

## Selected Light Frequencies

By Dr. Lowell Becraft

Preface:

“There is a principle which is a bar against all information which is proof against all argument, and which cannot fail to keep a man in everlasting ignorance. That principle is condemnation before investigation.” ---Herbert Spencer.

The purpose of my presentation is to try to help enlighten you about selected light frequencies, and possibly to interest some of you in this most fascinating field.

In New York City they are toying with the idea of rolling out new sidewalks featuring stimulating and tension relieving colors.

Howard Ketcham, color-psychologist has been using color to influence behavior for more than three decades.

I have no way knowing your thoughts about the topic nor how much you know about the dynamic force of light frequencies. I for one was skeptical at first and did not fully realize the power at hand when light is controlled. Of course, we are aware of the affects of ultra violet, infra red, the new laser, x-ray and what can be done with these frequencies. Many of us, I have found, are in the dark when it comes to knowing what can be done with frequencies in the visible range of the spectrum. One of the most common misconceptions prevailing to the uninformed is that it is the different colors which cause the affect. That is only partly true; it is not so much the color but the power factor or energy content of the frequency.

By using only the visible range of the spectrum through the organ of sight it takes the shortest and most direct path to the brain centers. It has been clearly determined that there are four definite changes that take place when light frequency is applied.

They are:

- (a) Physical - - for the lens to get a proper focus.
- (b) Chemical - - the balancing of rhodopsin.
- (c) Physiological - - The shift in the pigment.
- (d) Psychological – which also includes the relationship existing between the central nervous system and the endocrines. Between the sympathetic and the parasympathetic is a general definite physiological antagonism so that the predominance of one or the other determines the functional activity of the vegetative organ.

The balance of action between the sympathetic and the parasympathetic is of vital interest to the Optometrist, vision training specialist, and to the physician. Through the thalamus and the central gray matter, this balance of action is attained and maintained. It should be quite apparent from these statements, that when the eye is stimulated by any frequency there is a chain of nerve impulses sent over

the sensory fibers to the nerve centers, and these nerve centers in turn send out motor impulses to the muscles, and the supportive functions.

You all are aware that different individuals give a wide variation of responses to the same stimulus in the same environment. Many efforts have been made to account for these differences on the basis of heredity, environment, and even nutrition. It has been found that radiant energy in the photic range, incident into the eye will cause altered function, altered behavior, and altered physiological responses. The question is whether these are variations of a similar kind in all individuals?

In attempting to solve this problem here is a report on a research project that is rather interesting. Rabbits were kept in the same environmental conditions as to housing in the day time and at night, were feed food in like quantity, and were supplied with water of equal quantities and from the same source. The only variable factor in the various rabbit cages was the light filters before the cages.

Among the observed findings were that rabbits under some light conditions lost their fur, some patches and others became almost bare of hair. (a bare hare). Rabbits in other cages under other light frequencies, consistently developed cataracts. Others under other light frequencies, consistently developed symptoms which in human beings would be recognized as toxic symptoms, in that temperature rose, and pulse rate increased with every evidence of lassitude and unwillingness to move about. Rabbits under other light frequencies became sterile and failed to reproduce. Others developed excessive length of the long bones. The time for the noted response for the experiment varied three to eighteen months. There have been many other interesting experiments conducted along these lines with other animals such as gold fish, chickens, guinea pigs, bacteria, etc. Recently there have been some articles and T.V. programs about Dr. John Ott's work with plants demonstrating the productivity, the sex of both flowers and animals, and how they are influenced by various light frequencies. He has published a book entitled "My Ivory Cellar." Dr. Ott is an advocate of full spectrum lenses, perhaps some of patients have inquired about them.

I quote further from Dr. Ott's book.

"The pituitary gland is the master balance wheel of the entire glandular system. If this is so and the entire glandular system can be affected or glandular action modified by light received through the eye the resulting consequences and possibilities of what this might mean are utterly fantastic. If the basic chemistry of the human body responds to light energy, then as with plants the characteristics of light energy would be a very important factor. Different types of light & lighting conditions ranging from natural sunlight filtered through different kinds of artificial light of natural sunlight filtered through different kinds of glass, or light reflected from different colored interior decorations in a room could affect the physical well-being of an individual."

Great progress has recently been made with new types of tranquilizers drugs in helping some mental & nervous disorders. If this is so and light can influence body chemistry, then this theory of light might also affect the mental as well as the physical well being individual.

Light also seems to affect virus.

Dr. Ott's arthritis, became improved, his friends bursitis, ulcers, acne, bleeding gums, improved too. He also feels there may be some link between cancer and light frequencies.

The sympathetic and parasympathetic nervous systems are so important in our thinking because they can be affected by altering the frequencies of light. Let us review the action when the parasympathetic is dominant. The pupils contract, the eye slits widen, lachrymation increases, a puffy upper lid, intra-ocular hypotension, increased accommodating, an esophoria reflex, tendency for a low abduction, intrinsic eye muscles are activated all of these by the dominance of the parasympathetic.

Dominance of the sympathetic does the following: Dilates the pupil, protrudes the eye ball, lagging, intra-ocular hypertension lessens accommodation, causes exophoria-reflex, low adduction tendency, inhibits ocular activities.

Dr. Melvin E. Page has this to say, "The autonomic nervous system might well be called the 'autonomic' system, since it controls the involuntary or unconscious activities of our bodies, for example digestion, nerve reflexes, assimilation, etc. The parasympathetic dominant is chiefly given to a tendency towards calcareous deposits which form in various parts of the body. Chronic arthritis, cataracts, or calcium, deposits in the kidneys arterial walls, or on the teeth are frequent. The calcium phosphorous levels are disturbed by posterior pituitary malfunction. Many of the cataract cases are chiefly due to a lessened function of the posterior pituitary.

It is obvious that neither of these two divisions would dominate the other normally, consequently, if they are in balance healthful living is the result and conversely if they are out of balance.

It is interesting to note that low frequencies stimulate the pituitary, decreased the leak in potential and tend to stimulate the sympathetic, producing physiologic activity of the defense type. Conversely, high frequencies depress the pituitary, increases the leak in potential and tend to stimulate the parasympathetic producing physiologic rest of the vital type activities.

It is also noteworthy to point out that autonomic centers located in the lower part of the diencephalon at the base of the brain have the following functions: (a) thyroid gland stimulation ; (b) lacrimal gland stimulation; (c) Sugar gland regulation; (d) adrenal gland stimulation; (e) Salivary gland stimulation and kidney regulation; (f) Sweat gland stimulation; (g) Vasomotor control; (h) Fat metabolism regulation; (i) Possible uterus control; (j) Possible bladder control; (k) Temperature regulation; (l) Sebaceous gland stimulation; (m) Protein metabolism regulation; (n) Pupil regulation.

The late Dr. Carl Lang had been well aware of the importance of pupil size and regulation as is pointed out in his book, "Sight Development". The pupil of the binocular deficient is definitely larger than normal. Quite frequently this enlarged pupil seems to enlarge again and become larger than it was at first. This symptom is so prevalent that it's presence should definitely cause the optometrist to suspect a binocular problem. We also know this symptom not only represents a binocular problem but also a definite imbalance in the autonomic nervous system." This is known as the Alpha-Omega pupil.

The late Dr. H. Riley Spittler had a theory of one of the causes of amblyopia. He believed amblyopia to be due to excessive "synaptic delays." By that he means that the accumulated potential difference in the axons to a synapse, is not great enough to excite the dendrite to the next cell, and believed that perhaps the theory of Pasque, of condenser action of the Synapse, adequately accounts for a large group of cases of amblyopia. Clinically, it has been found that the use of those light frequencies permitting such a build-up of potential difference as to cause an impulse to cross a synapse to the dendrite

of the next cell. A path should become permanently open and would forever after be a conductor of impulses received there at.

The following conclusions are the direct outgrowth of the factual and clinical evidence presented here-in and represents Dr. Spittler's Considered Judgment in the evaluation of the data.

1. There exists a closely predictable relationship between light frequency incident into the eyes and their responses.
2. There exists a relationship between light frequency and the rate of growth of cells and tissues, and their rate of cell division.
3. There exists a relationship between the light in the environment and the physical development of the individual.
4. There exists a relationship between light frequency in the eyes and the mass body potentials.
5. There exists a relationship between the light frequency environment and the development of the biotype, modifying the hereditary tendency.
6. There exists a relationship between light and light frequency and the action currents leaving the eye toward the brain, these action currents being both quantitatively and qualitatively altered.
7. There exists a relationship between light frequency incident into the eye and the functioning power of the pituitary gland.
8. There exists a relationship between the reproductive cycle and the light frequency environment, probably a quantitative one in respect to the number of individuals of any species.
9. There exists a relationship between the light frequency environment and the dynamic tension present between the two divisions of the autonomic nervous system.
10. There exists a relationship between the light frequency environment and the secretion of hormones by all of the co-acting as well as antagonistic endocrine glands with the pituitary as the "master gland."
11. There exists a relationship which is largely predictable between the light frequency environment and the restoration of health following departures from the normal which are still within physiologic limits, particularly those departures which may be directly influenced by the autonomic or the endocrines toward health.
12. There exists a relationship between light frequency into the eye and the degree of nerve cell irritability thus modifying reflexes.
13. There exists a relationship between light frequency into the eye and bodily health.
14. There exists a relationship between nerve impulses from the eye, due to incident light frequency and the state of tension in the autonomic nervous system.
15. There exists a relationship between light frequency into the eye and either its vitamin A content, or the degree of its adaptation to low degrees of illumination.
16. There exists a relationship between light frequency into the eye and the perception of pain.
17. There exists a relationship between light frequency into the eye and the relative responses of both striped and smooth muscle.
18. Syntony of the autonomic may be produced by light frequency into the eye.
19. The ability to continue to live depends upon syntony of the autonomic in both acute and chronic illness, and this attainment of syntony may be aided by light frequency into the eye.

As recently as August 31, 1967, there was an article entitled "The Relationship of Light to Health" by Henry L. Logan published in the Optometric Weekly. I will quote a few excerpts from this article:

"adequate light of suitable color composition dilates the blood vessels and increases peripheral circulation, thus promoting insensible perspiration, which rids the body of toxins and lightens the load on the kidneys." Mr. Logan quotes Dr. Rodnot of Hungary "Visible light has a stimulating effect on the human organisms which is manifested through the neuroendocrine system." Logan further quotes Dr.

Pittendrigh, Princeton University, “That clumps of special neurons have been found which, when stimulated by light, send coded pulses to the pituitary and thyroid glands, which either releases, increases the rate of flow, slow down, or stop the release of hormones.” Logan also quotes Dr. L. S. Gabby that in experiments with cancer-susceptible mice, “pinkish light developed the cancer sooner and died earlier than those exposed to natural light.”

Quoting Logan further: “Their internal physiological equilibrium of the body largely depends on the information carried by the radiant energy which is unconsciously received and processed.”

From these foregoing conclusions just mentioned, you can realize what a powerful medium we are discussing. Furthermore, one can surmise why chrome orthoptics, syntonics made fantastic claims. It is not the purpose nor intent of an optometrist to attempt to treat various diseases by the use of light frequencies. However, many ocular or visual anomalies can be helped by utilizing selected light frequencies. Here are some statistics of 3067 individuals of which 2791 responded, which is 90.7%.

	No.	Resp	%
Phoria, eso-exo, hyper	295	232	78.65
Low blur, break or recovery	246	205	83.63
Asthenopia with discomfort	683	634	92.8
Tropias, including eso-exo-andhyper	103	77	74.85
Amblyopia-undetermined, cause	242	136	76.00
Progressive myopia, progress stopped or minus power reduced	68	46	67.65
Headaches or ocular origin	725	629	89.51
Latent hyperopia	64	60	93.74
Color field contraction-red 47; green 60; blue 65	172	153	88.89
Associated and supportive Functions of vision	275	184	66.9
Ocular Reflex or referred pains	144	115	79.79
Opacities, including senile cortical, diabetic, occupational, congenital	425	268	63.59
Optometric departures from normal not classified above	158	112	70.88

Color therapy is mentioned by William Luftig who is a graduate of the University of Berlin. On page 45 in his book entitled “The natural Treatment of Eye Disease,” it says “sufficient experience of color-or photo therapy shows that its merits are so great that this kind of radiation—therapy must be regarded as an important therapeutic measure. Much greater use ought to be made of it.” Unfortunately, in medical circles little is known about its therapeutic results and to my knowledge there are no books which deal with the subject of color therapy in the eye diseases.

It was noticed in a brochure from a Canadian school that they, too, are obtaining excellent results with some form of color therapy.

In April 1949 Dr. Leslie Scown spoke to the Kansas Optometric Assoc. in one of his lectures he mentioned that he had been successful in dissolving some cataracts with a yellowish-green frequency.

While I was attending Northern Illinois College of Optometry, Dr. Howard Blue said in one of his classes that he had been able to control some cataracts by the patient wearing calabar B lenses.

Dr. Harry Otwell of Fayetteville, Ark., has quite a technique in caring for amblyopes. In part of the technique he is using a right sodium color light. Gentlemen, that is employing a selected light frequency. Call it what you may, syntonics, chrome orthoptics, color therapy or what have you, but if it gets results that is what is important.

I discussed using selected light frequency and some of the fine results we had accomplished with Dr. Merrill Allen of Indiana University. He retorted with "I think you are hypnotizing the patient." I said "So----all right. So, we may be hypnotizing the patient unknowingly, but what difference does it make if we get the desired results?" I question the possibility of hypnotizing.

As Doctors of Optometry and practitioners of one of the healing arts, we receive as patients and consultants, many who are simply in need of a good visual analysis and/or visual training. On the other hand, many of these people do not have their problems, symptoms, and complaints adequately taken care of by a lens prescription of training; for even if these are tried, we have learned that complaints still persist. It, therefore, behooves us as members of a particular branch of the healing arts, who have been consulted for answers to their problems, to do what we can to find what their complaint is, and then try to do within our power to do something about it. We should help the patient out ourselves, if it is possible, or refer to another member of our profession who is capable to handling the case satisfactorily. If beyond the scope of our professions, refer the patient to members of other branches of the healing arts for their aid in diagnosis and help where possible.

In conclusion, I would like to say that the employment of selected light frequencies is the wonderful adjunct to the already recognized and established visual procedure. If amblyopia, myopia, and discomfort cases can be better or further helped, then it has a proper place in the visual training field.

L. L. McCormick

Given at Convention in Hawaii

