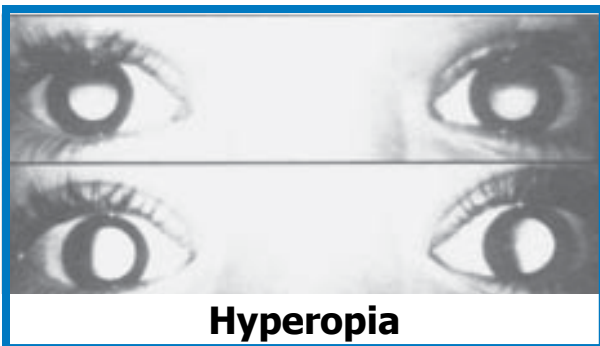
The photo refractive images produced by the camera reveal the presence of eye disorders through viewing the image of the child's pupil. For example, if you look at the photo of the normal eyes, the light in the child's pupils appears symmetrical and there is a uniform dark gray appearance to the pupils and no visible "crescents" of light. In the photo of the child with strabismus, the light crescents in the cornea are asymmetric and the brightness/darkness of the gray area around the pupils differs.



Normal Eyes



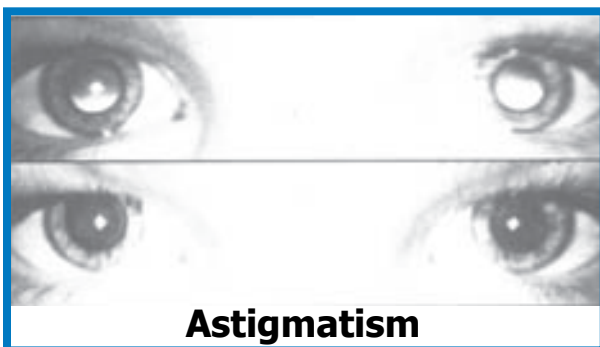
Strabismus



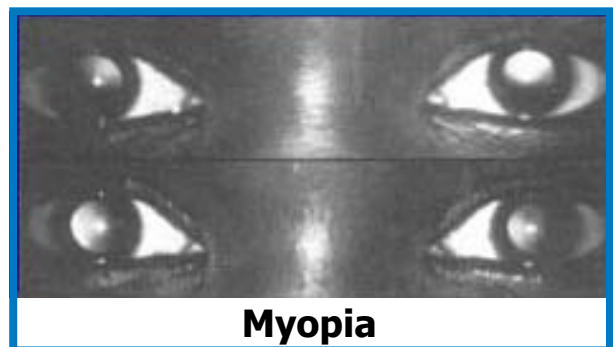
Hyperopia

Another feature of the PhotoScreener is its dual picture mechanism. Once a photo is taken, the camera lens rotates 90 degrees and a second photo is taken, so two images appear on one photo. This is required to screen for astigmatism. The photo of the child with hyperopia reflects what a typical PhotoScreener™ image looks like. In this photo, the white crescents in the child's eyes appear at the bottom of the pupil in the top image and towards the right of the pupil in the bottom image, an indication that a child most likely would benefit from a diagnosis by an ophthalmologist.

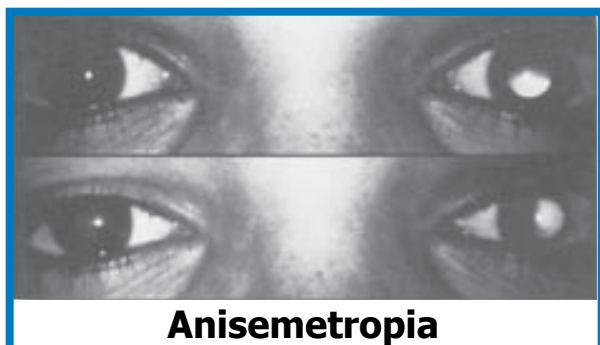
Examples of Images of Other Vision Disorders



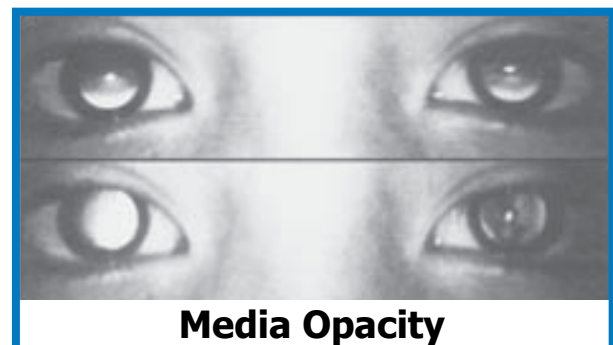
Astigmatism



Myopia



Anisometropia



Media Opacity

The PhotoScreener™

Fixation Button

Activates a bright flashing light that attracts the child's attention and assures proper visual fixation.

Control Panel

Lights indicate the camera's status during the screening procedure.

Shutter Button

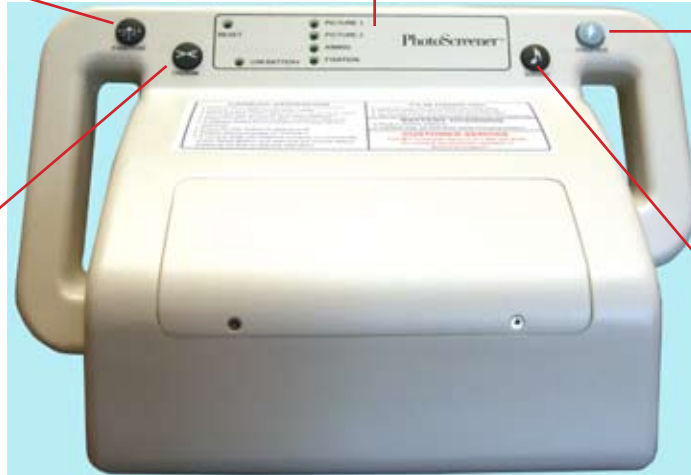
Takes the photograph and will only function if the aiming lights and the fixation lights are on.

Aiming Lights Button

Activates two lights which are focused on the child's forehead and assures precise aiming and focal distance.

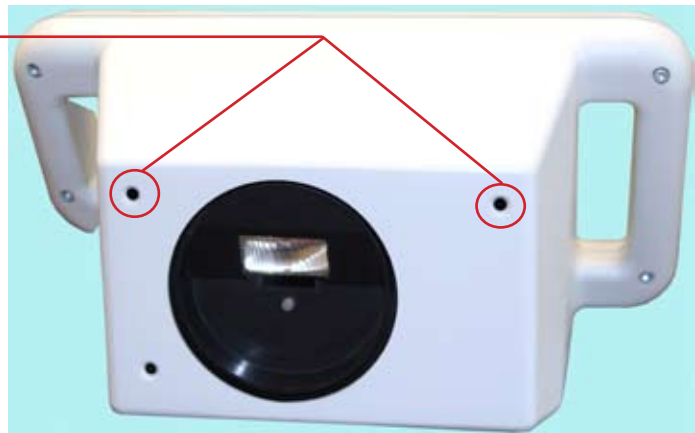
Sound Button

Activates a musical tune that attracts the child's attention and assists in assuring proper visual fixation.



Aiming Lights

Two beams of light project from the camera and are focused on the child's forehead. The camera is moved backwards and forwards until the two arrows of light converge, at which point the camera is focused and correctly positioned.



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