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MODERN ACUPUNCTURE TECHNIQUES

Colored Light Therapy: Overview of its History, Theory, Recent Developments and Clinical Applications Combined with Acupuncture

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Abstract: Light therapy has a long history, dating from ancient Egypt to the contemporary treatment of seasonal affective disorder. In the early half of this century, Dinshah Ghadiali, MD PhD, refined a sophisticated system of color therapy. Influenced by a strong background in mathematics and physics, he determined specific "attributes" of the colors of the spectrum, i.e., their specific effects on human physiology. Later research has confirmed many of his concepts and spawned evolution of new systems for application of light therapy including irradiation of acupuncture points. According to the author, his system dovetails nicely with traditional Oriental medicine theory, relating colors to the internal organs and meridian system. Of particular note is recent Russian research which has shown that light is conducted within the body along the acupuncture meridians leading the authors to ponder: Do acupuncture meridians function as a light (photon) transferal system within the body, not unlike optical fiber? Case studies provide support for the clinical benefits of light therapy. The emerging contemporary color therapy systems of Mandel (Colorpuncture) and McWilliams (Chromo-pressure) are discussed, and a newly patented device is introduced.

TRADITIONAL Oriental medical theory states that Qi is the animating force behind life, the cosmic forces of Nature,

and is the root of all things. If one stays in touch with Qi, one's life will be healthy in all its phases.

Traditional acupuncturists apply the simple and yet complex theories of Qi to treat a wide range of ailments from pain to chronic illness and functional problems, through insertion of very fine needles at the acupuncture points thereby creating a disturbance in the energetic field. Stimulation of acupuncture points, being more electrically conductive, produces a polarity or electrical gradient, facilitating electromagnetic conduction, or movement of Qi.

I. History of Colored Light Therapy

Just as acupuncture is a very old system of medicine being rediscovered, so is light therapy, or phototherapy, a "new old" system, which promises to come further into the "limelight." Phototherapy was practiced in ancient Egypt, Greece, China, and India.[1(p22)] The Egyptians utilized sunlight as well as color for healing. In the past 120 years, advances in have been made in research and development of colored light, as well as full-spectrum, light therapy. In 1876 Augustus Pleasanton stimulated the glands, organs, and nervous system with blue light; in 1877 Seth Pancoast used red and blue light to balance the autonomic nervous system.[2(p11)] In 1878, Dr. Edwin Babbitt published *The Principles of Light and Color,*[3] considered a classic study on the healing powers of color. He elucidated a system for applying colored light to the body, and used "solar elixirs"—colored bottles containing water charged by the sun. He was able to successfully treat many stubborn medical conditions, unresponsive to conventional treatments of the time.

Dinshah Ghadiali, PhD, MD (India), (1873-1966) a naturalized American originally from India, was highly influenced and inspired by Babbitt's work. In 1897, the course of his life and views on medicine were forever changed when he saved the life of a woman dying from intractable dysentery.[2(p11)] Under conventional treatment she continued to have 100 diarrheal stools per day. As a last resort, Dinshah proceeded to shine indigo light on the patient's body. By the end of the first day, the number of evacuations was reduced to ten. By the third day the evacuations were minimal and she had regained strength sufficient to get out of bed.

By 1920, after 23 years of research and clinical observation, Dinshah, as he was known in America, had refined a sophisticated system of color phototherapy he called Spectro-Chrome. Influenced by a strong background in mathematics and physics, he reasoned that the physiologic effects of individual

colors would correspond with the action of the mineral which exhibited that color on spectometry. He thereby determined in detail, specific "attributes" of the colors, i.e., the specific effects of colors on human physiology. He further determined precise and predictable formulations of applying colored light directly to the body for the gamut of physical injury and illness. He was the first to develop a system of healing utilizing all the colors of the spectrum: red, orange, yellow, lemon, green, turquoise, blue, indigo, violet plus purple, magenta, and scarlet.[4(p73)]

Spectro-Chrome is based on three basic principles:

1. That the human body responds to light;
2. That colors relate to physiologic function; and
3. That color tonation (broadcasting specific colors to the body surface) aids bodily function.

During the 1920s, Kate Baldwin, a highly respected physician, AMA member, and chief surgeon of the Women's Hospital of Philadelphia, became a student, practitioner, and strong proponent of Dinshah's techniques both in her private practice, and within the hospital setting. Case histories by Baldwin, Dinshah, and others abound of the successful treatment with Spectro-Chrome.

Unfortunately then, as now, political forces of high-tech, elitist, expensive, and profit-motivated medicine embarked on a crusade to discredit and repress Dinshah's simple but effective low-technology healing system. Dinshah was subjected to decades of indictments, court battles, fines and arrests which in 1947 culminated in being forced to burn his personal collection of all printed material (valued at $250,000) pertaining to colored light therapy.[5(p40)] Only a single copy of personal notes was spared. Six years later, after completing probation, Dinshah persisted, restructuring his institute for educational purposes only, and making no claims as to the therapeutic value of projected colored light. Although Dinshah lived out his life under these permanent injunctions secured by the FDA, his system of color therapy, Spectro-Chrome, survived and is today, 30 years after his death in 1966, beginning to enjoy a renaissance. Dinshah, though little recognized to this day, is without a doubt one of this century's great luminaries.

Internationally, alternative approaches to healing did not meet with such resistance. Danish physician Niels Finsen pioneered light therapy in the 1890s. He noticed that tubercular skin lesions were much more common during the long dark winters, but rare in summer. In 1892 he began treating this condition, lupus vulgaris, with light. Later he would use red

light to prevent scar formation from smallpox, and eventually established a light institute for the treatment of tuberculosis. His work was so successful in the treatment of skin tuberculosis with ultraviolet light, that he was awarded the Nobel Prize in 1903.[4(p71)]

II. Physics of Colored Light Therapy

Doctors Babbit, Pancoast, Pleasanton, Baldwin, Finsen and Dinshah have contributed ample empirical evidence of the value of colored light in medicine.[2-6] The scientific explanation for this rests in quantum physics and color theory: the photoelectric effect first discovered by Heinrich Hertz (circa 1886), and the theory of light was elucidated by Albert Einstein. By the photo-electric effect, when light strikes any material substance, electrons are discharged, creating a current. In other words, light interacts with matter as the energy of the light is transferred to electrons.

In 1905 Einstein offered an explanation for this phenomenon in his Corpuscular Theory of Light, for which he was awarded his only Nobel Prize. He proposed that light is composed of corpuscular units, later called photons. A photon is the smallest unit of light and has a dual nature, being both particle and wave simultaneously. A photon travels at the speed of light and its energy is related to the frequency of its radiation. The energy of the photon is transmitted to the electron. The shorter the waves of light, the greater the energy of the photon, which results in stronger acceleration when that energy is transferred to the electron. The intensity of the light determines how many photons strike a given surface, and likewise, how many electrons are discharged. The higher the intensity, the greater the quantity of photons and the greater the number of electrons activated. The wave theory of light, held prior to this, was unable to account for the photoelectric effect.[7-10]

III. Color Theory

Color is frequency within the visible spectrum of light, which composes a very small band of the total electromagnetic spectrum, from violet at 400 nanometers (higher energy photon) through red at 780 nanometers (lower energy photon). Beyond violet in increasingly shorter wavelengths, are ultraviolet light, x-rays, and gamma radiation which contain tremendous amounts of energy. In the opposite direction, infrared and radio waves are longer wavelengths beyond the red end, with relatively very little energy.

Each color of the spectrum is composed of a band of frequencies. Therapeutic application of light to the body is accomplished by applying a single mono-

chromatic wavelength within that band. According to G.C. Sander in 1926, when the body is healthy, it may be able to filter out whatever color frequency it needs from white light or sunlight.[6(p44)] But if a person's health is compromised, the necessary color must be supplied. According to the photoelectric effect, the frequency of radiation determines the energy of the electrons emitted. This supports the rationale behind Dinshah's empirical system of color attributes, i.e., that individual frequencies have specific effects.[6]

IV. Bridging Color Theory and Acupuncture

In recent years, there has been much work in the use of full spectrum and colored light for mind/body healing. There is no doubt that light is necessary for health, and even life itself. There term "mal-illumination syndrome" has been coined to explain the deleterious effects of decreased exposure to light. It is now accepted that individual sensitivity to diminished full-spectrum light underlies seasonal affective disorder (SAD). Daniel Oren, at the National Institutes of Mental Health, has brought colored light into this equation, finding that green light is more effective than red in the treatment of SAD. [6(p14)]

Colored light has a particular ability to balance the autonomic nervous system, which is crucial in most chronic and functional disorders as it regulates all of the automatic processes of the human body: breathing, the beating of the heart, the functioning of the digestive tract, the stress response. Light as an environmental stimulant, is second only to food in its impact on controlling bodily functions.[6(p250)] Interestingly, light through the eyes reaches not only the visual centers of the brain, but also the hypothalamus. The hypothalamus is the brain's brain. It organizes information from the body's external and internal environments, initiates the stress response, regulates immune function, reproduction, thirst, hunger, temperature, emotions, and sleep patterns. It houses the biological clock, controls most of the functions of the pituitary gland, and controls the autonomic nervous system. Light energy is converted to electrochemical impulses which are then sent to the pituitary and pineal glands. The pineal gland is the body's light meter, and only gland in the body not controlled by higher neurological centers. It transforms retinally perceived light waves into neuronal impulses and hormonal messages through melatonin production. Melatonin is both created and released by the pineal gland in response to light and darkness. The pineal gland and melatonin provide the physiologic and hormonal connection to the environment and the universe.[4(p30)]

In Oriental medicine, it is said that the human being is created when the Qi (energy) of Heaven and the Qi of Earth come together. Reflecting on this theory and the revelations on light and human physiology, we offer the hypothesis that the Qi of Heaven continues to enter the formed human body through the pineal organ in the form of *light.*

V. Acupuncture Meridians and Light Conduction

The scientific community is just starting to recognize, investigate, and understand the integral and profound role that light plays in regulating and maintaining health in the body/mind. The manner in which the application of light may interface with the practice of acupuncture is also emerging. Theoretical constructs on how the nature of light relates to Qi, laser acupuncture, and experience with the direct transmission of light to acupuncture points are bridging the gap.

Russian researchers at the Institute for Clinical and Experimental Medicine have shown that light applied to the human skin penetrates the body to a depth of between 2 and 30mm, depending on the color frequency (further support for the individual color attributes). Using state-of-the-art technology, they were able to track the light penetration and measure its strength. The researchers found that only certain areas of the body were able to transfer light beneath the surface, and that these areas corresponded to locations of specific acupuncture points. Not only that, they showed that light was conducted within the body along the acupuncture meridians.[11]

Although light penetration may be superficial, stimulation of deeper physiological processes have been reported; for example, laser light therapy has been shown to decrease healing time of wounds and ulcers, decrease edema, and facilitate bone remineralization.[6(p279)]

Extrapolating from these findings, some provocative questions arise: Could the meridians function as a light (photon) transferal system within the body, not unlike optical fiber? Just as light through fiber optics is used to store information in computers and transfer it almost instantly around the globe, perhaps the meridian system as a conductor of light provides subtle energy information system with the body. Could this be the missing link uniting materialistic medicine with the "subtle energy healing modalities," and bridging the gap between physics and metaphysics? Could the meridian transmission of photons (traveling at the speed of light) be a more fundamental aspect of Qi than of electromagnetic energy which involves relatively inert ions or electrons?

Tiina Karu, PhD, at the Laser Technology Center in Russia and affiliated

with the University of California at Berkeley, had research the effects of light on the cell since the 1980s. She has found that there are photo-receptors at the molecular-cellular level which, when triggered, activate a number of biological reactions: DNA / RNA synthesis, increase cAMP levels, protein and collagen synthesis, and cellular proliferation. The result is rapid regeneration, normalization and healing of damaged cellular tissue.[6(279)] In essence, light is a trigger for the rearrangement of cellular metabolism.

Surprising new research from Cornell University also supports this supposition that the body absorbs light through the skin, and that this light has physiological action. Chronobiologist Scott Campbell found that the biological clock could be reset by shining light on the back of the knee.[12] Prior to this it was believed that the light had to be transmitted through the eyes. This has important implications for the treatment of seasonal affective disorders linked to aberrations in circadian rhythm.

VI. Coherent vs. Incoherent Light

Light therapy in combination with acupuncture is actually quite common, interfacing through the use of laser technology. Laser, an acronym for "light amplification by stimulated emission of radiation," is simply light which is coherent. Coherent light beams have minimum divergence and maximum parallelism over distance, as opposed to incoherent light consisting of regular visible light beams which scatter. Hot lasers are used in surgery to cut, cauterize, and destroy tissues. Lower power lasers, referred to as "soft" or "cold" lasers, are used in place of acupuncture ("needleless acupuncture") in clinics, research facilities and hospitals around the world to produce therapeutic effects through photobiostimulation. Soft lasers are classified by the FDA as Class III, nonsignificant risk medical devices for investigational purposes only.

There is a vast amount of research documenting the biological responses and efficacy of laser biostimulation, much of which is applicable to incoherent light. Laser stimulation has a homeostatic effect: promoting skin regeneration or reducing scar tissue, decreasing pain or promoting enhanced sensitivity in numb areas, reducing swelling and irritation or improving circulation and enhancing the immune system.[6(280)] However, soft laser treatment is not without risk. It can be harmful if it comes in contact with the eyes. There is also concern that if used for a prolonged period, it can damage acupuncture points, leading to reduced effectiveness.

Despite the excitement over laser, sight should not be lost on the prior work

done with incoherent light. Dr. Karu (noted above) contends that coherent light is not necessary, that incoherent light is equally effective at producing clinical results. Furthermore, she found that coherent light is converted to incoherent light in the body. The exact effect depends on the wavelength, dose and intensity.[13] In Israel, medical doctors utilize incoherent light transmitted by light emitting diodes (LEDs) in the practice of neurology, dentistry, dermatology, physiotherapy, and in cosmetic applications to promote collagen and elastin formation.[6(p281)]

VII. From Nogier to Photostimulation

As often happens in life, we became intrigued with the use of colored light in conjunction with acupuncture by circumstance. A friend introduced us to a penlight device for applying colored light to acupuncture points, but the device was clumsy and the light intensity was not sufficient. Shortly afterward, we became acquainted with the work of the noted French physician, Paul Nogier, who is most well known for developing auricular acupuncture and identifying the "auricular cardian reflex" (ACR), also known as the "Nogier reflex." Since its usefulness extends far beyond auricular medicine, it is now referred to as the *vascular autonomic signal.*[14(p23)] He had first experimented with the autonomic nerve wreath in the iris to help establish the light connection to the body's sympathetic nervous system. In 1975 Nogier and his colleague Rene Bourdiol, co-authored a book on the subject—*Treatise on Iridodiagnosis.* Later, Bourdiol, in his book *Auriculo-Somatology,* described how Nogier used colored and pulsed light on the ear to affect the body's energy systems.[14(p231-9)]

This information, along with familiarity with Dinshah's work peaked our interest in photostimulation of acupuncture points and led to development of the Photon Stimulator (US patent approved in 1998). As practitioners ourselves, we took into account the feedback and needs of colleagues allowing us to address several problems (see below) of prior colored light devices making the PS both effective and user friendly. Over the last several years it has been used by practitioners in clinical practice to apply colored light to acupuncture points, either on its own, or in conjunction with standard acupuncture treatment.

The PS is a plug-in unit comprised of a xenon plasma gas tube which provides full spectrum light. The light is pulsed and transmitted through high-grade optic fiber to the handpiece with a precise tip where the light is focused. The combined aspects of being a plug-in unit vs. battery

powered, the high wattage xenon bulb, and the optic fiber which transmits 99.4% of the light to the tip, insure high intensity stimulation of the skin. The benefits of higher intensity mean a greater number of electrons discharged. In practice, this translates to shorter treatment times.

Some of the problems we encountered in other machines were the bulky nature of the applicator, and lack of color specificity. In the PS, the design of the lightweight handpiece facilitates precise location and treatment of either points or areas on the body, or in the ear where precision is a must. The PS utilizes color gel filters manufactured by Rosco Laboratories (Stamford CT, USA), the world's top photographic filter company. Roscolene gel filters minimize dye migration and pigment fading; they duplicate the same precise frequencies researched for over 50 years by Dinshah. Each color gel filter comes in a 35mm slide casing, making it convenient and quick to change colors by dropping them in and out of a slot.

Our experience, and those of both colleague and patients utilizing the PS have shown that very short treatment times are effective. Only 15 - 30 seconds are necessary at each point. The light is pulsed, reinforcing the stimulation. The "flicker" rate is adjustable between 0 - 10 hertz; we usually set it around 5 hz.

Norman Shealy, MD, holistic physician, researcher, and founder of the American Holistic Medical Association, contends that the frequency, quality, and amount of like influences production of all neurotransmitters and that different colors selectively influence specific neurotransmitters.6(p186-188) He prefers to use 7.8 hz, which theoretically the background human frequency, based on the Schumann resonance, the frequency of the earth.

VIII. Case Histories

The following case histories utilize the Photon Stimulator for photobiostimulation.

Case 1: Fatigue

A 60-year old, female acupuncturist (not the author): She is constitutionally Spleen Qi deficient, with an underlying Kidney Yang deficiency and intermittent Liver Fire. Pulse is deep and empty. Tongue is wet, no coat, with a slightly red tip. She developed a chronic fatigue syndrome 9 years prior while in acupuncture school. She gradually improved over the years, but suffered a relapse in December 1998. Her condition was not as severe as during the initial illness, but nonetheless, her energy level was quite low. She was unable to recuperate with rest or sleep, waking just as tired as when she went to bed.

She began treating herself with the Photon Stimulator, alternating lemon,

green and occasionally orange on acupuncture points corresponding with the chakras, CV-2, CV-6, CV-12, CV-17, CV-23, Yintang and GV-20. She chose this protocol based on Dinshah's style of broadcasting light systemically to the front of the body, rather than on principles of Oriental medicine.

On a clinical note, she learned more about the effects of the various colors over time and would vary the treatment and colors. She switched to using colors on the blue end of the spectrum on Yintang and GV-20 so as not to create too much heat in the head. Because she is borderline hypothyroid, she occasionally found benefit from treating ST-9 and CV-23 with orange. She learned not to use stimulating colors in the evening. Once, after using yellow at bedtime, she awoke at 2:00am "seeing yellow inside her head."

She noticed immediate improvement in energy with the first application of light which she described as "feeling fundamental, as opposed to false energy." She found, however, that the treatments didn't hold. She started treating herself on a daily basis for a period of 6 weeks. Over the course of treatment, she improved substantially. She no longer feels that she has to be constantly vigilant regarding how much energy she expends, a factor that required her attention for the past 9 years. She is able to feel refreshed after a meditation or short nap when she feels herself becoming fatigued. She also notes that whenever she treats herself, the pulses all "come up." She continues to treat herself occasionally on a prn basis.

Case 2: Migraine Headache

As noted above, the acupuncturist/patient in case #1 also has intermittent Liver Fire symptoms, manifesting as migraines, as is often seen in depleted individuals. She gets migraines every 5 to 6 weeks. In the past, they would last 4 to 5 days. She has learned to control them and shorten the duration to one day with a program of intensive meditation 3 times per day during a headache. The following day, she would still experience the residual effects of the migraine: sluggishness and feeling "out of sorts." Such sequela often accompany migraines since they are more of a systemic rather than localized phenomenon, releasing vasoactive inflammatory chemicals in the brain.

Recently, she developed a migraine in the morning, and continued on her way to work. As soon as she had a minute between patients, she treated LV-3 and LI-1, the Jing Well point, with blue. The headache resolved completely within seconds. The next day she realized that she had none of the residual sickness which usually accompanies the migraines, despite the fact that she did not sleep with

her head elevated, as she normally needs to do when symptomatic.

Case 3: Leg Swelling and Cramping

Two years prior, this 45-year-old athletic woman developed idiopathic bilateral leg swelling, worse on the right, usually preceded by cramping. Intestinal cancer was diagnosed in the course of working up the leg symptoms. The cancer was successfully treated with surgery, but the leg cramping and swelling persisted. No etiology has been found. The legs would cramp so strongly that sometimes veins would rupture. It was excruciatingly painful, making it difficult to walk; the cramps would persist 2 weeks with each episode.

She had been receiving acupuncture for pain and swelling control before initiation of colored light treatments. Constitutionally, she is on the deficient side, particularly in the Kidneys. Her tongue is dark, wet, with scant coating. Pulse is strong and full, deficiency excess. She is very sensitive to needles, and easily overtreated. As treatment progressed, fewer and fewer needles could be used, until only ear points Shenmen, Zero, and Leg were needled. Within a few minutes of inserting the needles, her legs would start to cramp. The Qi Gong would be applied to lower legs and feet for 10 to 20 minutes until the cramps subsided.

In March 1999 her symptoms began to accelerate; she came in for her regular treatment about every two weeks. Ear points Shenmen, Gastrocnemius, and Intestines were needled. Within a couple of minutes her legs were cramping strongly. Blue light was applied at the Jing Well points of Spleen, Gallbladder, and Bladder meridians corresponding with the distribution of the cramps. To her disbelief, the cramps subsided completely within 5 seconds. She continued treatment about every 2 weeks, but now only blue or purple light was applied to ear and body points, in lieu of needles. Light was also applied locally to ashi areas for short duration, as she would develop paresthesias. Each time the cramps subsided consistently within seconds. on days in which she atypically presents with swelling and no cramping, purple was applied to appropriate Jing Well points and ear points Shenmen, Zero, and Intestines. In such case she sees improvement the following day.

During the month of April, she experienced a heightened pain cycle, and needed treatment more frequently. At one particular visit, she presented with diarrhea, rectal bleeding, and leg pain. Acupuncture was applied to ear Shenmen, Intestine, and Kidney. Purple light was applied to Jing Well GB, K, and BL as well as GB-39, K-7, BL-57. At completion of the treatment, she informed us that

she had been having internal shaking of her left arm since 4:00am. Her heart pulse was checked, and found to be normal. Blue light was then applied to CV-23 to suppress the thyroid. The shaking resolved immediately, and has not returned.

In June, she presented with difficulty walking for several days, painful right arch, and swelling but no spasm. Purple was applied to ear Leg and Foot, magenta to Kidney points. The next day the swelling improved significantly.

This case illustrates the usefulness of colored light therapy in a complex patient in whom it is difficult to make an intervention because of deficiency and hypersensitivity. The goal of treatment has been to keep er as mobile as possible. Light has been the primary modality since it proved more efficacious in her case, but it was used in conjunction with acupuncture when a strong result was sought. It is to be noted, that throughout the course of color treatments, magenta was also applied to reinforce the Kidneys, so the root and the branch were both being addressed.

Case 4: Chronic Rhinitis

This case involves a 54-year-old woman with chronic nasal congestion and nasal tone to her voice. She has a very damp Spleen, and some Liver Wind. Her tongue is wet with no coat.

She as treated symptomatically with light 3 times in one week. Green was applied to LI-4, ST-3, Yintang, LI-20, and BL-2. The next day she was able to breathe through her nose, and was beginning to regain a sense of smell for the first time in years. Her nose unblocked and started running. After the second treatment, she could smell flowers (to her great delight). After the third treatment, her sense of smell was fully restored, a fact which she noted with dismay when her dog developed diarrhea.

Case 5: Chronic Insomnia

This 45-year-old woman presented with a history of insomnia of 4 years duration dating from the shock and grief of losing her husband in a motor vehicle accident. She was only able to sleep 2 to 3 hours, then was awake the remainder of the night. Various lifestyle modifications, herbal teas, etc., and ongoing psychotherapy were ineffective at breaking the cycle. She is also obese, has chronic sinus headaches, rhinorrhea, bruxism, irregular menstruation, hot soles of her feet with pain at times, a painful right eye associated with fatigue, and is under chronic work related stress. She sought light therapy for help with the insomnia and stress management. Her tongue revealed a midline crease and swelling of the sides. Pulse was deficient in Liver and Kidney positions.

Violet light was applied to ear point Zero, Shenmen, Master Cerebral, Tranquilizer, Psychosomatic, Lung, Insomnia 1 and 2, and body points Yintang, PC-7, HT-7, and LU-9 for a total of 4 treatments.

The night of the first treatment, she slept 8 hours, and woke refreshed with her muscles feeling relaxed. Her sleep pattern continued to improve, averaging a good night's sleep at least 5 nights per week. After the third treatment, she remembered a dream for the first time in years. She also noted relief from the chronic headaches and rhinorrhea.

This patient had several syndromes simultaneously as many people do: Shen disturbance, yin deficiency, dampness and Liver Qi depression. Appropriate light therapy to key points was able to start bringing her back to a state of balance, give her substantial relief, and improve her quality of life. It would have been interesting to see how many of the seemingly unrelated symptoms would have improved had she continued treatment.

Case 6: Upper Respiratory Infection, Pharyngitis

A 14-year-old boy came in with a one week history of head congestion, ear pressure, sore throat, and intermittent mild fever and chills. The onset was marked by sore throat and headache. In the past 2 to 3 days, the sore throat had intensified, and he had developed a nonproductive phlegmy cough—both of which were interferring with sleep.

Physical exam revealed an erythematous pharnynx, and enlarged anterior cervical nodes. Lungs were clear to auscultation. Pulse was rapid. Tongue had a sticky yellowish coating. O.M. diagnosis: acute toxic damp heat.

He was treated with green light to ear point Zero, Shenmen, Thymus, Lung, Throat and body points CV-22, LU-1, LU-7, LI-11. He was also started on Amoxicillin to cover for strep pending throat culture results, which proved to be positive.

He had notable improvement in symptoms and sense of well being from the day of treatment. This case is remarkable in that his younger brother, who had the same condition, was treated with antibiotics only, and was much slower to recover.

IX. Discussion

We have been using colored light therapy in clinical practice for three years. As with any healing system or modality, light therapy is neither a magic bullet nor a cure all. But it has clearly shown itself to be an invaluable asset. We use it in combination with standard acupuncture treatment or rely on it for the sole treatment. It is wonderful to use with

children, and with patients who are needle phobic or hypersensitive.

The Dinshah system of color therapy dovetails nicely with traditional Oriental medicine theory, relating colors to the internal organs and meridian system. Yellow builds the pancreas and improves digestion, red is hot and stimulating, magenta strengthens the kidneys and adrenals, the warm colors (red, orange, yellow, lemon, scarlet) strengthen and tonify, while the cool colors (turquoise, blue, indigo, violet, purple) sedate, calm, ease pain and inflammation.

What has been most notable from the beginning of this exploration, is the rapidity with which healing can take place with something as seemingly simple and noninvasive as light. It compels one to stop and reconsider what our true nature is—that we are in a very literal sense "light beings" as ancient mystical teaching profess. There is new scientific evidence to support this. German physicist and chemist Fritz Popp published research in the mid 1980s documenting that the cells of all living things radiate light. He further hypothesized that photons are carriers of information in living systems.[6(p236),15] In 1998 G.J. Hyland, of the Department of Physics at the University of Warwick (UK) published research also demonstrating that living systems spontaneously emit biophotons.[16] Findings of this type seem natural and expected to those who accept the energetic nature of reality. At the same time, it validates the concept of Qi, which has been such a stumbling block to the acceptance of Chinese medicine in the West.

The efficacy of this particular light therapy device has also led us to reconsider the nature of light. Perhaps not all light is created equal. John Ott's work on the benefits of full spectrum light, and conversely, the deleterious effects of fluorescent lighting on both physical and mental health and well being is well documented and prolific.17 Psychologist Warren Hathway investigated the effects of full spectrum lighting on the performance of 300 ten to twelve year-olds in the Canadian school system. Compared to those exposed to cool white fluorescent or sodium vapor lamps, the full spectrum group excelled physically and academically. They had fewer sick days, greater gains in height and weight, and made greater academic progress. His findings were reported at the 1992 meeting of the American Psychological Association.[6(p9)]

This research indicates that light has positive or negative effects depending on which frequencies of the electromagnetic spectrum are present. In the book entitled *Light*, author Peter Bros goes a step further. He postulates that light is actually made of "what gives it off" by emission of electrons from the source. So the light emitted from a full spectrum fluorescent

bulb would be different in nature from the full spectrum light emitted by one of the noble plasma gases, as it is in the case of the Photon Stimulator, and certainly different from that emitted by an incandescent bulb.[18] Xenon, being a non-reactive gas, has no deficit of electrons, and thus has plenty available for creating the light frequencies. Many elements, including the more solid ones (tungsten filaments?) are loathe to give up electrons. Perhaps, by accident, this explains the overall effectiveness, and sometimes amazing results which have been observed. It is to be noted that the original Rife device employed radiation generated from another noble gas, argon.[19]

A. Emerging Color Therapy Systems

Empirical work in applying colored light to acupuncture points/meridian systems has been ongoing since at least the 1980s. In Germany, Peter Mandel has developed a sophisticated system known as "colorpuncture" for rebalancing the body's energy and treating specific disorders. He uses a battery operated penlight with interchangeable colored tips for applying light to the points. In *Practical Compendium for Colorpuncture*[1(p43-59)] he explains his approach which involves analysis of vertical, horizontal and diagonal energy flows which correspond with functional illness/endocrine deficiency, inflammatory processes, and degenerative diseases, respectively. He also offers training seminars in his techniques.

In the West Indies, Charles McWilliams system known as "chromopressure" employs use of the colors of the spectrum on acupuncture and other points.[13(p88-94)] His ChromoPressure Unit is solar powered, concentrating sunlight over the points, and filtered through interchangeable colored slides. He utilizes combinations of three types of innovative points which represent reflex systems:

(1) Chromopressure points are located on the face and hands, and represent organ-tissue-gland systems. Point selection and protocol is determined by his "symptom survey evaluation."

(2) "Contact healing points" are points on the trunk which, when tender, indicate stress in a related tissue or glandular system. Color irradiation of these points gives symptomatic relief.

(3) Lastly, the "Chapman neurolymphatic reflexes" are useful in obesity and chronic toxicity by stimulating lymphatic drainage.

B. Getting Started

Our experience and feedback from other practitioners indicates that the Photon Stimulator is versatile and can be adapted to any color therapy system. It is probably better suited to colorpuncture and chromopressure because of the rea-

sons cited above, i.e., high intensity, specific color frequencies, short treatment times, precise applicator tip, and full-spectrum light generated by xenon gas. Unfortunately, the Chromopressure Unit requires a good source of sunlight which limits its use to certain time of the day and prohibits its use in some climates. The Photon Stimulator has gone through the rigorous government patenting process and was granted a patent in December 1998. While it is applicable to these other systems formal training is not necessary. It can be readily applied to auricular points or body acupoints utilizing information on Dinshah's color attributes contained in the manual, combined with Five Element theory. Dozens of practitioners have been able to easily incorporate it into daily practice.

The therapeutic use of colored light is in its infancy. There are more questions than answers. The field is wide open for research which, we are certain will secure the invaluable role of light in medicine of the 21st century.

References

1. Mandel P: *Practical Compendium of Colorpuncture.* Ditton Energetik, Bruchsal, Germany, 1986, pp 22, 43-59.
2. Dinshah D: *Let There Be Light.* Dinshah Health Society, Malaga NJ, 1996, p11.
3. Babbit ED: *The Principles of Light and Color.* (originally published in 1878). University Books, NY, 1967.
4. Liberman J: *Light: Medicine of the Future.* Bear & Co. Publishing, Santa Fe NM, 1991, p77, 71, 30.
5. Troy S: The AMA's charge on the light brigade. *Nexus,* 1997-9 (December-January); 5(1): 39, 40.
6. Breiling B (ed): *Light Years Ahead: The Illustrated Guide to Full Spectrum and Colored Light in Mindbody Healing.* Celestial Arts, Berkeley CA, 1996, pp 44, 14, 9, 259, 279, 280, 281, 186-8, 236, 9.
7. Cromer A: *Physics in Science and Industry.* McGraw-Hill, New York, 1980, pp590-591.
8. Pais A: *The Science and Life Albert Einstein.* Oxford University Press, New York, 1982, pp329-381.
9. Clark RW: *Einstein, The Life and Times.* World Publishing Company, New York, 1971, pp69-70.
10. Cutnell J, Johnson K (eds): *Physics.* 2nd Ed. Wiley, New York, 1992, pp839-842.
11. Pankratov S: Meridians conduct light. *Raum und Zeit,* 1991; 35(88): 16-18. (In German)
12. Campbell SS, Murphy PJ: Extraocular circadian phototransduction in humans. *Science.* 1998; (January 16) 279:396-399.
13. McWilliams, C: *The Revolutionary Photobiotics: Quantum Energy Dieting & Lifestyle Through Color.* ProMotion Publishing, San Diego, CA. 1995, pp88-94.
14. Bourdial RJ: *Auriculo-Somatology.* Maisonneuve, Paris, 1983, pp 23, 231-239.
15. Kilmister CW (ed): *Disequilibrium and Self-Organization (Mathematics and Its Application).* D Reidel Publ Co, Dordrecht, Netherlands, 1986, pp 207-230.
16. Hyland GJ: Frequency-specific, nonthermal bioeffects induced by low-intensity micro-

wave irradiation of living systems and their interpretation in terms of Frohlich's coherent excitations. *Engineering Science & Ed J.* 1998 autumn.
17. Ott J: *Light Radiation and You.* Devon-Adair Co, Greenwich CT, 1982.
18. Bros P: *Light.* Financial Book Partners, Springfield, VA, 1996, pp75-99.
19. Poehlmann KH: The cause and the biological treatment of cancer. *Explore!* 1999; 9(1): 5.

Bibliography

Brown TJ: Some observations on the relationship between light and electricity. *Borderlands;* 1996; 52(2): Quarter 2.

Douglass WC: *The Healing Power of Light.* Second Opinion Publishing Inc., Atlanta GA, 1996.

About the Author

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