Eye exercises

**Orthoptics** (from the Greek words *ortho* meaning "straight", and *optikas* meaning "vision") is a discipline dealing with the diagnosis and treatment of defective eye movement and coordination (such as nystagmus), binocular vision, and amblyopia by eye care professionals. There are five areas of treatment for orthoptic problems:

- corrective lenses (spherical, cylindrical lens, prismatic and Fresnel lenses)
- strabismic-related orthoptics as an "eye exercise" is limited to the treatment of eye coordination problems by increasing the range of binocular fusion.
- eyepatching
- pharmaceuticals, such as cycloplegics
- surgery

However the term *orthoptics* is sometimes used to refer simply to eye exercises which are a component of strabismic-related vision therapy.

**Orthoptists**

Orthoptists are Eye care professionals who specialise in the diagnosis and management of binocular vision problems alongside Ophthalmologists. Orthoptists are represented worldwide by the International Orthoptic Association. Orthoptics is usually studied as a primary or master's degree, or as a 2 to 4 years post graduate training course. Orthoptists usually work in close cooperation with Ophthalmologists, pediatricians, and sometimes neurologists. Continuing professional development and registration is required in most countries.

**History**

Orthoptists and ophthalmologists introduced a wide variety of techniques for the improvement of binocular function in the 1930s. The first pioneer was Mary Maddox, the daughter of an English ophthalmologist.

The orthoptic health care profession evolved and specialised as scientific development increased in the diagnosis, management and pre/post-surgical care of patients with strabismus, binocular vision abnormalities and specific pediatric disorders. Because of their lower prevalence and variational presentation, these were beyond the realm of a primary eyecare consultation at a spectacle shop (where most Optometrists work) and beyond the Ophthalmologists' demanding surgical workload and practice. Hence, Orthoptists began to specialize in hospitals with these problems throughout more than 20 countries.

**Current orthoptic practice**

Orthoptists are mainly involved with diagnosing and managing patients with binocular vision disorders which relate to amblyopia, extraocular muscle balance such as with version, refractive errors, vergence, accommodation imbalances, (positive relative accommodation, negative relative accommodation) and pathological causes. They work closely with ophthalmologists to ensure that patients with eye muscle disorders are offered a full range of treatment options. According to the International Orthoptic Association, professional orthoptic practice involves the following:

- **Primary activities**
  - Ocular motility diagnosis & co-management
  - Vision screening
  - Assessment of special needs
  - Assessment and rehabilitation in neurological disorders
Eye exercises

The eye exercises used in vision therapy can generally be divided into two groups; those employed for strabismic outcomes and those employed for non-strabismic outcomes, to improve eye health.

Some of the exercises used are

- Near point of convergence exercises (i.e. "pencil push-ups"),
- Base-out prism reading, stereogram cards, computerized training programs are used to improve fusional vergence.
- The wearing of convex lenses
- The wearing of concave lenses

"Cawthorne Cooksey Exercises" also employ various eye exercises, however, these are designed to alleviate vestibular disorders, such as dizziness, rather than eye problems.

Orthoptists and Ophthalmologists use of eye exercises

Orthoptists and Ophthalmologists primarily use eye exercises that relate to strabismus treatments.

Physical therapy:

- To reduce muscle contracture in an eye muscle palsy; assess action following ocular muscle surgery or botox injection.

Fusional Amplitude and Relative Fusional Amplitude training:

- Designed to alleviate convergence insufficiency, intermittent exotropia[28] or other less common forms of strabismus.

The consensus among Ophthalmologists, Orthoptists and Pediatricians is that "visual training" in non-strabismic Visual therapy lacks documented scientific evidence of effectiveness.[29] [30] Although Ophthalmologists and Orthoptists believe that exercises can improve binocular vision control, they believe it does not purely improve monocular visual acuity such as that in amblyopia (rather, occlusion is the therapy of choice)[31], change a person's refractive error, improve general physical fitness or agility or improve intelligence. It is probable that they do not change the accommodative/convergence ratio or enable someone to develop the ability for stereopsis. It is likely that they do not change the amplitude of accommodation to postpone or delay presbyopia.[32]
Behavioral Optometrists use of eye exercises

Practitioners in Behavioral optometry (also known as Functional optometrists or optometric vision therapists) practice methods that have been characterized as a complementary alternative medicine practice. A review in 2000 concluded that there were insufficient controlled studies of the approach and a 2008 review concluded that "a large majority of behavioural management approaches are not evidence-based, and thus cannot be advocated."[35]

Other forms of eye exercise

Do-it-yourself eye exercises are claimed by some to improve visual acuity by reducing or eliminating refractive errors. Such claims rely mainly on anecdotal evidence, and are not generally endorsed by orthoptists, ophthalmologists or optometrists.[36][37]

See also

- Eye care professional
- International Orthoptic Association
- Convergence insufficiency
- Diplopia
- Pediatric ophthalmology
- Strabismus
- Eyepatch
- Exotropia
- Esotropia
- Haploscope
- Glasses
- Vision therapy
- Bates method
- Pinhole glasses

References

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