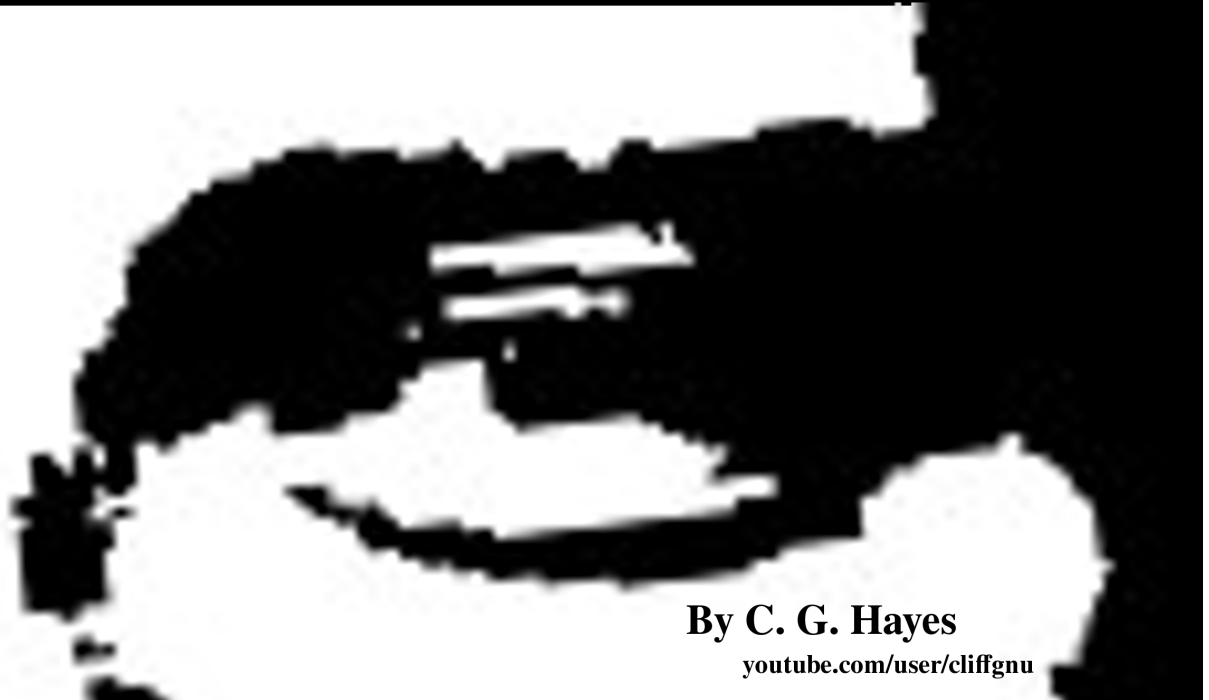




# **The No Bulls#\*t Guide to Vision Improvement**



**By C. G. Hayes**

[youtube.com/user/cliffgnu](https://www.youtube.com/user/cliffgnu)

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## Introduction

### **"Can I clean your glasses, Sir?"**

I was carrying my sack of loot consisting of the nearly random items that can only be put together and purchased at Walmart, when I heard this question directed at my back.

Slowly I turned.

It was as I had feared. A portly man stood in front of the Walmart Vision Center, he was wearing a smart-looking white coat, no doubt to project an image of medical professionalism, and in his hands was a microfiber cleaning cloth and spray bottle of lens cleaning solution.

"What?" I replied. I was caught off guard by his initial question, which was asked without so much as a "hello."

The man looked a bit surprised, like he had never gotten this far. Most people just say "no thanks" or nothing at all, and keep walking without even a glance back. I suppose I'm not most people.

"Can I... I can clean your glasses for you, sir." he stammered. He was looking embarrassed and I stood there just trying to process it all. He's an optician in a big-box retail store, it's a slow day and his manager figures, why not put a guy out there to draw attention to our awkward, little, glasses shop? Maybe snare some folks just passing by who don't even notice the vision center. Start a dialog, put names out there, get people talking, etc...

The optician's white coat was tight across his prominent belly, his cheeks were flushed, his hairline had long since receded, and on his face sat a pair of wire-framed glasses. This is what really had me transfixed. I had been working on my own eyesight for a solid year at that point and had taught myself how to estimate a person's prescription just by looking at them. Our friend was well past moderate-myopia and was looking out at me through at least a -6.00D lens.

It was him and I. He, as an optician (low man on the totem pole, at that) was a pawn sitting on the front line, rooks, knights, a king and a queen behind him. I, a house cat that doesn't understand the game and doesn't want to. I just want to bat the pieces around and lay in the middle of the board... so to speak. One pair of eyes stretched out and strained by high power lenses, making contact with a pair that are healing. Two men, on either side of one big question mark: can my eyesight improve?

"No thanks."

## What is this?

Running a YouTube channel taught me three things:

1. People on YouTube are nicer than I expected.
2. I'm terrible at making serious videos.
3. YouTube videos are a terrible medium for this subject.

This is my attempt to share everything that I have learned in the past couple of years. Think of it as a sort of altruistic gift to anyone who's looking for answers.

In this book you will find absolutely everything you need to improve your vision. When I say everything you need, I mean it. No money needs to change hands and your search for knowledge should end here. My dream is to see vision improvement become mainstream. I hope this book will educate and inspire you to take back what is rightfully yours: your vision!

## Who am I?

I could write that I'm just a normal guy, I like romantic comedies and blah, blah, blah... but that would be a lie. The truth is, I'm not a normal guy. For my entire life I've been different. I have an uncommon first and middle name, used to spend hours reading the encyclopedia, listened to progressive rock instead of pop, could have done well in school but didn't apply myself (my English teachers will kill me if they find out I've written a book), I chose to play lacrosse instead of football, vocational school instead of college, Linux instead of Windows, Dvorak instead of qwerty, GS500 instead of Ninja 250 – you get the idea.

Growing up, I admit to using the term “four-eyes” to make fun of my bespectacled classmates – until I had to get glasses myself. I had no trouble seeing the chalkboard at school and always passed the vision screening, but one year my sister didn't pass and I was taken along to the optometrist just for a checkup. I thought that they'd say that my vision was fine and send me on my way, so you can imagine my surprise when it turned out that I was getting glasses too.

Wearing glasses was one more thing that made me different and I never felt good about it. When I started wearing that first pair, I instinctively only wore them when I needed them and always took them off to read, eat, play sports and hand-held video games. I cultivated a small amount of elitism, telling people that I didn't really need glasses and that my vision wasn't that bad. A year came and went and it was time for another eye exam and a new pair of glasses, paid for by good ol' New York State. This time I found the letters much harder to read without glasses and fuzzy even with glasses. A new prescription was written and the optometrist assured my Mother that it was natural because my sister and I were growing and so were our eyes. He also advised me to wear my glasses at all times to prevent my vision from getting worse.

About 8 years later, I was wearing a pair of glasses about twice the strength of my first pair and with astigmatism correction for my right eye. Working in the IT field as a help desk technician and struggling with computer/Internet addiction ensured that I was spending a solid 15 hours per day staring at a screen, through lenses that gave me better than 20/10 vision at the time they were prescribed. I started having crippling migraine headaches. One was so bad that I couldn't drive home

from work just from the vertigo and nausea. On top of all of that, I was having trouble seeing while driving at night and could barely pass a vision test with my glasses on... but I got better.

About two years ago, in the spring of 2014 I became very interested in the very obscure subjects of behavioral optometry and vision improvement. I went into this journey without knowing anything about eyes, vision, optometry or glasses. I came out of it with better vision (went from worse-than 20/200 to better-than 20/40), a (very) small audience on YouTube and a lot of knowledge.

## **What is Vision Improvement?**

For the purposes of this book, vision improvement will be the term used when talking about the process of obtaining clearer vision. There are many different terms used on the Internet and in books, they all mean the same thing, I like vision improvement the best.

Vision improvement is **not**:

- Squinting to make out the next line on the eye chart
- Wearing pin-hole glasses
- Blinking more/harder/in a funny way to get a different shaped tear film (Contact Effect)
- Doing "eye exercises" or relaxation techniques to get temporary clarity or "clear-flashes"
- **This is NOT the Bates Method!**

Vision improvement is and can only be: Long term, clearer vision that any optometrist can evaluate and verify at any time. It does not require daily practice of eye exercises. It's permanent. Anything less than this is not worth your time, in the same way that it wasn't worth mine. Up until very recently, I did not know for sure if this was actually attainable without surgery. It is, I have it, I've proven it, I've published my eye exam records and I'll submit to any testing to prove it further.

There may be different ways to attain actual, improved vision and I encourage you to figure things out for yourself. What follows is *my own* advice, based on *my own* experience in *actually* attaining better eyesight. No tricks, no for-pay programs and no run-around.

## **Pseudomyopia**

"You need to wear your glasses at all times in order to keep your vision from getting worse." If this isn't the biggest lie I've ever been told, it's gotta be in the top three at least.

The scenario happens every day. A teenager enters an eye doctor's office. An eye exam reveals that their distance vision is fuzzy and they are prescribed glasses. Neither of his or her parents are nearsighted and yet, the eye doctor insists that it's genetics (or a growth spurt) that caused the patient's distance vision to become unsatisfactory. Although it doesn't seem right, the parents accept the verdict and the teenager gets used to the idea of needing corrective lenses for the rest of their life.

The tragedy of the situation is that they didn't need glasses and that glasses will only serve to make their vision worse in the long run. Tragedy, thy name is Pseudomyopia.

First and foremost, pseudomyopia is not my own term, nor is it a term coined by alternative medicine types. Eye doctors of all kinds know this term and understand it completely. It has been scientifically proven. Everyone agrees that it exists and everyone agrees on why it happens.

Pseudomyopia is caused by eyestrain. Not genetics, not growing eyeballs, none of that. It's just good ol' too-much-Gameboy or sitting too close to the TV.

When an eye doctor finds a patient to be nearsighted, they will prescribe glasses – regardless of the cause. These glasses will have a concave shape (thicker on the outside near the edge, and thinner in the center) and will enable the patient to read smaller text at a distance while still being able to see up close. Optically speaking, these glasses work by making distant objects appear closer, and objects close up appear *even closer*.

The problem with prescribing glasses to treat pseudomyopia is that it makes the initial problem worse. Remember that Gameboy screen that was being held too close? Now you're wearing glasses that bring it *even closer*. By not fixing the initial problem and using a lens that makes the problem even worse, you have accelerated the negative effects. More eyestrain results, the patient visits the optometrist with worse vision than they had before and leave with stronger lenses. Within a few years this vicious cycle will cause the initial pseudomyopia to become real myopia, or what most refer to as **axial myopia**.

### **Pseudomyopia Treatment:**

Let's say you or your child are experiencing blurry distance vision. Maybe they only notice after playing Gameboy for 2 hours straight or yourself after working on those TPS reports all night long. You just received the note from the school nurse, glasses have not been prescribed yet, you're thinking about going to the optometrist soon. Don't bother.

All you have to do is **use your distance vision**. Go outside for a walk and look at those fuzzy letters on license plates and street signs. Stay in and watch a movie with the subtitles on. Make it a foreign film. Just do something that requires you to look at something 15-20 feet away for a while. Do this every day and you'll be back to 20/20 in a few weeks.

**Practice the 20/20/20 rule.** You have proven to yourself that you are prone to giving yourself Pseudomyopia through bad habits, so the obvious solution is to get a good habit. When looking at things close up for extended periods of time, take a break every 20 minutes, focus on something at least 20 feet away for at least 20 seconds. That's it. No eye-yoga, no supplements, no surgery and no glasses.<sup>1</sup> You can stop reading here.

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1 Hint: there is plenty of software out there that will remind you to look up from your computer periodically. Use it.

## Axial Myopia

So you've been going to the eye doctor every 1-2 years just like you were told to. You can no longer function without your glasses or contacts and maybe you're thinking about getting laser corrective surgery. Your driver's license has a letter in the restriction section and when you turn it over it says "corrective lenses." If this is you so far, then I'd like to inform you of your graduation from Pseudomyopia to Axial Myopia.

The first thing you should know about normal eyes with 20/20 vision is that they are most comfortable and most relaxed when looking at objects that are 20 feet (or about 6 meters) away or greater. At these distances, light bounces off of the object you're looking at and is scattered in every direction. A small amount of that scattered light gets reflected in your direction, and as science would have it, these rays of light that make it to your eyeballs are traveling parallel to each other. The parallel rays of light pass through the cornea and crystalline lens, and are focused onto the retina. This creates a clear image that is interpreted by the brain.

So, what happens when you look at something closer than 20 feet?

Light hits the object that you are looking at and is scattered in every direction, just like before. This time, some of the rays of light that make it to your eye are not parallel to each other, they are angled *away* from each other. The rays of light now pass through the cornea and through the lens but do not come to a sharp point of focus on the retina – or at least they wouldn't if the eye's lens couldn't change shape.

The crystalline lens is a flexible sack of clear fluid. It is surrounded by tiny muscle fibers that have the ability to make the front surface of the crystalline lens and the back surface farther apart, thereby making lens *fatter*. This changes the angles at which the incoming rays of light are bent and if all goes smoothly, all of the light is focused into a single point on the retina.

To review:

**Pseudomyopia**: The inability to see distant objects because the *ciliary muscle* has been strained by over use of close-up vision. The lens is **locked** in the fatter shape.

**Axial Myopia**: A physical response to the conditions of Pseudomyopia. The rear of the eyeball moves back so that light can still be focused on the retina, despite the lens being too fat.

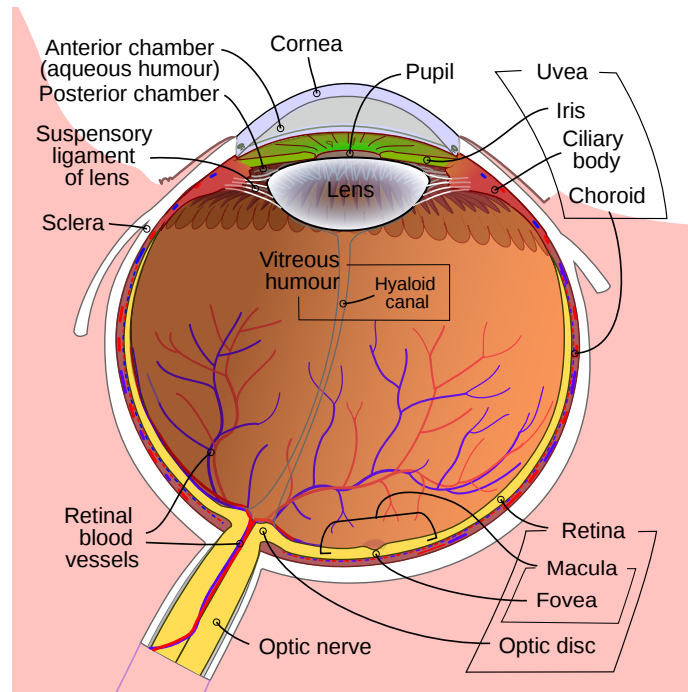


Illustration 1: Cross section view of a human eye.  
Source: commons.wikimedia.org



Get it? The eye can see things that are close to it, but it must use small muscle fibers to pull a sack of fluid into a fatter shape. This action, called **accommodation**, is not easy for the eye to do for long periods of time. If over used, the ciliary muscle will become tired and strained, and will eventually spasm and lock into the flexed position. Distance vision becomes blurry because the lens and ciliary muscle are effectively paralyzed, and the eye is locked in close-up mode. This is the famous “ciliary muscle spasm” which first causes Pseudomyopia, which can become Axial Myopia.

### **Axial Myopia Treatment:**

You went to the eye doctor and started wearing glasses sometime between last year and thirty-five years ago. Don't worry, so did I. The solution isn't as easy to explain or as fast acting as the one for Pseudomyopia, but it does work for everyone<sup>2</sup> and in my opinion it's the only real solution. You can wear glasses or contacts, or go get the laser surgery but none of that will *reduce* the axial length of the eye and **decrease your risk of a detached retina**.

First and foremost, anybody out there who says "you can restore your natural vision naturally as nature natured it in 10 natural minutes/days/seconds" is a **big fat liar**. Ever see an infomercial for exercise equipment? They spend just as much time talking about how easy it's going to be to get six-pack-abs as they talk about the actual product that they're selling. This is going to take months, or years. Progress will be slow, but measurable. In order to be successful you will need to make this a (small) part of your daily life.

Let me put it to you like this: you've been wearing glasses for X amount of years, your prescription has gotten worse and worse. If you could reverse that process of worsening vision by putting a small amount of effort every day and it would take less than X number of years, would you do it?

That's all I promise and nothing more. I wore glasses for 12 years, my vision became progressively worse as the prescriptions became stronger. I reversed the process and my vision became better and better. I undid the damaged caused by 12 years of bad habits and bad glasses in less than a quarter of that time. Imagine being able to look at your own clear reflection in the mirror and know that you fixed the problem yourself. It's so worth it.

## **Prerequisites**

### **You will need:**

1. A Snellen eyechart. Buy one online (ebay, amazon, etc...) or print one out from <http://www.i-see.org/eyecharts>
2. A copy of your eyeglass prescription
3. A do it yourself attitude and persistence

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2 Does not work for those who are nearsighted as a result of macular degeneration, congenital myopia, etc...

## Lesson One: Ever changing optics and the theory of vision improvement.

Get some reading material and remove your glasses. Get close enough to see the text crystal clear. Move the text away until the letters just start to become fuzzy and **hold it there**. Really look at each individual letter, notice the nuances of the font and the spacing between each character. After a time (usually less than a minute) you'll notice that the fuzzy text became clearer without moving closer.

**Here's what's happening:** Your eyes and your brain work together. The brain knows what the letter T looks like and when the eye sends a signal to the brain that says "fuzzy T," the brain knows that something is wrong. Ultimately it is the brain that controls all aspects of the eye, including those tiny muscles that pull on the lens. If you couldn't get the text to become clear or cannot repeat it, don't worry. What we're trying to do here is get the brain (specifically, the visual cortex) to understand that the image is wrong. I'm familiar with one scientific study<sup>3</sup> which showed that this eyeball-brain combination can figure out not only **that** the image is blurry but also, **how** and **why** the image is blurry. It is the exact same mechanism that made your eyesight become worse in the first place.

### What glasses do to the eyes and visual cortex.

It confuses them. Wearing glasses that improve distance vision, to look at things up close confuses the eyes and visual cortex (brain) into adjusting for **Hyperopia** (farsightedness).

*Picture this:* you're 12 years old in school and you're furiously writing that essay portion of your mid-term exam. Under the stress you keep moving your face closer and closer to the piece of paper that you're writing on. Each time you move closer to the paper, the lines and writing becomes just a little bit blurry. This is hyperopic blur. Then the blurriness resolves into clarity. This is caused by the brain and eyes engaging in a kind of troubleshooting game. The brain sees the signs of farsightedness and says to the eyes,

"More accommodation! Fatter lens!"

The eyes reply, "Accommodation is at 70 percent, increasing to 80 percent."

"That's good. Clear image sighted. Hold it there."

You move closer to the paper, the brain sees the text go out of focus again in the hyperopia direction. "Fatter lens!" The brain demands.

This process repeats until the eyes finally answer, "We've given it all we've got!

Accommodation levels are critical! 101 percent!"

At this, the brain barks, "Emergency maneuvers! Increase axial length!" and the whole eye becomes longer.<sup>4</sup>

Thus, the entire theory behind vision improvement is to stimulate the eyes with opposite conditions from the ones detailed above, in order to achieve the opposite and desirable effect.

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3 Scott A. Read, Michael J. Collins, Beata P. Sander; Human Optical Axial Length and Defocus. Invest. Ophthalmol. Vis. Sci. 2010;51(12):6262-6269. doi: 10.1167/iovs.10-5457. ([link](#))

4 The study cited in footnote 3 shows that this axial length change can occur in as little as 60 minutes.

## Lesson Two: How to stimulate the eyes into improving.

Consider what we've learned so far:

1. A normal eye is most relaxed while focusing on something 20 feet away or greater.
2. The eye has a flexible lens that enables it to focus on things closer than 20 feet.
3. When the ciliary muscle is relaxed, the (crystalline) lens is flat and the eye is brought to (normally infinite) distance focus.<sup>5</sup>
4. Minus lenses prescribed to correct nearsightedness work by making things closer and smaller, as viewed through the lenses.
5. Viewing objects close up requires the eyes to focus a blurry image. The eyes and brain can figure out WHY the image is blurry (it's too close) and HOW to bring it into focus (accommodation and then increase axial length).

We have established that the eyes and brain recognize two different types of blur. Borrowing the terms used in the cited study, we will call them,

**Myopic Defocus**: caused by objects being too far away. Think, blurry chalkboard.

**Hyperopic Defocus**: caused by objects being too close. Think, a toddler showing you something by holding it 2 inches in front of your eyes.<sup>6</sup>

Hyperopic defocus occurs just before accommodation, so as long as that works properly, we never even see it. The eyes refocus too fast to see the blurry image. However, we do feel the after effect in the form of eyestrain, which is the strain of actual muscle doing actual work. Hyperopic defocus is balanced by myopic defocus, which is the signal for the ciliary muscle to relax and for **axial length to decrease**. In short, the very symptom that brought you to the eye doctor in the first place, when you couldn't read the chalkboard, is what is necessary to stimulate the eyes into decreasing axial length.

You need to subject your eyes to myopic defocus while reducing, but not eliminating their exposure to hyperopic defocus. Simply put, you need to do 2 things:

1. See a small amount of blurriness in the distance by reducing your distance prescription.
2. Be mindful of how much time you spend looking at things that are close up.

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5 A person with **axial** myopia will have eyes that bring objects **closer** than 20 feet into focus with a **flat** crystalline lens and relaxed ciliary muscle.

6 Fun fact: we lose our ability to accommodate as we age because the crystalline lens becomes less flexible. This process starts when we're a few years old. We start out with the ability to gain +14.00 diopters of incredible, near-focus power when we're in the single digits and then it drops off to a measly +2.00 diopters right around 50 years of age. Little kids put things in your face like that because it's very easy for them to see things that close.

## A word on Astigmatism

Before We get to talking about specific vision improvement plans, I need to explain how astigmatism is notated on your prescription and how it relates to reduced lens therapy.

	<b>Sphere</b>	<b>Cylinder</b>	<b>Axis</b>
<b>O.D.</b>	-1.75	-0.25	100
<b>O.S.</b>	-1.50		

On your eyeglasses prescription, there should be two main rows, OD and OS, these stand for your right and left eyes, respectively. These two rows are then divided into 3 columns, Sphere (sph), Cylinder (cyl) and Axis. The last two are for astigmatism (cylinder and axis). Simplifying here, Astigmatism is when the surface of the eye or cornea, is not a perfect, regular shaped sphere, it curves more on one axis (say, north-south) than the other axis (east-west). I hate this analogy but I have no choice but to use it: picture an (American) football. The cylinder number is how inflated the football is and the axis number is its orientation.

**When ordering a pair of glasses, follow these rules for astigmatism:**

1. If you've only got a -0.75, -0.50 or -0.25 in the cylinder column, don't bother with the next steps. **Order your glasses with the cylinder and axis boxes blank.**
2. Astigmatism can be corrected for by increasing the sphere value by 50% of the cylinder value. For example: you've got a -3.00 sphere, -1.00 cylinder, axis 100, change it to: -3.50 sphere, BLANK cylinder, axis BLANK. This is called a **spherical equivalent**.
3. You do not have to use a spherical equivalent, you can reduce the cylinder value incrementally if you wish. If you go that route, keep the axis value the same.
4. Remember, **this is not rocket science**. So long as you don't change the numbers too much, you can't go wrong. Worst case scenario, you wind up ordering a pair of glasses that make you feel uncomfortable – which isn't a big deal since most sites have a no questions asked replacement policy.

**Once again.** Reduced lens therapy is *not* rocket science. Do not get scared away by this stuff. Reduce the sphere and cylinder values on your prescription in small steps, and your eyes will improve. It's really that simple. Seriously, **you could stop reading here if you wanted.**

## Obtaining Weaker Glasses

Guess what? You're now your own optometrist. That guy or gal in the white coat probably isn't going to cooperate with this stuff. The good news is, you can order your own glasses online without a prescription (they're not even real prescriptions in the first place), and it's a piece of cake. My favorite site for this is [eyebuydirect](#) but [zennioptical](#) is also good. I've used both and had a great experience every time.

Basically, you go on the site, pick out frames (you can upload a photo of your face to try them on and approximate the size), enter the prescription and options for coatings (get the anti-glare/anti-reflective, trust me, you'll want it) and then it's just like buying anything else on the Internet. Shipping address, payment and done.

When you get this first pair of glasses, take note of sizing information on the product page for that specific frame. Write it down and keep your own record of it. You may find that you hit the nail on the head with the first pair and you'll want the sizing info for the next pair. These sites often have useful measurements that aren't in the standard sizing info on the frame itself, and they change out inventory periodically. You may try to look up your frame to see how the hinge to hinge measurement compares to a prospective new frame only to find that they discontinued the frame and that precious data is gone. Ask me how I know this.

**How frame sizing works:** it's 3 numbers, such as 53-19-141 (my size) which correspond to the width of one of the lenses (53mm on mine), the width of the nose piece (19mm) and the overall length of one of the frame's arms (141mm).

If you're at all scared by the prospect of figuring out your own prescription and ordering your own glasses, ask yourself, what's the worst that can happen? You're eyes get screwed up and vision gets worse? Newsflash, that's already happening under the supervision of an optometrist. They have failed to help you. **If you want something done right, you do it yourself.**

### **Action Plan 1: Starting from High Myopia**

Your prescription has numbers greater than 6 (-6.00, -7.00, ect...) in the Sph (sphere) column. Your eye doctor talks to you in somber tones about the risk of retinal detachment but hasn't told you what to do about it.

#### **Here's what you do about it:**

1. Set up an eye chart either in good lighting indoors or in the shade outdoors. Look at it from 20 feet away with your glasses on.
2. If you can see better than the 40 foot line (20/40), obtain weaker glasses (*see the relevant section*). You're going to want to lower the values in the sphere column on your current prescription by 1 whole diopter. For example, if you're at a -7.00 in one eye and a -7.75 in the other, lower it to -6.00 and -6.75, respectively.  
If you can only just barely make out the letters on the 40 foot line, keep your current glasses until you can see the 32ft line (one below).
3. Wear these less-than-20/40 glasses whenever it is not critical that you have perfect distance vision, such as doing laundry, watching TV, work, etc... Do not wear them while say, driving at night or vampire hunting.
4. Test your vision in these new glasses periodically using the eye chart. When you can see better than 20/40, repeat the process from step 2. When your prescription is reduced to fewer than 6 diopters, move on to the next section.

### **Action Plan 2: Moderate Myopia**

The sphere column has numbers that are less than 6 but greater than 2.

1. Perform the same process as Action Plan 1: eye chart, test vision...
2. This time, when it's time to lower your prescription it's going to be in smaller steps. Here's the sequence: -6.00 → -5.00 → -4.50 → -4.00 → -3.50 → -3.00 → -2.75 → -2.50 → -2.25 → -2.00  
**Notice** that these are +1.00 steps to begin with, then +0.50 and finally +0.25, which is the smallest increment that you can change the lens power by. If you'd like to know why, look at the handy table in the appendix at the end of the book.
3. Same as before, lower the prescription when you can see better than 20/40.

### **Action Plan 3: Mild Myopia, the final stretch**

Your prescription is less than 2.00 Diopters.

1. Perform the same process as Action Plan 1: eye chart, test vision...
2. When it's time to reduce the prescription, reduce it in steps of 0.25 (unfortunately, this is the smallest increment, *see appendix*).
3. If you've gotten to this stage from moderate or high myopia, be prepared for this part to take a very long time.

### Optional for ALL 3 PLANS and a word on positive lens usage.

For best results, order another pair of glasses for close up stuff, such as reading or working on a computer. Do this by adding +1.25 to your distance prescription for computer work and +2.50 for reading. For example, if you've got a -6.00 then,  $-6.00 + 1.25 = -4.75$

If you follow this process and reduce your prescription down to -2.00, or if you start out at -2.00 (or less) you have a decision to make. *Watch this:*  $-2.00 + 2.50$  (for reading) = +0.50

#### **Do you want to use a positive lens for close up stuff?**

This is usually referred to as **positive lens therapy**. I heard a story somewhere that during World War II there were recruits who wanted to be pilots but couldn't pass the vision test. These enterprising recruits somehow figured out that if they wore weak reading glasses (positive lenses, such as +1.00) for a small amount of time, their uncorrected distance vision would permanently improve. I have been unable to fact check this story but it would make sense and it *would* actually work. However, though I did find that my own distance vision improved when I used positive lenses in the form of reading glasses, there are two considerations that caused me to discontinue their use.

1. **Presbyopia:** we lose our ability to accommodate as we age. Every second that you use a positive lens to see up close, your lens is flat and not flexing. It may be the case that you use it or lose it.
2. **Accommodation and Convergence:** In their natural state, the eyes have a shortcut for focusing on close up objects. As an object gets closer, the eyes have to converge or turn toward one another. The eyes and brain learn that there is an amount of accommodation that matches this convergence. Unfortunately, looking through corrective lenses will disrupt this process and alter the amounts of accommodation needed. It has already been screwed up by wearing distance glasses, do you really want to screw it up more with reading glasses?

**Bottom line:** I continued to improve despite my decision to avoid positive lenses and really, I wanted to improve my vision so that I could be free of glasses. Why introduce more glasses into my life?

#### **That's it.**

That's everything you need to know in order to reverse your progressing myopia through reduced lens therapy, and I even explained positive lens therapy, despite not recommending it. You can go out on the Internet and pay for all sorts of books and memberships to forums, but you're not going to find anything beyond what I've written here that will actually help you to improve your vision. Trust me, I've looked and I've tried everything.

The writing that follows is not necessary to read, but you may find it helpful. Feel free to skim.

## The B Word

*"But, Cliff..."*

*"...I heard that all you have to do is perform these simple exercises everyday and get better vision."*

So these eye exercises, do you do them with glasses on or off? How do you know if you're doing them correctly? Why isn't necessary for people with normal vision to do these exercises? Why isn't there anyone out there with cold, hard, objective proof of vision improvement through eye exercises?

They may work for some people, but it's my opinion that they are unnecessary. Animal studies showed that vision worsened and then improved in response to lens usage and reduction. I'm pretty sure they didn't make the chickens and marmosets do eye exercises. Same with the human study.

*"...I like wearing my glasses. They're fashionable/make me look cute/distract from my hump-back/etc..."*

You can use these techniques to reduce your dependence on glasses by reducing your prescription or just to stop your vision from getting worse. You don't have to rid yourself of glasses completely, just get out of harm's way (retinal detachment) or get rid of your coke-bottle lenses.

*"...going to the optometrist and getting new glasses is too expensive. What am I supposed to do, go there every month when my vision improves?"*

Nope. Do it yourself. You're fully capable of looking at an eye chart from 20 feet away and typing a few numbers into an order form. You can get a complete pair of glasses online for \$20 including shipping and everything, or a really nice pair of glasses for \$40.

*"...ordering my own glasses is way too hard and I can't figure out the prescription."*

Really it's not. Just try it. You'll figure it out. If you really can't do it and you're stumped, contact me. Seriously, I don't bite and I'll take the 30 seconds to write you back. You're really not putting me out by asking.

*"...Lasik is so cheap now. It's only \$300/\$200/10-cents per eye and it only takes 15 minutes. Why would I waste my time on this? This sounds like it's hard work."*

This is work but it's not hard. How do you feel about gastric bypass? Even surgeons who perform it know that it's no substitute for good-old-fashioned diet and exercise. This is what we're talking about here, diet and exercise versus weight loss surgery. If you want a better analogy, this is gastric bypass versus weight loss by buying smaller clothes.

Lasik is not worth any amount of money because it's not a real solution to the problem. Lasik does not decrease the axial length of the eye and thus does not reduce the risk of retinal detachment. Lasik, Lasek and PRK work by carving the surface of the eye (cornea) into a permanent contact lens. There is no guarantee that you will walk away with 20/20 vision, or even 20/40. Many people need



repeat "touch up" sessions and the FDA has considered outlawing it in the United States. Read the FDA study on Lasik sometime, it's a real hoot.

## Questions and Answers

Q: Let's say a person has mild myopia and they've never worn glasses. Why do they have bad vision and why doesn't their vision improve?

A: Their vision is bad because they have bad habits, such as looking at a smartphone 6 inches from their face for hours at a stretch. If you don't change the habit, vision doesn't improve.

Q: Why can't I just take off my glasses and have better vision?

A: You can, but most people don't like to be blind. If you have just a little bit of blur, you'll have totally functional vision and still improve. It's the best of both worlds.

Q: Is there a way to improve my vision while wearing contacts?

A: Possibly. I've never worn contacts so I don't feel qualified to recommend a plan of improvement that uses contacts instead of glasses.

Q: I only have an astigmatism, will this stuff work for me?

A: Yes, make the numbers on your prescription smaller (don't change the axis value) and order the glasses. I dare to say that astigmatism is more lens-induced than myopia.

Q: What about print pushing?

A: Print pushing is the most common name for the practice of placing text at a distance where it just starts to become blurry and then adjusting the distance so that the text goes from blurry to clear. After practicing this, you will notice that the point at which the text becomes blurry is further than it used to be. This is good. Practice print pushing in 15 minute sessions, twice per day but don't try too hard to make blurry text clearer. This will strain your eyes and make your vision worse.

Q: I have two different eyes (Anisometropia), one's worse than the other. Will this work for me?

A: Yes. I have 2 different refractive errors. What you want to do is get the prescriptions to be equal but don't make drastic changes. IE. Go for -2.00,-2.00 instead of -2.50,-2.00 Do not go from -3.00,-2.00 to -2.00, -2.00

Q: I (or someone I know) have worn glasses my whole life but recently my prescription decreased instead of increase like normal. Why is that?

A: When I hear this question it's usually from people who are about 30-40 years of age. My theory is that it is part of the onset of presbyopia. The lens gets harder and less flexible, but also flatter. For someone with myopia this means that their refractive error is reduced and thus their *distance* vision gets better. Unfortunately, it also means that they're going to need longer arms soon.

## Appendix

<b>Diopters</b>	<b>Focal Len. (m)</b>	<b>Focal Len. (cm)</b>	<b>Mag. Power</b>
0.25	4	400	1.06
0.50	2	200	1.13
0.75	1.33	133.33	1.19
1.00	1.00	100	1.25
1.25	0.80	80	1.31
1.50	0.67	66.67	1.38
1.75	0.57	57.14	1.44
2.00	0.50	50	1.50
3.00	0.33	33.33	1.75
4.00	0.25	25	2.00
5.00	0.20	20	2.25
6.00	0.17	16.67	2.50
7.00	0.14	14.29	2.75
8.00	0.13	12.5	3.00
9.00	0.11	11.11	3.25
10.00	0.1	10	3.50

Above is a chart that shows the relationship between lens power in diopters to focal length distances. Notice that the difference between say 8.00 and 9.00 diopters is less than 2 centimeters, whereas the difference between 0.75 and 1.00 is more than 33 centimeters. This is why I call for reductions of whole diopters to start with if you're starting with high-myopia (greater than 6 diopters) and then tapering it off to quarter diopter (0.25) increments.

This is also why I wish I could have had a pair of lenses made with less of a jump when I went from -0.75 to -0.50 because the focal length change was twice that of the one before (first a +33cm jump, then a +66cm jump). A pair of -0.65 lenses would have been perfect.