

Editorial ▶ Blueberries, Bagels, and Gravity

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*Blueberries innately go to ground,
They seek gravity,
They seek down.
Genetically they appear to know ...
that up isn't where they wish to go.
Bagels are a steadying force,
and not blueberry repellent, of course.
...and gravity is what it always does...
pulling downward just because.*

I am often a creature of predictability. One instance of this is that I am turning into a consistent eater of berries. Blueberries, strawberries, blackberries, and raspberries; they all attend me at breakfast. I lightly toast a bagel, put a schmear of cream cheese on each side, sprinkle a cinnamon dusting upon it all, and then add the berries.

Strawberries think this is a good idea and obediently rest upon my well-prepared bagel bed. Blackberries and raspberries appear to enjoy the company of the strawberries and stay where I place them on the bagel as well. But blueberries seem to seek out gravity. When I put them on my bagel, they often roll towards the earth with abandon. The good news is that if my berry-loving pit bull, Cali, is around, the downward-seeking blueberry is quickly captured, eaten, and digested (and I don't have to pick it up and throw it away!). After careful consideration, I have come to the conclusion that it must be in the blueberry's nature to go to ground. It is in their genetic makeup and just what is predicted of them no matter the situation.

Evidence-Based Clinical Practice

The American Optometric Association and various state associations are supporting programs that present the very best evidenced-based care in optometry.^{1,2,3} The College of Optometrists in Vision Development (COVD) has bibliographies of articles that offer research supporting the evidence-based care we offer our patients.⁴ The Optometric Extension Program Foundation (OEPF) and COVD have long supported journals that publish the science behind the evidence-based functional vision care used to solve patient problems.^{5,6} COVD and OEPF have now joined with the Australasian College of Behavioral Optometry⁷ to support a new scientifically-based professional journal, *Optometry & Visual Performance*.⁸

The functional optometrist uses evidence-based clinical diagnostic care, while pushing the envelope to discover new and exciting methodologies that use the principles of neuroplasticity in our therapeutic procedures. We acknowledge that using evidence-based clinical care is appropriate. Based on this approach, we then modify and improve the existing diagnostic and therapeutic care given to take this care to the next level for the benefit of our patients. We do not inherently discount the science available just because we disagree with the outcomes of a particular research project.

Ignoring and Misusing Research Outcomes

It may be that like the blueberries I mentioned previously, organized medicine, and in particular many of our ophthalmological colleagues, must also go to the ground, talking down whenever optometry is involved in the discussion. Perhaps it is just in their genetic make-up, or it is a habituated behavioral response learned over the years. We should not, however, accept these automated, nonsensical, and irrational responses. We should, in a spirit of congeniality and collegiality, point out where the science clearly shows the illogicality of their beliefs.

This is treacherous ground we walk upon, however. Science also clearly shows that those who hold mistaken beliefs do not give them up easily.^{9,10} If we do not try to place these colleagues on a path that leads to a better approach to patient care, all suffer.

CITT, Prescribing Glasses, Vision Screening, and Strabismus Surgery Outcomes

Convergence Insufficiency Treatment Trial

The Convergence Insufficiency Treatment Trial (CITT) group (Primary Investigator Dr. Mitchell Scheiman) has published numerous papers showing that optometric vision therapy (office-based vergence/accommodative therapy with home therapy procedures) results in a significantly greater improvement in symptoms and clinical measures of near point of convergence and positive fusional vergence with a greater percentage of patients reaching the criteria of success when compared with other forms of therapy.¹¹ The therapeutic effects were found to be long lasting.¹²

Other articles published in major journals by this group noted "A successful or improved outcome after Convergence Insufficiency (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."¹³

“Vision therapy/orthoptics is effective in improving accommodative amplitude and accommodative facility in school-aged children with symptomatic CI and accommodative dysfunction,”¹⁴ and that those with ADHD like behaviors should be evaluated for the presence of CI.¹⁵ We also discovered what does not work: “Base-in prism reading glasses were found to be no more effective in alleviating symptoms, improving the near point of convergence, or improving positive fusional vergence at near than placebo reading glasses...”¹⁶ and that the pencil push-up technique for CI is the least effective form of treatment available.¹⁷

Unfortunately, some of our eye care colleagues refused to accept the evidence-based outcomes of these clinical trials using personal opinion, bias, and experience as proof.^{10,18} One of our protagonists wrote, “Although every question cannot be addressed by a randomized clinical trial, the best available evidence should be sought and used to guide treatments.” Since he seemed to be saying one thing to one audience¹⁹ and something quite different to another audience,²⁰ my response was “So what is it to be? Is belief and clinical experience enough to disregard the evidence-based, research-based findings of the CITT study? Is it appropriate to write one thing if you support the outcomes of a clinical trial, but to write another if you do not?”¹⁸ This particular individual never did respond to my concerns, even though he was invited to do so.

Prescribing Eyewear

Many of my colleagues tell me that the author of the next article I am going to discuss is actually a great fellow. I do not doubt the word of my colleagues; I do doubt the so-called research when its sole purpose has been foretold by its title even before the data was collected.²¹ This particular tid-bit of pseudo-science was conducted by a member of a profession least known for their refracting acumen, and yet bold enough to call into question the integrity of another profession that is considered the expert within the realm of refractive care.

Vision Screening

Time and again our ophthalmological colleagues tell us that vision screenings are adequate for the nation’s children, that they are good enough and that they are all that is needed to ensure the visual welfare and eye health of our children. The research does not support this. The Cochrane Collaboration (a group that takes a critical look at clinical trials and other research), have time and again brought this into question. They have stated, “The review found that there is currently **not enough evidence** to determine whether or not screening programmes reduce the proportion of older children and adults with amblyopia. The authors concluded that there is, therefore, a need for some robust evaluation of the screening programmes that are in place to see if they are truly effective or not. Any such evaluation would have to also look at how much screening programmes cost and what effect untreated amblyopia has on quality of life”²² and “The aim of this review was to find studies that evaluated the effectiveness of school vision screening

programmes in first identifying children with reduced vision. **No eligible randomised studies were found.** There is a clear need for reliable evidence to measure the effectiveness of vision screening.”²³ They have also noted that not only is there little evidence for using vision screenings for children, there is also little evidence that screening outcomes are viable within the adult community as well.^{24,25}

I have reviewed the validity of vision screening multiple times using various modes of written and digital communication.²⁶ The American Optometric Association has clearly spelled out the limitations of vision screening for our children²⁷ and the InfantSEE^{®28} program has demonstrated the need for full and comprehensive eye and vision examinations for our children time and again.

They also note that:

- 1 in 10 children is at risk from undiagnosed vision problems
- 1 in 30 children will be affected by amblyopia – often referred to as lazy eye – a leading cause of vision loss in people younger than 45 years
- 1 in 25 will develop strabismus – more commonly known as crossed eyes – a risk factor for amblyopia
- 1 in 33 will show significant refractive error such as near-sightedness, far-sightedness, and astigmatism
- 1 in 100 will exhibit evidence of eye disease – e.g. glaucoma
- 1 in 20,000 children have retinoblastoma (intraocular cancer), the seventh most common pediatric cancer

How can ophthalmology continue to ignore the science? How can they throw aside the fact that evidence-based support of vision screenings is non-existent? Do they care so little for America’s children that they place an organizational political agenda ahead of the welfare of our little ones? It certainly appears that way since organized ophthalmology, along with various third-party payers and other entities with a fiscal interest in the future of vision screening, have tried to block the Pediatric Essential Eye Health Benefit program.²⁹ We would hope that an evidenced-based health care profession would know better. Apparently, they do not.

Strabismus Surgery Outcomes

Various Cochrane Reviews of strabismus surgery research currently available have noted they “did not find any randomised trials that compared treatment to another treatment or to no treatment. A large, multi-centre, non-randomised trial found that children operated on earlier had better binocularity at age six compared to the late surgery group. This group **had been operated on more frequently** however and there was **no significant difference in the angle of the squint after surgery** in either group. This review **does not resolve the controversy regarding the best type of surgery ... It highlights a need for further research in this area.**”³⁰ In a review of the use of

botulinum toxin, it was found that *“The results showed no prophylactic use for botulinum toxin in sixth nerve palsy, poor effect in adult horizontal strabismus without binocular use of the eyes, and no difference in response for retreatment of infantile esotropia or acute onset esotropia. It was not possible to determine dose effect because of the different types and doses of botulinum toxin used in each trial. Complications from the use of botulinum toxin (Botox or Dysport) included transient ptosis and vertical deviation and combined rates for these complications ranged from 24% to 55.54%. This review identified a need for more randomized controlled trials to provide further reliable evidence on the effective use of botulinum toxin for the treatment of strabismus.”*³¹

Another review of the research noted that the number of placebo-controlled, double blind, prospective, and randomized strabismus surgery outcome clinical trials was zero.³² Ophthalmology has pointed out to me how difficult such a study would be using the same reasons optometry used prior to the CITT study. Optometry managed to create and complete this clinical trial. Shouldn't ophthalmology also be held to a similar standard?³³

Ignoring and Misusing Research Outcomes

Misusing research outcomes appears to be one way to limit access to optometric vision care by some third-party payers. These misguided companies will demand that 12 sessions of home-based vision therapy be instituted before in-office optometric vision therapy can begin. None of the clinical trials or other available appropriately conducted research that I am familiar with even remotely suggests that this be done. Another similar scheme is to limit in-office optometric vision therapy (OVT) to 12 sessions. Nowhere did the research indicate that 12 sessions was the number of visits needed for success. As we know, each patient is different, and they may require different approaches to care and either more or fewer visits for the completion of that care.

These third-party payers may also state that vision therapy is only effective for CI and not for other binocular vision disorders. We do know that at least one of the clinical trials above shows that accommodative dysfunctions can be successfully treated with therapy.¹⁴ Although we do not have research at the level of a clinical trial in some areas, we do have an evidence-based platform that strongly suggests OVT is effective for many dysfunctions of the binocular vision system.³⁴ These same companies often fiscally support diagnostic and therapeutic procedures that do not have clinical trials supporting their use. Is this an example of discriminative third-party coverage rules for two similar but different health care professions?

Blueberries

Are those who disparage OVT, better eye health for our children, and appropriate access to the care optometry provides really blueberries?

*Blueberries innately go to ground,
They seek gravity,
They seek down.
Genetically they appear to know ...
that up isn't where they wish to go.*

Maybe not, perhaps these protagonists are more like gravity....
*...and gravity is what it always does...
pulling downward just because.*

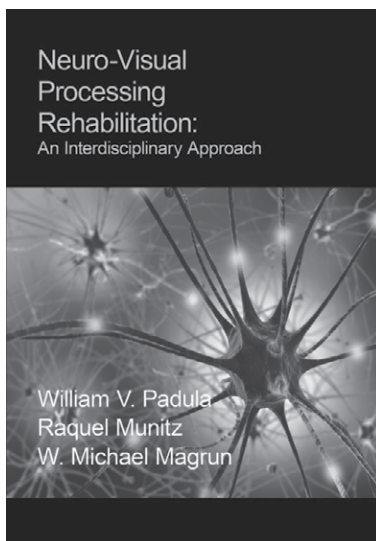
... and what about optometry? Since we have always reached out to every individual, profession, organization, and institution with open arms, I think we are more like the bagel ...

*Bagels are a steadying force,
and not blueberry repellent, of course.*

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Neuro-Visual Processing Rehabilitation: An Interdisciplinary Approach

By William V. Padula, Raquel Munitz, and W. Michael Magrun

Understanding how we see brings to mind the mythical story of the blind men and the elephant. Each responded to the part of the elephant that he encountered, and thus each had a very different impression of the animal. We are often so preoccupied with our conscious visual world that we describe it in limited ways and are thus unable to understand the comprehensive nature of vision. Research has shown that there is much more to visual processing than we have recognized. However, our limited understanding of vision and its multiple sensorimotor interactions have restricted our ability to work, through vision, to affect the rehabilitation of those who are neurologically challenged. The authors invite you to explore *Neuro-Visual Processing Rehabilitation* to learn new ways to think about vision. This book delves into the visual processing relationships of child development, motor and sensory interactions, and postural organization, led by vision, as the basis for understanding vision. From this knowledge, new directions and options will emerge for rehabilitation through the use of non-compensatory prisms and a new mode of treatment that the authors have termed Neuro-Visual Postural Therapy. The implications of understanding neuro-visual processing will change your thinking about vision as well as provide possibilities for helping millions of children and adults who have a neurological condition. Hardbound, 236 pages.

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