THE DOUBLE VISION DILEMMA:
Solving The Binocular Vision Pandemic

By Tod R Davis, OD
Developmental Optometrist
A little about my own vision

- Poor reading comprehension in school and my style of study (underlining, note cards, etc).
- Discovered in OD school that my binocular vision difficulty caused the reading problem.
- Vision therapy successful.
What is Vision?

VISION IS MORE THAN “20/20”

“20/20” clarity at 20 feet

BUT most classroom learning occurs at about 20 inches.
What is this?
Moo!
What is Vision?

"Sight is what our eyes see.
Vision is what our mind understands what we see."

From Ricki G. Robinson, MD, MPH, Clinical Professor of Pediatrics USC (CA) Co-director of the Descanso Medical Center for Development and Learning.
What is Vision?

Vision is our Dominant Sense

“The brain receives about 3 million bits of information at every moment, and 2 million of these are processed by vision”.

From V. S. Ramachandran MD, PhD
What is Vision?

Acquiring a functional visual system is a developmental process."

From Ricki G. Robinson, MD, MPH, Clinical Professor of Pediatrics USC (CA) & co-director of the Descanso Medical Center for Development and Learning.
What is Vision?

“Vision is the key to a child’s whole development...”

From Vision: It’s Development in Infant and Child
By Arnold Gesell, M.D.
What is Vision?

“When we open our eyes each morning, it is upon a world we have spent a lifetime learning to see.”

Oliver Sachs MD
What causes vision problems?

Birth history

Developmental history

Medical history
What causes vision problems?

*Stress* from long-term *comprehensive* near work, including computers. AOA estimates 80% + of class work is visual.
Convergence Insufficiency
What is Convergence Insufficiency (CI)?

- Inability to converge both eyes for near tasks
- or -
- Inability to sustain convergence during near tasks
How common is Convergence Insufficiency?

About **8%** of population, or **1 in 12**

Affects over **21 million** in US alone

*More common than* glaucoma *in children*

Glaucoma in children is **1 in 43,575**

*More common than* amblyopia *in children*

Amblyopia in children is **1 in 50**.
### Symptoms/Signs of CI

#### 30 -item checklist

**Standardized:**

If 20 points or above, suspicion of vision problem.

**Very reliable.**

#### 30 Question Predictive Checklist

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Never</th>
<th>Seldom</th>
<th>Occasional</th>
<th>Frequently</th>
<th>Always</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blur when looking at near</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Double vision, doubled or overlapping words on page</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Headaches while or after doing near vision work</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Words appear to run together when reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Burning, itching or watery eyes</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Falls asleep when reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Seeing and visual work is worse at the end of the day</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Skips or repeats lines while reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Dizziness or nausea when doing near work</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Head tilts or one eye is closed or covered while reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Difficulty copying from the chalkboard</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Avoids doing near vision work such as reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Omits (drops out) small words while reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Writes up or down hill</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Misaligns digits or columns of numbers</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Reading comprehension low, or declines as day wears on</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Poor, inconsistent performance in sports</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Holds books too close, leans too close to computer screen</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Trouble keeping attention centered on reading</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Difficulty completing assignments on time</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>First response is “I can’t” before trying</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Avoids sports and games</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Poor hand/eye coordination, such as poor handwriting</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Does not judge distances accurately</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Clumsy, accident prone, knocks things over</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Does not use or plan his/her time well</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Does not count or make change well</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Loses belongings and things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Car or motion sickness</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Forgetful, poor memory</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>20</td>
</tr>
</tbody>
</table>

20-24 points = suspect  
25 points or more=refer for care  

For information, contact Tod R Davis, O.D. 703-753-9777, www.davisvisiontherapy.com  
Or learn more from these organizations: OEP.org  COVD.org  PAVE.org
Symptoms/Signs of CI

DOUBLE VISION
Words appear to run together, move.
Symptoms/Signs of CI

DOUBLE VISION

This is a demonstration of what it is like to see print the way someone with double vision would see it.
Symptoms/Signs of CI

Not Autistic or Hyperactive. Just Seeing Double at Times

LAURA NOVAK
New York Times
September 11, 2007
Symptoms/Signs of CI

Headaches, especially after near work.
Symptoms/Signs of CI

Skips lines
Uses finger past 2\textsuperscript{nd} grade.
VISION IS LEARNED-EXPERIENCE IT

created tiarn ooy rtieus hye ornionsp for hmtt fedrtir uuls sww btt tenyvoo oosel ideah glae ECM tyy oontac penit dule DGahea in sieas dis hihrualoefvacs demAictg sgs egfopi noo osa oest tdimpnf gav. kll got it noncrar ieg lnde eee uueeeho snoitietyerh hlyccm eyifkhdel erwhsteie dod saayuepe amtu uatteemhrke etcsreht riottenalheee arern mfvsiem ftth weeehhofehex hxx http yeccmetvimgntttdeh eelhiedy dieunov egrssiiivwmnoaa auoenc ihlomeethttTordie ciwdmaenrstihddpppitp rnyrltrolouiermflat eeyee bmaAnoseaifru xaanynhusr ypciaae eweaokseissstncppl dwvritttstliaue sitiretldnecorcls ifntooltierrwuet tfhehomeislfreisouyn Terpor? fequyyoi

Courtesy LPD, 1986 UPDDflul.DOC
Symptoms/Signs of CI

Head tilt
and/or
covers an eye.
Symptoms/Signs of CI

- Poor visual attention span
- Poor reading comprehension
Symptoms/Signs of CI

Difficulty completing assignments.

Homework wars!
Symptoms/Signs of CI

Kids' eye problems often emerge in homework battle

Lauran Neergaard
The Associated Press Medical Writer
Symptoms/Signs of CI

Research found that children with CI reported the following symptoms “fairly often” or “always” while reading or doing close work.

- Loss of place: 50%
- Loss of concentration: 45%
- Words blurring: 36%
- Headache: 32%
- Double vision: 32%
- Eyes feel sore: 21%
- Pulling feeling: 11%
Symptoms/Signs of CI

Performance related symptoms (e.g. loss of place, loss of concentration) occur more often than eye related symptoms (e.g. blur, headache, diplopia)
Symptoms/Signs of CI

Second most common symptom was loss of concentration, almost 50% reported this symptom fairly often or always. Strong connection with ADHD-like symptoms.
Symptoms/Signs of CI

High incidence of poor self confidence with CI as well as with visual processing disorders in general.

“I’m stupid”, “I can’t”
Impact Of Undiagnosed Vision Problems Including CI

The Relationship Between CI and ADHD

Summary:
3-fold incidence of ADHD with presence of CI, and a 3-fold incidence of CI in ADHD patients.

David B. Granet, MD FACS
FAAO FAAP,
Cintia F. Gomi, MD,
Ricardo Ventura, MD, and
Andrea Miller-Scholte, CO
Ratner Children’s Eye Center,
Department of Ophthalmology,
University of California, San Diego, CA, USA
Impact Of Undiagnosed Vision Problems

Kids with untreated strabismus, primarily exo deviations:

3 times chance of mental health problems as adults.

Mayo clinic, 2008
Not Autistic or Hyperactive. Just Seeing Double at Times

By LAURA NOVAK, Published: September 11, 2007

As an infant, Raea Gragg was withdrawn and could not make eye contact. By preschool she needed to smell and squeeze every object she saw.

Thor Swift for The New York Times

Raea Gragg, 9, needed therapy to help her eyes work together. “She touched faces and would bring everything to mouth,” said her mother, Kara Gragg, of Lafayette, Calif. “She would go up to people, sniff them and touch their cheeks.”

Specialists conducted a battery of tests. The possible diagnoses mounted: autism spectrum disorder, neurofibromatosis, attention-deficit hyperactivity disorder, anxiety disorder.

A behavioral pediatrician prescribed three drugs for attention deficit and depression. The only constant was that Raea, now 9, did anything she could to avoid reading and writing.

Though she had already had two eye exams, finding her vision was 20/20, this year a school reading specialist suggested another. And this time the ophthalmologist did what no one else had: he put his finger on Raea’s nose and moved it in and out. Her eyes jumped all over the place.

Within minutes he had the diagnosis: convergence insufficiency, in which the patient sees double because the eyes cannot work together at close range.

Experts estimate that 5 percent of school-age children have convergence insufficiency. They can suffer headaches, dizziness and nausea, which can lead to irritability, low self-esteem and inability to concentrate.

Doctors and teachers often attribute the behavior to attention disorders or seek other medical explanations. Mrs. Gragg said her pediatrician had never heard of convergence insufficiency.
Impact Of Undiagnosed Vision Problems

Learning-Related Vision Problems
Education and Evaluation

National PTA resolution
June 1999
Whereas

It is estimated that more than 10 million children (ages 0 to 10) suffer from vision problems;

and

Whereas,

Typical “vision” screenings only test for a few visual skills (i.e. 20/20 eyesight) leaving most visual skill deficiencies undiagnosed;
Whereas
Learning related vision problems,
when accurately diagnosed, can be
treated successfully and permanently;

and

Resolved
That National PTA...urge schools to include
in their vision screening programs
tests for learning-related visual skills
necessary for success in the classroom.
Impact Of Undiagnosed Vision Problems

25% of all school children in the U.S. have a vision problem significant enough to affect learning.

Vision and Learning,
American Foundation for Vision Awareness.
June 1, 2002
Impact Of Undiagnosed Vision Problems

In special education, at least 50% have vision problems.
Impact Of Undiagnosed Vision Problems

More than 70% of juvenile delinquents have untreated vision problems.

The Prevalence of Visual Conditions in a Population of Juvenile Delinquents

Harris, Paul OEPF 1989
Where's The Research?

More Effective Treatment Identified for Common Childhood Vision Disorder

Archives of Ophthalmology

October 13, 2008

Funded by

National Institutes of Health
National Eye Institute
Where’s The Research?

More Effective Treatment Identified for Common Childhood Vision Disorder

*Archives of Ophthalmology*

- Pencil push-ups and related convergence exercises are **no more effective** than a placebo
- Home-based “vision activities” including computer-based programs, **are no more effective** than a placebo
Where’s The Research?

More Effective Treatment Identified for Common Childhood Vision Disorder

Archives of Ophthalmology

- Prism reading glasses no more effective than a placebo
- Office-based VT in conjunction with home oriented activities is effective in treating CI.
- Subsequent research shows patients long-term success, thus defining the cure for CI with office-based VT.
Where’s The Research?

Convergence insufficiency
& its current treatment.


Lavich, JB

Department of Pediatric Ophthalmology,
Wills Eye Institute,
Thomas Jefferson University,
Philadelphia, Pennsylvania
Where’s The Research?

Convergence insufficiency & its current treatment.


SUMMARY:
Intensive in-office orthoptic therapy is the treatment of choice for convergence insufficiency.
CONCLUSIONS:

A successful or improved outcome after CI treatment was associated with a reduction in the frequency of adverse academic behaviors and parental concern associated with reading and school work as reported by parents.
VISION THERAPY
Information for Health Care and Other Allied Professionals

A Joint Organizational Policy Statement of the
American Academy of Optometry and the
American Optometric Association

INTRODUCTION
Society places a premium on efficient vision. Schools and most occupations require increasing amounts of printed and computer information to be handled accurately and in shorter periods of time. Vision is also a major factor in sports, crafts, and other pastimes. The efficiency of our visual system influences how we collect and process information. Repetitive demands on the visual system tend to create problems in susceptible individuals. Inefficient vision may cause an individual to slow down, be less accurate, experience excessive fatigue, or make errors. When these types of signs and symptoms appear, the individual is conscious of the visual process is required. This, in turn, may interfere with speed, accuracy, and comprehension of visual tasks. Many of these visual dysfunctions are effectively treated with vision therapy.

PERTINENT ISSUES
Vision is a product of our inherited potentials, our past experiences, and current information. Efficient visual functioning enables us to understand the world around us better and to guide our actions accurately and quickly. Age is not a deterrent to the achievement of successful vision therapy outcomes.

Vision is the dominant sense and is composed of three areas of function:

- Visual pathway integrity including eye health, visual acuity, and refractive status.
- Visual skills including accommodation (eye focusing), binocular vision (eye teaming), and eye movements (eye tracking).
- Visual information processing including identification, discrimination, spatial awareness, and integration with other senses.

Learning to read and reading for information require efficient visual abilities. The eyes must function precisely, focus clearly, and track quickly and accurately across the page. These processes must be coordinated with the perceptual and memory aspects of vision, which in turn must combine with linguistic processing for comprehension. To provide reliable information, this must occur with precise timing. Inefficient or poorly developed vision requires individuals to divide their attention between the task and the involved visual abilities. Some individuals have symptoms such as headaches, fatigue, eyestrain, errors, loss of place, and difficulty sustaining attention. Others may have an absence of symptoms due to the avoidance of visually demanding tasks.
Where’s The Research?

Pediatrics and Ophthalmology publish content that IS NOT consistent with current research.

Len Press, OD

The VisionHelp Blog 2011
“Where’s The Research?

“The American Academy of Pediatrics (section on Ophthalmology) current description of treatment for CI represents the most blatant disregard for research on treatment for CI. “

“The information supplied is not only incorrect, but woven into a document that also misleads the public by creating a “straw man” argument, trying to connect Dyslexia to vision therapy.”
Where’s The Research?

“In this policy statement they advocate treatment that is proven no better than placebo therapy:

“Symptomatic convergence insufficiency treatment can be performed at home, and extensive in-office vision therapy is usually not required. Alternatively, for other patients, reading glasses with base-in prism or minus lenses can be used as treatment.”

This policy statement is also endorsed by:
The American Academy of Ophthalmology and
The American Assoc for Pediatric Ophthalmology and Strabismus.
Where’s The Research?

Another joint statement regarding learning disabilities, dyslexia, and vision, A rebuttal

Daniel Lack, O.D. Optometry Jan 2010

• “Several medical organizations have published yet another joint statement trivializing vision therapy and vision disorders in the learning-disabled population.”

• “A review of the references .....find that the joint statement is misleading because of inappropriate citations and selected references, as was the case with previous joint statements.”
Where’s The Research?

Daniel Lack, O.D.  Optometry Jan 2010

• “The most current joint statement ignores the results of evidence-based research and makes recommendations regarding the treatment of CI that have no scientific validity.”

• “Ophthalmology should not allow professional rivalry to cloud its judgment regarding optometry’s involvement in the diagnosis and treatment of learning-related vision problems.”
Where’s The Research?

Joseph Manley, MD
Medical-legal Expert Witness

“The conclusions (particularly the failure to recommend optometric vision therapy for children likely to benefit from it) of the American Academy of Pediatrics report on Learning Disabilities, Dyslexia and Vision are based on exclusion of the most relevant data and inconsistent application of the Academy’s stated criteria for selecting evidence.”
Where’s The Research?

Joseph Manley, MD, (Continued):

• “They fail to acknowledge abundant published and anecdotal evidence supporting the use of vision therapy. This overlooked evidence includes controlled trials, observational studies, case reports and consensus of experts – the same kinds of data that underpin the daily practice of medical professionals.”
Where’s The Research?

The Number of Placebo Controlled, Double Blind, Prospective, and Randomized Strabismus Surgery Outcome Clinical Trials: None!

Dominick M. Maino, OD, MEd, FAAO, FCOD-A

*Editor Optom Vis Dev 2011;42(3):134-136.*
Vision Therapy Referrals

Paul B. Freeman, O.D.  Editor Optometry; Journal of AOA 7/2011

“When one looks at the services optometrists are uniquely qualified to render, ...it only makes sense to direct our patients...to those in the profession who have demonstrated the desire to help.

In the case of vision therapy, there are evidence-based protocols to support such intra-optometric referrals.”
Vision Therapy Referrals

“Well, finding a colleague in your area who specializes in binocular vision dysfunction is another important element in treating these patients. Depending on your diagnosis, you will often need appropriate subspecialty care. For patients with binocular dysfunction, the majority of that care comes from those who are dedicated binocular vision specialists.”

“Those specialists are valuable assets to the comprehensive practitioner because they can provide VT that will treat the vast majority of issues that are not organic in nature.”

James Thimmons OD,
OPTOMETRY TIMES 12/2010
Screening of Convergence Insufficiency:

To minimize chair time:

1. 30 –item checklist for all school-age children prior to your examination.  
   *Time: 5 minutes*

2. Measure the near point of convergence (NPC) by you or tech  
   *Time: 1-2 minutes*

3. Assess vergence facililty with a 3 BI / 12 BO prism flipper by you or tech  
   *Time: 1-2 minutes*
Screening of Convergence Insufficiency: Near Point Of Convergence

• Very good sensitivity and easy to perform in a short period of time.

• A penlight or transilluminator is presented directly in front of the patient along their midline, slightly below eye level, at a distance of 24 inches. Aim light at patient’s forehead, not directly into their eyes.

• Ask the patient “How Many Lights Do You See?” If the patient has normal convergence to that distance, the expected response is “one.”
Screening of Convergence Insufficiency: Near Point Of Convergence (cont)

• Now tell the patient that you are going to slowly move the pnlt toward their nose and ask them to report if they ever see two lights instead of one.

• At some point, while you are slowly moving the pnlt inward, note when one eye turns out. This is the convergence break point. The patient may not see 2 if suppression present, or has poor observation skills.
• The pt is then moved slowly away from the nose until convergence re-establishes. This is the convergence recovery point. The patient may report seeing one light again.

• Expecteds are approximately two inches break, and 3 to 4 inches recovery.
Now hold a red lens over one of the patient’s eyes, or have them put on red/green glasses.

Repeat the procedure. If the patient’s convergence is susceptible to fatigue, the break/recovery points with the filters will be more receded compared to no filters.

Whenever the break/recovery are receded, ask the patient if they ever see double (or “funny looking words”) sometimes while reading.
Screening of Convergence Insufficiency: Vergence Facility
Screening of Convergence Insufficiency: Vergence Facility

• Purchase 3 Base In / 12 Base Out prism flippers (Bernell.com $22.00)
• Hold a 20/30 test card at 14 to 16 inches from patient’s face.
• Patients should cycle through prism at 15 cycles per minute (one cycle is BI then BO), letters always clear and single.
• In presence of convergence insufficiency: BO more difficult (double vision?), and patient will exhibit facial stress e.g. furrowing of brow.
Communicating with Parents

If NPC and/or vergence facility testing positive, AND vision history is POSITIVE:

1. If you suspect double vision, use double vision demo. Ask child if the doubled image is how they see at school or reading. If yes, explain to parent, “Can you imagine how hard it is to sit through school seeing like this?”

Can show parent double vision problem using 12 BO prism in front of parent’s eye while looking at print, may need to angle prism slightly to produce diplopia. Usually hurts eyes.
Communicating with Parents

2. Use of up/down reader: easiest way to show link between vision and comprehension. Have parent read it aloud. After 3\textsuperscript{rd} or 4\textsuperscript{th} line, ask what they just read, very few can do so. Explain that eye movement and /or eye teaming problems disrupt comprehension.

3. Discuss with parent VT referral. Our website provides information including You Tube videos describing in more detail vision diagnoses and VT process.
Communicating with Parents

Vision Therapy (VT) is a form of *neurological* training similar to speech or physical therapy.
Communicating with Parents

Do not discuss VT fees with patient!!
Let VT office handle those questions.
We do not discuss fees until after the initial exam; if parents must know ahead of time, we tell them fees similar to costs of braces.

Our VT-only office has a triage phone call system; about ½ hour is spent with parent on initial phone call reviewing patient information and about 20% of these calls are referred elsewhere for primary care, etc.

We do not dispense glasses or contacts nor provide primary care.
Result of a primary care optometrist referral to a VT specialist

FIXING MY GAZE:  
A Scientist’s Journey into Seeing in 3-D 
by Susan R. Barry, Ph.D.
Result of a primary care optometrist referral to a VT specialist

From 2-D to 3-D Sight: How One Scientist Learned to See

Sue Barry discusses what it's like to live in a 2-D world and explains how she learned to see in stereo

Scientific American
August 4, 2009
"Barry benefited from orthoptics — a hidden corner of restorative medicine.

With contrived ocular exercises, specially trained and imaginative optometrists treat patients whose eyes are cosmetically aligned but imperfectly foveated.”
FIXING MY GAZE:
From New England Journal of Medicine (7-2-09):

“The simplicity of the exercises and of the apparatus (such as beads on a string, papers taped to walls, and strips of film) is bracing for a profession enamored with technology.”

“Several visual scientists have now demonstrated the reversibility of infantile loss of vision and stereopsis, but blindness to these findings and under appreciation of the solutions offered by orthoptics still persist.”
For more information, please visit our website

www.davisvisiontherapy.org