Seeing is Believing
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Skepticism is doubt. We are born skeptics, especially about viewpoints that conflict with our own. Democrats and Republicans, not to mention Protestants and Catholics, have their doubts about one another’s plans for paradise, whether here or above. The same is true about the viewpoints of those providing pediatric eye surgery and those providing optometric vision therapy—especially when the topic is strabismus. While the disputes between Protestants and Catholics go back to the sixteenth century, the disputes concerning therapy versus surgery for strabismus treatment are relatively fresh, dating to the middle of the nineteenth century like the disputes between Republicans and Democrats.

Émile Javal (1839-1907) was a French physician best known to us for his work in astigmatism and the nonsurgical treatment of strabismus. Javal’s father had received strabismus surgery, which had left the father hideously disfigured. Javal’s sister Sophie also had strabismus. To avoid what he called “the massacre of the medial rectus muscles,” Javal devised a therapeutic treatment, orthoptics, for developing binocular vision. When Javal demonstrated and explained the protracted and exhausting treatment to Albrecht von Graefe, a famous surgeon of the day and professor of ophthalmology, von Graefe surprised Javal with the reply, “People are really not worthy of all that trouble.” Despite Von Graefe’s skepticism, Sophie received orthoptic training from her brother. Then Von Graefe performed surgery, and Javal continued therapy until Sophie was “cured.” Whether the surgery, the therapy, or both were responsible for Sophie’s result, her eyes remained aligned at least well into her eighties. Even so, Javal’s enthusiasm for the rigors of the process later dampened as he was going blind from glaucoma. He admitted, “Von Graefe was right.”

In the century and a half since Sophie’s treatment, the skepticism with which most pediatric ophthalmologists and developmental optometrists regard each other’s treatment strategies continues unabated. Javal’s ambivalence aside, why the skepticism?

Despite the political battles between ophthalmologists and optometrists and the natural tensions between anatomical and performance models, I suspect that the primary source of the mutual skepticism rests in the visual process itself: seeing is believing! Put another way, as twenty-five centuries ago Herodotus, the leading Greek candidate for the father of history, wrote: “Men trust their ears less than their eyes.”

Having experienced countless hours viewing the intricacies of surgery or witnessing eyes cosmetically aligned when reevaluated after a surgery or multiple surgeries, surgeons trust surgery. Having spent countless hours viewing the intricacies of therapy as patients learn to perceive the benefits of improved binocularity in the therapy room and world,
The followers of Claude Worth are not the only ones ever to substitute the words of their mentors for their own observations. In addition to passing on the truth about adult amblyopia treatment, Bill Ludlam trained me to be skeptical of strabismus surgery. He cited studies that highlighted surgical complications and failures. In other words, the mentor who I believed in, and even loved, trained me to be skeptical of surgery and surgeons—just as surgeons have been trained to be skeptical about us.

Rhetorical reason is the universal solvent. It washes away all observations at odds with our favored treatment strategies. When it comes to strabismus we can easily use anecdotes and statistics to present reasonable arguments against both surgery and vision therapy. After all, not only is the condition idiopathic, there are, at present, no placebo-controlled strabismus studies to support either vision therapy or surgery, except for the placebo-controlled studies on convergence insufficiency, a form of intermittent strabismus manifesting often at closer distances than which cover tests are traditionally performed. Even such gold-standard studies, however, are either championed, ridiculed, or ignored depending on what doctors have seen for themselves during years of practice.

Furthermore, while studies provide valuable information, both strabismus therapy and strabismus surgery are arts, varying with the skills of the practitioner. It is dicey to extrapolate studies with set protocols to clinical practice in which procedures can be instantly varied as needed. To imagine that a particular practitioner’s results on a non-randomly-selected particular patient match the predictions of studies is like imagining that the life of a particular radioactive particle can be predicted by the radioactive half-life of a gram of uranium. In the case of convergence insufficiency, for instance, few of us would be satisfied with a 73 percent success rate predicted by the CITT. The figure therapists trust therapy. Surgeons see optometric failures. Optometrists see surgical failures. Because it is easier to see others’ failures than our own, we trust our eyes, not our ears—except perhaps when we listen to our mentors—a process not without hazard.

Claude Worth, for instance, did for strabismology in England what Javal had accomplished in France. In 1903, Worth wrote the following:

Its efficiency in curing amblyopia which has already been acquired will be greater the younger the child and more recent the deviation. After about seven years of age usually not much improvement in vision can be obtained, though I have met with many exceptions to this rule.

Worth was a giant in his profession. Despite his mentioning “exceptions to the rule,” his seven-years-of-age rule blinded generations of eye doctors to the fact that many older patients with amblyopia could indeed be treated.

Unlike the disciples of Worth, I was trained in the 1970s by Bill Ludlam, one of my professors at the Pacific University College of Optometry. My mentor assured me that he had helped adult amblyopes. Trusting his words, I ignored what later proved to be misinterpretations prevalent at the time about Hubel and Wiesel’s Nobel-Prize-winning research into “critical periods.” Before finishing optometry school, under Bill’s tutelage, I had witnessed my first patient, a nine-year-old boy with amblyopia, go from 20/200 to 20/30; it was the same year that Birnbaum, Sanet, and Koslowe surveyed the literature and found that amblyopia could often be treated, even after the age of sixteen. Thus emboldened, my first year in private practice I saw an amblyopic truck driver go from 20/200 to 20/30 so he could keep his license and livelihood. My eyes had definitely confirmed that it was okay to doubt my ears especially when the words placed age limits on amblyopia treatment.

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is probably at least 20 percent low when more time, techniques, and creativity are allowed. Could individual surgeons in individual cases similarly outperform the results of studies? Might a surgeon or therapist have insights when selecting or rejecting candidates for treatment, thus improving the odds of success?

Fortunately, when it came to Bill’s statistics and anecdotes about strabismus surgery, I overcame my training. I remained skeptical of words without observations. Why believe an optometrist’s words on surgery when that optometrist has never observed, much less performed, all the intricacies of surgical care and follow up? Why believe a surgeon’s words about vision therapy when that surgeon has never observed, much less performed, all the intricacies of vision therapy? Such words without observations smack of politics. The process is much like learning about Republicans from Democrats or Democrats from Republicans: something gets bent; something gets lost.

Consider two examples about treatments including both surgery and therapy.

I once performed therapy with a young woman, a ballerina no less, who began with twenty-five diopters of esotropia but could not discard the last ten diopters of prism so she could wear contact lenses. Failing to meet these goals despite doing everything I could to improving her visual performance, I sent her for surgery. After the procedure, her eyes were straight at all distances without prism, her stereopsis normal, and her base-in and base-out fusion ranges in excess of twenty diopters. There were no apparent signs or symptoms that her eyes had ever been crossed. What aligned the patient’s eyes? Was it the therapy, or the surgery? To my eyes, it was both. A patient’s treatment includes all the interventions received, not just the most recent one.

A similar example is provided by the history of Professor Susan Barry.9 Barry had three strabismus surgeries at the ages of two, three, and seven, but her eye-muscles were not necessarily “massacred” like those of Javal’s father. Rather she had cosmetic alignment and a successful career as a neuroscientist. She did, however, have to work harder for that life than most. She suffered from stereoblindness and an unstable world in which the letters of words “jiggled.” Forty years after her surgeries, she had optometric vision therapy, experienced a profound change in stereopsis, and learned to see a stable world in three dimensions. What resulted in Sue’s positive outcome? Was it the therapy? Was it the surgery? To my eyes, it was both. A patient’s treatment includes all the interventions received, not just the most recent one.

Today I look at surgery as just one more tool to align the eyes and improve the binocularity and performance of patients with strabismus. Patients deserve the best care that can be provided, not just the best care we know how to provide. In my clinical experience (which is a euphemism for what I have seen through the filter of training, economics, and passion for my profession) sometimes surgery alone provides the best care to meet the goals of a particular patient or family. Sometimes vision therapy provides the best care. Sometimes both vision therapy and surgery are needed. Sometimes both surgery and vision therapy are not enough: the best available care fails. Such is the cost of working with an idiopathic condition.

Any number of generations has passed since the time of Javal. The world has changed. Strabismus surgery and therapy have both changed. Unlike Javal’s father, neither my patient nor Professor Barry was disfigured by their surgeries. Orthoptics has also changed. In the 1940s and 1950s Fredrick Brock, with his stereo motivator, removed therapy from instruments and encouraged three-dimensional activities in free space.10 Unlike Sophie, Professor Barry was not confined to instrument work for long hours a day but did out-of-instrument therapy in a doctor’s office for one hour a week and did home therapy for 30 minutes a day. Today we have at our
disposal digital 3D stereo motivators with features unimagined by Brock. We have 3D television, 3D movies, and even virtual reality. Maybe it is time for a new generation of doctors to set aside their skepticism and learn to work together for the benefit of patients.

There are signs that strabismus treatment could change. The gold-standard convergence insufficiency studies were performed by optometrists and ophthalmologists working together on one form of intermittent strabismus. Similarly, pediatric ophthalmologist Thomas Lenart and developmental optometrist Nancy Torgerson have put aside their skepticism for the benefit of patients. They are learning what combination of surgical and nonsurgical interventions work best for which patients. The relationship allows both Lenart and Torgerson to provide a service unavailable in the offices of other doctors. Any number of pediatricians like the arrangement. Thus both doctors who want the best for their patients and themselves benefit from the using of all the tools at our disposal.

If seeing is believing, perhaps it is time for all of us to see what the other profession has to offer. Why not leave the skepticism, political battles, and religious wars in the capable hands of the Democrats and Republicans, and Protestants and the Catholics?

REFERENCES
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