BOOK REVIEW

Restoring Low Vision: How to Strengthen Your Potentials in Low Vision and Blindness, First Edition, by Bernhard A. Sabel. Self-published, 2016, 260 pages. ISBN: 978-3-00-053785-1, \$48.50 (Paperback)

As a low vision specialist and a person living with vision loss secondary to cone-rod dystrophy, I have an intimate understanding of what it is like to live with low vision and the challenges it brings as one strives to maintain their independence. With this in mind, I believe that I bring a unique perspective in reviewing the book *Restoring Low Vision* by Bernhard Sabel, PhD.

Dr. Sabel's goal in writing this book is to put a resource into the hands of the low vision patient where they will learn a basic anatomy of the eye and how the various parts function. He walks the reader through the various tests that accompany the average eye examination and what information can be gained through each test. Sabel spends a larger portion of his time on understanding peripheral vision, perimetry, and how to interpret the results. He guides the reader in understanding what a scotoma is through several easy-to-grasp examples followed by a thorough presentation on "residual vision" and its all-too-often untapped potential for helping to "restore" vision that has been lost.

To ensure the inclusivity of any low vision reader, Dr. Sabel devotes another section of his book to describing some of the most common ocular diseases and degenerations responsible for vision loss and blindness. Here he parses out the different types of vision loss that accompany age-related macular degeneration, glaucoma, diabetic retinopathy, optic neuropathy, stroke, and other optic nerve trauma. In this section, he devotes a portion of his book to visual hallucinations associated with Charles Bonnet syndrome (CBS), reassuring patients that this can be a normal anomaly.

Following his discussion on the components of the eye examination, he addresses the field of low vision rehabilitation. It is here that Sabel begins to speak to some of the psychosocial issues that accompany a life impacted by permanent vision loss. Throughout his writing, Sabel makes a concerted effort to continually encourage those with low vision not to focus on what they have lost but rather on the vision they still have. He introduces the reader to many of the traditional optical devices and the newer non-traditional electronic magnification low vision aids that are available today. He even highlights how occupational therapy is a tremendous help as it can address common issues with lighting, mobility, and ADLs (activities of daily living).

Having laid the foundational understanding, Sabel now narrows his focus to the concepts of what he calls "hope

spots" or areas of residual vision and neuroplasticity. The basis for Dr. Sabel's program of restoring low vision is the brain's ability to be malleable or flexible. The goal is to use two different techniques to stimulate potential new brain pathways and to encourage nerve regeneration. To his credit, not wanting to build false hope, Sabel is quick to emphasise that if the retinal tissue, the nerve, or the pathways have been permanently destroyed, then no recovery or restoration of sight will be possible.

Through research and testing, Dr. Sabel introduces his two methods for "restoring" vision. First, he has developed a computer-based program where low vision patients perform repetitive exercises designed to expand their peripheral visual field. The program is called "Vision Restoration Therapy" (VRT). This method of repetitive and successively broadening exercises performed several hundred thousand times over a 6-month period. The goal here is to stimulate the release of NGF (nerve growth factor). To support his claims, Sabel reports studies reflecting success in restoring vision in areas where there was none recorded before, 33% of patients demonstrated a large expansion of their visual field, 33% showed a moderate increase, and the remaining 33% experienced no increase at all. The patients who demonstrated an expansion of their vision reported an overall increase in general vision, mobility, reading, and ADLs.

Second, Dr. Sabel has created what he calls a "brain pacemaker". This device uses what he calls trans-orbital alternating current stimulation (TACS). The concept of "resynchronisation" or a rewiring of the brain network is the cornerstone mechanism for Sabel's goal of vision restoration. To support his claims, Sabel cites a 2011 study that showed as he states "a significant increase in vision" using TACS: 49% increase in visual fields and a 70% increase in subjective vision. Some of the particular conditions that showed positive improvement in vision included glaucoma, optic neuropathy, diabetic retinopathy, stroke, cortical blindness, age-related macular degeneration (ARMD), amblyopia, and unexplained vision loss.

In conclusion, after having read this book, as a person with low vision I found it to be very informative, engaging, and encouraging. I did not walk away with unrealistic expectations. Although I would like to see further research on Dr. Sabel's VRT and TACS programs, I do believe that they show promise for people who have suffered any form of vision loss. I would recommend this book to patients with the same

warnings and encouragements cited by Dr. Sabel: “You cannot restore vision if the physical nerves or pathways are permanently damaged” and I would exhort those same patients to remember to “focus” (pardon the pun) on what they still have not what they have lost. The most important thing we can do for our low vision patients is to help them find the tools that will help them regain hope and independence. With the proper cautions expressed to our patients, I believe Dr. Sabel’s book, *Restoring Low Vision*, serves to point low vision patients in that direction.

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