Article Title

Significant Improvement in vision parameters for 152 participants with at least one of 11 eye diseases using four alternative therapy interventions administered over a three-day time period.

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Conflict of Interest: Patients have the option to purchase a Microcurrent machine, light therapy equipment and/or an ozone generator after the three day program, but researcher has no financial interest in the manufacturing or distribution of this equipment. Purchase option is offered as a convenience to the participants.
Abstract

The purpose of the research was to demonstrate the effectiveness of alternative modalities in improving vision in chronic eye conditions even when administered over a short term period.

One hundred fifty-two patients with one or more of 11 types of eye disease attended one of 11 three-day sessions conducted by ophthalmologist Edward Kondrot, MD at his Healing the Eye and Wellness Center near Tampa, Florida, over a two year period (January 2011 - December 2012). The number of participants in each session ranged from five to fifteen with thirteen as the average. All participants remained in the study for the duration of the program. These 11 ocular conditions are ordinarily considered incurable by any method except surgery - and even with surgery the outcomes can be variable and/or transient. Seventy-eight percent of the patients had either Age-Related Macular Degeneration or Glaucoma which together are the leading cause of blindness in persons over 65 years of age. Detailed medical, dietary, and lifestyle histories were taken at the beginning of the three days. The purpose of the sessions was to improve vision using alternative treatments of IV Nutrition, Oxidative therapy, Microcurrent Stimulation, and Syntonic Light therapy. Each participant received each modality in the protocol. Following the administration of the protocol, significant improvement in Acuity, Contrast, and Visual Field resulted in the majority of participants. None of the interventions was toxic or painful, and all likely contributed to improved overall health status of the participants. Long term follow-up studies are now in process.
### TABLE 1: Ocular Conditions, Number of patients, and Number of eyes

<table>
<thead>
<tr>
<th>Condition</th>
<th>Patients</th>
<th>Eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-Related Macular Degeneration-Dry (ARMD)</td>
<td>70</td>
<td>140</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>29</td>
<td>58</td>
</tr>
<tr>
<td>Age-Related Macular Degeneration-Wet</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Macular hole, Macular wrinkling, Pucker</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Stargardt’s Disease</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Cataracts</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Ischemic Optic Nerve Disease</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Retinitis Pigmentosa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetic Retinopathy</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Histoplasmosis scarring</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Cone Dystrophy</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>152</strong></td>
<td><strong>290</strong></td>
</tr>
</tbody>
</table>

*Some patients had disease in only one eye; some patients had more than one disease.*

### TABLE 2 - Summary Results of all 152 patient or 290 eyes treated

**Acuity Improvement**

- 2 lines (10 letters) or more: 43 eyes, 15%
- 1 line (5 letters) more: 158 eyes, 54%
- 1 to 4 letters more: 66 eyes, 23%
- No change: 23 eyes, 8%

**Contrast Improvement**

- 5 or more letters more: 104 eyes, 36%
- 1 to 4 letters more: 151 eyes, 52%
- No change: 35 eyes, 12%

**Visual field Expansion**

- Marked: 165 eyes, 57%
- Moderate: 75 eyes, 26%
- Minimal: 19 eyes, 6%
- No change: 31 eyes, 11%
ANALYSIS
Sixty-nine percent of the study participants had improvement of at least one line (five letters) in acuity, and 36% had improvement of at least one line in contrast. One line of improvement is a significant change that will be noticeable to patients and improve their level of daily functioning. Typically when a spectacle measurement improves the acuity one line, the patient will be advised to get a new pair of glasses. Most ophthalmic studies will agree that a 5 letter improvement or a one line improvement is very significant and deserves more research into the mechanism of this visual change.

Very little research has been done that attempted to reverse chronic eye disease. One study involved three patients with Stargardt’s macular dystrophy and one patient with dry age-related macular degeneration who received stem cell transplants. According to published results in *Lancet* on January 24, 2012:

”... it is encouraging that during the observation period neither patient lost vision. Best corrected visual acuity improved from hand motions to 20/800 (and improved from 0 to 5 letters on the Early Treatment Diabetic Retinopathy Study [ETDRS] visual acuity chart) in the study eye of the patient with Stargardt’s macular dystrophy, and vision also seemed to improve in the patient with dry age-related macular degeneration.

In this study, five letters of improvement was considered significant, but the cost of the treatment as well as its risks far exceed those of the multi-factorial intervention using natural therapies in the three-day program.

Results by condition follow.
Introduction

Methods

Selection and Description of participants
Participants applied to the program based on their interest in participating in the three-day Healing the Eye program conducted at the investigator’s retreat setting, The Healing the Eye Wellness Center, near Tampa, Florida. The Wellness Center is a fully functioning organic ranch with a garden, and farm animals. Exercise is encouraged on the basketball court, swimming pool, hot tub, weight room, and infrared sauna along with many miles of sandy road for jogging. Onsite hotel-like accommodations are provided along with organic meals prepared on site.

Each participant forwarded tests and diagnostic information prior to being accepted into the program, and these results were verified at the start of the program. Participants ranged in age from 15 to 95 years; 52% female and 48% male. Forty six percent resided in the states of CA, AZ, and FL, with the remaining from 11 additional states. One participant lived in Mexico. The cost of the program is $3000 for the 3 day treatment program, excluding travel expenses, there is addition costs of $3000 if the patients continue. These costs are for the Microcurrent machine ($2250) and follow up care for a year. A small number of participants were patients of the investigator; others were referred by physicians or self-referred. The three day programs have been conducted for over ten years, with the curriculum evolving to keep pace with research and results of the investigator.

Study participants were selected to participate as paying participants in the three-day program after meeting the following criteria: Eye disease that has not been responsive to traditional treatments or the desire to avoid surgery or to avoid the side effects of medication.

Three-Day Intervention Protocol

Step One: Evaluation of All Participants
The first day of the program is devoted to baseline testing using the following methods:

Detailed eye history - Provides information related to the underlying cause which contributed to the eye problem. This information is used to develop a treatment plan to regain vision.
Past medical history - Correlation of physical problems potentially contributing to the eye disease
Medications: List of current medications; every medicine can potentially be toxic to the eye.
Dietary history: Nutritional education is an integral component of the program. Only organic, non-GMO food is served during the three-day program, with much of it being raw. Following the program, participants are encouraged to continue the 70/30 diet,
where 70 percent of food consumed is raw and organic and the other 30% is also organic but can be cooked.

Evaluation of life stressors leading to a program to reduce them

Investigation of heavy metal exposure - heavy metal toxicity contributes to all the degenerative eye diseases.

Diagnostic Testing: Vital pre and post program testing

Acuity was measured using the ETDRS Eye Chart which is accepted and approved in studies sponsored by the National Eye Institute and the FDA. Each line on the chart has 5 letters; there are a total of 14 lines or 70 letters.

Light House Contrast Sensitivity: This test measures the ability to see letters of increasingly lighter contrast. Failure to perceive lighter contrast is related to toxicity and heavy metal poisoning.

Visual fields were measured using a Campimetry. Campimetry is one way to systematically test the visual field. It is used for testing central fields for white, blue, green, and red and is used in syntonics to assess subtle changes in awareness and visual fields. This method measures the ability to perceive motion.

Pursuits, saccade, and fixation: These are basic visual functions that are essential to good vision. These relate to the eyes ability to follow, change focal point, and to hold fixation on an object of interest.

Pupillary Examination: The pupil reflects the autonomic nervous system, and subtle imbalances in this system can be detected through examination.

External Examination: Careful examination of the outer structure of the eye, including the lids, cornea, conjunctiva and tear film. The outer layer protects the delicate inner parts of the eye and the tear film lubricates the cornea and supplies nutrients and oxygen.

Examination of the anterior segment: This area is inspected for signs of inflammation and toxicity. The lens, or the part of the eye that focuses light into the eye, is inspected for signs of cataracts and toxicity.

Intraocular Pressure: This is an important test to detect glaucoma. Pressures are monitored throughout the 3 day program

Dilated examination: The inside of the eye is the only place in the body where blood vessels and neurological tissue can be examined without surgery. The vasculature, retina, macula, and optic nerve are examined for disease. Changes are documented for comparison with post-program results.

Zinc Taste Test: A simple 2 minute test that measures the intracellular levels of zinc. Zinc is a key nutrient not only for the eye but also every enzymatic function in the body. A deficiency of zinc is a red flag that there are other nutritional deficiencies.

Zyto Energetic Analysis: This is used to measure fluctuations in electrical conductivity of the skin as a baseline. Fluctuations in electrical conductivity are measured while treatments such as microcurrent, and light therapy are applied. The response helps determine physical preferences to the interventions being considered and guides in treatment protocol specification.

Specialized testing available during the 3 day program:
Depending on a participant’s condition and the results of the above testing, the following tests are available during the three-day program

**Ocular Coherence Tomography.** This sophisticated test measures a cross section of the retina under high magnification. It offers the opportunity to examine all 10 layers of the retina to precisely locate the areas of disease.

**Infrared Thermography.** This test measures temperature differences on the surface of the face. It is a very accurate test to detect abnormalities of the orbits, sinuses, and teeth which might be contributing to eye problems.

**Six hour urine collection to test for heavy metal toxicity.** This test is the gold standard to determine the levels of toxic minerals. Patients are given the test and are requested to complete it at home and send the sample to the lab for results. We then discuss the findings during a follow up telephone evaluation one month post the 3-day session. Several capsules of a chelating agent are taken which cause a release of heavy metals that are locked in neurological tissue, fat, and eyes. Urine is then collected for six hours and sent to a specialized laboratory for analysis. Almost all participants test positive for heavy metal toxicity, and were advised to undergo chelation therapy post workshop.

**Nocturnal Oximetry.** This test measures oxygen saturation at night. Many patients because of obstructive airway disease (sleep apnea) have low levels of oxygen at night which can contribute to the development of eye disease and, if not treated, can affect the success of treatments.

**Step 2 - Treatments During the 3 day Program**

The intervention aspect of the three day program begins with treatments that balance the autonomic nervous system and neuroendocrine functions and treatments to reduce stress. A balanced autonomic nervous system has been shown to contribute to reduced symptomatology in eye disease.¹ A detoxification program reduces toxins that contribute to eye disease. Emphasis is placed on developing a customized program for each participant's eye problem. This program is recalibrated for each participant over the three days depending on outcomes and response to treatment that are measured intermittently. Each day consists of two therapeutic eye programs, a stress reduction program, and a detoxification program. Also included are daily lectures and instructions on the methods and use of the equipment.

**Lecture Schedule:**

Day one - Diet, nutrition, hydration, and balancing the autonomic nervous system
Day two - Homeopathy and Microcurrent Therapy. **Homeopathic remedies are prescribed but not taken until after the three-day workshop.** It is the author's intention to report on the effectiveness of homeopathic treatment for chronic eye conditions in a future publication
Day three - Light therapy and eye exercises.

The following five modalities were provided at least one time to each participant.

1. **IV Nutrition:** **Myers Cocktail**
   This is a specialized intravenous vitamin mixture designed to provide the key vitamins and minerals to support the eye and visual function.²,³,⁴ It is suggested that all pa-
Patients receive this mixture especially if they were measured deficient in zinc. It is also suggested that all patients in the program receive a Myers cocktail once a month at their home location until nutritional levels are at an optimum level. The cocktail that the Wellness center offers is tailored to provide nutrients known to be supportive of good vision:

- Ascorbic Acid 500mg/ml 12cc
- Pyridoxine 100mg/ml 2cc
- Hydroxycobalamin 1000mcg/ml 1cc
- B Complex 100 1cc
- Calcium gluconate 10% 1cc
- Dexapanthenol 250mg/ml 1cc
- Magnesium chloride 200mg/ml 1cc
- Multitrace-5 concentrate 1cc
- Selenium 40mcg/ml 5cc
- Taurine 50mg/ml 2cc
- Zinc 1mg/ml 5cc
- Lidocaine 2% 5cc
- Sterile Water 200cc
- Folic Acid 1mg

2. Oxidative Therapy
Oxidative therapies such as ozone therapy, ultraviolet blood irradiation therapy, and intravenous hydrogen peroxide therapy can be beneficial for treating a wide range of conditions ranging from viral and fungal infections to joint pain and arthritis. Oxidative therapies work by stimulating the immune system, enhancing mitochondrial processes, and facilitating healing with virtually no side effects. Some researchers feel that this therapy can be very helpful in the treatment of macular degeneration and glaucoma and other eye disorders. Typically 20 to 40 treatments are necessary, although benefits can be experienced after 1 or 2 treatments. Each patient receives a minimum of two oxidative IV therapies during the program. Several oxidative modalities can be done in the home and participants are trained to continue them post the three-day session and given the equipment needed to do so.

**Ozone Therapy** is a type of oxidative therapy breakthrough treatment that is able to detoxify as it heals. It uses highly reactive oxygen gas which stimulates regeneration and healing. It is used to treat a wide range of chronic conditions, including Macular Degeneration. The program offers this therapy in several ways: intravenously, called auto hemotherapy where a small amount of blood is mixed with the ozone and then injected into the body, and as eye drops to help stimulate the healing of the eye. **Hydrogen Peroxide Therapy**, another type of oxidative therapy, is given directly into the blood stream through a slow IV drip, and has the same beneficial results as other types of oxidative therapies.

3. Microcurrent Therapy
Microcurrent is a well-established therapy that improves blood flow, stimulates cellular activity, reduces scar tissue, and inflammation, and helps to balance the autono-
mic nervous system. It is delivered to the eye via a specially designed glove that is used to stimulate the peril-orbital tissues. This device is the result of design refinement over several years. The current is calibrated to respond specifically to the involved tissues and the condition being treated. The mechanism of action is felt to be 3 fold; improving blood flow, stimulating cellular activity and reducing inflammation and scar tissue.

Patients with glaucoma have a compromised optic nerve. Elevations in pressure can cause the blood flow to the optic nerve to be reduced resulting in damage to the nerve and loss of vision. Now there is research evidence that microcurrent has a protective effect on the optic nerve. Microcurrent can be beneficial to patients with glaucoma because it helps to increase blood flow, stimulates cellular activity and now there is evidence of a neuro-protective effect. MCS can lower the intraocular pressure, which is observed in patients after MCS treatment.

MCS is very effective in treating most eye diseases, including Macular Degeneration, glaucoma, cataract, inflammation and dry eyes. The flow of current from cell to cell and within cells promotes repair and regeneration of tissues.

All patients who participate in the three-day workshop are provided a Microcurrent device, calibrated to their specific eye disease and instructed to use it at home to continue vision improvement.

4. Syntonic Light therapy

Syntonics, or optometric phototherapy, is the branch of ocular science dealing with the application of selected light frequencies through the eyes. It has been used clinically for over 70 years in the field of optometry with continued success in the treatment of visual dysfunctions, including strabismus (eye turns), amblyopia (lazy eye), focusing and convergence problems, learning disorders, and the after effects of stress and trauma. In recent years, Syntonics has been shown to be effective in the treatment of brain injuries and emotional disorders. A specific wavelength of light is selected for each person to help re-balance their particular imbalance. Research is ongoing, but data indicates that certain frequencies of blue green light can improve the vision in patients with macular degeneration and certain frequencies of green light can lower the pressures in patients with glaucoma. The key is “certain frequencies;” each color can have a myriad of frequencies and the task is to identify the best frequency that resonates with the eye, stimulates retinal function, and balances the autonomic nervous system. Each participant receives 2 light therapy treatments per day.

Results by Condition

Macular Degeneration Dry Type: The Condition (Age-Related Macular Degeneration-ARMD)

ARMD, dry type, is the most common cause of irreversible blindness in people over the age of 65. It is a slow progressive disease that affects the central area of the retina called the macula. This is the location of the retina responsible for central vision or the vision which gives the greatest detail. The exact cause of age-related macular
degeneration is not known but the earliest changes occur in the choroid (vascular layer of the eye) and pigmented retinal epithelium. These changes begin as thickening of Bruch’s membrane which is the layer of the choroid next to the retina. These thickened areas become raised and have the appearance of warts. These changes produce loss of pigment and cell death of the functioning layers of the retina. It eventually leads to fluid accumulation, hemorrhage, and scar tissue. Loss of central vision occurs but this rarely produces total blindness because the peripheral vision is preserved. The disease commonly occurs over the age of 65 years but there are several hereditary conditions which can lead to this disorder at a much earlier age. Patients usually complain of blurred vision and difficulty with close work. They can also develop wavy lines and distortion of linear targets. There is loss of color sense and the development of scotomas (small areas of blindness). There is a higher incidence of macular degeneration with hypertension, arteriosclerotic vascular disease, and diabetes. The two common types are described as the dry and wet types. The dry or areolar type consists of degeneration of the retinal pigment cells resulting in drusen (small wart like growth) hyper and hypo pigmented areas in the retina with loss of rods and cones and generalized atrophy.

**TABLE 3 - ARMD Dry: Results:** 70 patients, 140 eyes  
Average improvement of acuity: 5.5 letters  
Average improvement of Contrast: 3.8 letters  
**Acuity Improvement**  
2 lines or greater: 22 eyes  
1 to 2 lines: 53 eyes  
Less than one line: 50 eyes  
No change: 15 eyes  
**Contrast Improvement**  
Greater than 6 letters: 35 eyes  
3 to 5 letters: 38 eyes  
1 to 2 letters: 54 eyes  
No change: 13 eyes  
**Visual field expansion**  
Marked: 76 eyes  
Moderate: 41 eyes  
No change or minimal: 23 eyes
3A: ARMD Dry - Acuity Improvement

3B: ARMD Dry - Contrast Improvement
Glaucoma: The Condition
This disease occurs when the optic nerve of the eye begins to lose its function. The optic nerve is the transmitter of visual images from the eye to the brain. In the early stages, damage of the nerve results in loss of peripheral vision; in later stages blindness may result. Abnormality in the circulation of the optic nerve appears to be the reason for damage to the optic nerve. Elevated intraocular pressure is felt to be the main contributing factor, although there are patients with glaucoma who have low or normal intraocular pressure. Other factors which make the nerve more susceptible to damage are arteriosclerosis and diabetes mellitus.

TABLE 4- Glaucoma Results: 29 patients, 58 eyes
Average change in acuity: 6 letters
Average change in contrast: 3.6 letters
Average drop in pressure: 4.8 mm HG
Acuity Improvement
2 lines or greater: 10 eyes
1 to 2 lines: 26 eyes
Less than one line: 16 eyes
No change: 6 eyes
Contrast Improvement
Greater than 6 letters: 17 eyes
3 to 5 letters: 14 eyes
1 to 2 letters: 17 eyes
No change: 10 eyes
Visual field expansion:
Marked: 37 eyes
Moderate: 14 eyes  
No change or minimal: 7 eyes  
**Pressure lowering**  
Greater than 5 mm Hg lowering: 13 eyes  
1 to 5 mm Hg lowering: 27 eyes  
*no change: 11 eyes  
*increase in pressure: 7 eyes  
* The majority of these patients stopped their eye drops so pressure elevation or lack of response could be due to stopping medication  

**4A: Glaucoma - Acuity Improvement**

<table>
<thead>
<tr>
<th>Acuity Level</th>
<th>Eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 lines or greater</td>
<td>26</td>
</tr>
<tr>
<td>Less than 1 line</td>
<td>16</td>
</tr>
<tr>
<td>Less than 1 line</td>
<td>6</td>
</tr>
</tbody>
</table>
**4B: Glaucoma - Contrast Improvement**

- Greater than 6 letters: 17 eyes
- 1 to 2 letters: 14 eyes
- 0 to 1 letters: 17 eyes
- 0 letters: 10 eyes

**4C: Glaucoma - Visual Field Expansion**

- Marked: 37 eyes
- No change or minimal: 14 eyes
- No change or minimal: 7 eyes
### ARMD Wet: The Condition

The wet type or exudative type of Macular Degeneration presents as vascular leakage with exudates and a detachment of the retina with loss of vision. A small percentage of these cases can be treated successfully with the argon laser.

<table>
<thead>
<tr>
<th>TABLE 5 - ARMD Wet: Results: 20 patients, 40 eyes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average improvement of acuity 6.4 letters</td>
</tr>
<tr>
<td>Average improvement of Contrast 5.0 letters</td>
</tr>
<tr>
<td><strong>Acuity Improvement</strong></td>
</tr>
<tr>
<td>2 lines or greater: 8 eyes</td>
</tr>
<tr>
<td>1 to 2 lines: 11 eyes</td>
</tr>
<tr>
<td>Less than one line: 20 eyes</td>
</tr>
<tr>
<td>No change: 1 eye</td>
</tr>
<tr>
<td><strong>Contrast Improvement</strong></td>
</tr>
<tr>
<td>Greater than 6 letters: 11 eyes</td>
</tr>
<tr>
<td>3 to 5 letters: 9 eyes</td>
</tr>
<tr>
<td>1 to 2 letters: 13 eyes</td>
</tr>
<tr>
<td>No change: 7 eyes</td>
</tr>
<tr>
<td><strong>Visual field expansion</strong></td>
</tr>
<tr>
<td>Marked: 26 eyes</td>
</tr>
<tr>
<td>Moderate: 8 eyes</td>
</tr>
<tr>
<td>No change or minimal: 6 eyes</td>
</tr>
</tbody>
</table>
5A: ARMD Wet - Acuity Improvement

5B: ARMD Wet - Contrast Improvement
**Macular Hole, Wrinkling, Pucker: The Condition**

A macular hole is a small break in the macula, located in the center of the eye's light-sensitive retina. A macular hole can cause blurred and distorted central vision. Macular holes are related to aging and usually occur in people over age 60. The size of the hole and its location on the retina determine how much it will affect a person's vision. When a Stage III macular hole develops, most central and detailed vision can be lost. If left untreated, a macular hole can lead to a detached retina, a sight-threatening condition.

**TABLE 6- Macular hole, Wrinkling, Pucker Results:** 9 patients, 10 eyes

<table>
<thead>
<tr>
<th>Acuity Improvement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average acuity change</td>
<td>4.3 letters or more</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 11 letters</td>
</tr>
</tbody>
</table>

**Contrast Improvement**

| Average contrast            | 2.5 letters more |
| Range                       | 0 to 8 letters   |

**Visual field expansion**

<table>
<thead>
<tr>
<th>Marked</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Modest: 6 eyes</td>
<td></td>
</tr>
<tr>
<td>Moderate: 4 eyes</td>
<td></td>
</tr>
<tr>
<td>Minimal: 3 eyes</td>
<td></td>
</tr>
</tbody>
</table>
Stargardt’s Disease: The Condition
Stargardt’s disease is an inherited form of juvenile macular degeneration that causes progressive vision loss usually to the point of legal blindness. The progression usually starts between the ages of six and twelve years old and plateaus shortly after rapid reduction in visual acuity. Several genes are associated with the disorder. Symptoms typically develop by twenty years of age, and include wavy vision, blind spots, blurriness, impaired color vision, and difficulty adapting to dim lighting.

**TABLE 7- Stargardt’s Results: 3 patients, 6 eyes**

**Acuity Improvement**
Average acuity 6.6 improvement
Range 2 to 13 letters improvement

**Contrast Improvement:** average contrast 3.67 improvement
Range 0 to 10 letters

**Visual field:** all had a marked improvement
Cataract: The Condition
Cataracts are due to a clouding, hardness, and loss of elasticity which occur in the human lens. Cataracts are associated with general arteriosclerotic changes, diabetes, sun exposure, trauma, and poor nutrition. Over 50% of people over the age of 60 will develop cataracts. With age, changes in the protein of the lens develop. Oxidative reactions develop which form abnormal disulfide and other covalent linkages. This causes the lens fibers to lose their transparency. Ionizing radiation has a very high cataract producing affect, and the lens is its most sensitive target within the adult eye. Its damage is dose related and cumulative. The sources of electromagnetic radiation energy most important in damage to the lens are ionizing radiation (x-rays, gamma rays, and neutrons), emission of infrared or ultraviolet rays from various hot bodies, and microwave. Copper, iron, and mercury poisoning can lead to the development of cataracts.

**TABLE 8 - Cataracts Results:** 6 patients, 10 eyes

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acuity Improvement</strong></td>
<td></td>
</tr>
<tr>
<td>Average acuity change</td>
<td>5.75 letters more</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 16</td>
</tr>
<tr>
<td><strong>Contrast Improvement</strong></td>
<td></td>
</tr>
<tr>
<td>Average contrast</td>
<td>2.3 letters more</td>
</tr>
<tr>
<td>Range</td>
<td>0 to 6</td>
</tr>
<tr>
<td><strong>Visual field expansion</strong></td>
<td></td>
</tr>
<tr>
<td>Marked:</td>
<td>7 eyes</td>
</tr>
<tr>
<td>Moderate:</td>
<td>1 eye</td>
</tr>
<tr>
<td>None to slight:</td>
<td>2 eyes</td>
</tr>
</tbody>
</table>
Ischemic Optic Nerve: The Condition
The optic nerve is made up of a million tiny, delicate nerve fibers that are like wires. Many blood vessels nourish the optic nerve with oxygen and nutrition. Vision actually takes place in the brain when the messages from the eye travel to the brain along the optic nerve; however, the nerve must be healthy to transmit these messages. Ischemic optic nerve conditions occur due to damage to the optic nerve from insufficient blood supply.

TABLE 9 - Ischemic optic neuropathy Results: 4 patients, 6 eyes
Acuity Improvement
Average acuity 5.75 letters
Range 0 to 15 letters
Contrast Improvement
Average change in contrast 3.75
0 to 6 letters
Visual field expansion
Marked: 3 eyes
Moderate: 3 eyes
Retinitis Pigmentosa (RP): The Condition
Retinitis pigmentosa is an inherited, degenerative eye disease that causes severe vision impairment and often blindness. The progress of RP is not consistent. Some people will exhibit symptoms from infancy; others may not notice symptoms until later in life. A form of retinal dystrophy, RP is caused by abnormalities of the photoreceptors (rods and cones) or the retinal pigment epithelium (RPE) of the retina leading to progressive sight loss. Affected individuals may experience defective light to dark, dark to light adaptation or night blindness as the result of the degeneration of the peripheral visual field. Sometimes, central vision is lost first causing the person to look sidelong at objects.

TABLE 10 - Retinitis Pigmentosa Results: 4 patients, 8 eyes

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acuity Improvement</td>
<td></td>
</tr>
<tr>
<td>Average acuity</td>
<td>15.3 letters more</td>
</tr>
<tr>
<td>Range</td>
<td>(0 to 68 letters)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast Improvement</td>
<td></td>
</tr>
<tr>
<td>Average contrast</td>
<td>3.1 letters more</td>
</tr>
<tr>
<td>Range</td>
<td>(0 to 8 letters)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual fields expansion</td>
<td></td>
</tr>
<tr>
<td>Marked expansion</td>
<td>4 eyes</td>
</tr>
<tr>
<td>Moderate expansion</td>
<td>2 eyes</td>
</tr>
<tr>
<td>Able to see color previously unable</td>
<td>1 eye</td>
</tr>
<tr>
<td>No change</td>
<td>1 eye</td>
</tr>
</tbody>
</table>
Diabetic Retinopathy: The Condition
Diabetic retinopathy is damage to the retina caused by complications of diabetes, which can eventually lead to blindness. It is an ocular manifestation of diabetes, a systemic disease. The condition affects up to 80 percent of all patients who have had diabetes for 10 years or more.

**TABLE 11- Diabetic Retinopathy Results:** 3 patients, 6 eyes

- **Acuity Improvement**
  - Average Acuity: 7.8 letters
  - Range (3- 17) letters

- **Contrast Improvement**
  - Average contrast: 5.5 letters
  - Range (2 to 11) letters

- **Visual field expansion**
  - Marked: 4 eyes
  - Moderate: 2 eyes
Histoplasmosis Scarring: The Condition
Scientists believe that Histoplasma capsulatum (spores spread from the lungs to the eye, lodging in the choroid, a layer of blood vessels that provides blood and nutrients to the retina. The condition develops when fragile, abnormal blood vessels grow underneath the retina. These abnormal blood vessels form a lesion known as choroidal neovascularization. If left untreated, the lesion can turn into scar tissue and replace the normal retinal tissue in the macula. The macula is the central part of the retina that provides the sharp, central vision. When this scar tissue forms, visual messages from the retina to the brain are affected, and vision loss results.

**TABLE 12 - Histoplasmosis Retinal Scarring Results:** 3 patients, 4 eyes
- **Acuity improvement**
  - Average acuity: 4 letters
  - Range: 2 to 11
- **Contrast improvement**
  - Average contrast: 7.3 letters
  - Range: 3 to 12
- **Visual field expansion**
  - Marked in all eyes; 2 had reduction in blind spots

Cone Dystrophy: The Condition
A cone dystrophy is an inherited ocular disorder characterized by the loss of cone cells, the photoreceptors responsible for both central and color vision. The most common symptoms of cone dystrophy are vision loss (age of onset ranging from the late teens to the sixties), sensitivity to bright lights, and poor color vision. Therefore,
patients see more at dusk. Visual acuity usually deteriorates gradually, but it can deteriorate rapidly. Color vision testing reveals many errors on both red-green and blue-yellow plates.

**TABLE 13 - Cone Dystrophy Results:** 1 patient, 2 eyes

**Acuity Improvement**
Average acuity 5 letters
Range 4 to 6 letters

**Contrast Improvement**
Average Contrast: 1 letter
Range: 0 to 2 letters

Visual Field: Moderate both eyes
Principal Conclusions

Eye conditions that are considered progressive, degenerative, and whose causation is generally poorly or not understood can respond to natural therapeutic interventions that result in arrest and/or improvement of morbidity with enhanced functional results. Since many of the treated conditions are age-related, a delay of disease progression for five or even ten years can mean an additional decade of independence for seniors.

The treatment modalities used were statistically beneficial to all groups treated - improving acuity, contrast and visual fields. All treatment modalities are beneficial in themselves and have absolutely no associated pain or discomfort, toxicity, or side effects. This is in significant contrast to conventional medicine’s treatments that are either invasive (surgery) or toxic (pharmaceuticals), and produce only short term remediation without addressing any of the underlying causative factors that produce eye disease. The treatments used produced the results due to the possible mechanisms of

1) improvement of blood flow  
2) Reduction in inflammation  
3) Stimulation of cellular activity  
4) Stimulation of stem cell activity and regeneration

All of these processes are known to be conducive to tissue, organ, and system health. Data is being collected to study the long term usage of these modalities.

Discussion

These treatment protocols should be considered part of a treatment program for all ocular disease process. Eye health needs to be repositioned within an assessment of general health with the understanding that, with the exception of congenital disorders or accidents, vision decline represents a general diminishment in overall health and results directly from toxicity from both external sources such as air and water, and the internal accumulation of toxic metals; poor nutrition; and other life exposures and habits. The metabolism of the eye is such that this organ is very likely the first part of the body to signal overall health problems. Once this is accepted, a protocol for integrating eye health assessment can become part of an overall health evaluation rather than compartmentalized to specialists. Many of the treatment protocols used in this study can be implemented by general medical practitioners who have a preventive and functional approach to understanding health and disease. With the expected increase in age related vision loss due to both macular degeneration and glaucoma, a national movement to arrest or remediate these conditions at early stages can prevent millions of elders from becoming disabled or blind with the associated social and economic benefits to society.
References


2. Paul, Edward L., OD, PhD, The treatment of retinal diseases with micro current stimulation and nutritional supplementation, presented to the International Society for Low Vision Research and Rehabilitation (ISSLRR) Goteborg University, Faculty of Medicine, Goteborg, Sweden.


   http://www.healingtheeye.com/Articles/Ozone_Dr_Bocci.pdf


