

The Bershak Method

How to Reactivate your Eye Muscles
and Reshape your Eyes for Clearer Vision

by John Bershak

January 12, 2008

Dedication

This page is dedicated to all those who have taken the time on this and other user groups to disagree with me. Without your help I never would have sharpened my ideas or put them into a format that could benefit others. Special thanks also to Alex Eulenberg who maintains the web site and discussion group and for providing this link for those who want to use it. But most of all, this page is dedicated to those who are serious about improving their vision and not just talking about it, especially those who have tried vision therapy before without success. Enjoy the journey.

We Need a New Way

"In the science of ophthalmology, theories, often stated as facts, have served to obscure the truth and throttle investigation for more than a hundred years." William H. Bates, 1920

There is no question that the eye care industry is exceptionally good at examining eyes and fitting them with eye glasses, contact lenses or performing laser surgery. Nearly 60 percent of the American population now relies on some form of vision correction, and a multi-billion dollar industry has sprung up to meet this need. What they cannot do is restore vision to normal. They don't know the way and they don't have the answers. To them it's a genetic predisposition and there is nothing you can do about it. Even in the online vision therapy community we often hear that there is no clinically proven methodology to prevent or reverse refractive errors.

The skeptics are right. My experience with the online community is that success stories are few except for those with relatively minor refractive errors. What we need is a new understanding, a new approach that works for everyone, a clear path to success and a theory that explains why so many fail in their attempts to improve their vision.

The methodology that follows contains new information, new understanding, and a new approach that I have not seen elsewhere. It identifies the foundational tool by which all of your vision improvement will come. Once you master this tool you will be in charge of how good your vision becomes, and you will be able to correct your vision by your own efforts. The exciting thing is that it does not just hold out the promise of Improved vision. I believe it holds out the hope of complete restoration of clear vision for the vast majority of those with functional refractive errors. These techniques are beneficial to all, but they are essential to those who have worn corrective eyewear for a long time, especially if onset was in childhood. Once the improvement begins you will find it to be an empowering, liberating and motivating experience.

This new way is based on lessons learned from the Vision for Life program (now called the Rebuild Your Vision Program). The program is sold as an eclectic collection of eye exercises and relaxation techniques. I agree with that and I recommend the program for its excellent instructional material. But you will not find this new information and additional understanding in the Vision for Life program. It is astounding to me that they cling to the orthodox view of accommodation through the

lens. It is this orthodox view that undermines the effectiveness of their own methods and the success of those who apply them.

I cannot emphasize strongly enough that this is not about accommodation. It is about the restoration of clear vision through the removal of refractive error from the eye. Unless we break out of the orthodox thinking it is impossible to develop the proper mindset for success and it is impossible to understand the reasons why so many fall in their attempts to Improve their vision.

Bates was Right

"The needless subjection of the eyes of the coming generation to the domination of glass lenses must have an absolute and malevolent Influence on the mentality of any weak eyed nation." - W. B. MacCracken, MD, Use Your Own Eyes, 1937

Using the retinoscope Dr. William H. Bates was able to show that refractive errors are caused by malformations in the shape of the eye. He associated elongated, shortened and oval shapes with myopia, hyperopia and astigmatism respectively. He showed that the source of these malformations begins with mental strain and manifests itself as tension in the extraocular muscles around the eyes. He developed numerous methodologies to eliminate tension in the extraocular muscles restoring the eyes to spherical and clarity to the visual process.

Unfortunately, Bates was rejected by the eye care profession. Clinical evidence showing the efficacy of his techniques was rejected without explanation. Instead of correcting the source of the problem (mental strain) the eye care profession opted for the orthodox understanding of accommodation through the lens. The only possible solution was to place corrective lenses in front of the malformed eyes. Since onset often begins in childhood this leads to a lifetime of dependence on corrective eyewear. As a result nearly 60 percent of the U.S. population needs some form of vision correction, and we have created generation after generation of people who are dependent on corrective eyewear.

The point is that we live in a much different world than Bates, and it would be foolish and arrogant to judge him outside of the historical context in which he worked. His methodologies were appropriate for the era in which he lived and the relaxation techniques he developed are still sufficient for some and important for all. Nevertheless, I believe the Bates legacy of correcting refractive error through relaxation alone is impeding the progress of many who are attempting to improve their vision. Relaxation techniques alone are no longer adequate for the removal of refractive error. The error does not lie with Bates. It is the legacy of the orthodox theory of accommodation and 100 plus years of treating refractive error with corrective lenses on a widespread scale.

The best explanation lies in comparing how Bates and orthodox optometric practice treat refractive errors. Imagine someone going to Bates with refractive errors creating fuzzy vision. Bates immediately applies one or more of his relaxation techniques, relieves tension in the extraocular muscles, restores the eyes to spherical and the vision to clarity. In addition, he teaches the techniques enabling the patient to live a lifetime with perfect vision and free from dependence on corrective eyewear.

Today, in contrast, the very first thing we do is place corrective lenses in front of the malformed eyes. After years of dependency on corrective eyewear the eyes retain their malformed shape apart from and independent of muscular tension in the eyes. What began as mental strain and tension in

the extraocular muscles has now become a permanent malformation of the eye. The eyes have adapted to the corrective eyewear and the extraocular muscles have adapted to the malformed shape of the eye as the corrective lenses now do their work for them. Once the malformations are no longer dependent on muscular tension Bates relaxation techniques will no longer be able to correct refractive errors and restore clear vision because there is no muscular tension to relieve. Muscular tension will only be present when vision degrades further and a stronger prescription is needed. And so the downward spiral of worsening vision begins, and because of one period of stress the child is condemned to a lifetime of dependence on corrective eyewear.

Good News

"Hindu sages described the law, as had Hippocrates, who wrote in 400 BC: "Through the like, disease is produced and through the application of the like, it is cured." - Maesimund B. Panos and Jane Heimlich, Homeopathic Medicine at Home, 1980

The previous section shows that malformations of the eye become a permanent part of the structure of the eye if you have worn corrective eyewear for any length of time. Relaxation techniques in all likelihood will fail because the eye retains its malformed shape apart from and independent of muscular tension.

The good news is that the same muscles that caused the malformation can be used to reshape the eyes to spherical and restore vision to clarity. The methodology presented here will require you to regain voluntary control of the powerful extraocular muscles via specific exercises. These exercises will create a powerful massage-like action on the eyes that will break down the structural rigidity and stiffness that maintains the eye in its malformed state. That, in turn, will allow the eyes to return to spherical when the extraocular muscles are relaxed, and allow the relaxation techniques of Bates to be truly effective.

The question, then, is not one of if the vision can be restored to clarity. It is simply a question of how to do it? The bad news is that the extraocular muscles are unable to perform the required task after years of corrective eyewear. The muscles are so weakened that they are unable to do much of anything. What is required is a stepwise progression in which you will reactivate and strengthen the extraocular muscles and then use them to reshape the eyes to spherical. Failure to approach the process in a stepwise fashion is one of the reasons so many meet with frustration and failure. Before proceeding please consider some other prerequisites for success.

Keys to Success

Patience

For many of us we have spent our entire lives achieving poor vision, and it will not be corrected overnight. The extraocular muscles have atrophied to such an extent that they have to be reactivated and strengthened before they can be used in a powerful way to reshape the eyes to spherical and restore vision to clarity. Even if you "get it" and apply the methodology properly it still requires patience. Understand that this is no longer about a simple release of muscular tension, but a gradual reshaping of the eyes to spherical. You need to accept your eyes where they are, and understand that they can only do what they can do at a particular time. That is why this is a stepwise approach to vision correction. I cannot give you a timetable but I will give some guidelines based on my own experience. I would presume those with more severe refractive errors will take longer. Those with a limited history of corrective eyewear will recover more quickly. When onset of refractive error

occurs in childhood, during the formative years, additional complications can be expected. The guidelines given are based on an average of -2 diopters of myopia, astigmatism and 4 decades of dependence on corrective eyewear beginning in the third grade.

Hard Work

If you are serious about vision improvement you only have two choices. You can try something that is difficult or you can try something that is Impossible. If the malformed condition of your eyes is no longer dependant on muscular tension relaxation techniques will do little to improve your vision. You are not going to relax the eye muscles and return the eyes to spherical. It is only when you begin the difficult process of breaking down residual stiffness in the structure of the eye that Bates relaxation techniques play an important role in the restoration of clear vision. This methodology requires that you work for every bit of improvement. It takes effort to move from 6 feet to 8 feet on Snellen work. it takes just as much effort to increase the distance from 17 feet to 19 feet. If your peripheral vision is fuzzy you need to adapt the exercises to work on that. There are no miracles and there are no shortcuts.

If you understand the historical context in which Bates worked I believe you will come to the same conclusion. Unfortunately, there is a strong bias against using any effort in the vision therapy community and most are unwilling to try. They know better because Bates said so without taking into consideration the historical context of his times. They insist on doing the impossible through relaxation techniques alone. They honestly believe they are not permitted to do anything that requires effort, and through this self imposed limitation are not permitting themselves to improve their vision. As a result, they never engage the powerful muscles required to reshape the eyes to spherical, and they undermine their own efforts to clear their vision. I believe you need to come out of that mindset or you will share the same result.

Arrogance

If you chose to pursue this methodology you will become an expert on the operation of your own eyes. You will know how they operate, what vision weaknesses remain and how to apply the exercises to correct those weaknesses. Once you master the techniques you will be in charge of how good your vision becomes. You will understand what you are trying to accomplish, the difficulty of the task and the hard work required to achieve the goal. You will also realize that the eye care industry is expert at the barbaric practice of putting corrective lenses in front of eyes, and that they know virtually nothing about returning vision to normal function. I would equate this to the ancient Chinese practice of putting little girls' feet in those tiny shoes. I believe it handicaps people in ways we haven't even begun to understand.

Notice that a lot of the statements I make are pretty arrogant. I've done that for a reason. When your vision begins to improve you will realize you are doing the right thing because it is working. With that comes a certain amount of arrogance, or confidence if you prefer. You will realize that you are in charge of your own vision improvement and you don't need 'them' anymore. This is a liberating, empowering and motivating experience. It gives you single minded focus that what you are doing is right.

Finally, arrogance does not give us a license to be stupid. Remember that this is an exercise program that requires the strenuous use of the extraocular muscles. I believe the eye is very tough, and the gradual nature of improvement offers great protection from damage. I also believe that we

should defer to superior medical knowledge, and that you should consult your optometrist to find out about any unusual risk factors for this type of activity.

Reactivation: The Most Important Phase

"When we understand, however, how the shape of the eyeball is controlled by the external muscles, and how it responds instantly to their action it is easy to see that no refractive state, whether it be normal or abnormal, can be permanent." - William H. Bates, *Perfect Sight Without Glasses*, Chapter VII.

Reactivation is the most important phase in returning your vision to clarity. This step is crucial in reactivating the extraocular muscles that will remove refractive error and restore the eyes to spherical. This phase identifies convergence/divergence as the engine that drives all improvement and the foundational tool from which all of your vision improvement will come. It identifies Three Cups as the specific exercise that reactivates convergence/divergence and sets up a dynamic massage-like action on the eyes that allows you to break down structural rigidity in the malformed eyes. This is the primary skill by which you will return the eyes to spherical. When applied to other exercises it provides a structured approach to the exercise sessions that makes them effective, efficient and worthwhile. If you fail to reactivate these powerful muscles all of your subsequent efforts are likely to fail.

Fundamentals of Reactivation

The principle of movement is one of the key concepts Bates discovered about natural vision. He discovered that natural vision is relaxed, casual, restful, healthy movement, and that we only see best when we are moving. In *Perfect Sight Without Glasses*, Bates introduced the concept of shifting as an unconscious function of normal vision. According to Bates perfect sight is impossible without constant shifting, and when it is not done unconsciously students must be encouraged to do it consciously. "One of the best methods of improving sight, therefore, is to imitate consciously the unconscious shifting of normal vision, and to realize the apparent motion produced by such shifting." He describes "...the right way to shift is to move the eyes (and head) from one point to another slowly, regularly, continuously, restfully or easily without effort or without trying to see." "When the shifting is done properly, the memory, imagination, mental efficiency and vision are improved and become normal." In contrast, "to continue to stare without shifting is hard work. To see imperfectly is difficult. Imperfect sight or a failure to see requires much trouble and hard work. Not only does the sight become Imperfect but also the memory, imagination, judgment and other mental facilities are temporarily lost."

I have already introduced the concept of convergence/divergence as the mechanism by which all of your vision improvement will come, but I do not believe this concept is in conflict with Bates. To understand the concept more fully consider the person with normal vision. Is it not Implicit in the definition of convergence and divergence that the person with normal vision acquires an image of perfect clarity up close (convergence) and an image of equally perfect clarity in the distance (divergence)? Now consider the person wearing glasses. He can do the same thing because his vision has been artificially corrected. When the glasses are removed, however, he retains the pointing function of the eye, but he has lost the ability to acquire clear images. It is essential to understand that pointing and focusing are distinct and separate functions of the extraocular muscles. For the purpose of simplifying the discussion it may be helpful to think of the recti muscles as controlling the pointing function and the oblique muscles as controlling the focusing function. In

the eye with normal vision these functions operate effortlessly and simultaneously. In the eye with poor vision the focusing function of the extraocular muscles has been lost due to the use of corrective eyewear and must be reactivated.

To be successful, convergence and divergence must engage the full functioning of the extraocular muscles in a manner that you have not experienced before. What most fail to realize is that convergence and divergence are more than simple pointing exercises. Convergence and divergence actually represent two ways of using the extraocular muscles to see clearly, and it is the act of trying to see clearly that reactivates this powerful mechanism. Every time you converge and diverge you are not just pointing the eyes from near point to far. You are activating a complex muscular system as you try to clear the convergent and divergent images of Three Cups. Once you become comfortable acquiring the convergent and divergent images during Three Cups the same skills can be transferred to in and Outs, String Beads and other exercises to further strengthen and coordinate these muscles. After sufficient strengthening and coordination you will be able to acquire clear images by convergence and divergence by temporarily reforming the eye to spherical by effort. At this point the extraocular muscles become an immensely powerful tool that can be fully engaged in the work of reshaping the eyes to spherical. Normal natural effortless vision, however, will not be restored until the eyes are permanently reshaped to spherical.

Vision improvement is a difficult process that requires hard work and single minded focus. It sounds like an impossible task, and quite frankly it is, unless you approach it in the stepwise manner I have just described. Unfortunately, some of the greatest distractions come from the vision therapy community. It is important that we recognize distractions for what they are and not allow them to divert us from the goal of better vision. For instance, Bates discovered that static stress creates blurred vision and introduced many techniques to combat the effects of static stress. Among them are shifting, swaying, blinking, palming, the concept of experiencing oppositional movement, and many more techniques to relieve tension in the eyes. These are important concepts and practices and recommend that you learn more about them and apply them, but if the eyes are permanently malformed many of these techniques are easily reduced to simple pointing exercises that have little effect on vision improvement. These techniques will not reactivate convergence/divergence or restore the focusing function of the oblique muscles. By relying on relaxation alone the vision therapy community has made Bates himself into a distraction that diverts our attention and our efforts from the hard work of vision improvement.

Another major distraction is the subject of accommodation. According to conventional theory the normal eye at rest is adjusted for distant vision. Near vision, or accommodation, is achieved by the action of the ciliary muscle on the lens. Bates, on the other hand, claimed that near vision is accomplished when the oblique muscles compress and elongate the eyes. When tension is released the eyes return to spherical and distant vision is restored. This is the normal, natural, effortless operation of the visual system as described by Bates. In the myopic eye the muscles remain permanently constricted and the eye remains elongated. Bates then induces a release of tension in the extraocular muscles and a restoration of the eyes to spherical.

If the eyes are permanently malformed, relaxation techniques alone will not return the eyes to spherical. In the same way that the normal eye always returns to its most relaxed state (spherical and adjusted for distant vision) the myopic eye always returns to its most relaxed state (elongated and adjusted to see clearly with prescription lenses). Just as accommodation temporarily reforms the eye from spherical to an elongated state for near vision, the proposed methodology temporarily

reforms the myopic eye from its permanently elongated state to a shape somewhat closer to spherical for better distant vision. In effect, you are physically manipulating the shape of the eye with the extraocular muscles but in the opposite direction of what normally occurs during accommodation.

Modern researchers are also finding that the extraocular muscles play a role in near vision. Neurodevelopmental optometrist Merrill Bowan calls this the sustained accommodative system, and calls the accommodative function of the lens and ciliary muscle the transient accommodative system. Bowan says that the ciliary muscle and the lens function as an "oscillating analyzer" in which the oscillation of an image may help to find the retina and the direction of blur. I only have a vague idea of what that means, but I can tell you that it is totally irrelevant to your vision improvement efforts. For one thing, it is an involuntary and autonomic function of the eye and completely outside of our ability to control. Those with moderate to severe refractive errors will not be able to acquire clear vision by this mechanism because their refractive errors are outside of the vibrational accommodation of the lens. This is a function that operates within a limited range and only produces clear images in eyes with normal vision or those with vision corrected to normal. You will not be able to acquire clear images via this mechanism until the eyes are reshaped to spherical.

The Practice of Reactivation

The foregoing discussion is pertinent to our vision improvement efforts because it allows us to distinguish between accommodation and convergence/divergence. A careful reading shows that accommodation plays no role in your vision improvement efforts whether you select Bates and relaxation alone, or a combination of convergence/divergence and Bates. This is why accommodation is such a big distraction from our efforts to improve our vision. It is little more than a theoretical explanation of how the eyes adjust to near vision. In contrast, convergence/divergence is applied and practical, and I believe it is the means by which all of your vision improvement will come.

Another difference is that accommodation is used to obtain clear images up close. The focusing function of convergence, when fully activated, will be used to acquire clear images both near and far. The focusing function of divergence will also be used to acquire clear images both near and far. By transitioning between these images you will be creating a massage like action on the eyes that breaks down the structural rigidity that holds the eye in its malformed shape.

The final difference is that accommodation is primarily an involuntary function of the eye and of little use in your vision improvement efforts. Convergence/divergence allows much more extensive use of the extraocular muscles because it is under complete voluntary control. This is what allows you to converge and diverge near and far, and this is why reactivation of convergence/divergence is the most important step in your vision improvement efforts.

If the eyes are permanently malformed, I believe convergence/divergence is the only way to restore clear vision. This is not readily apparent because the extraocular muscles are so atrophied that they are only able to weakly push and pull on the eyes. Structural rigidity has become a permanent condition of the malformed eyes and there is little the atrophied muscles can do to affect a change in their shape. This is why Three Cups is the ideal exercise for the reactivation phase. For one thing the images are large and easy to see, and secondly, the diagram is held at 12 to 24 inches during the reactivation phase. Thus, it is relatively easy to get started. Sadly, most fail at this stage and never give themselves a chance at clear vision. That should not happen because reactivation is not just the

most important phase, it is the easiest. Most everyone should be able to reactivate this mechanism in a few short weeks.

Just remember that this phase is not about clarity. It is about reactivating the mechanism that will eventually restore your vision to clarity. Even if you acquire the images imperfectly convergence/divergence begins to wake up the dormant muscles. When you begin to feel the muscles working you can accentuate that feeling. As you accentuate the feeling you gain greater and greater control of the visual process. Once you gain greater control you will realize that you have engaged the extraocular muscles and reactivated this powerful mechanism. Clarity will come, but not until sometime during the strengthening phase.

Three Cups

The reactivation phase consists of convergence, divergence and alternating between them. These skills are learned by doing the Three Cups exercise, but notice that no definitions have been given in the previous discussion. Putting words to a definition will not help anyone improve their vision. Within this context the only relevant definition of convergence is the acquisition of the convergent image during three cups, and the only relevant definition of divergence is the acquisition of the divergent image during three cups. These are performance-based definitions that are totally dependant on your ability to acquire the convergent and divergent images. These definitions will keep the emphasis on "doing" which is what this methodology is all about.

To get started you will need a Three Cups diagram and a pencil.

Three Cups Diagram

(click on image for PDF version)

Start out by holding the diagram at eye level at a distance of one to two feet. Hold the pencil in front of the diagram and converge your vision on the tip of the pencil. As the third cup appears shift your attention from the pencil to the third cup. As your attention fixes on the third cup you can slowly remove the pencil. The goal is to acquire the third cup without the pencil by the end of the first week. Pointing your eyes slightly inward will help you acquire this image when you no longer need the pencil.

Divergence is similar. Hold the diagram at one to two feet and focus on a distant object. As your eyes relax you will see the third cup just below the distant object. As you maintain your attention on the distant object shift your attention to the third cup. if you lose the image of the third cup shift back to the distant object and try to acquire it again. As you increase your focus on the third cup you will notice it becomes three-dimensional, but it will be the reverse of the convergent image. The goal is to acquire the divergent image without using the distant object by the end of the second week.

The final step is to alternate between the convergent and divergent images without the aid of the pencil or the distant object. This step is very important because it sets up the massage-like action on the eyes that will eventually return them to spherical. This step is also the best way to feel the muscles working again because it's easiest to feel the difference when alternating between the images. I experience it as a tugging on the back of the eye to converge and a pushing out on the front of the eye to diverge. Remember that simple pointing of the eyes will not reactivate these muscular systems. It is the "trying to see part" that reactivates this mechanism. Eventually you will be able to converge and see clearly and also diverge and see clearly, and in this way you will gain

voluntary control of the visual process. It should take another week to gain some proficiency at this skill.

Technically speaking this is the end of the reactivation phase. But if you still can't feel the muscles working continue in the Three Cups progression. The next steps, however, involve increasing distance from the Three Cups diagram, and anything involving increasing distance is a strengthening exercise. It is included here because of the paramount importance of feeling the muscles working again. What you actually feel are the muscles working to deform the eyes slightly back to spherical. You must be able to feel the muscles working and you must bring them under voluntary control or you have not reactivated this foundational tool.

Up until now all of the Three Cups work has been at or near your focal length. The following steps will break you out of that comfort range so you can feel the muscles working again. Place the Three Cups diagram on a window at eye level. Stand about 1 to 2 feet from the card and acquire the convergent image. Slowly walk backwards until you lose the image. Reacquire the image and slowly walk back to the starting point. Repeat the process with the divergent image using a distant object outside the window to acquire the divergent image. In an advanced technique you will stand at a distance and alternate between the convergent and divergent images.

All of these techniques involve gradually increasing distance and gradually strengthening the extraocular muscles. Moving outside of your comfort range will encourage additional pressure on the eyes, additional strengthening and additional deformation back to spherical. When the eyes are strong enough to exert pressure and influence the shape of the eye a bit back to spherical you should be able to feel the muscles working again.

Baby Steps

After three weeks I realized the muscles were still there, they were still functioning and they could still be used to improve my vision. This was tremendously motivating for me and it should be for you too. But reactivating the muscles alone does not increase vision clarity. Eventually I realized that these were baby steps on the way to better vision that do not provide the full muscular workout needed to remove refractive error from the eyes. That takes place in the strengthening phase which is the most difficult part of the process.

But before you move on I recommend a visit to www.magicseye.com. These pictures require that you apply the divergence skill you've just learned. Its great fun to watch the three dimensional images emerge from the screen as if by magic. But don't be disappointed if you still can't do it. Some of images are pretty tough to acquire. You just need to strengthen the extraocular muscles a bit more and gain a little more control.

Strengthening: The Most Difficult Phase

Congratulations. After three weeks of hard work you have reactivated the foundational tool by which you will improve your vision. Unfortunately, your vision probably has not improved very much. That is because although the foundational tool has been reactivated, it has not been strengthened. In this section you will learn how to fully engage and strengthen the extraocular muscles. Strengthening, incidentally, does not come primarily through the Three Cups exercise. It comes through the application of convergence/divergence learned in Three Cups to the other exercises. Convergence/divergence is called a foundational tool precisely because it must be applied to the other exercises and not restricted to Three Cups. If you expect to continue the vision

improvement process it is essential that you transfer this skill to the other exercises. This is an indispensable part of the vision improvement process.

Fundamentals of Strengthening

The second principle of good vision is centralization. The following excerpts provide some of the fundamentals of centralization.

"Centralizing of the eye means centralizing of the mind, ..., for all operations of the physical mechanism depend on the mind."

"Centralization is an attitude of the mind that you see one central point best, and everything out in the peripheral vision is seen less clearly."

"The practice of centralization relaxes the mind and body. This mental relaxation, along with the relaxation provided by relearning movement, allows the extrinsic muscles to release their chronic tension" and finally "You are retraining your mind to centralize. It is the only way to return to clear sight."

All of these statements assume that the proximate cause of poor vision is tension in the extraocular muscles and release of that tension restores the eye to spherical and vision to clarity. As a result, there is a strong and abiding resistance to any sort of effort in the vision therapy community. The following statements reflect that belief: "We cannot by any amount of effort make ourselves see, but by learning to centralize our thoughts we can accomplish that end indirectly." "...the eye at rest is adjusted for distance vision. If one does anything when one wants to see at distance, one must do the wrong thing" and "All persons with normal eyes and normal sight do not concentrate on trying to see by any effort."

Tension in the extraocular muscles was the predominant cause of poor vision in the era when Bates practiced vision therapy. The methodology presented here is a different solution to a different problem. Based on the track record of vision therapy we must at least consider the possibility that tension in the extraocular muscles is not longer the proximate cause of poor vision. Certainly, tension was the original cause at the onset of poor vision, but for most of us the eyes have long since adapted to corrective lenses. The lenses have artificially reduced or eliminated tension in the eyes and there is no tension to release. Now the proximate cause of poor vision is the permanent structural malformation in the shape of the eye.

Instead of restoring centralization indirectly through the centralizing of your life and thoughts this methodology requires the direct application of muscular force by the extraocular muscles. The problem with the indirect approach is that you still have to place an image on the fovea centralis for clear vision to take place. That depends on the proper optical configuration of the eye, and that can only take place in the eye and not the mind. Just as the principle of motion can be reduced to a simple pointing exercise with little effect on vision, I believe you can centralize your life and your mind and it will have little effect on your vision. If the eye is permanently malformed the release of tension will not restore the eye to spherical.

Instead, restoration of clear vision requires the strenuous use of the extraocular muscles to break down the structural rigidity that holds the eye in its malformed state. If your eyes are permanently malformed by years of dependence on prescription eyewear this is likely the only way to restore your vision to clarity. Rather than a release of tension, this methodology requires that the muscles be gradually strengthened in an incremental manner until the eyes can assume the proper optical

configuration for clear vision to take place. Note that this is the exact opposite of what is normally prescribed in the vision therapy community.

The Practice of Strengthening

Strengthening is the most difficult phase of vision improvement. This is the brute force hard work phase of vision improvement, but it is the phase where real vision improvement takes place. There is little role for relaxation techniques during this phase although Bates will become more relevant in the reshaping phase. Most vision improvement programs fail to recognize convergence/divergence as the foundational tool for vision improvement and fail to activate the extraocular muscles that control it. Most in the vision therapy community are constrained by the belief that any such effort is not permitted and fail to recognize convergence/divergence as the means by which they can restore their vision. This mindset must change or vision correction will continue to elude those who seek it.

The hard work has just begun. Strengthening the extraocular muscles is a gradual process. Common sense dictates that muscle strengthening comes with increasing distance because increasing distance requires a greater dynamic range of motion from the extraocular muscles. Greater dynamic range of motion creates a more forceful massage-like action on the eyes. This allows you to push and pull on the eyes a little more during convergence and divergence, and allows you to reform the eyes to spherical a little more. As the muscles strengthen under the new workload you will be able to increase distance from the Snellen and strengthen them even more. It is a positive feedback loop that will continue until you achieve clear vision. In addition, when these muscular systems are fully engaged you will be breaking down the structural rigidity that holds the eye in its permanently malformed shape.

For these reasons the emphasis should always be placed on increasing distance during the exercise sessions. Never stay at a particular distance until you can see the letters with perfect clarity. When you know you have improved move back even if the letters are still a little fuzzy. At this stage it is far more important to strengthen the extraocular muscles, increase the massage-like action on the eye and break down structural stiffness in the eye. Clarity will come in due time. Let's start with one of the most powerful and effective strengthening exercises.

In and Outs

"It will be well to have two cards, one to be used at near point, where it can be seen best, and the other at ten or twenty feet. The student will find it a great help to shift from the near card to the distant one." - William H. Bates, *Perfect Sight Without Glasses*

The In and Out exercise is by far the most important and effective strengthening exercise so be patient as you master this important exercise. Vision for Life provides a near card (handheld) and a far card (Snellen chart) for posting on a wall. The goal of the exercise is to bring the near card closer and the far card farther as your vision improves. The near card has letters of varying sizes laid out like a Snellen only smaller. Vision for Life instructs on how to set up initial distances from the cards and which size letter to use but they don't say how to do the exercise. They instruct to focus on a letter on the near chart. Then smoothly and quickly shift to a letter on the wall chart. Then shift back to a letter on the small card and so forth.

I struggled with this until I began to apply the skills learned from Three Cups to the In and Outs. The way I do it is to converge on a near letter, converge on a far letter, diverge on a near letter, diverge on a far letter. In this way I look at each letter twice before moving on to the next, once with

convergence and once with divergence. The key to this exercise is that you must know what convergence and divergence feel like when doing Three Cups and then transfer that same feeling and action to the in and Outs.

Notice that the above sequence includes converging on a distant letter on the Snellen. By some definitions convergence is a function of near vision and convergence on a distant letter is impossible. Recall, however, that it was the focusing function of convergence that was reactivated, not the pointing function. Also recall that the focusing function depends on the reactivation of the oblique muscles, not the pointing function of the recti muscles. In acquiring the letters during In and Outs you are using the oblique muscles in the same way that you originally acquired the convergent image during Three Cups. You already know what that feels like and you are able to duplicate the same feeling and action during In and Outs. I perceived it as a slight tugging on the back of the eye. You tug a little to acquire the near image. Then you tug a little more to acquire the far image. This is a performance-based definition of convergence because it depends totally on your ability to acquire the convergent image during Three Cups. Knowing what it feels like allows you to transfer the convergence skill to the In and Out exercise.

The same goes for divergence. By some definitions divergence is a function of distance vision and divergence on a near letter is impossible. Recall, again, that it was the focusing function of divergence that was reactivated, not the pointing function. Also recall that the focusing function depends on the reactivation of the oblique muscles, not the pointing function of the recti muscles. In acquiring the letters during In and Outs you are using the oblique muscles in the same way that you originally acquired the divergent image during Three Cups. You already know what that feels like and you are able to duplicate the same feeling and action during in and Outs. I perceive it as a pushing out on the front of the eye. You push out a little to acquire the near image. Then you push out a little more to acquire the far image. This is a performance-based definition of divergence because it depends totally on your ability to acquire the divergent image during Three Cups. Knowing what that feels like allows you to transfer the divergence skill to the in and Out exercise.

The In and Out exercise requires that you do the exercise with the right eye, the left eye and then both together (eye patch required). This means that you must be able to converge near, converge far, diverge near, and diverge far with one eye at a time. By definition you cannot converge or diverge with one eye at a time because this is a function of both eyes working together. But once again I am not referring to the pointing function of the eyes. In acquiring the letters during in and Outs you are using the oblique muscles in the same way that you originally acquired the convergent and divergent images during Three Cups. You already know what that feels like and you are able to duplicate the same feeling and action during In and Outs. This is a performance-based definition of convergence and divergence because it depends totally on your ability to alternate between the convergent and divergent images during Three Cups. Knowing what that feels like allows you to transfer the convergence and divergence skills to the in and Out exercise. It doesn't matter if you are converging or diverging with the right eye, the left eye or both together. The muscles can be isolated and directed independently from the others because you know what it feels like from your experience with Three Cups and you know how to control it. This is particularly important if one eye is stronger than the other.

String Beads String beads is another good application of convergence/divergence. The string beads that come with Vision for Life consist of a black plastic string about 18 inches long with two black plastic beads along the length of the string. This is far inferior to the string beads that came with the

Cambridge Institute for Better Vision program and I never used it. The Cambridge string beads consist of 10 ruby red faceted beads about 3/8 inch in diameter. These need to be strung equidistantly along an 8 foot jute string. You can purchase these items at a craft store for pennies and make your own.

To do string beads attach the far end to a wall for standing position or attach it to the rug or floor in front of you if you prefer to use a chair. Hold the other end of the string to the tip of your nose and focus on the first bead. Then the next and the next until you get to the last bead. Then come back to the first bead one bead one by one. You can also go back and forth rapidly from the first bead to the last. This exercise becomes more effective with the application of convergence/divergence. Converge and then diverge on the first bead before going on to the next. This is the same action on the eyes as the In and Outs. By definition, you cannot converge on the far beads and you cannot diverge on the near beads. But this does not refer to the pointing function of the eyes. It refers to the muscular action by which you acquired the convergent and divergent images during Three Cups. Simply apply convergence and divergence to each bead before going on to the next.

String beads require that you focus on the end of the string held at the tip of your nose. The string will take the form of a "V" with the base of the V beginning at your nose. I was doing string beads for several weeks, but the best I could do was to form an "X" an inch or two in front of my nose. This became a little annoying so I tried a little harder and the V formed immediately and I never had difficulty forming the V after that. This was a small breakthrough. The memorable thing about this incident was how encouraging these small victories can be. Early breakthroughs like this one are important because they tell you that you're in the ball game and better things are ahead.

Reshaping: The Only Way to Normal, Natural, Effortless Vision

"The obliques are the muscles of accommodation, the recti are concerned in the production of hypermetropia and astigmatism." - William H. Bates, Perfect Sight Without Glasses, Chapter IV.

At this point you have trained, strengthened and coordinated the extraocular muscles. You have successfully made the transfer of convergence/divergence from Three Cups to the other strengthening exercises. You recognize convergence/divergence as the foundational tool for vision improvement because you have made consistent steady progress. This progress has been manifested in gradual incremental improvements on the Snellen in both distance from the chart and size of the letters acquired. You are able to exert sufficient pressure on the eyes to acquire clear images by effort, but as soon as the exercise session ends the eyes snap back to their malformed shape and the Snellen returns to fuzzy. This is clearly not the goal of vision therapy.

The goal of vision therapy is normal, natural, effortless vision, and that will not take place until the eyes are permanently reshaped to spherical. The reshaping phase, however, is much like the strengthening phase. Nothing new or different is added. You will find that the real difference is not in what you are doing but in how you are doing it. The other big difference is in you. By the time you reach the reshaping phase you have become an expert on the operation of your own eyes. You have taken full control of the vision improvement process, and your confidence has grown as you expect to see noticeable incremental gains every two to three weeks. You are able to evaluate your own vision weaknesses and adapt the exercises to work on and eliminate those weaknesses. Once convergence/divergence is reactivated you don't need a teacher, coach or vision practitioner to tell what to do.

I am convinced that if you continue to challenge the eyes in the right way they will continue to respond. Anyone attempting vision therapy, however, is bound to encounter periods when improvement stalls. Two general principles may help you in figuring out what is most effective for improving your own vision. If something is still difficult emphasize that and it will improve. Conversely, if something becomes very easy you probably don't have to do it any more. The second principle is, if you are working hard and not improving, do something different. Don't keep doing the same thing over and over without results. Adapt the exercises to your own vision weaknesses. If you do the right thing your eyes will respond and your vision will continue to improve.

Fundamentals of Reshaping Relaxation is the final principle of good vision and the most important. It is universally agreed in the vision therapy community that strain is the cause of tension in the extraocular muscles. When the muscles let go of their strain, the eyeball returns to its normal round state, and with it normal vision. In nearsightedness, for instance, "the person sees clearly up close but the oblique muscles stay contracted chronically. They do not release and the eyeball remains elongated. The reversal of myopia and the subsequent return to normal vision is clearly - and only - an issue of the release of the chronically tight oblique muscles." Similarly, "Chronic tension in the recti muscles is a simple, logical, and straightforward explanation of the foreshortened eyeball in farsightedness. When the four recti muscles release the chronic tension they hold in farsightedness, hypermetropia is reversed - regardless of the mechanism of accommodation."

Bates stated emphatically, "The fact must be impressed on the student that perfect sight can only be obtained by relaxation - nothing else matters." Again, we see a strong bias against any sort of effort. "You may temporarily improve the eye through effort, but you cannot improve it to normal." and "Thus, relaxation cannot be attained by any sort of effort." Relaxation and clear vision are to be attained by reestablishing the habits of natural seeing through constant shifting, swinging, swaying, blinking, breathing, and other relaxation techniques and habits. These techniques, as Bates showed in thousands of cases, are perfectly adequate for those with no experience with corrective eyewear and especially children.

But why are they so ineffective for those of us who experience onset of refractive error in childhood and years or decades of dependence on corrective eyewear ever since? It is my contention that corrective lenses create a new relaxed state that reinforces the malformed shape of the eye and makes it a permanent structural condition of the eye. The eye at rest is no longer adjusted for distant vision. The eyes have found a new resting state as they adapt themselves to the corrective lenses. Relaxation techniques become largely ineffective because there is no tension to release other than normal muscular tension that does not affect the shape of the eyes. The eyes like this new resting state and will always return to it until they are permanently reshaped to spherical.

Instead of relaxation, the exertion of muscular power is now needed to deform the eyes from their new resting state. This, of course, is accomplished through the strenuous use of the extraocular muscles as they are applied to convergence/divergence. When fully activated and strengthened this results in a breakdown of the rigidity and stiffness that hold the eye in its malformed state and allows it to return to spherical. I believe this is the predominant condition of those seeking vision therapy today, and the reason why relaxation techniques are no longer sufficient for the removal of refractive errors.

In any case, the undisputed fact is that the myopic eye is too long, the hypermetropic eye is too short and the astigmatic eye is oval in shape. Whether you chose relaxation or the strenuous use of

the extraocular muscles will largely depend on your vision history and level of refractive error. In either case the eyes must be returned to spherical. This is the only way to restore normal natural effortless vision. For our purposes, that requires us to make the transition from the strengthening phase to the reshaping phase.

The Practice of Reshaping One reason so many fail at vision improvement is their failure to take the stepwise approach. Your eyes can only do what they are prepared to do at a particular time. The muscles cannot be strengthened until they have been reactivated, and the eyes cannot be reshaped until the muscles are sufficiently strengthened and coordinated. And even if you follow the stepwise approach each phase of vision improvement presents opportunity for failure.

At six months into the exercise program I was doing the 20:20 line of the Snellen at or about 20 feet during the In and Out exercise. But immediately after the exercise sessions my eyes would still snap back to their malformed shape and the Snellen would return to fuzzy. I contacted Vision for Life months prior to this and asked how long it would take for normal natural effortless vision to return. I never received a response. I was beginning to think I was better off wearing glasses. No one wants to strain to see so I took a week off to decide if I would continue with the program. This was my opportunity to fail.

Fortunately, I decided to give it another try, and I immediately noticed a big change in how I was doing the exercises. The difference was so dramatic and powerful that I was fearful of damaging my eyes. This was a powerful massage-like action on the eyes that I had not experienced before. The extraocular muscles were now fully engaged in convergence/divergence and ready for the work of reshaping the eyes to spherical. I believe this is what is required to break down the structural rigidity and stiffness that holds the eye in its malformed state. Through a fortuitous set of circumstances I had engaged the full power of the extraocular muscles and gained entrance into the reshaping phase of vision improvement. I believe it was made possible because I took a week off and returned to the exercises with rested and strengthened muscles. Convergence/divergence was now fully engaged, and I was in full control of a powerful tool to reshape my eyes to spherical and restore my vision to normal.

I had experienced an Immediate incremental gain in clarity, but I still struggled with the in and Outs. I was still working hard to clear the Snellen and normal natural effortless vision continued to elude me. In addition, peripheral vision continued to be a weakness. I felt that if my peripheral vision was not good my overall vision was not good. Good peripheral vision would encourage movement and relaxation. When the eyes are able to move and see clearly at all angles natural movement would be restored. To accomplish this goal I added peripheral work to the In and Outs.

The easiest way to explain it is with a clock face. First, I would converge and diverge on a line of letters on the Snellen, one letter at a time, looking straight ahead. Then I would tip my head forward and my eyes upward so that the near card and the far card were in the top of my visual field. I would then retrace the same line of letters using convergence and divergence. This is the 12 o'clock position. Then I would tip my head back with my eyes facing downward. I would position the near card and the far card in the bottom of my visual field and retrace the same line of letters with convergence and convergence. This was the 6 o'clock position. 3 o'clock and 9 o'clock were done by repeating the process with the head turned to the right and the left, and you can do 1:30, 4:30, 10:30 and 7:30 if you think that would be helpful.

This is a lot of repetitions, but by this time the In and Outs was the only exercise I was doing. This elaborate scheme resulted in much improved peripheral vision and laid a good foundation for the rotational exercises yet to come, but effortless vision continued to elude me. Still, I felt my vision was good enough to have the restriction taken off my drivers license. In Pennsylvania you are required to see an optometrist who submits the appropriate form to the DMV based on the results of an eye exam. I still remember asking "What are these pl's?" The optometrist explained that pl stands for plano and that all of my remaining refractive error was due to astigmatism. There was no spherical correction. This was an important piece of information. Unfortunately, I was unable to process it or put it to practical use at the time.

I continued stubbornly with the In and Outs and peripheral work with little additional improvement to show for my efforts. In effect, I was breaking my own rule: If you are working hard and not improving do something different and you will continue to improve. The obvious conclusion was that the In and Outs are an excellent exercise for the removal of axial length refractive errors such as myopia and hypermetropia. This exercise works the oblique muscles which are responsible for the accommodation function of the eyes. This is the function that lengthens the eye to see clearly up close. (I suspect that the In and Outs will be even more effective in the elimination of hypermetropia which is caused by a shortened eyeball) . The other conclusion is that the In and Outs are very inefficient and ultimately ineffective at removing astigmatic refractive errors. This was like pounding on a railroad spike with a teaspoon. I was using the wrong tool for the job and made my own recovery much more difficult and prolonged.

The problem was that I didn't know what else to do. I knew intuitively that some form of rotational movement was required to restore an oval eye to spherical, but I had dispensed with rotational exercises as relaxation techniques and rarely used them. I had to adapt these exercises to my own vision needs and weaknesses. Let's take another look at rotational exercises and how they can be transformed into powerful tools for the elimination of astigmatic refractive errors.

Rotational Exercises for the Correction of Astigmatic Refractive Errors I have consistently dismissed the recti or painting muscles as having little effect on vision improvement. I had dispensed with many of the rotational exercises as mere relaxation techniques and rarely used them. When we add convergence and divergence to these exercises they become powerful tools for the elimination of astigmatic refractive errors. Some are relatively easy and can be added early in the vision improvement process. Others are quite advanced. They require, or work best, if you can acquire clear images in your peripheral vision at distance. Please refer to the strengthening section for directions on how to transfer convergence and divergence to the other exercises.

You may want to start with a variation of Three Cups. Hold the Three Cups diagram at 1 to 2 feet at eye level. Obtain the convergent image and start to make small circular movements with your head and neck. Gradually expand the size of the circles while maintaining focus on the convergent image. Over time, try to expand the circles to the edges of your peripheral vision while maintaining the convergent image through the entire arc of the circle. Repeat the procedure with the divergent image.

Eye rotations are quite different from the Three Cups rotations just described. Emphasis should be on the widest possible arc of vision from the very beginning. This can be achieved with some rotation of the head and neck, and maximum rotation of the eyes. Turn your eyes to the edge of your peripheral vision (up, down, right or left) and obtain a distant object by convergence. Rotate your

eyes through the maximum arc of your vision while maintaining your eyes in the convergent state. You can do full circles, half circles, clockwise, counterclockwise, or even use a paintbrush-like motion as you make your way around the circle. The key to this exercise is to maintain the eyes in the convergent state. Concentrate on what the eyes feel like through the entire arc of the circular motion. Repeat with the divergent image. It is probably not necessary that you obtain a clear image as long as you maintain the convergent state of the eyes the best you can. This exercise adds dynamic motion to the eyes and I find it tremendously relaxing.

The next two exercises are more difficult. Hold the near card (or any suitably sized letter or object) at 1 to 2 feet at eye level. Acquire a letter on the near card by convergence. Make small circles with the head and neck while maintaining the convergent image through the entire arc of the circle. The point of the exercise is to expand the circles to the periphery of your vision while maintaining the image acquired by convergence. Do it slowly enough, at first, so that you can take note of where on the arc of the circle you lose the image. Pay particular attention to these spots. You can go over them with a paintbrush-like motion or you can converge and diverge on these spots. In this way try to restore clarity to the entire arc of your peripheral vision. Repeat with the divergent image.

In the final rotational exercise converge on a distant object or letter on the Snellen chart. Move your head and neck in a small circular motion while maintaining the convergent image through the entire arc of the circle. Again, do it slowly enough to identify where on the arc of the circle you lose the image. Give these spots special attention as you did with the near card. In this way try to restore clarity to the entire arc of your peripheral vision at distance. Repeat with the image acquired by divergence. I would expect this to be the most difficult exercise for those with myopia. I didn't do it consistently until well into the vision improvement process, and then, only after considerable peripheral strengthening with the In and Outs.

The possibilities for these four exercises are endless when you consider different combinations of convergence and divergence, clockwise and counterclockwise, near and far, left eye, right eye and both together. Not all combinations will prove beneficial, but you may want to try near card rotations and far card rotations with one eye at a time. This will help you identify weaknesses in each eye and track their improvement. In addition, you can do them practically anywhere and anytime as they are much less dependent on the props of vision improvement. Otherwise, I cannot give much more guidance on the use of these exercises because I added them so late in my own vision improvement process.

Frequently Asked Questions

What exactly am I in charge of? Convergence/divergence is so important because it puts you in charge of the vision correction process. After successful completion of the reactivation phase you have regained voluntary control over the extraocular muscles that control the focusing function of the eyes. You control each convergence and each divergence on every exercise you perform. This control puts you in charge of the exercise sessions, and it puts you in charge of how good your vision will become. The sessions are no longer random boring and seemingly pointless. You won't be able to achieve central fixation when you begin the strengthening phase because the extraocular muscles are only able to weakly push and pull on the eyes. But once the muscles come under voluntary control you can expect noticeable improvement on a regular basis. This is why reactivation is the most important phase of vision improvement. The voluntary control it provides is essential to the success of all of your subsequent efforts.

Is There an End to Strengthening? Strengthening is the most difficult phase. It will likely require additional weeks and months of hard work but it does not go on forever. At some point in the process you will be able to exert a little more pressure on the eyes, reform the eyes a little more to spherical and clear images will begin to appear. You will be able to converge and acquire clear images and you will be able to diverge and see clear images. You will begin to see edges of the letters clearly and not just fuzzy letters. When the exercise session ends, however, the pressure is removed and the eyes will immediately snap back to their original malformed shape and the Snellen will return to fuzzy. This is an unfortunate characteristic of the strengthening phase. The good news is that you are nearing the end of the strengthening phase and transitioning into the reshaping phase. You should also be less reliant on corrective eyewear and looking for opportunities in which they are no longer required. Going without eyewear at this stage will allow more opportunities to apply convergence and divergence.

How Long Will it Take? It will likely take additional weeks and months of hard work to restore clear vision during the exercise sessions. I did not experience anything resembling clear vision until 5 months into the program, but that does not mean my vision was not improving. I started out reading the 20:50 line (left eye) and the 20:60 line (right eye) at a distance of 6 feet from the Snellen. Once convergence/divergence is fully engaged you can expect noticeable incremental improvements every 2 to 3 weeks. By the end of 4 months i was reading the 20:30 line at a distance of 17 feet. I estimated that 80 percent of my refractive error was corrected within 6 months based on the Snellen results.

To a large extent improvement depends on your own efforts, but roadblocks are inevitable even if you are working hard at the process. In those cases it is not a matter of working harder. It is a matter of doing something different and achieving some kind of breakthrough. At 5 months, for example, I was still doing the 20:30 line at 17 feet. This was a big disappointment. I was expecting steady improvement straight through to 20:20 vision in a few more months, but my improvement had come to a standstill. Out of frustration with my lack of progress I tried a little harder and I started to see the edges of the letters clearly. This was a breakthrough. The muscles were already strong enough due to prior strengthening but I had to take the next step. I had to go beyond what I was doing and break through that barrier. I was able to exert a little more pressure, reform the eyes to spherical a little more and achieve central fixation for the first time. This is what is required to succeed, and it is only possible because I was in control of the visual process.

What About Reduced Prescriptions? A different approach may be needed by those with severe refractive errors, especially if vision is not corrected to 20:20. A good first step may be to do the exercises, initially, while wearing prescription eyewear. In this way you can familiarize yourself and gain confidence with the exercises and possibly halt any further deterioration. If you can do them with prescription eyewear the question then becomes, "Can I do them with 1 or 2 diopters less correction?"

By reduced prescription lenses I mean lenses that are 1 or 2 diopters less than your normal prescription lenses. These lenses are intended for use by those with severe refractive errors during the exercise sessions. In that way you are only working to correct 1 or 2 diopters at a time instead of 6 or 8 or 10. This breaks down your vision improvement efforts into more manageable increments. The first preference would be to do the exercises without reduced prescription lenses, but if that proves to be too difficult you may want to keep this option in mind.

Consider vision history and age of onset as well as severity of refractive error when deciding on reduced prescription lenses. Also assess how your eyes have responded to the reactivation phase. Hopefully, you will be able to reactivate convergence/divergence without the use of reduced prescription lenses because of the large size of the Three Cups image and because you hold the card at a close distance. If you can successfully transfer this skill to the other exercises you should be able to manage without a reduced prescription. Only consider a reduced prescription if that proves to be too difficult.

I believe the principles presented here are sound and will work for anyone with functional refractive errors. I believe those with severe refractive error can incrementally increase distance like everyone else once convergence/divergence is fully reactivated. The problem is that no one with severe refractive error has succeeded with this methodology because no one has tried. I was able to correct a moderate level of myopia with great difficulty. The level of difficulty, however, may be related more to onset in early childhood and many years of dependence on corrective eyewear than the level of refractive error itself. Realize that I can only make these few suggestions for those with severe refractive errors. Hopefully, you will share your breakthroughs and successes on the discussion group and encourage one another as you find your way to better vision.

What About Intermediate Prescriptions? Intermediate prescription lenses refer to prescription lenses used during daily activities after significant vision gains have been realized. After early gains I was able to use my old glasses whenever I needed them, but those with severe refractive errors will in all likelihood need an intermediate prescription if you experience significant early gains.

Obtaining an intermediate prescription is likely to prove problematic. The eyes do not test well during the strengthening phase because the eye naturally seeks its most relaxed state. You may be achieving great gains on the Snellen and your eyes can still test the same at the optometrist. This can be very disappointing. You need to understand that the Snellen results are based on temporarily reforming the eye through effort. The shape of the eye has a memory and immediately snaps back to its most relaxed shape when the exercise session ends. Eye exams are designed to place the eye in its most relaxed state. This enables the optometrist to determine a stable and accurate prescription. Unfortunately, that prescription will likely correspond to the original malformed shape of the eye and your original prescription. If the examination begins at your old prescription the eye will immediately adapt to its old prescription and the exam will show no significant improvement.

If you are making early rapid gains this presents a problem in and of itself. Your vision is in a state of continuous improvement so there is no correct intermediate prescription. In this case the best solution may be to stay with your original prescription as long as possible while you continue to track improvements on the Snellen. You may find that the old prescription works better than ever. I could see with amazing clarity with my old glasses even after months of vision improvement. Another option is to use older weaker glasses if you still have them. You could also try using the reduced prescription glasses discussed in the previous section as your every day glasses.

What About Going Without Corrective Lenses? Some prefer to remove their glasses altogether if their circumstances permit them to do so. This seems impractical for most and in my opinion unnecessary and ineffective. These are the people who believe relaxation alone will restore their vision to normal. If this were the case removing glasses would be a viable option, but if the eyes are permanently and structurally malformed relaxation alone will not restore your eyes to spherical or your vision to clarity. You will just spend a lot of time walking around with fuzzy vision. Strenuous

use of the extraocular musculature is required to break down the structural rigidity that holds the eye in its malformed state. Until that occurs walking around with or without corrective eyewear makes little difference. Of course, when your vision improves you should rely less and less on corrective eyewear, but this is not the means to good vision as some believe.

Is This Right for You? I believe reshaping of the eye is the only way to correct refractive errors and restore vision to normal, and the only hope for those with severe refractive errors. If you can strengthen the extraocular muscles a little you can strengthen them a little more. If you can temporarily deform the eye to spherical a little you can deform it to spherical a little more. If you can permanently reshape the eye to spherical a little you can permanently reshape it to spherical a little more.

Relaxation techniques are outside of your voluntary control and are ineffective on permanently malformed eyes. For those with severe refractive errors the magnitude of error alone precludes any solution involving accommodation through the lens. This is a largely involuntary function of the eye and offers no hope of restoring vision to normal. The gradual reshaping process is the only way for those with permanent refractive errors to correct their vision, so don't ask yourself "Is it possible?" That is not the right question. Ask yourself "Is it possible for me?"

Your success in applying this methodology will largely depend on you. Do you really want to be free of corrective eyewear? Are you arrogant enough, angry enough and stubborn enough to make it work? Have you always hated wearing glasses or contacts? Use that. Are you angry that you probably never had to wear glasses in the first place? Use that. Are you arrogant enough to break out of the orthodox paradigms and the limitations of relaxation alone and find a new way to vision correction? Use that as well because this is a difficult process and you will need all of the motivation you can get.

Quackenbush stated, "Oftentimes, it is the rebellious children in this society who keep their normal sight. They keep moving and pointing regardless of the consequences (when we unwittingly teach our children how to lose their sight by discouraging - even punishing them for movement and centralization). This is a subconscious primitive drive to maintaining normal vision and health."

"The fact is, except in rare cases, man is not a reasoning being. He is dominated by authority, and when the facts are not in accord with the view imposed by authority, so much the worse for the facts." - William H. Bates, Perfect Sight Without Glasses, last paragraph.