



## Eye-Related Quackery

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Since ancient times, many people have held the mistaken belief that poor eyesight can be cured by special eye exercises. This belief was brought to its highest state of fruition by a one-time reputable physician, William Horatio Bates, M.D., who in 1920 published [The Cure of Imperfect Eyesight by Treatment Without Glasses](#).

In 1917, Bates teamed up with Bernarr Macfadden, a well known food faddist who published the magazine *Physical Culture*. Together they offered a course in the Bates System of Eye Exercises for a fee that included a subscription to the magazine. This venture met with considerable success and led many people to believe in the Bates System. However, the big impact of Bates's work materialized after publication of his book. This book attracted large numbers of charlatans, quacks, and gullible followers who then published scores of unscientific books and articles of their own on the subject of vision. Extolling the Bates System, these authors urged readers to "throw away" their glasses. Some of these writers even established schools.

Contrary to scientific fact, Bates taught that errors of refraction are due, not to the basic shape of the eyeball or the structure of the lens, but to a functional and therefore curable derangement in the action of the muscles on the outside of the eyeball. All defects in vision, he said, were caused by eyestrain and nervous tension; and perfect vision could be achieved by relaxing the eyes completely. Bates warned that eyeglasses cause the vision to deteriorate; he also deplored the use of sunglasses. Bates claimed his exercises could correct nearsightedness, farsightedness, astigmatism, and presbyopia (the inability of older people to focus their eyes on nearby objects). They could also cure such diseases as cataracts, eye infections, glaucoma, and macular degeneration. His exercises included palming (covering the eyes and attempting to see blackness) and shifting or swinging the gaze from object to object.

It should be obvious that these exercises cannot influence eyesight disorders as Bates claimed. Nearsightedness, farsightedness, astigmatism, and presbyopia result from inborn and acquired characteristics of the lens and the eyeball—which no exercise can change. As for eye diseases, the only thing the exercises can do is delay proper medical or surgical treatment and result in permanent impairment of vision. The claims Bates made in advertising his book were so dubious that in 1929 the Federal Trade Commission issued a complaint against him for advertising "falsely or misleadingly."

After Bates died in 1931, his office and teaching practices were taken over very successfully by his wife Emily with the help of Dr. Harold M. Peppard. Mrs. Bates had worked with her husband for a number of years, and Peppard was an ardent advocate of the Bates System. An edited version of Dr. Bates's book was published in 1940 as *Better Eyesight Without Glasses*. This version was revised several times and is still in print. Its recommendations include "sun treatment" in which the sun is permitted to shine on closed eyes and then on the sclera (white portion of the eye) while looking downward. The book states: "One cannot get too much sun treatment."

Other dubious promoters followed Bates's path. One of the best known was Gayelord Hauser, popular food faddist and Hollywood favorite, who in 1932 published *Keener Sight Without Glasses*. By combining eye exercise and diet theories, Hauser furthered the sale of his own dietary products.

In the mid-1950s, Philip Pollack, OD, a prominent optometrist in New York City, wrote a [blistering critique of the Bates System](#) [1]; and the vast majority of optometrists and ophthalmologists regard Bates's notions as wrong. Yet Bates still has advocates today. Some cling to "traditional" Bates techniques, while others use expensive computerized biofeedback machines. Their promotion is not limited to books and magazine articles but includes direct-mail campaigns with glossy brochures and toll-free numbers, pitching similar programs with new gadgets and mail-order videos. Beware of "Institutes" using well-known college towns in their names or "doctors" with dubious credentials, such as one we encountered with a degree from the "University in California" (not the University of California).

### Vision Therapy

Like Bates, "Vision therapists" claim to strengthen eyesight through a series of exercises. In contrast to Bates' use of relaxation, vision therapists promote active exercises. They emphasize exercising focusing, eye pointing and eye movement skills. Exercises may include eye-hand coordination drills, watching a series of blinking lights, staring at colored lights (Syntonics), bouncing on a trampoline and even sleeping in a certain position. Often they prescribe bifocal and prism glasses to prevent or cure nearsightedness. In addition to promising to eliminate glasses, they claim that these methods can also improve school and athletic performance, increase I.Q., help overcome learning problems and attention disorders and even prevent juvenile delinquency. However, no scientific evidence supports such claims [2-4].

In 2009, the United Kingdom's College of Optometrists evaluated ten types of controversial eye-related programs claimed to improve visual, mental, neurological, and behavioral problems: (a) vision therapy for accommodation/convergence disorders; (b) vision therapy for dyslexia and other forms of academic underachievement; (c) prisms for near binocular disorders and for producing postural change; (d) near point stress and low-plus prescriptions; (e) use of low-plus lenses for close work to slow the progression of myopia; (f) exercises to reduce myopia; (g) behavioral approaches to treating strabismus and amblyopia; (h) training central and peripheral awareness and syntonics; (i) sports vision therapy; and (j) neurorehabilitation after trauma/stroke. The reviewers concluded:

There is a continued paucity of controlled trials in the literature to support behavioural optometry approaches. Although there are areas where the available evidence is consistent with claims made by behavioural optometrists (most notably in relation to the treatment of convergence insufficiency, the use of yoked prisms in neurological patients, and in vision rehabilitation after brain disease/injury), a large majority of behavioural management approaches are not evidence-based, and thus cannot be advocated [5].

There is a proven segment of vision therapy known as orthoptics which can help with symptoms of visual strain or fatigue in individuals with mild eye coordination or focus problems (including convergence insufficiency), double vision, or even strabismus ("crossed" or turned eyes) and amblyopia ("lazy eye") [6-9]. Many optometrists, ophthalmologists, and Certified Orthoptists offer orthoptic diagnostic and treatment services.

Vision therapists who refer to themselves as "developmental" or "behavioral" optometrists assert that most vision disorders are the result of learned or environmental factors and can be corrected through eye training. For example, they may suggest biofeedback training to reverse nearsightedness or recommend low-power glasses ("learning lenses") to children with reading problems. The initials C.O.V.D. after a practitioner's name refer to the College of Optometrists in Vision Development, which is a national organization that provides training, promotional, and referral services for its members. Another proponent group is the Optometric Extension Program (O.E.P.), which began as the Oklahoma Extension Program in the 1920s. O.E.P. has contributed greatly to advancing the optometric profession by providing optometrists with postgraduate continuing education. In recent years, however, its programs have emphasized "behavioral optometry" and vision therapy. Even though there is no scientific evidence that vision therapy can improve academic performance, the public relations activities of these two organizations have persuaded many teachers and counselors to refer children with dyslexia to a behavioral or developmental optometrist.

Dyslexia, a term that is often misunderstood, simply refers to severe reading problems in an otherwise normal person. Reading experts have identified many causes of dyslexia, with the majority related to the brain's ability to interpret the sound of spoken words or to process language information rapidly [10-14]. Because reading involves sight, teachers and parents often incorrectly assume that vision problems are the cause of reading problems. Vision and eye-coordination problems, however, are not the cause of dyslexia. Glasses can help if a child has trouble focusing on words, but they are often prescribed unnecessarily. Muscle-strengthening exercises (orthoptics) may help relieve fatigue symptoms if a mild eye coordination or focusing problem exists, but exercises to improve "coordination" are not helpful for dyslexia. The preponderance of studies have found that vision-related training has no effect or even a negative effect on **learning** to read [2-4].

Parents often abandon common sense in their quest to help their struggling children and are easy prey for therapists promising a cure [15]. A few years ago, a vision training program was promoted in supermarkets with "tear-off" advertisements targeted to unsuspecting parents. The practitioner, boasting that vision training is a low-cost, high-profit specialty, claimed that he generated close to \$950,000 in new billings during the first twelve months of the supermarket campaign [16].

Promises of dramatically improved reading speed are often made by vision therapists and speed-reading courses. If you can read but have symptoms of fatigue or read slowly, these programs may help. However, they are unlikely to double or triple your speed, as is typically claimed. Studies have shown that many people can gain 20 to 50% in speed and experience more comfort while reading with the proper glasses and vision therapy if needed [6,17,18].

Many self-help books are aimed at people who want to improve their eyes "naturally" without glasses. They include *Dr. Friedman's Vision Training Program*, *Lisette Scholl's Visionetics: The Holistic Way to Better Eyesight*, *Taber's Eye-Robics*, and *Dr. Salov's Hidden Secrets for Better Vision*. All such programs are long on claims and short on evidence that any of them will actually improve the user's vision.

Similar claims were made for the [See Clearly Method](#) kit, which the American Vision Institute (AVI) developed and licensed to Vision Improvement Technologies (VIT). [19] This product, which appears to combine Bates and vision therapy techniques, included an instruction manual, daily progress journal, eye exercise card, and video and audio tapes. From 1999 through 2006, VIT's Web site claimed that the product was "designed to improve nearsightedness, farsightedness, presbyopia, astigmatism, and eyestrain. One page, for example, stated:

It's quite simple, really. If you don't exercise your body, your muscles get weaker, right? Well, there are muscles inside and outside your eyes as well. When they become weaker—from the crutch of glasses or contacts, close work like reading and using computers, or just the aging process itself—your vision gets worse. By strengthening your eye muscles, the See Clearly Method techniques help you improve your vision [20].

In 2005, the Iowa Attorney General filed a lawsuit accusing VIT and its principals of making false claims and failing to give timely refunds for the See Clearly Method [21]. In 2006, the case was settled with a consent agreement under which the defendants admitted no fault but were ordered to stop sales in Iowa and to pay \$200,000 for restitution and \$20,000 to the state's consumer

fraud enforcement fund [22].

## Dubious Diagnosis

**Iridology** is based on the notion that each area of the body is represented by a corresponding area in the iris of the eye (the colored area surrounding the pupil). Iridologists claim that states of health and disease can be diagnosed according to the color, texture, and location of various pigment flecks in the eye. Iridology practitioners purport to diagnose "imbalances" and treat them with vitamins, minerals, herbs, and similar products. They may also claim that the eye markings can reveal a complete history of past illnesses as well as previous treatment.

Most iridology practitioners are chiropractors and naturopaths, but laypersons who do "nutrition counseling" also are involved. Bernard Jensen, D.C., the leading American iridologist, states that "Nature has provided us with a miniature television screen showing the most remote portions of the body by way of nerve reflex responses." He also claims that iridology analyses are more reliable and "offer much more information about the state of the body than do the examinations of Western medicine." However, in two large studies, Jensen and seven other prominent iridologists could not distinguish between patients who had kidney or gallbladder disease and those who were healthy. Nor did they agree with each other about which was which [23,24]. This is not surprising, because there is no known way that body organs could be represented at specific locations in the iris.

## Other Unproved Methods

Pressing on the eyes or surrounding bones has been a perennial favorite for all manner of eye disease. John Quincy Adams once wrote a paper claiming this method could return the "convexity of youth" and eliminate the need for reading glasses. Small "eye-stones" placed under the lids were popular until the early 1900s. Chiropractors who use "craniopathy" or "neural organization technique" claim that vision and eye coordination can be improved by manipulating ("adjusting") the eyes and skull. Current devices include the "Natural Eye Normalizer" for massaging the eyelids, and a pneumatic bag for placement over the head to cure all visual problems.

The use of color to treat various ailments, including those affecting the eye, has been promoted for many years. Edwin Babbit popularized the use of colored light with his book *The Principles of Light and Color: The Healing Power of Color* published in 1878. Today's practice of "syntonics"—also called "photoretinology"—evolved from these theories. Its practitioners use expensive machines to direct various pulsating colored lights into the eyes, claiming to cure optical errors, eye coordination problems, and even general health problems! There is no scientific evidence to support these claims.

Another approach involving color has been popularized by Helen Irlen, a marriage, family and child counselor, who has appeared on CBS-TV's "60 Minutes" and franchised more than 2,000 individuals and clinics nationwide since 1983. She claims that "scotopic sensitivity syndrome" is a leading cause of learning problems and affects 65% of those with reading problems (dyslexia), and can be remedied with colored eyeglasses. Her recommended diagnosis and treatment can cost more than \$500. I do not believe that Irlen's theory or claimed success rates have been scientifically substantiated, a position also supported by the American Optometric Association [25] Although many studies of her methods have been reported, many have methodologic flaws such as lack of a control group and the results do not give a clear consensus [26-28]. One study finds that "lens color was not a critical diagnostic factor" just a reduction in contrast was important [29]. Poor test-retest reliability has been reported raising questions about diagnostic methods [30]. Another study reports an increase in comprehension but not reading rate [31]. Another reports modest gains in both (12% in rate and 7% in comprehension) with colored overlays [32], and yet another well designed study produced no change in rate, accuracy or comprehension [33]. Several studies suggest that inexpensive blue tinted overlays may be beneficial [33,34]. However, a more recent study has shown no improvement in rate or comprehension with blue filters [35]. Some studies question the prevalence of "scotopic sensitivity syndrome" when other factors are ruled out [36,37].

Overall, these studies indicate that fewer than 5% of readers who experience discomfort benefit from a change in contrast, brightness, or color on the page beyond what would be expected from a placebo treatment alone. Remember that even if a treatment makes the print more comfortable to look at, proper reading instruction is still needed to improve reading skills.

Several entrepreneurs have marketed "pyramid" or "pinhole" glasses consisting of opaque material with multiple slits or perforations. The "technology" involved has been known for centuries and was used before glass lenses were invented. Light passing through a small hole (or holes) is restricted to rays coming straight from the viewed object; these rays do not need focusing to bring them to a point. Modern promoters claim their products are better than conventional lenses. Actually, both reduce the focus effort needed to read, but pinhole glasses are much less useful because they restrict contrast, brightness, and the field of view [38]. Worn as sunglasses, they can even be harmful because the holes allow damaging ultraviolet rays to reach the eye.

## Regulatory Actions

In 1992, the Missouri Attorney General obtained a consent injunction and penalties totaling \$20,000 against a New York company that sold "aerobic glasses." These glasses, which sold for \$19.95 plus postage and handling, had black plastic lenses with tiny holes. The company's ads had falsely claimed that its "Aerobic Training Eyeglass System exercises and relaxes the eye muscles through use of scientifically designed and spaced 'pin dot' openings that change the way light enters the eye." The company had also advertised that continued wear and exercises should enable eyeglass wearers to change to weaker prescription lenses and reduce the need for bifocals or trifocals.

In 1997, the FTC obtained a [consent agreement](#) banning misleading claims optometrists were making for orthokeratology devices and "Precise Corneal Molding" ("PCM") services, which involved the use of a series of contact lenses purportedly to reshape the cornea gradually for the treatment of nearsightedness, farsightedness, and astigmatism. No such device can permanently reshape the cornea.

In 1997, Richard C. Davis, Jr., M.D., opened RheoTherapyCenters of Tampa Bay, Florida (a subsidiary of OccuLogix Corporation) which offered a "revolutionary" treatment for age-related macular degeneration (AMD) of the eye. AMD is a disease in which pathologic changes in the macula result in loss or reduction of central vision. It is a leading cause of vision loss in the elderly. Laser coagulation may slow progression of the disease, but there is no known cure. OccuLogix advertised that rheotherapy "removes toxic proteins and fatty substances" from the blood, thereby allowing increased blood flow to the macula; and a clinic videotape stated that rheotherapy had been shown to be effective in the vast majority of patients with macular degeneration who had undergone the treatment. A few months later, the Florida Board of Medicine concluded that (a) these claims were unsubstantiated, (b) the procedure was "experimental," and (c) Davis's practice constituted "an immediate and serious danger to the health, safety and welfare of the public." [39] However, while the Board continued to investigate, Davis was permitted to continue offering the treatment so long as patients were informed that it was experimental. In 1999, RheoTherapy Centers was closed and Davis signed a consent agreement with the Board under which he agreed to: (a) pay an administrative fine of \$10,000, (b) perform 50 hours of community service, and (c) not to provide apheresis or any other clinical services for AMD (except within the context of an FDA-approved clinical trial) unless and until such treatment is cleared by the FDA [40]. [OccuLogix Corporation](#) abandoned the term "rheotherapy" and sponsored an FDA-approved clinical trial of a plasma filtration process it calls "rheopheresis," which differed from the procedure Davis used. But in 2007, the company announced that it had "indefinitely suspended its RHEO™ System clinical development program in Dry Age-Related Macular Degeneration." [41] Davis died in 2017.

### Stick with Proven Treatment!

There is one rational method of eye training and eye exercises—orthoptics—carried out under competent optometric and medical supervision to correct coordination or binocular vision problems such as "crossed eyes" and amblyopic ("lazy") eyes. If the muscles that control eye movements are out of balance, the function of one eye may be suppressed to avoid double vision. (The suppressed eye is called an "amblyopic" eye.) Covering the good eye can often stimulate the amblyopic eye to work again to provide binocular vision for the patient. Orthoptics, surgery, or a combination of the two often can improve problems in pointing and focusing the eyes due to poor eye-muscle control.

Remember: no type of eye exercise can improve a refractive error or cure any ailment within the eyeball or in any remote part of the body. If you are considering a vision training program, request a written report detailing the problem, the proposed treatment plan, an estimate of the time and costs involved, and the prognosis. If the plan is not targeted toward a specific visual problem (such as amblyopia), or if it includes a broad promise such as improving I.Q., forget about it. If you are not sure what to do, invest in a second opinion, preferably from a university-affiliated practitioner.

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This article was updated and expanded from a corresponding chapter in [The Health Robbers: A Close Look at Quackery in America](#). Dr. Worrall, who practices optometry in Colfax, California, is assistant clinical professor at the School of Optometry, University of California, Berkeley, and is a board member of the National Council Against Health Fraud. Dr. Nevyas, now deceased, taught biochemistry at the Pennsylvania College of Optometry and edited scientific publications. The sections on iridology and regulatory actions were added and updated by Dr. Barrett.

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