

# PHOTO RETINOLOGY LIGHT FREQUENCY THERAPY - DEFINITION AND EFFECTS 1976<sup>1</sup>

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It is a method of bringing the cortico-visual system into balance by the use of *selected* light frequencies incident into the eyes, thereby increasing the efficiency of both the motor and sensory pathways. It improves reception, perception and projection to and from the brain, thus resulting in space being perceived as a whole instead of being perceived as a hole in space.

Of first consideration is constriction of the peripheral fields because the peripheral area acts as the guidance mechanism for the central area. If this vital area is operating at twenty percent of its efficiency then the visual centers in the cortex are operating with the same deficiency. Output is no better than input. Before any motor response can occur a sensory impulse must precede it.

Sensory responses control the accommodative, ciliary responses, pupillary holding responses and attentive responses. When, through lack of sensory input, the ciliary muscle loses its ability to constrict and hold, there results a dilated pupil with attending photophobia, and poor direct, consensual and accommodative reflex. The effects of these losses show up in poor reading ability, loss of fusion, loss of binocularity, suppressions and erratic analytical findings. If a visual fields study is instituted a high percentage of these cases will show a constriction of the visual fields, a swelling around the nerve head or both.

If you experience a reduced input, you must, by necessity, experience a reduced output. Visual fields studies are an integral part of the diagnostic method in light frequency therapy because input is dependent on the efficiency of this area.

If the visual system is only capable of twenty percent of its optimum, in terms of sensory and motor responses, and you increase it to ninety percent with light therapy then this procedure should be worth incorporating into your practice.

Presently the field of selected light therapy is being studied with respect to the biological effects upon the organism by men in medicine, biology, physiology and psychiatry. Research in this area is mushrooming as never before. It has been said of Dr. Riley Spitler, who first applied light frequency as an aid to vision, that he was a hundred years ahead of his time. His thesis in 1932 is a monument to education in the field of organismic modification resulting from light frequencies. One need only to read it to conclude that Dr. Spitler pioneered this field forty years ago and furthermore made the prediction that it would all be rediscovered at a later date. These predictions are a matter of record.

Light frequency therapy is not applicable to everyone in the field of optometry although Dr. Spitler left this great heritage to optometry. It does, however, behoove every optometrist to study this principle in order to round out his visual education. As an example of the prolific statements related to vision consider the following: "The larger fibers from the peripheral areas of the eye carry impulses faster to the cortical area than do the smaller central fibers, thus enabling the central area of the eye to maintain fixation in the central area."

## Application

A high percentage of squint cases in children under twelve show extreme constriction of fields. When the fields are expanded to normal proportions the eyes assume their normal function.

Similarly, in cases of emotional problems, brain damage, so-called dyslexia and reading problems there is constriction of fields and swelling of the nerve head. Most of these cases show a loss of accommodation, erratic phorias and ductions, poor visualization, occasional loss of depth perception and hyperkinetic activity; some are lethargic. Academically they are underachievers. They may or may not depend on auditory perception to assist in achievement to some degree. They are regarded by their peers as stupid, apathetic, lazy or immature. They read haltingly, skip words, repeat, reverse or read one-word-at-a-time. Characteristically they hold reading material close to their eyes, they dislike most close work and have a short attention span. Some cases have an excellent achievement record until third grade when they suddenly fall flat on their face with regard to academic production; others do not achieve from the start of school work.

Most children so affected resort to compensatory modes of behavior to cover up their inadequacies. These behavior patterns are usually obvious as well as obnoxious.

Brombach, in studying poor readers, disclosed a blind spot in the form field in children which included the blind spot and extended toward the fixation spot. By reducing the paramacular sensitivity and vision which acts to locate the next point of fixation, the reading of children so affected was markedly reduced.

Obviously, the paramacular area acts as a gyroscope, keeping the macular area aligned on the object of regard. The peripheral area is a sensing device with feedback to the macular area, thus keeping it centered for fine resolution. The peripheral area also acts as a scanning device, whose fibers being larger than the fibers from the central area, transmit impulses faster to the occipital area than to the smaller fibers from the central area. Documented neurological research bears out these facts as well as does the one-word-at-a-time readers who are deprived of this faculty.

Another factor of optometric importance, and so often overlooked is the phase relationship existing between peripheral fibers and central fibers when impulses from their respective areas reach the thalamic area.

Bear in mind that there exists an inherent periodicity of electrical vibrations in the thalamus, the same as exists in other areas of the brain, but which is operating with a select frequency and can modify impulses coming from the eye if the impulses are not in phase with the thalamic vibrations. In other words, impulses which are not "in phase" with existing phase vibrations in the thalamus are short circuited in the thalamic area due to the selectivity of this vital organ.

Light frequencies very quickly restore the sensitivity of the paramacular area as well as the periphery. Basically this is the approach in the use of selected light therapy. If, in your practice, you are dealing with the so-called slow readers, perceptual problems, minimal brain damage or by what ever name you may elect to call them it behooves you to investigate selected light as a means of normalizing visual functions. This is the missing link in optometric practice. In most cases the time factor required to normalize visual functions is only a fraction of the time consumed using conventional methods.

<sup>1</sup> Becraft, L & Butts, CB. Photo Retinology Light Frequency Therapy - Definition and Effects 1976. Missouri Optom J, Oct. 1976