THE COLLEGE OF SYNTONIC OPTOMETRY

JOURNAL
OF
OPTOMETRIC PHOTOTHERAPY

MARCH 1999

President's Letter

Dear Colleagues:

Our annual conference is almost here and it could be one of the best ever. We have a jam-packed program including some outstanding outside speakers. An article by Nischant Matthews, who will present one of the most inclusive and holistic approaches to color therapy, appears in this journal.

I have been in contact with Carl Gruning, O.D., President of COVD, and we will be developing a joint COVD/CSO taskforce to address political and social-insurance concerns involving vision therapy in general and syntonics in particular. The primary goals will be to develop substantiation and documentation to offer to the public.

This year's conference will present a unique opportunity to give you input in possibly developing a vast research project to bring Syntonics the recognition and honor it deserves. You will be receiving more information from Stuart Tessler about Dr. Blanks' proposal soon or before you receive this journal.

Due to increasing costs and declining incomes this is likely the last journal you will receive by mail. We are planning to put future journals on our web site: www.syntonicphototherapy.com. This is another reason that you all should get on-line. Also make sure the library has your e-mail address and web site address for the web roster. The College needs volunteers to edit and update our web site. Please contact Ray Gottlieb to help.

Light and color therapy is expanding throughout the healing professions. An increasing interdisciplinary approach will be evident in this year's annual conference. I urge each of you to attend, not only to support CSO, but also to stimulate yourselves and your practices in the year to come.

Best regards,
Larry B. Wallace, O.D., FCSO

INSIDE

College of Syntonic Optometry

A NONPROFIT CORPORATION DEDICATED TO RESEARCH IN PHOTORETINOLOGY,
THE THERAPEUTIC APPLICATION OF LIGHT TO THE VISUAL SYSTEM

MISSION STATEMENT

To further the Art and Science of Phototherapy in the treatment of the visual system, for the promotion of human health and potential, and this includes promoting and expanding the therapeutic use of light in clinical practice through postgraduate education and research. Furthermore, the College strives to improve the quality of life of our patients and practitioners, to create healing conditions, so that patients an attain their potential.

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Stuart Tessler @ (303) 850-9499

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CALL FOR USED EQUIPMENT

Needed: Any used equipment for the Getting Started program for new members.

Contact: M. Stuart Tessler, O.D.
(303) 850-9499

Open Letter to Our Membership

Re: Syntonics Research

Dear member,

As you may recall, my last correspondence with you was our very successful membership survey last year. That survey and your feedback have proven instrumental in helping the College implement change and plan for our future.

One of the clear messages you sent was your frustration over the lack of quality research supporting Syntonics. Many felt such research would not only provide practitioners with the support they needed for patient and interprofessional communication, but could serve to help establish Syntonics as a viable procedure within the profession itself, thereby attracting new practitioners, support intra-professional referrals, and promote insurance re-imbursement.

We want you to know we share your frustration and propose doing something about it.

Over the last year, I personally have been conducting preliminary discussions with Dr. Robert Blanks, Professor of Anatomy and Neurobiology & Ophthalmology at the University of California, Irvine. As you will see from his extensive credentials (his 36 page curriculum vitae includes 26 grants, 65 peer reviewed journal articles, and 84 abstracts), Dr. Blanks is one of those special few in academia who, though grounded in conventional science-based medicine, has embraced the world of alternative/holistic interventions.

I am honored to have spent many hours discussing our work with Dr. Blanks. He has reviewed several of my cases and has been impressed with the outcomes. He has been particularly enthusiastic about the empiric visual field and subjective quality of life changes seen in my patients.

His interest in our work has spawned a five-year research proposal for the College designed to:

(1) document and validate the efficacy of Syntonics as a treatment modality as seen clinically for over 70 years, and

(2) legitimize Syntonics within the optometric profession and the scientific community in general.

Such an ambitious project, though perhaps long overdue, we agree is necessary and will require a total commitment from the College and its membership. Our investment in time, energy, and money will be huge. Each of us will be asked to participate, each of us will be asked to contribute, each of us will benefit.

We must commit as a whole and, as such, the membership will be voting on whether to proceed at the upcoming Conference. Dr. Blanks will present his plan and clearly review what each of our participation will entail, as committee members, data collectors, and fundraisers.

This is a very important meeting for you to attend. As many members as possible need to hear, question, discuss, and vote as to whether to accept the challenge and opportunity Dr. Blanks will lay before us.

Your vote is important but your commitment is essential. If 25 of us commit, the plan probably will not succeed. If 50 of us commit, there is reason for optimism. If 100 commit, success is virtually guaranteed.

We've accepted the challenge you've given us. Now, please come join us in taking Syontonic optometry into the next century.

I look forward to seeing you at the Conference!

Sincerely yours,
M. Stuart Tessler, OD, FCSO
Member, Board of Trustees

67th Annual Conference on Light and Healing of the College of Syntonic Optometry

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Please make reservations directly with
Doubletree Hotel Rockville
1750 Rockville Pike, Rockville, MD 02134
(301) 468-1100 — 1 (800) 222-TREE
Please indicate College of Syntonic Optometry on phone reservations.

Wednesday, April 28, 1999

10:00 a.m. Board of Trustees Meeting

8:00 p.m. Fellowship Examination (please indicate on registration form)

The Basic Course

Thursday, April 29, 1999

8:00–9:00 Registration

9:00–9:15 Welcome
Larry Wallace, O.D., JCSO, President CSO

9:15–10:00 History of Phototherapy
Presentation covering the therapeutic application of light from ancient to present.
Bruce Rosenfeld, O.D., JCSO, Vice President CSO

10:00–10:30 Break — Visit Exhibits

10:30–12:00 Basic Syntonics: Diagnoses & Treatment
Case history, symptoms, ocular motility, pupils, analytical data, fields, treatment protocols, filters, case management, goals, prognosis.
Brad Smith, O.D., JCSO, Secretary CSO

12:00–1:15 Lunch at Hotel

1:15–1:45 Visual Fields & Pupil Responses
Background and clinical demonstration of special diagnostic testing procedures.
Ray Gottlieb, O.D., Ph.D., JCSO, Dean CSO

1:45–2:15 Practicum
Demonstration and practice of field and pupil testing procedures for syntonics.
Brad Smith, O.D., JCSO, Secretary CSO

2:15–3:15 Syntonic Syndromes
Specific case types and treatment plans.
Betsy J. Hancock, O.D., M.S., JCSO, Librarian CSO

3:15–3:45 Break — Visit Exhibits

3:45–4:15 Theoretical Overview of Syntonics
Scientific and historic models of syntonic light therapy.
Larry Wallace, O.D., JCSO, President CSO

4:15–5:15 Getting Started — Practice Management
Practical hints on bringing the practice of syntonics into your practice.
M. Stuart Tessler, O.D., JCSO

5:15–6:15 *Exploring the Spectrum*
A film by John Ott

Dinner

The Advanced Course

Friday, April 30, 1999

8:30–10:30 Blood — A Light Information Carrier
The "humoral phototransduction" model postulates that blood constituents, such as hemoglobin and bilirubin, are photoreceptors and act as counterparts to light-sensitive plant pigments, chlorophyll and phytochrome, to mediate light's chronobiological effects.
Dan Oren, M.D.

10:30–11:00 Break — Visit Exhibits

11:00–12:00 Light and Colors in Pediatric Medicine
The colorpuncture of Peter Mandel using a pen light with colored glass rods on acupuncture points works well for children's

emotional disturbances. Ten to 20 percent of children age five and younger have persistent sleeplessness disorder. Treatment improves 90 percent of them, often after just three five-minute sessions. Audience will experience and learn simple colorpuncture treatments.
Neeresh Pagnamenta, M.D.

12:00–1:15 Lunch at Hotel

1:15–3:15 Samassati Colortherapy — Theory
Internal light emitted from DNA, amplified by cell walls and transmitted as color patterns through the organs, interacts with externally applied colored light to correct functional disorders and awaken intrinsic intelligence. Clinical examples.
Nishant Matthews, M.A., LMT, MTh.

3:15–3:30 Break — Visit Exhibits

3:30–4:30 Samassati Colortherapy — Demonstration
Clearing the mental-emotional fields: real-life demonstrations with volunteers from the audience of this heartful and practical colortherapy approach.
Nishant Matthews, M.A., LMT, MTh.

4:30–5:30 Quality-of-Life Research for Syntonics
Quality-of-life measures have gained scientific respect in medical research. CSO has a unique opportunity to sponsor a ground-breaking project that will show the efficacy of phototherapy for optometric and medical healing.
Robert Blanks, Ph.D.

Saturday, May 1, 1999

8:30–10:00 Learning Ability's Response to Light
A theoretical explanation of how an exciting multisensory therapy (light, sound and movement) stimulates natural processes to resolve learning problems over the continuum from autism to ADD with case histories and practice management tips for incorporating with traditional vision therapy in an optometric office.
Mary Bolles, B.A. & Robert Toler, O.D.

10:00–10:30 Break — Visit Exhibits

10:30–11:15 Releasing Cumulative Stress
Learn Dr. Hartley's unique method combining eye movement and light therapy for gentle desentization and rapid reduction of emotional stress and trauma symptoms. If utilized shortly after the offending event, it prevents chronic maladaptive behaviors. You can easily incorporate this into your behavioral vision practice.
Lee Hartley, Ed.D.

11:15–12:15 67th Annual Meeting — CSO Membership

12:15–1:30 Lunch at Hotel

1:30–2:15 Myopia Reduction with Light Therapy
Application of light therapy for reduction of myopia for patients of all ages. Summary of a two-year study with case histories and special procedures.
Lawrence Sajdecki, O.D.

2:15–2:45 Syntonic Home Therapy
A syntonic phototherapy approach for patients who can't come to your office. Techniques, equipment, management and case histories.
M. Stuart Tessler, O.D., JCSO

2:45–3:00 Break — Visit Exhibits

3:00–5:00 Optometry's Future — A Holistic Approach
How to blend development and syntonic therapy with Eastern and holistic methods from a theoretical and clinical perspective and how to create a successful optometric vision therapy practice outside of the managed care system.
Sam Berne, O.D.

6:30–7:30 Cocktail Hour

7:30– Annual Awards Banquet

Sunday, May 2, 1999

8:45–9:15 Central vs. Peripheral Vision
Functional/behavioral discussion of central and peripheral anatomy and how phototherapy improves fields, thinking and processing of information.
Ellis Edelman, O.D., JCSO

9:15–10:30 Functional Fields — New Data, New Equipment
Statistical norms on large groups of school children; comparison of monocular vs. binocular field studies; white target on black background, black on white and black on noise; "clipboard fields" done in the exam chair; immediate changes due to lens, prism or syntonic therapy; functional vs. frequency doubling fields.
John Searfoss, O.D., JCSO & Larry Wallace, O.D., JCSO, President CSO

10:30–11:00 Break — Check Out

11:00–12:00 Syntonics in a School Setting
Update report on the second year of an ongoing study of syntonic and vision therapy as school curriculum for developing learning readiness, peripheral awareness, binocular stabilization, saccadic accuracy, widening attention, helping overstimulated children and color consideration in classroom design.
Steven Ingersoll, O.D.

12:00 Lunch on Your Own
Have a Safe Journey

Fellowship in the College of Syntonic Optometry

Q: *What is required from an optometrist who seeks fellowship status in the College of Syntonic Optometry?*

A: Providing the O.D. has been a CSO member in good standing for at least two years, the basic requirement is a written and personal presentation to the Board (or a designated body) of at least three clinical cases which have been satisfactorily addressed by the application of syntonic treatment alone. In practice, supplementary procedures are often introduced during or after a phototherapy program. In these special fellowship presentation cases, however, additional strategies should be employed only after serving the matter at hand, i.e., subsequent to a clear demonstration of the applicant's appreciation of the Syntonic Principle, its application and its effects.

Q: *What is the procedure required to have cases considered?*

A: A copy of the data relevant to each case should be sent to the Fellowship Chair and to each member of the Fellowship Committee of the CSO at least two months prior to the annual meetings/conference of the CSO.

Q: *When do I present my cases to the Board or designated body?*

A: Traditionally, during a Board meeting which is convened immediately prior to the annual CSO conference.

Q: *May I have help in conducting my cases?*

A: It is desirable that an optometrist have been using Syntonics on a routine basis prior to seeking a fellowship. All novices are encouraged to consult with experienced practitioners until they feel efficient and comfortable with the use of Syntonics in practice. It is common practice for O.D.'s established in the use of phototherapy to consult with one another on cases. An applicant should review fellowship cases with a mentor if only to avoid omissions or gaps which might be questioned during the presentation interview.

Requirements and guidelines for fellowship presentations, as adopted by the Board in 1990, are as follows:

Good optometric practice requires that a record be kept of the patient complaints, history, visual assessment, diagnosis, rationale, treatment procedure and outcome. Optometric practice, when vision therapy or syntonics procedures are involved, is different only in the addition of extra data and monitoring during and after treatment.

History: medications, early history, relevant occurrences, i.e., fever, trauma (physical or emotional) and diseases.

Complaints: might include visual discomfort and difficulty, performance deficits, onset and frequency of symptoms, definition of patient desires, expectations or requirements.

Visual Assessment: should include observations and findings pertaining to the complaints, e.g., acuity, motility, refractive status, binocularity, accommodative status (a routine "21-point exam" for OEP practitioners); particulars, when appropriate, about fusion, angle of strabismus, suppression, amblyopia, etc.; visual field, blind spot and aw-pupil measurements.

Diagnosis: should include a rationale to explain a) why syntonics is the treatment of choice and b) selection of frequency to be used; prognosis, e.g., the predicted period of treatment and number of sessions, expected period of monitoring or reassessment and expected outcome.

Treatment Procedure: should record each treatment session—the frequency and time it is used; if changes in frequency are made, provide a rationale.

Progress Evaluations: should include repetition of tests which indicated abnormal functioning during the initial examination (in particular field charts), i.e., comparative findings, dates of reassessments and patient responses or comments related to treatment or performance outcome. A final assessment at the conclusion of the treatment period should be recorded.

Post-Treatment Evaluations: should be done at intervals following treatment, e.g., one, three, and six months. These should include tests pertinent to the original diagnosis and objective and subjective assessments of performance.

Outcome: conclusion; discussion if appropriate.

The Fellowship Committee of the College of Syntonic Optometry for 1999 is:

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Samassati School of Holographic Healing

Language of Light

by
NISHANT MATTHEWS, M.A., L.M.T.

Being effective in bodywork often involves understanding and working with the underlying patterns in people. Frequently we meet memories, thoughts, feelings, attitudes, and other energies that manifest as physical tensions. In these cases, we have to address these subtle energies inside before we can expect much to change through touch.

With a background in massage, bio-energetics, and psychic counseling, I see quite a lot of clients coming for help with their underlying emotions and energy patterns. My goal is to clear these patterns as simply as possibly. Finding the best ways to do this has been quite a search, both for me and for many other therapists with the same intention. Traditional bio-energetic and neo-reichian forms of emotional release can be helpful but usually take considerable time and often aren't appropriate in a bodywork session. Further, they can be quite stressful for everyone involved. Often we encounter a lot of "resistance" which accompanies a sincere urge to change.

Recently a new method has come along which has shown considerable promise. This new method involves using colored light to contact the inner energies in a simple and gentle way, and in a language which is already natural to our body. changes come quickly, and without any friction. Further, working with colored light often leads people into an expended state of being which is very rewarding. This approach is developing into a delightful new style bodywork based on asking color questions and applying colored light.

The first part of this technique is to ask color questions. When we contact an area that has some underlying energy pattern, I ask questions framed with colors. "What color is in this place in your body?" "What color is this pain?" Color questions have some big advantages over other, more "verbal" questions. Color questions don't stir the defense system. Or the left brain. They invite the "feeling" quality of the right brain. When you ask, "What color is this tension?" you know the answer will be inclusive. You also know that the answer is direct: color answers come right out of the body without the usual mental filtering.

Color answers give the information you need without involving both of you in recollections and other stories. For example, if someone says, "red," you know that the area is in an acute pain condition. If they say "muddy green," the area is in a chronic, turbid condition. If the answer is "purple," you can expect some form of emotional bruise as well as physical discomfort.

Working with these color answers is very simple, and can involve touch, visualization, and actually applying color from an outside source.

Touching an area will change the colors reported in both shade and intensity. The progression of the colors, say from darker to lighter, will indicate the energetic effects of your touch. You can also tell when an area has shifted energetically by the color reported. Generally, when a muddied color becomes clear, or an injured area reports the color light green, you know the body is now in a healing mode.

Before we talk further about the other techniques of visualization and applying color, it may be helpful to give a brief overview of colored light and the way it impacts us. Understanding the depth to which we are affected by color will help appreciate the depths which color therapies can penetrate. Since most of us know of color as a feature of the world around us, that's a good place to start.

Color is a language of the natural world that everyone understands. Our bodies have many special color sensors which react instantly to the colors we receive. One of the strongest receptors, of course, is our eyes. The optic nerve carries light information directly into the brain, and this information shoots straight to the hypothalmus. As the hypothalmus governs the endocrine system, light in the eyes immediately translates into hormonal release in our bodies. For example, we feel active when the sun shines, and we want to rest when the sun goes down.

Behavioral psychologists have made a science of understanding color as a way of influencing our activity. We all know that the fast food restaurants are decorated orange and yellow, while linger-for-dessert spots relax you with blues and greens. We want to dance when the disco lights turn red, and we feel happy when the lights mellow into orange. Students study better in rooms with yellow walls, and prisoners have less aggressive behavior in rooms painted pink.

Beyond this, optometrists are now beginning to recognize the role of color in vision improvement. Some advanced optometry techniques measure the light reflected from our eyes. These measurements show quite a difference in the colors reflected by one person and the colors reflected by another. Looking at the same scenes, one person will reflect purple while another person will reflect green. Often vision improvement occurs as people recog-

nize the influence of a particular color on their lives. Resolving the feelings around red, for example, will change the amount of red light that the eye allows into the brain. As we open to the full range of colors, we also open to being nourished by the full spectrum of color energy.

Along with our eyes, we have another sensor for color, our skin. This is often a surprise to people; however, it is a fact. Light hitting our skin charges electrons with added photons. The electrons get "excited" and bounce into higher frequency orbits. As these electrons interact with others, light begins a series of resonance patterns which spread throughout our body. This effect is like throwing a stone into a pond of water and seeing the ripples spread in all directions across the pond.

At a practical therapeutic level the resonance effect means that colored light directed to the skin has the ability to influence the body both locally and generally. With a little practice and training we can understand how light on a foot point can affect the stomach, and light on the face can balance endocrine glands.

But there is more to the story than this. While the effects of external colors have been well-documented, it is only recently that scientists have discovered colored light *inside* us as well. According to the German Dr. Popp, our cells emit tiny bio-photons, particles of light.[1] The bio-luminescence reflects the cells' state of health and also serves as a primary communication system. Cells network with each other in patterns of ultra-fine light. Dr. Popp's medical studies show bio-photon communication between cells which doesn't involve the nerves or the brain.

One interesting feature of this discovery for massage therapists is that touch is also known to transfer bio-photons. Many studies of healing have focused on a healer's ability to direct energy to another person through a stream of bio-photons from their hands. This allows for immediate communication and healing at a cellular level.

On a larger scale, organs, like cells, also emit specific energy frequencies to the other organs. Often this is measured as bio-electrical current along acupuncture meridians. Most traditional medical systems have also perceived the organs' bio-electrical fields as colors. For example, traditional Chinese medicine knows a healthy liver as green, a stomach as yellow. Lungs have an affinity to blue, and the heart to red.

Surrounding our bodies are even finer fields of bio-electricity and bio-luminescence, commonly known as the aura. After studying the aura, one prominent doctor has said, "You are not in the body, the body is in you."[2] Researchers are now speculating that these fields of energy carry our living information. Robert Becker demonstrated the way bio-electrical fields determine cellular growth.[3] Peter Mandel's investigation with Kirlian photos shows that physical electrical fields also register as light patterns.[4] According to Mandel, these patterns contain the necessary information for organizing the body's energy circuits.

Mandel's most recent work demonstrates a link between thought patterns and bio-luminescence. This link goes both ways — thought patterns expand or deflate the energy emissions of the body, and color lights re-align thought patterns. Specific color combinations have the ability to evoke synchronized harmonious brain wave patterns. Along with that, colored lights on the memory points of the head — the transmitter relays discovered by Mandel — can contact the structure of specific thoughts, and bring these thoughts gracefully out of the unconscious into conscious awareness.[5]

With the new understanding of light inside us, light permeating us, and light around us, we are getting a new anatomy to work from. The new picture of people is an interactive system of information, energy, and form. While most of us have studied physical anatomy, our physical body is also informed by information structures and brought to life by energy. The information structures are carried in our light body and communicated through color light patterns. While the physical body changes all the time, information is essentially timeless. As we all know, events from childhood linger in our bodies for years and years, even long after all physical body has completely recycled itself. If we take a little stretch into the world of homeopathy, we see body information — the miasms — carrying on for generations. Beyond this, past life therapy shows our information patterns can last for many lifetimes as well.

Information guides the fluid dynamics — our energy — and our energy governs the vitality of the physical tissues. This is why it is very difficult to change many body conditions without addressing the underlying energetic system of information.

With this new picture of anatomy, we have to ask, "How does a massage therapist touch this system? How can we interact with the body's information patterns?"

When we think of information, we usually think of words. However, the natural language of the body is vibrational. Words go to our brain, but the deeper innate intelligence is addressed through vibrational input such as flower essences, homeopathic medicine, music, sound, light, color, and love. For the body, words are often not accurate. The more precise language is the natural vibrational language. One of these is a language of light.

Working with the language of light takes many forms. Some people visualize, though this is often the most difficult path and requires the most training. Others follow the lead of Ghadiali, the Indian pioneer of light work in the 20th century. He achieved remarkable success by dividing the body into 22 zones, and then radiating the appropriate zones with a slide projector type device capable of producing any of 240 colors. Ghadiali treatments consist of

shining a specific color on one zone for approximately an hour, and achieved considerable success in helping everything from severe burns to chronic asthma.

The German acupuncturist Peter Mandel has recently developed a highly sophisticated system of shining colored lights on the acupuncture points of the body. Using a battery operated torch which has several colored glass attachments, he specifies colors and points which allow those colors to penetrate deeply into the body and psyche. He may treat a stomach point with yellow light, then slide in another color and treat the third eye in blue. Unlike the Ghadiali system, Mandel's therapy is to shine lights for 30 seconds to two minutes per point, and to include many points as part of a single treatment.

Another approach to color therapy is simply intuitive. The intuitive application of color is readily accessible to most massage therapists and is also effective. This approach is to first ask color questions, and then apply lights to either enhance a weak color or sedate an overly strong one.

One of my favorite examples of the intuitive approach happened with a person who has a history of hepatitis and liver pain. I asked what colors she sensed in her liver, and she replied, "Muddy brown with some red flecks." We placed a green light over three liver points. After a minute, I asked again what colors she could sense. She said the red was now pink and the muddy green was lighter. That was encouraging, so we kept on. A few minutes later the pink had disappeared and the whole liver area was light green. I asked about her pain. She hesitated a moment, and said it was gone.

A year later it is still "gone."

Her story is similar to many others. The original disease had left an imprint behind, and the body was still reacting to it. With the color, we were able to find out what information pattern was still there, and offer it a new option. The lights presented a clear frequency which initiated resonances in her body. Before long, her body "heard" those resonances and responded.

When working with a light system, choosing the right color and the points is a matter of background and experience. As a rule of thumb, the daytime colors such as red, orange, and yellow are stimulating yang colors. The nighttime colors are green, blue, and purple. These yin colors are more sedative. If a part of the body is stressed, you can use the yin colors for relief. For stimulation you can offer one of the yang colors. If we want to relax inside, we use a yin color, and if we need to express outwards, we use yang.

One of the more popular combinations would be orange light on the lower belly (hara) points and blue light on the third eye (yin trang). This combination often gives an immediate impression of the Chinese ideal of "warm belly and cool mind."

The selection of colors can also include the principle of complementary colors. After we determine what color is in the body, we can either support that color with the same color or balance it with its color complement. Complementary colors are colors on the opposite side of the color spectrum from each other, and often work together in tandem. The primary complementary pairs are red–green, orange–blue, and yellow–violet. For example, if a condition is overly "red," then we could offer green. If a condition is excess purple, we could give yellow. To tone the brain, we could apply purple to the left temple, and yellow to the right.

Applying complementary lights on one side of the body and then the other has been likened to subtle body Traegering. Traegering and complementary colors both create swing patterns which are very effective ways to release and re-align energy.

The point selection technique includes acupuncture points, reflexology zones, Ghadiali zones, Mandel "Esogetic" points, and others. Treating distal points with color light can be remarkably effective. You may also use any reflex points you know with confidence. Often the simplest approach is best. If an area or an organ has pain, apply the light directly to the affected area.

The colored light from the outside penetrates easily, and vibrates the deeper patterns in our body/mind. Because photons speak directly to the body in a language that is natural, light work doesn't have to go through the filtering system of the brain. It goes directly into the cells, endocrine system, and the communication systems of the organs. When the colors are well chosen, there is no struggle, no resistance from the client. What was held tightly often begins to vibrate itself loose. Clients say colored light gently facilitates a "review" of unconscious holding patterns. The lights give a lift to clients where they expand into seeing more clearly and feeling less entangled in past events. The light allows stagnant information to come to the surface where it releases without any fuss or strain.

Almost everyone experiences a subtle inner shift, an expanded awareness. There is often a hint of recollection, a felt sense of a deep intrinsic pattern of harmony and light, remembrance of the part of ourselves which already speaks in the language of light.

References

1 Peter Mandel, *The Practical Compendium of Colorpuncture* Vols. 1 and 2.
2 Brugh Joy, *Joy's Way.*
3 Robert Becker, *The Body Electric.*
4 Peter Mandel, *The Practical Compendium of Colorpuncture* Vol. 1.
5 Peter Mandel, *Esogetics: The Sense and Nonsense of Disease and Pain.*

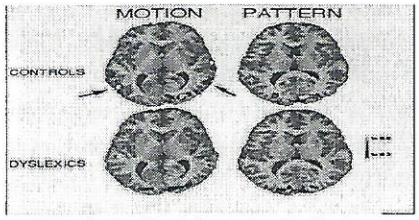
Syntonics as Reading Enhancement Techniques at the Livingston Developmental Academy

STEVEN J. INGERSOLL, O.D., THIERRY TILLEMONT, EMMANUELLE GRIZARD, AND CHUCK STOCKWELL

Keywords: Integrated Visual Learning (IVL), Syntonics, Visagraph, Developmental Education, Learning Disabilities, Reading Instruction

INTRODUCTION

Eye movement, visual attention and visual processing skills are highly correlated with reading performance. Many studies have pointed to the high incidence of visuomotor deficits among poor readers[1]. Recently, fMRI, PET and anatomical evidence of magnocellular defect[2], V5 depression[3] and metabolic depressions of the prefrontal cortex and caudate nucleus[4] among the reading disabled implicates visual perceptual/attentional/cognitive dysfunctions in those with attention and reading problems. The following fMRI scan[5] shows the metabolic depression found in areas associated with magnocellular motion detection in poor readers.



Oculomotor function (particularly saccadic and binocular fusion skills) is dependent primarily upon peripheral or magnocellular input. Peripheral field awareness thus becomes a critical factor in reading via its importance to oculomotor accuracy. Techniques to enhance functional visual field awareness may prove useful in improving oculomotor accuracy, visual perceptual/attentional/cognitive skills and reading performance.

Syntonics is believed to be useful in the expansion of visual field awareness[6]. **Integrated Visual Learning** is a method to expand visual attention and multi-tasking performance in motor, perceptual, integrative and cognitive tasks[7]. This study is designed to investigate the impact of syntonics and Integrated Visual Learning techniques on visual field awareness, oculomotor function and reading efficiency.

SYNTONICS

Syntonics is the therapeutic application of selected wavelengths of light upon the visual system. The substantial retinal connections to the reticular, limbic and endocrine systems via the retinothalamic tracts have been hypothesized to be of importance in the regulation of attention, emotions, endocrine function and growth and body structure[8]. In general these effects are hypothesized to be mediated via the autonomic and endocrine systems. Resonance between the molecular structure of certain neuropeptides and light frequencies of the therapeutic light are the presumed mechanism of action. On a cellular level information is transmitted across the cell wall via the steric properties of embedded mucoproteins. The steric configurations of these messengers are impacted by electromagnetic field changes that can be altered by the presence of ionic molecules or by various light wavelengths depending on the resonance and steric properties of the messenger molecules. All elements of the periodic table have resonance frequencies that match particular wavelengths of light. The spectral specificity of matter leads to the interesting hypothesis that matter is "frozen" light. Various authors have postulated that light will increasingly be used medicinally. The resonance relationship between light and matter points to intriguing possibilities.

Syntonic principles posit that short wavelength (blue) light is stimulatory to parasympathetic and long wavelength (red) light to sympathetic systems. Establishing balance between sympathetic and parasympathetic stimulation through the use of various wavelengths is an important tenant in syntonic therapy.

Optometric findings guide the syntonist as to a patient's autonomic balance. Filters are prescribed in an effort to create balance between sympathetic and parasympathetic systems. Excessive sympathetic stimulation as is common from stress has a constrictive impact on fields of awareness. A prime indication for syntonic application is a constricted kinetic visual field. Appropriate syntonic therapy brings about an expansion of kinetic visual fields.

Integrated Visual Learning

Integrated Visual Learning (IVL) is a series of sequenced motor, attentional, perceptual and cognitive techniques designed to facilitate a shift in habitual attentive distribution. Neurological skills are built along a hierarchy matching the sequences observed in normal development. The culmination leads to competent visuomotor and visual cognitive skills.

Application of visual thinking strategies to academic

tasks is the final stage of IVL therapy. IVL therapy was developed based on a model of neurological development described by the following schematic:

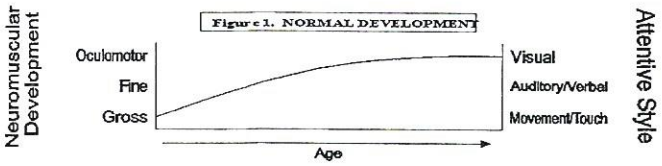


Figure 1. Etiology of normal attention/learning/ behavioral habits

We believe that most academic failure results from problems of development and the resultant impact on attentional habits as is shown in the following schematic.

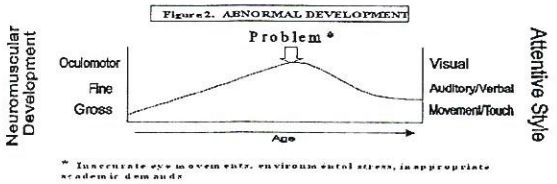


Figure 2. Etiology of abnormal development

Many learning disabilities are the result of embedded adaptive attentional distributions born of a mismatch between environmental/academic demand and neurological development. We believe that many learning disabilities can be prevented by emphasizing neurological development before academic demand. This, of course, requires a new emphasis on teacher training. Teachers need to be trained in understanding and recognizing student's learning methods and state of neurological development as opposed to emphasizing how to present data. Most underachieving students fail because they are not processing information the same way as the successful students. Children learn their learning styles. Teachers need to understand why, how and when differing learning styles emerge. The following figures illustrate a few common learning problems and their etiology. **IVL** techniques address these types of adaptive learning anomalies.

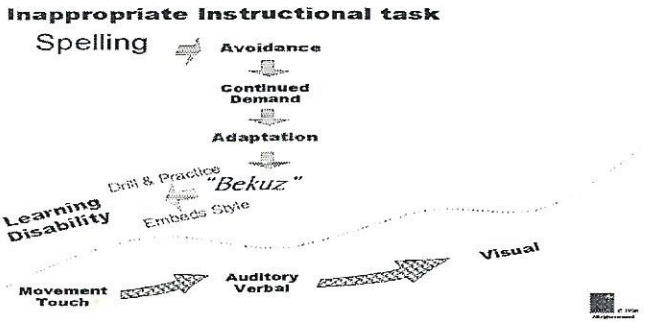


Figure 3. Etiology of Phonetic Spelling

The sequence of attentional and cognitive development must be understood and is a crucial factor in the etiology of inefficient learning habits. In the above schematic the task of spelling is inappropriately introduced to a child before visual cognitive skills have developed. Consequently, the child avoids the task initially. When the unwitting educator/parent presses the demand, the child is forced to adapt. The child learns to execute the task using the "tools" available at that point in development, in this case, an auditory approach to spelling emerges. As this approach is not particularly effective, the child is pressed to "practice" which only serves to embed the inefficient learning style. As the child falls further behind his peers (who have adopted the more efficient visual recognition approach to written language) it is typical for the curriculum to be modified to match the child's learning style. This "teaching to strength" only serves to further embed the very thing that is the problem! The following schematics illustrate some common problems, contributing causes and IVL solutions found in many underachieving students.

Problem: Can't recall math facts long term

Cause: Delays in visual cognitive development can cause some children to learn to handle math facts in a non-visual way. Typically, we see these children compute the answers to single digit math facts. Thus it is common for them to get right answers given enough time, but fail on timed tests. The following diagram shows the etiology.

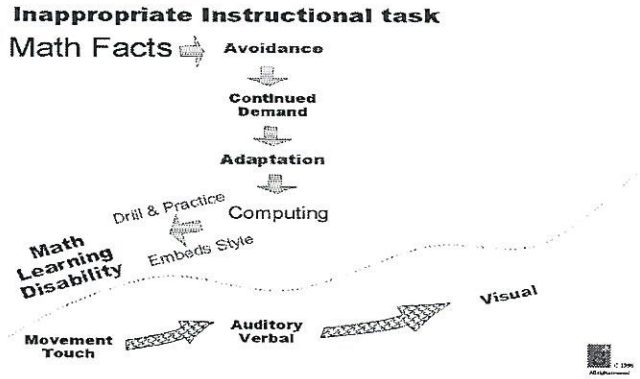


Figure 6. Etiology of math disability

Many underachieving children compute or count up the basic math facts. A much more efficient method of processing or remembering these math facts is to utilize eidetic or visual memory. Indeed, this is the method the reader of this paper likely uses. We, who are successful in this skill remember "the look" of the equations. Again, the etiology of the computation learning habit is a function of the timing of the introduction of the task relative to the child's state of visual cognitive competence.

Solution: IVL treatment starts with remediation of the oculomotor and visual cognitive deficits followed by "loading" the math facts into visual memory. This process is similar to the IVL method of teaching spelling and word recognition. Visual memory drills involving the recall of objects, pictures, geometric forms, symbols and finally letters, words, numbers and equations as stimuli are sequentially presented. The area of the brain that is metabolically active during these demands is the prefrontal cortex. Prefrontal cortex activity not only is associated with

more efficiency in the recall of written symbols but also reinforces the type of brain metabolism associated with normal visually directed explorative activity, normal attentional characteristics and normal affect. Metabolic depression of the prefrontal cortex is one of the neurometabolic markers associated with ADHD, sleep disorders, obsessive-compulsive disorder and dyslexia. Hence, activity that increases prefrontal cortex metabolism is supportive to other important functions.

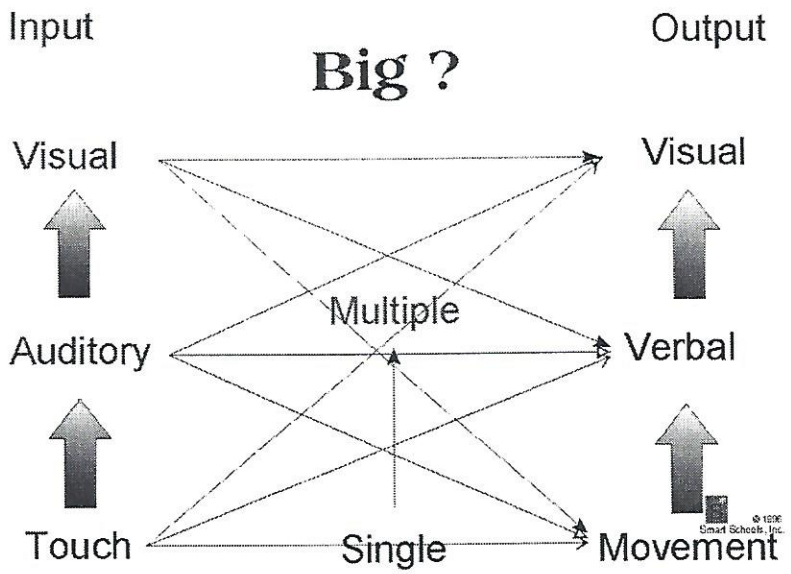
Problem: Letter reversals and right/left confusion

Many children have difficulty making orientation distinctions early in their development and sometimes this difficulty persists longer than normal.

Cause: Delays in the normal sequence of motor/tactile development can sometimes impact a child's body awareness. Developing an internal "image" of one's own body is a crucial first step in developing laterality skills. We first learn about right/left and up/ down by understanding our own body structure. The reason that right/left confusion (b/d) is more frequent than up/down (p/d) confusion is that the body is symmetrical along the vertical axis but not along the horizontal axis (the hands look almost alike but the head and toes are very dissimilar). Children who have not developed good imagery regarding their own body structure often have laterality confusion.

The second and most common cause of laterality confusion is the inability to project body laterality awareness out onto the environment as a result of eye movement and/or visual processing problems. Children with this type of problem will be able to determine which is their right or left hand but will make frequent and persistent reversals of letters and words.

Solution: IVL treatment for this problem begins with drills to hone the child's awareness of body structure. Beginning drills involve single body systems and gradually moves to drills involving multiple body systems in ever-increasing complex combinations of movements. The input stimuli are sequenced from touch to sound to visual, thus paralleling the progression of neurological development of the central nervous system. The following diagram outlines the treatment strategy in terms of input stimuli and output demand. It is of critical importance to assess the type of information processing that is employed by the child (Big Question?)



Ultimately the child learns how to execute accurate eye movements which is the foundation to developing visual attention and allows visual discrimination skills to emerge. When the child is skilled at visually making accurate judgement about physical space, this becomes the dominant method of determining laterality judgements and he is able "to see" when letters are reversed.

Problem: Hyperactivity, overly tactile, excessive fidgeting

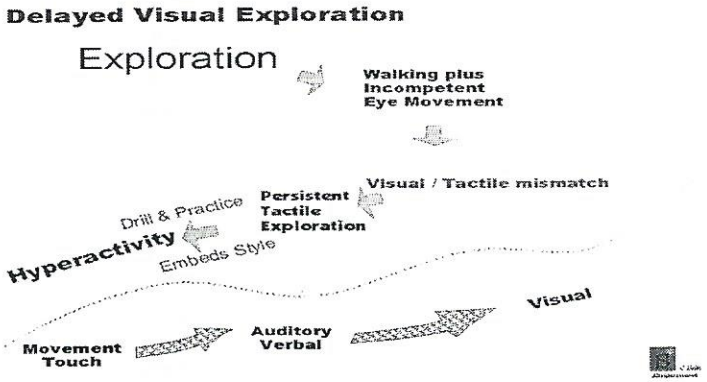


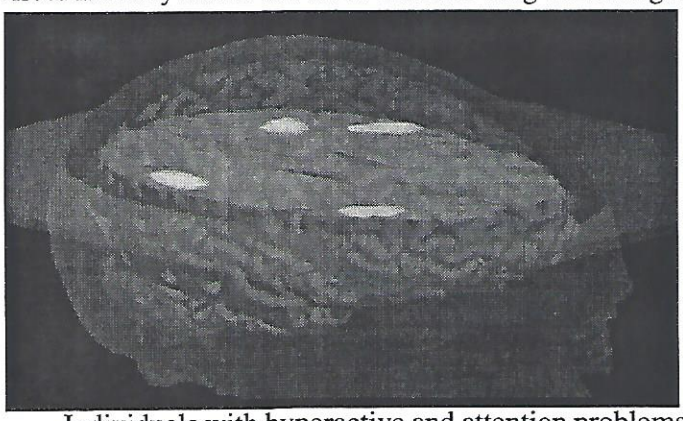
Figure 5. Etiology of hyperactivity

Cause: Many children who are too physically active are overly reliant on touch as their means of gathering information for their surroundings. A natural progression in development allows "visual touch" to replace tactile experience. When accurate eye movement is present visual perception matches tactile perception and vision can be substituted for touch experiences. Since visual exploration is so much more efficient, this mode of exploration becomes dominant. Children who are not consistently accurate in the execution of eye movements do not enjoy the match between vision and touch experience. This is a major cause of persistent physical explorative behavior. It is normal for touch to be the dominant mode of exploring at early stages of development before consistency in visual motor accuracy appears. Children come out of the "terrible twos" when they begin to substitute vision for touch. It is visual motor and visual perceptive accuracy that allows this important transition. The schematic shown in Figure 5 will help to illustrate the problem.

Overly active children are displaying explorative behavior that is not as visually driven as the norm. This

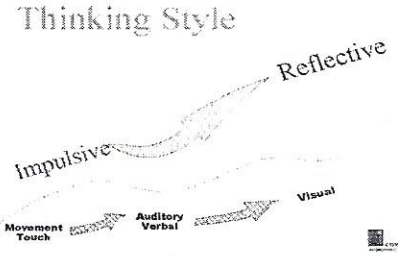
is a mark of delay in the development of oculomotor competence which is a necessary precursor to visual attention. Those children who have yet to develop consistently accurate oculomotor functions tend to have variable visual perceptive experience. Unreliable visual perception stands as a blockade to visually driven exploration. This leaves tactile experience as the most consistently reliable input channel with which to explore. We believe that "hyperactive" children are children who have not yet learned to explore their environment visually. They have yet to transition beyond the tactile stage of exploration that we all relied upon earlier in our development. This line of thinking, of course, begs the question of whether pharmaceutical inhibition of physical exploration benefits or harms such children. We believe that helping children to become visually more competent motorically, attentively and cognitively is a far superior approach to the all too common pharmaceutical treatment of hyperactive behavior. Indeed, at the Livingston Developmental Academy we are virtually "drug free" having succeeded in discontinuing medical treatment in over 50 "hyperactive" children in our first year of operation (1996-97 academic year).

Recent functional magnetic resonance imagery (fmri) research has shown that individuals with hyperactivity and attention problems have metabolism differences in the areas of the brain responsible for visual thinking. Functional mri is a technology that measures changes in magnetic fields and allows images to be produced to show "where thinking is taking place". The prefrontal cortex is the spot of visual memory and is shown in the following fmri image.



Individuals with hyperactive and attention problems show less than normal activity in the visual thinking area (prefrontal cortex). We believe that by teaching these individuals to "do their touching visually" a change in behavior and brain metabolism will result.

Solution: IVL therapy is designed to establish normalcy in oculomotor function. Accurate eye movement then supports accurate visual perception and ultimately a transition to a more visually dominant exploration pattern. As visual skills improve physical activity will be replaced with visual exploration and impulsive behaviors will become more reflective.

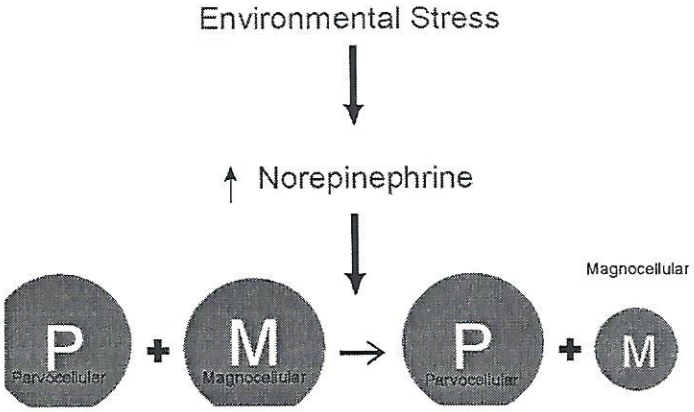


Seeing into the future, predicting potential consequences of actions helps modify impulsive behavior. Physical touch is gradually replaced by the more efficient and more behaviorally acceptable "visual touch".

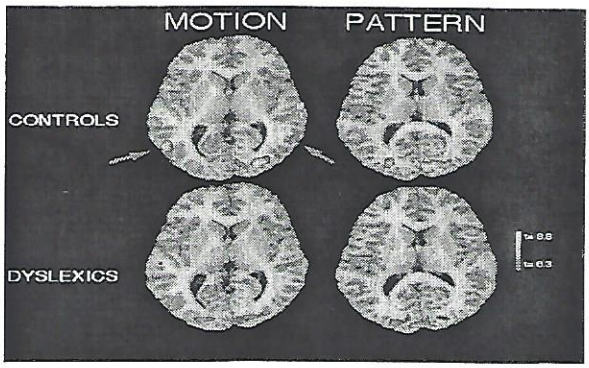
Problem: Loss of place in reading

Many children seem to need to use their finger to keep their place in reading.

Cause: Children who lose their place when reading quite commonly have difficulty executing saccadic eye movements with accuracy. Saccadic eye movement is the type of eye movement "jump" that we make when moving word to word across a line of print. Successful saccadic accuracy depends heavily upon awareness in the peripheral visual field. Many studies have shown that most poor readers have poor awareness and delayed processing in their peripheral visual fields. This condition has been called the magnocellular defect (magnocellular refers to the type of cell that carries information to the brain from the retinal periphery). Using the finger or a straight edge does not solve the problem. These compensatory strategies do, however, make it easier to re-find the place after the eye movement mistake has occurred. Stress also plays an important role in reducing awareness in the peripheral or "magnocellular" field. The following schematics illustrate this important relationship between peripheral visual field awareness and accurate eye movements during reading.



The above schematic shows that stress tends to decrease peripheral awareness. The neurotransmitter norepinephrine increases under stressful conditions and mediates the shrinking of awareness field. Functional magnetic resonance imagery has allowed us to "see" that poor readers show less activity in the areas associated with the peripheral and motion detection areas as is shown by the following slide.



Solution: IVL treatment of saccadic eye movement problems involves a two pronged approach. First, drills requiring sacaadic eye movements are practiced in isolation followed by multiple demands of increasing complexity. Second, expanding attention into the peripheral visual field is accomplished by fixing the eyes on central targets while peripheral vision controls increasingly complex coordination tasks. Expanded peripheral awareness and processing skills coupled with saccadic accuracy drills combine to produce better eye movement accuracy in reading and other tasks involving spatial judgement such as catching a ball. We carefully monitor eye movements during reading using technology called the **visagraph**. Visagraph is an apparatus that records eye movements during actual reading. We are able to measure reading rate, comprehension, eye movement patterns and efficiencies in excellent detail. This technology also allows an efficient analysis of the thinking and attention during reading. IVL intervention is based on actual observation not assumption.

IVL, Reading and Attention

IVL techniques to enhance reading skills are designed to transition the child's attentional approach during reading. Recent fMRI findings indicate a relative metabolic depression in magnocellular LGB, V5 striate cortex, prefrontal cortex, caudate nucleus[9] and substantia nigra among disabled readers[10]. These findings imply reduced visual attention during reading. **IVL** treatment seeks to enhance visuomotor skill and visual cognitive activity during reading.

The following schematic illustrates the **IVL** strategy of reading development and treatment.

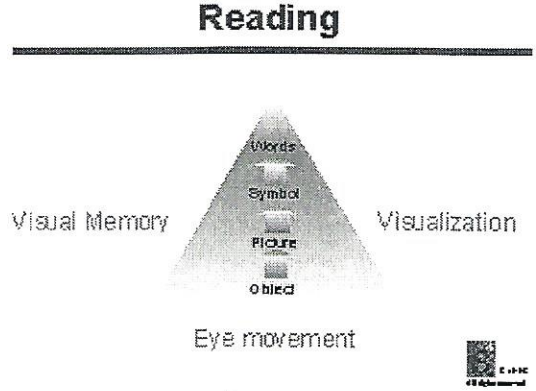


Figure 4. IVL Reading Instruction

The above schematic illustrates the essential elements of efficient reading. Phonetic decoding nor verbalization (vocal or subvocal) appear. IVL reading instruction strategies are designed to present tasks mirroring the neuro developmental hierarchy outlined earlier in this paper. Children learn oculomotor skills through the use of traditional vision therapy techniques. Visual memory and visualization skills are presented with input stimuli that follow the hierarchy shown in the above graphic (object-> picture-> symbol-> word).

Phonics

Phonics is a decoding system that allows the conversion of approximately 80% of the English language between written and verbal form. Once a child has established a primarily visual recognition approach to written language phonics instruction should be undertaken. However, teaching phonics to a child who has not yet developed adequate visual cognitive skills will invite poor adaptations as the following schematic illustrates.

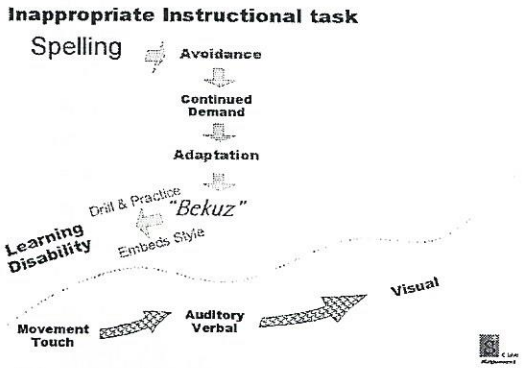


Figure 5. Etiology of phonetic spelling

Introduction of written language before visual cognitive competence has emerged will result in avoidance, adaptation and embedding of an inefficient learning strategy. In the above example an auditory driven processing style develops.

Phonics instruction, as it is commonly sequenced, is improperly ordered. It is not logical to move from abstract to concrete as typical phonics instruction does. Thus we refer to traditional phonics as upside down phonics as figure 6 shows.

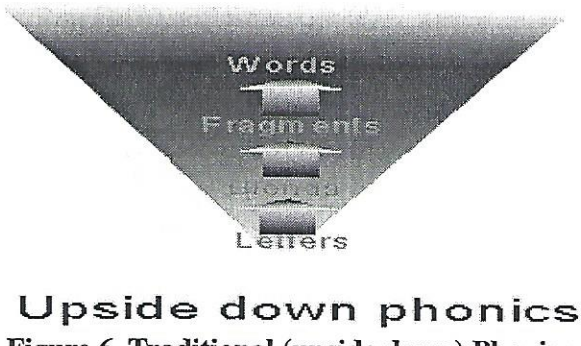


Figure 6. Traditional (upside down) Phonics

IVL Phonics

IVL theory dictates that instructional methods must respect brain development hierarchy. Thus movement from concrete to abstract concepts suggests words before letters and wholes before parts in the presentation of written language just as we learn whole words before parts of words during acquisition of spoken language development. Figure 7 illustrates this point.

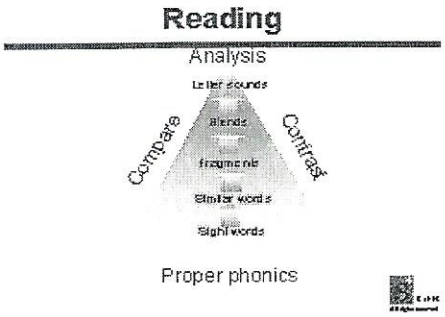


Figure 7. IVL Phonics

IVL and attentive fields (multi-tasking)

IVL procedures sequentially increase the number and complexity of task demands. In this manner the child learns to handle increasingly complex sets of sensory, motor, perceptive and cognitive loads. The name of the game is "how many things can you handle at one time– let's try one more". Too little demand does not facilitate attentive field development, too much demand collapses attentive fields as illustrated in the following schematic:

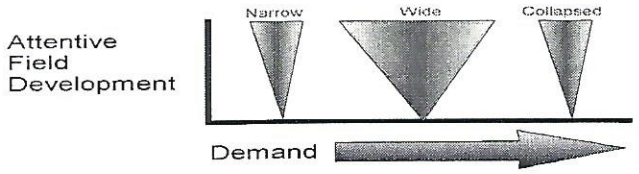


Figure 8. Attentive Field Development

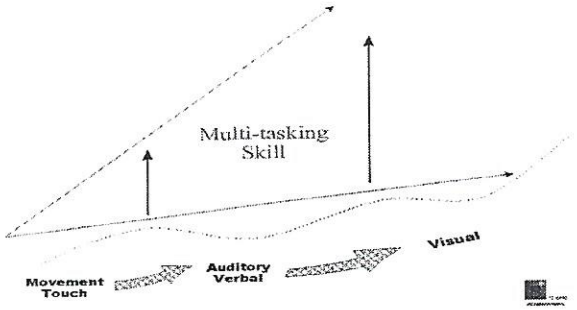


Figure 9. Multitasking vs. Neurologic development

Multiple function demands are at the heart of IVL treatment for attention problems. At the Livingston Developmental Academy, we have successfully reduced the number of students on stimulant therapy from 20% to 2%. Our treatment strategies involve carefully monitored multitasking loads. As is illustrated in figure 8 too little demand results in narrow attentive fields and too much demand causes a collapse of multitasking skill. The combination of loading tasks is sequenced to respect the neurodevelopmental hierarchy illustrated at the bottom of figure 6. It is our belief that children with poor multitasking skills need to develop that type of ability as a matter of high priority. Stimulant therapy limits awareness of competing stimuli and is thus counter productive to the development of multitasking skills. **The reason that many children treated with stimulant therapy are less distracted is that they are less aware of their surround.** We believe that these children need to increase their awareness and skills to simultaneously process the inputs from their surroundings.

Purpose of the Study

Depressed metabolism associated with magnocellular input matches our clinical findings of constricted kinetic (motion detection) fields in poor readers. We believe expansion of the field of awareness is an important factor in the treatment of underachieving students. Our status as a school makes us acutely interested in reading performance. Thus we proposed to study the relationship between reading measures and field awareness and IVL and syntonics. IVL treatment is directed at increased oculomotor and visual cognitive skills and syntonics purports to expand kinetic (motion detection) visual field awareness.

Study Groups

Students were selected upon teacher referral and parental consent for the various groups from the enrolled population grades 3 through 6 at the **Livingston Developmental Academy**, a Michigan Charter School co-founded by Chuck Stockwell and Dr. Steven J. Ingersoll. The students were referred based on academic and/or behavioral difficulties in the classroom.

Visagraph Reading Group

Students were placed in four groups: IVL & Syntonics (n=47, 20 females & 27 males), IVL only (n=8, 4 females & 4 males), syntonics only (n=9, 4 females & 5 males) and control (n=66, 29 females & 37 males). The average age of the groups were as follows:

Control	9.95 Years
IVL	11.24 Years
Syntonics	9.98 Years
IVL & Syntonics	10.3 Years

Syntonic Field Group

Students were placed in four groups: IVL & Syntonics (n=31, 10 females & 21 males), IVL only (n=15, 6 females & 9 males), syntonics only (n=15, 10 females & 5 males) and control (n=37, 11 females & 26 males). The average age in each group were as follows:

Control	9.1 Years
IVL	9.68 Years
Syntonics	10.35 Years
IVL & Syntonics	10.08 Years

Duration

Visagraph Reading Group

The average duration in days of the Visagraph groups were as follows:

Control	64
IVL	67
Syntonics	68
IVL & Syntonics	67

The average number of sessions for each group were as follows:

Control	0
IVL	8
Syntonics	13
IVL & Syntonics	12

Syntonics Field Group

The duration of the syntonics groups were from the final week in February, 1998 to the first week in May, 1998 (approximately 70 days).

The average number of sessions for each group were as follows:

Control	0
IVL	11.8
Syntonics	14
IVL & Syntonics	15.14

Methods

Visagraph Reading Group

Reading performance was measured using **Visagraph** (Taylor Associates) technology. Visagraph is a system which records eye movement during reading by using infrared sensors mounted in goggles worn by test subjects while reading. Recordings measure a variety of reading eye movement characteristics that are described below. Reading rate and comprehension measures were also recorded using this technology.

Syntonic Field Group

Kinetic visual fields were measured using the field tester instrument recommended by the **College of Syntonic Optometry**. First detection and detail fields were measured by advancing a 2mm white test target from the periphery in 8 meridians until first detection and until detail of the target (black ring around white target) responses were obtained. Fields of awareness were measured in square millimeters and in the sum of degrees in eight meridians. The size of the optic nerve scotoma was also plotted.

Examination Procedure

Optometric interns Emmanuelle Grizard and Thierry Tillement performed initial Kinetic visual fields and visagraph reading measurements, respectively. Post examinations were performed by outside IVL staff from another facility and were not familiar with the students academic standing or study group affiliation.

The French interns performed statistical analysis.

Results

Visagraph Reading Group

The results of Visagraph recordings are summarized in the following table[11]:

	Control	IVL	Syntonics	IVL & Syntonics
Fixations/100 words				
initial	155.17	119.88	168.11	239.11
gain	-7.02	-8.88	20.22	-35.91
% gain	-4.52	-7.40	12.03	-15.02
Regressions/100 words				
initial	31.83	18.00	35.22	58.04
gain	-5.62	-3.75	7.78	-15.13
% gain	-17.66	-20.83	24.92	-26.06
Span of Recognition (words)				
initial	0.71	0.92	0.62	0.53
gain	0.20	0.06	-0.08	0.06
% gain	2.74	6.56	-12.30	12.19
Duration of Fixation (seconds)				
initial	0.28	0.28	0.33	0.34
gain	0.00	-0.01	0.00	-0.00
% gain	1.96	-4.91	1.35	-1.27
Reading Rate (words/minute)				
initial	158.85	200.34	114.44	102.09
gain	0.23	15.00	-16.00	14.17
% gain	0.14	7.49	-13.98	13.88
Grade Equivalent				
initial	4.83	7.86	2.57	2.65
gain	0.30	0.96	-0.87	0.57
% gain	6.24	12.24	-33.77	21.33
Comprehension (% correct)				
initial	78.03	76.25	88.89	74.89
gain	1.97	13.75	-11.11	8.30

Syntonic Field Group[12]

	Control	IVL	Syntonics	IVL & Syntonics
Detection Field (mm2)				
{d	102.46	216.70	1545.16	1923.99
d^	2.77	14.45	49.84	62.06
{d2	138725.10	90029.38	220342.72	354792.20
Detection Field (degrees)				
{d	14.97	15.53	76.28	101.73
d^	0.40	1.04	5.09	3.28
{d2	601.50	297.05	653.15	963.69
Detail Field (mm2)				
{d	211.88	585.15	1751.79	2344.08
d^	5.73	39.01	116.77	75.62
{d2	178435.00	46517.08	266293.93	464218.82
Detail Field (degrees)				
{d	10.29	55.59	134.51	209.81
d^	0.28	3.70	8.97	6.77
{d2	547.50	1069.94	1315.55	2572.02
% Detail/Detection (mm2)				
{d	177.01	395.01	382.95	463.20
d^	4.78	26.30	25.53	14.94
{d2	20752.4	38850.28	18508.27	24892.69
% Detail/Detection (degrees)				
{d	-51.00	128.80	370.28	461.33
d^	-1.00	8.59	24.68	14.94
{d2	14885.00	6346.47	14241.20	16266.25

{d= Sum of measurement differences
d^=Sum of measurement differences/ number of subjects
{d2=Sum of measurement differences squared

Discussion

We can conclude within 95% accuracy that syntonic application expanded both detection and detail field awareness in syntonic and IVL & syntonic test groups. Also with the same degree of confidence both of these test groups showed an improvement in the percentage of detail to detection fields. Strong gains in fields of awareness were shown in the groups who had syntonics only and both syntonic and IVL procedures. **. Syntonics only (5.09 degrees, 8.97 degrees) and the combination of syntonics and IVL (3.28 degrees, 6.77 degrees) produced substantial statistically valid expansions in detection and detail fields compared to the control group. The percentage of field involved in detail awareness also expanded in both test groups.** The IVL only test group did not produce statistically valid expansion of visual field awareness. The syntonics only group showed a decline in all reading measures. **However, the combination of IVL and syntonics procedures produced the largest gains in reading measures (13.88% in rate, 8.3% in comprehension) in this study.**

Conclusion

This preliminary study indicates that with just a few sessions of IVL therapy, visual skills related to reading and actual reading performance can be improved. This confirms previous studies using pre and post treatment measures of IVL intervention of the improvement of reading skills. The study also confirms that syntonics, when used alone and in combination with IVL, expands visual field awareness an important component in reading. Interestingly, however, syntonics in isolation, while expanding field awareness, actually reduces performance in other reading related visual skills. One possible interpretation of this finding is that the expansion of fields of awareness without building skills in handling the increased complexity can lead to confusion. **This study supports the use and further study of the combination of IVL and syntonics as a method to enhance field of awareness and reading skills.** *We believe that these results may mean that the expansion of visual field awareness in and of itself may be detrimental to reading progress, unless that expansion is combined with strategies to teach the subject how to use that expanded awareness in the complex task of reading.* This study represents only a short-term intervention of less than ten weeks and an average of less than 15 sessions. The conclusions can only be considered preliminary. Further study of the effects of syntonics intervention with and without IVL therapy need to be conducted and are in progress at the Livingston Developmental Academy. These studies will measure results with longer durations, more sessions and various combinations and sequences of treatment strategies. Of particular importance is determination of treatment efficacy in a school based setting. **The large gains made by the IVL and syntonics combined group may indicate a dramatic new avenue to be used as a special education intervention.** The rapidly growing numbers of children now being identified as learning disabled and/or attentionally disturbed, requires that public education find more successful educational interventions.

NOTES

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12 Grizard E Etude de l'effet de la stimulation par syntonic (lumiere

Abstracts

The Effects of Colored Lights and Relaxation Exercise on Learning Disabled Adults' Visual and Learning Skills

Carol J. Rustigan
Learning Disability Specialist
California State University, Sacramento
12/91

The effects of colored lights and relaxation exercises upon learning disabled adults' visual reading and memory skills were investigated. Seventeen subjects were randomly assigned to two experimental therapies. The treatments consisted of (a) twenty, 20 minute sessions sitting in front of a Lumatron colored lights instrument, or (b) twenty, 20 minute sessions listening to relaxation exercises on a cassette player. Pre and Post vision and academic tests were administered to all subjects. T-tests analyses revealed that only the colored lights group demonstrated significant gains in post reading rate, reading comprehension and auditory memory scores. It was concluded that the effects of colored lights held promising implications for learning disabled adults confronted with inhibitive visual, reading and retention difficulties.

Monocular Visual Loss After Closed Head Trauma: Immediate Resolution Associated with Spinal Manipulation

R. Frank Gorman, M.B.B.S., D.O.
Journal of Manipulative and Physiological Therapeutics
1995; 18(5):308–314.

Objective: To discuss the case of a patient who demonstrated that spinal injuries may cause both cortical and ocular visual loss that was ameliorated by manipulative care.

Clinical Features: The patient suffered separate incidents of binocular and monocular loss of vision. A female child, aged 9 yr, presented with bilateral concentric narrowing of the visual fields that returned to normal immediately after spinal treatment. Approximately 1 yr later, she returned with monocular loss of vision after she was struck on the head by a ball.

Intervention and Outcome: The child was treated by spinal manipulation under anesthesia; the vision was found to be normal on awakening from the anesthesia. Both visual recoveries were authenticated by an independent ophthalmic specialist.

Conclusions: This case history adds to the other recorded occasions in which vision is noted to improve when the spine is manipulated. Discussion is directed to the basic pathogenesis: is her condition a form of psychoneurosis, is it a variant of migraine, or could it be a combination of both conditions?

Photosensitive Assessment: A study of Color Preference, Depression and Temperament

Beverly G. Dearing & Sangeeta Singg, Ph.D.
Subtle Energies & Energy Medicine 7(2):89

This was an explanatory study (with an extensive literature review) using the Photosensitive Assessment (PA) method designed for Brief Strobic Photostimulation. Colored strobic light was used to conduct PA of 15 extroverted/depressed (ED), 15 introverted/depressed (ID), 15 extroverted/non-depressed (EN), and 15 introverted/non-depressed (IN) individuals. These groups were compared on the basis of their preferences for 11 colors. Significant results were found for colors ruby, yellow, yellow/green, green, red/orange, and blue. Depressed participants tended to avoid the color ruby more than the non-depressed participants. Extroverts preferred the colors yellow, yellow/green, and green more than did introverts. Red/orange was preferred more by the EN subgroup than by the ED subgroup. Blue was preferred more by the EN subgroup than the IN subgroup, and by the ID subgroup than the IN subgroup.

Pineal Melatonin in Tourette Syndrome — Can Coloured Lights Help?

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This article discusses David E. Comings' genetic standpoint that Tourette syndrome may be a general disinhibition syndrome that can be genetically caused by a decrease in brain serotonin/tryptophan content. The author proposes that the retina and the non-visual pathway, the inferior access optic tract are involved. This hypothesis may serve to bridge the gap between the marker than Comings proposes and the visual field defects that J. M. Enoch discovered. The knowledge that both defective visual fields and serotonin/melatonin metabolism can change when stimulated by coloured light makes it appropriate to consider this kind of intervention as an alternative therapy.

Brain Activity in Visual Cortex Predicts Individual Differences in Reading Performance

Jonathan B. Demb, Geoffrey M. Boynton,
and David J. Heeger
Proc. Natl. Acad. Sci. USA 1997; 94:13363–13366.

The relationship between brain activity and reading performance was examined to test the hypothesis that dyslexia involves a deficit in a specific visual pathway known as the magnocellular (M) pathway. Functional magnetic resonance imaging was used to measure brain activity in dyslexic and control subjects in conditions designed to preferentially stimulate the M pathway. Dyslexics showed reduced activity compared with controls both in the primary visual cortex and in a secondary cortical visual area (MT+) that is believed to receive a strong M pathway input. Most importantly, significant correlations were found between individual differences in reading rate and brain activity. These results support the hypothesis for an M pathway abnormality in dyslexia and imply a strong relationship between the integrity of the M pathway and reading ability.

Retinal Differences in Light Sensitivity Between Dyslexic and Proficient Reading Children: New Prospects for Optometric Input in Diagnosing Dyslexia

Carol Spafford, Ed.D. & G. S. Grosser, Ph.D.
Journal of the American Optometric Association 1991;
62:610–15.

The role of visual processes in dyslexia has been overlooked in the recent past as linguistic explanations for this problem dominated educational thought. It is the intent of this paper to relate new information about visual functions with dyslexia. Static perimetry was used to assess brightness thresholds of dyslexic and proficient-reading children. The dyslexic subjects obtained significantly lower sensitivity scores (higher thresholds) than proficient readers for the upper hemifields. Visual field screening tests may be useful in the differential diagnosis of dyslexia.

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