

Photonic Therapy in Veterinary Medicine

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ABSTRACT

Six (6) case histories are presented to demonstrate the effectiveness of athermic, broadband monochromatic light as a scientific therapeutic modality, which can easily be incorporated into every veterinary clinical practice.

Understanding the biological effects of light's action in tissue clearly demonstrates there are disadvantages, but no clinical or biological advantages, in using a low-level laser light compared to using a non-coherent light.

Case histories are presented across a range of conditions, not so much to present detailed medical evidence but to demonstrate the versatility of Photonic Therapy as a non-invasive, safe, painless and easy to use medium.

Feline –

Abdominal pain (Scampi)

Persistent hematuria (Preston)

Canine –

Glaucoma (unilateral), sequel to mild anterior uveitis (Oreo)

Stifle & hip osteoarthritis (Teddy)

Chronic skin allergy and itching (BK)

Non-surgical normalization of cryptorchidism (Golden Labrador Puppies)

Photonic Therapy, which is the scientific application of light as a therapeutic modality, can be simply integrated as an adjunct or enhancement to existing practices. In its own right, this modality can extend the Veterinarians armamentarium, as a scientific alternative to surgery or pharmacological intervention. Further, while being very client acceptable, Photonic Therapy increases the range and scope of conditions that can be adequately encompassed in a clinical setting.

INTRODUCTION

Throughout history, light in various forms has been used to improve health and treat diseases. The efficacy of phototherapy has long been known, even though its' mechanism of action was not understood. With the advent of modern antibiotics and improved hygiene much of this old information was forgotten or ignored. Suggesting that light could be used to treat disease risked accusations of pseudo-science, as it is known that quackery flourishes in the twilight zone of knowledge.

In the Rig Veda, a 1500 BC Sanskrit document, Santir, a God of the Sun was worshipped as a divine physician ⁽⁹⁾,

Hippocrates (460-370 BC) practiced heliotherapy ⁽⁹⁾,

Galen (131-201 AD) routinely prescribed sunbaths for patients ⁽⁹⁾,

Henri de Mondeville (1260-1320 AD) used red light in the treatment of Smallpox, a method he had learnt from the Arabs ⁽⁹⁾,

John of Goddesden, physician to Edward II of England, in 1510 AD treated a prince with red dyes and diffuse red light, and cured him of smallpox without a vestige of pockmarks ⁽⁹⁾,

In 1900 Chartièrè, a French physician ⁽²⁾ reported the use of six hours of red light to successfully abort measles in children (**JAMA),

Also in 1900, a Dr. J.W. Kime, M.D. (Fort Dodge, Iowa) ⁽¹⁰⁾ reported on his device (a 3 feet diameter, concave reflector with a blue filter placed in front) that would, focus the rays of the sun onto an area of a patient, 6 inches in diameter, from a distance of 8 feet, and claimed to be equivalent in intensity to twenty times that of direct sunlight, without the heat. This device was used successfully to treat tuberculosis and is the first use of the word phototherapy. (JAMA),

In 1903 the Nobel Prize was awarded to a Danish physician for the treatment of Tuberculosis and Smallpox using red light as "Artificial Sunlight" to abolish suppuration and lessen scarring ⁽⁹⁾,

Unless the umbilicus of the newborn human is clamped reasonably quickly after delivery, the infant is pumped full of it's mothers adult hemoglobin, causing the child to become jaundiced. As the immature liver is unable to chemically conjugate all the bilirubin, accumulation can cause mental retardation, a condition known as kernicterus. The application of intense blue light (Phototherapy) prevents this, by causing the proteinaceous bilirubin to allosterically change shape, become water soluble, and be passed via the infant's urine,

Ultra Violet light is also used in dentistry to harden certain enamel bonding agents,

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The use of sunlight to stimulate Vitamin D production in the skin to prevent or treat rickets is well understood (Photochemistry),

Photodynamic therapy is the use of Ultraviolet light in combination with certain fluorescent dyes to treat certain skin conditions and some forms of cancer,

Photonic Therapy is the scientific application of athermic, monochromatic (single colour) light to areas of the skin, which previously have been described as acupuncture points, and is the correct name for what has been described as laser acupuncture, or low-level laser therapy. When light travels through space, certain of its characteristics may be described in terms of wavelengths, however when light enters any denser medium, the speed of light changes, and it is convenient to discuss light as if it were contained in little packets, or photons.

At the end of the 19th century each science was considered a separate discipline, being virtually mutually exclusive. Present day thinking accepts that electricity, magnetism and gravity are all part of the same thing, being forces we can measure and use, but have not seen, and it is now common when discussing the electro-physiology of the body, to draw on a science that has no boundaries.

Acupuncture is the ancient Chinese art of stimulating certain points on the skin to promote a physiological response. Acupuncture can now be explained in scientific terms, which allows it to be equated by medical personnel with their own scientific knowledge base, eliminating the need for the involved Chinese philosophical concepts. The scientific explanation eliminates ancient dogmas that were perceived as truths, and reduces the requirement for teaching needle techniques, which are ancient, invasive, time consuming and potentially dangerous methodologies ⁽¹¹⁾.

When two electrical charges of opposite polarity are separated, an electrical field is produced, and for every electrical field there is a magnetic field at right angles. Every cell is basically negatively charged on the inner surface and more positively charged on the outer surface creating an electrical potential across the cell's membrane. This produces a minute electrical field around each cell. A group of cells (for example, a body) have a combined electrical field, and it may be shown that all living things have electrical field sensors built into their cuticle. Depending on the ecological niche the organism occupies, these cutaneous electromagnetic sensors have developed to a greater or lesser degree. Bacteria and other single cell organisms do not have a nervous system, but they have a form of memory, motion, and a sense of direction, due to electrical potential differences across their cell membranes. Sharks, fish, reptiles, monotremes, birds and mammals, all use the electric fields around their body for prey detection, and communication.

An acupuncture point is an area of the skin of lowered electrical resistance (increased conductance) and is 5 to 40 mV more positive than the surrounding skin. Light is nothing more than the visible part (to the human eye) of the electromagnetic spectrum, with colour being the human eye's perception of the energy level of the electromagnetic radiation. The photochemical reaction of rhodopsin in the eye or chlorophyll in plants is well described, and easily understood. When light falls on skin, the stimulation is transduced by the subcutaneous piezoelectric collagen to an electrical component, with subsequent reception by porphyrins and flavins, incorporation into the respiratory chain of the mitochondria, production of cyclic adenosine-mono-phosphate and an increase in the adenosine-tri-phosphate. As acupuncture points can be stimulated by electromagnetic radiation (photons of light), acupuncture points may be described as skin-based, light receptors, or cutaneous photoreceptors.

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In common with photoreceptors in the eyes, stimulation of the central field can inhibit reception in the surrounding area, and vice versa. This pattern of stimulation not only exists at the receptor area, but is also maintained for neurones carrying the stimulation from the particular area to the Central Nervous System. There are some 2,066 areas of the skin that have been mapped, named and accepted by the World Health Organization as “acupuncture points”. Therefore it is easier and simpler to talk of stimulating acupuncture points with light, than to pedantically discuss the amplitude and frequency variations of the electromagnetic fields in phylogenetically derived cutaneous photoreceptors.

While acupuncture may be shown to be a therapeutic modality that is as effective as, or in some cases more effective than Western medicine, it is basically an invasive technology, and the initial microtrauma creates a chemical cascade of inflammatory and immunological responses⁽¹⁸⁾. However, this does not explain how non-invasive, non-traumatising stimulation of the same area can produce an equivalent physiological effect. It is easier, simpler, more quantifiable, and less invasive to stimulate these electro-magnetically sensitive areas of the skin with a quantifiable amount of light (electro-magnetic radiation), than to use needles.

The following case histories reported here were derived from two separate veterinary clinics. The veterinarians involved selected cases that were difficult or unresponsive to conventional western medicine. All cases had standard veterinary work-up and have full medical histories. However, for clarity and brevity such information that may be considered superfluous has been excluded from this article, though such information could be provided if required.

The advantage of using a form of light rather than needles is that the animal does not have to resemble a pincushion, the operator requires less training in techniques of absolutely no value, such as getting DeQi, the depth of penetration, direction of turning, or the order of placement. The advantage of using Photonic Therapy with standard points is that when using a quantifiable amount of energy that is safe, painless, and non-invasive, a repeatable, predictable outcome may be assured.

To the uninitiated, in traditional Chinese acupuncture there appears to be a number of convoluted concepts and philosophies that dovetail into each other. To the Western trained physician a condition such as shingles, with a single viral cause, is the same no matter where it appears on the body. To the Chinese it may be seen as two different diseases, depending on whether it exists on the head or the body, and thus would require different points to treat. Using Photonic Therapy the same standard points would be used to release endorphins, ACTH, raise the immune system, normalise the autonomic nervous control of the vascular tone, regulate the entire body's function, and stimulate the healing processes. Local points can be added for normalization of the skins electrophysiological function.

MATERIALS AND METHODS

The treatment method was to use a Photonic Torch[§] with the standard and specific points as outlined in the accompanying Treatment Manual[©] and charts[©].

The photonic torch is a small battery operated, hand held, and flash-light-like instrument with 5 diodes in the head, focused onto a spot size of one square centimetre. Each diode is an ultra-

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bright 37-milliwatt (mW), giving the unit an overall power of 185 mW. A treatment time of 6 seconds per point, provides a total energy equivalent to 1.11 Watts-second, or 1.1 Joule /cm².

The whole concept of Photonic Therapy⁽¹¹⁾, as opposed to classical acupuncture, is to treat bilaterally standard points plus specifics for each condition. The standard points are described by their WHO accepted, Chinese acupuncture names thus any one can use any acupuncture reference book to find their location.

For the dog or cat the standard points are; Governor Vessel 20, Large Intestine 4, Large Intestine 11, Bladder 11, Bladder 23, Governor Vessel 3, Stomach 36, Gall Bladder 34, Spleen 6, Bladder 40, and Bladder 60. The specific points are from the McLaren Treatment Manual.

§

CASE HISTORIES

Scampi. Feline. 4 yr old, neutered, Blue Point Siamese.

Presented 7-13-00 for vomiting and weight loss. Had lost 2.8 lbs since 10/99. Vomiting started 6 weeks prior, after ingesting a piece of a silk plant. Seemed to be guarding abdomen since that time.

PE –T=101.7, very nervous, CBC/Chemical profile normal with the exception of Amylase elevated at 2408 (N= 300-1700) and Lipase elevated at 671 (N=25-371). Abdominal radiographs revealed calcified area in right kidney. Abdominal ultrasound revealed 2 calculi in right kidney all else normal.

Treated with every other day sub-cutaneous fluids, penicillin, bland diet, and torbugesic.

7/19/00 still painful, hunched up all the time, especially after eating. Continued fluids, antibiotic and torbugesic.

9/6/00 some improvement though still experiencing discomfort. Still hunches over frequently, especially after eating. CBC/Profile-Amylase 2109, Lipase 671, ALT elevated at 1897. Added 5mg prednisone daily, continued fluids. Not able to eat anything but chicken, without hunching over after eating.

Mid November, discontinued prednisone. Started treatment with Photonic Therapy every other day for eight (9) treatments. Used standard points plus points for abdominal pain. There was a noticeable improvement after the third treatment, with the cat being more playful, and sleeping with the owner again. The owner reported that Scampi will curl up like a normal cat and doesn't hunch over after eating. His weight is now 8.2lbs.

1-18-01 Recheck of blood-work- Amylase 863 (N=300-1700), Lipase 102 (N= 25-371)

Preston Feline. 5 yr old, male, yellow Domestic Shorthair.

This animal had suffered chronic hematuria for the last eight months. Initially, it had struvite crystals in the urine with a pH of 6.5. The cat was placed on a CD diet, and produced two negative urinary bacterial cultures, while an ultrasound examination was negative for stones or bladder abnormalities. The persistent hematuria resolved after three Photonic Therapy treatments. The treatment used was the standard points plus points for urinary infection, from the manual.

Oreo Canine. 5 yr old, spayed female, black and white, Mixed Breed, 22 lbs.

11/25/00 The right eye was enlarged, following a mild anterior uveitis. On 12/14/00 the dog was referred to board certified ophthalmologist who confirmed glaucoma with pressure 60-70 mm Hg. and stated the sight was absent in the right eye. Surgery was suggested in an attempt to save left eye. The animal was started on timolol, trusopt, and demecarium, and was treated every other day for three treatments using Photonic Therapy, then represented to the ophthalmologist on the 12/21/00 for a recheck. The pressure had dropped from 60 to 24 mm Hg, and the animal had

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gained some vision in the right eye, which was quite surprising to the ophthalmologist who was not familiar with the effects of treatment with Photonic Therapy. Response was therefore rated as better than average or than would have been expected. The treatment used standard points, plus the glaucoma formula.

Teddy Canine. 3 yr old, male, Blonde Pomeranian, 6.8 lb.

12/18/00. The dog was presented holding up its' rear right leg. On examination there were severe cranial withdrawal signs, with crepitation in the stifle and hip. Surgery was not an option acceptable to owner. Photonic Therapy was given every third day, for 5 treatments. As of 1/8/01, Teddy is weight bearing 80% of time according to owner, and while he will not use the leg when running, he does most of the other time. The treatment consisted of the standard points plus stifle and hip points.

BK. Canine. 14 yr old, spayed, Lhasa Apso.

BK suffered chronic skin allergies, all year round, though they were worse in the spring and fall. The animal was placed on a CD diet. The Veterinary Doctor was unable to do food trial with hypoallergenic diet because of urinary pH problems. The dog was constantly chewing at her feet, and intermittently, her ears showed signs of being irritated. She was treated every third day for eight treatments with Photonic Therapy on standard points and allergy points. A significant improvement was noticed after three treatments. Four weeks after the final treatment, the dog was still not chewing at her feet and hair was growing back on toes, and her ears were clear. The owner reports the dog is much more active at home, has an increased energy level and will jump onto the bed now, which she has not been able to do for the past two years.

Cryptorchid Puppies Canine. 8 week old, Golden Retriever littermates.

Four puppies from the same litter were presented for routine vaccination. Two were normal and two were cryptorchid, one being unilateral cryptorchid and the other bilaterally cryptorchid.

There are previous case histories in the literature of both acupuncture and Photonic Therapy being successfully used to treat this condition. One of the authors claimed having personal experience with previous cases using Photonic Therapy to treat "genetic" conditions. One of the other authors, not having experienced either acupuncture or Photonic Therapy for this condition, or having read any of the relevant literature, decided to test a given formula of skin points using Photonic Therapy.

Three days later, both puppies had both testicles descended from the abdomen and were either in the inguinal canal or in the scrotum. Treatments were performed on days 3, 7, 10, 14, 17, and 21. The testicles stayed out of the abdomen for all those days.

DISCUSSION

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Understanding the biological effects of light's action in tissue clearly demonstrates there are disadvantages, but no clinical or biological advantages, in using a low-level laser light compared to using a non-coherent light^(7,8). While low-level laser light has been used to stimulate acupuncture points since 1968, the first Gallium-Arsenide diode laser was developed in 1979, and super-luminous diodes (SLDs) became commercially available in the early 1990s. Due to a lack of basic understanding, prior to the early 1990s controversies surrounded the stimulation of tissue with light.

When lasers were discovered in the late 1950s, the observed biological effects were attributed to the uniquely high coherence of the radiation⁽¹⁵⁾, however, Karu⁽⁶⁾, conclusively demonstrated that there was no scientific or physical basis for such a belief. With the advent of SLD technology, and the publication of Bioenergetics texts, it was possible to introduce a rational, scientific, advanced method of non-invasive acupuncture treatment, which is pain-free, sterile, safe, and effective. It must be clearly stated that biological specimens only absorb non-coherent light, and the coherence of laser light is lost after the first millimetre of epidermis.

In the biological literature, it is common to find comments, which relate the wavelength of light to specific effects, such as absorption, penetration depth, and even mode of function, however, as the velocity of light changes with each change in the density of the tissue, so does the wavelength⁽⁵⁾. In discussing the biostimulatory effects of low intensity light on tissue, a number of erroneous points are commonly encountered, regarding penetration, spot size, pulsing, pressing into tissue to increase penetration, beam coherence, which have been explained elsewhere^(11,12). The past decade has seen an explosion in knowledge regarding the molecular basis for membrane transport, which permits an understanding of the physiological basis for clinical acupuncture at a level not previously possible.

All living cells require energy for growth and metabolism. The chemiosmotic theory is based on the principle that electrical and chemical ion concentration gradients across a cell membrane and the phosphodiester bonds in ATP are inter-convertible forms of storing energy⁽¹⁶⁾. While the absorption of specific wavelengths of light by specific receptors such as rhodopsin, phytochrome, or chlorophyll has been easily demonstrated for a number of years, it was considered a more complex matter to demonstrate the absorption by non-specialised chromophores such as porphyrins and flavins. It is known that all substances when heated emit certain wavelengths of energy, and when cold these same substances absorb at the same frequencies as they emitted when hot. All photoreceptor pigments (porphyrins and their derivatives) when irradiated absorb energy, change shape (and colour), and their absorption peak shifts. This is further complicated in higher animals by the bi-refrigent character of collagen and then at a secondary level in intact mitochondria due to the highly non-specific light scattering of the organelles. However, by using a piece of equipment known as a split-beam spectrophotometer the differentiation of the various cytochromes involved in electron transport can be identified.

The rate of absorption is affected by whether the tissue receptor is in the reduced or oxidised form (the redox potential). As the cellular redox potential is lowered or moved more in the reduced direction, the effect of light on tissue is greater. The cellular response is not an all or nothing response, but a graded reaction.

When light is applied to acupuncture points it stimulates the mitochondrial membrane's proteins that mediate electron transfer and the oxidative phosphorylation associated with the respiratory chain. As not all the energy applied can be absorbed and utilized at once, it may be shown that

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antennae protein absorb a lot of the energy to pass on at a latter stage. In the neuromuscular systems, electrical potentials which are the product of intercellular chemical reactions, serve as messengers, provoke specific responses, and cyclic series of potentials can be used to automatically control a target organ.

Anatomical and cytological studies have shown that all living things have an underlying regularity that derives from their being constructed in a hierarchal manner. Two striking features that all living organisms have in common are the presence of an ADP-ATP system, and the presence of a calcium ion plus an intercellular protein-calcium binding system.

The skin is the largest organ in the body and has three main functions; protection, sensory and thermoregulatory. Underlying the skin is connective tissue, which is largely comprised of collagen, which transduces both pressure and temperature into electrical messages to be carried to the brain (especially the thalamus and hypothalamus) electrically via the nerves. When a light is shone on an acupuncture point it changes the electrical potential of the cell's walls and the energy level of the cells. Altering skin potentials via irradiation alters the electrical activity in the brain and causal relationships have been shown to exist between the variations in concentrations of the neurohormones, (5HT, noradrenaline, dopamine, cAMP, and Ca⁺⁺), the concentration of DNA and RNA synthesis ⁽¹⁴⁾.

The difference in effect gained by a master acupuncturist or a novice in the placement and manipulation of acupuncture needles, can be quite large. However, as light is a quantifiable amount of energy, when a given spot size is placed on the same area of the skin for the same period of time, the results obtained by either an experienced operator or a novice will be identical. An advantage in treating animals demonstrates that there can be no psychosomatic, placebo or hypnotic responses involved. The advantage of treating people utilizing the same points, can demonstrate dramatic improvement in most physiological conditions. The changes can be either measured objectively, or reported on subjectively by the patient. For example, one can objectively measure blood pressure, but one must accept, subjectively reported cessation of phantom limb pain. A short list of conditions routinely treated in human clinics utilising Photonic Therapy include:-

- Blood pressure reduction,
- Phantom limb pain, numbness or itch,
- Elimination of reflux and nausea from a multiplicity of causes including chemotherapy, oncology radiation, Meniere's Disease,
- Regulation of blood sugar levels in Diabetes – increase insulin production,
- Intra Ocular Pressure (IOP) in Glaucoma (with associated improvement in Field of Vision),
- Reflex Sympathetic Dystrophy, (now called Complex Regional Pain Syndrome, CRDS Type I & II),
- Relief from chronic pain of all types (osteoarthritis, fibromyalgia, sciatica, renal colic, cholecystitis),
- Regulation of hormonal cycles,
- Treatment of psychological conditions (depression, phobias, enuresis),
- Increased immune response,
- Viral and auto immune diseases,
- Post-surgical sequelae of keloid formation or chronic postoperative pain.

The stimulation of particular cutaneous areas stimulates the autonomic nervous system, and therefore the identical point could be used to treat, for example either diarrhea or constipation (just regulate the lower bowel). In Western Medicine drugs for one condition are not good for the

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other and regardless sufficient purgative would cause loose bowel movements whether the body was previously normal or not. One particular skin point (Stomach 36 – Zu San Li) is known to raise or lower stomach acidity, raise or lower blood pressure, increase or decrease peristalsis, increase the immune system while at the same time if any of these conditions are normal they will not be changed.

In relation to the case histories reported in this article, one has to open ones mind from previous rigorous Western thinking of “cause and effect” and consider relationships. For any one who has experienced the casualty (trauma) department of a large public hospital or the equivalent in emergency veterinary practice, one becomes convinced that there is no immutable laws carved in stone that state the body shall not heal.

1. Scampi. Feline, Very nervous, abdominal pain, with vomiting and diarrhea.

Did the possible pancreatitis cause the pain, nervousness, the vomiting and the diarrhea, or were the elevated enzymes the result of the pain, vomiting and diarrhea?

Did the treatment just stop the pain, the diarrhea and the vomiting and merely allow the body to heal? Photonic Therapy is known to stimulate the autonomic system prevent vomiting and diarrhea (regulate peristalsis), and release both endorphins (pain killers) and adrenocorticotrophic hormone from the hypothalamus (to produce anti-inflammatory cortisol). This scenario would therefore explain the lessening of pain and healing.

Did the treatment “fix” the pancreatitis, and therefore stop the vomiting, the diarrhea and remove the pain? Some evidence exists that Diabetes (Type I) is an autoimmune disease, where a viral particle component resembles components of the β -cells of the pancreas, and after the immune system eliminates the virus it turns on the pancreas. If this theory is accepted, as it is known that red light is virocidal, then the second scenario questioned could also be explained.

2. Preston Feline, Chronic hematuria. What was causing the bleeding? Could it have been a blood pressure problem (hypertension), or an idiosyncratic low level of one of the factors associated with the clotting mechanism?

From countless cases of human medicine, it is known and easily demonstrated that Photonic Therapy is very effective in reducing hypertension, by increasing the elasticity of the artery walls (lowers systolic pressure), improving the internal intima (Mast cell degranulation releases serotonin, not histamine) general vascular relaxation under the influence of Nitric Oxide production, and heart rate control via the carotid reflex.

From human case histories it is known that severely Factor VIII deficient hemophiliacs respond. In one case, after thirty odd years of requiring Factor VIII injections on a daily or every second day basis, after four weeks of Photonic Therapy treatment, the patient only required a Factor VIII injection every second or third week. There is no reason to expect that should the cat’s condition have been a clotting factor problem that the animal would not also have responded well.

3. Oreo Canine, Blind in right eye, glaucoma confirmed with pressure 60-70 mm Hg.

The aetiology of glaucoma in humans and the domestic species is uncertain. However, glaucoma in chickens can easily be reproduced on demand merely by raising them in 24 hours of light (Light Induced Avian Glaucoma – LIAG). There are many instances where it may be shown that a body compensates to a stress, which if continued causes overcompensation and eventually a decompensation. Could the damage associated with

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increased intraocular pressure be considered as the end-result decompensation, after the eye had initially elongated to remove a noxious stimulation from the retina?

Chickens raised in 24-hour light develop LIAG. Chickens raised in 12 hours light and 12 hours dark do not develop LIAG. Chickens raised in 12 hours light and 12 hours dark, with 24 hour superimposed 4 watts of invisible 830 nm infra red radiation develop LIAG even more severely, demonstrating that electromagnetic radiation absorbed through the skin can produce physiological results ⁽¹³⁾.

It is known that humans, domestic animals and chickens all respond to the Photonic Therapy treatment of glaucoma, as this is a case where objectively measured results are easily demonstrated. In the case of **Oroe** the glaucoma was secondary to a chronic, mild uveitis. The return of sight and decrease in pressure was not anticipated by the board certified Ophthalmologist, so this case represents the equivalent of a “double blind” study, as obviously the dog also did not know the anticipated results.

4. **Teddy** Canine, Holding up back right leg, with crepitation in stifle and hip. As Teddy had been a stray there was not a good history on him, but he obviously had ligament problems with arthritis and pain, but surgery was not an option acceptable to owner. In Western thinking (in cats dogs and humans) surgery is required to stabilize the joint, with NSAIDs to reduce the inflammation, even though the side effects (including mortality) of such drugs are well known and the results of the surgery are not always 100 % effective, plus the fact that in most cases arthritis develops in the “stabilised” joint some months or years after the surgery.

In racehorses where the body size is considered too large to be able to stabilize the joint with surgery, it is not “routinely” performed. However, with either acupuncture or Photonic Therapy a number of horses have been treated and have returned to racing without surgery.

The major problem associated with Photonic Therapy is that it challenges conventional thinking, and “converts” Western trained sceptical scientific veterinary and medical personnel to open their minds, and apply their basic physiological, chemistry and physics training in the benefit of their patients. There is nothing new, but instead of surgical and pharmacological intervention by stimulating the largest sensory organ in the body, one can stimulate the brain to produce the required neurochemicals for healing.

5. **BK** Canine, Chronic Skin allergies. In this case not only was there a skin problem that was unresponsive to western medicine but the fact that the owner reported the dog had an increased energy level, and would jump onto the bed, which she had not been able to do for past two years, suggests that the treatment may also have treated a possible underlying arthritic condition. In humans, Psoriatic Arthritis is a recognised condition. Could a similar condition also exist in the canine world?

One of the main theories in Chinese acupuncture is the Five Element Theory. According to this theory the Lung control the skin, and the Lung is the mother of the Kidneys. It is interesting to note that the veterinary doctor in charge of this case reported the animal had been on a CD diet and she was unable to do food trials with a hypoallergenic diet because of urinary pH problems.

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Besides the skin problem, the dog suffered intermittently with ear problems. In the thinking associated with Chinese Acupuncture, the Kidney channel starts under the hind feet, ends up on the chest, and then goes internally to open in the ears.

An acupuncturist would have made a decision to treat based on the mother son relationship of the Lungs and Kidneys and whether it was a case of a weak mother having a weak child, or an upset child upsetting the mother. At this stage most western trained veterinarians would have lost interest and switched off, but by using Photonic Therapy, one does not have to delve into Eastern relationships but can successfully stimulate nominated points for reproducible results.

6. *Cryptorchid Puppies*

In the case of these puppies, it is recognized that while such an occurrence could be coincidental, mere spontaneous development, it should be noted that because of years of work in the field of canine reproduction, the doctor evaluating the puppies is very practiced and skilled in the area of palpating for testicles in puppies.

While sceptics may consider that it was merely fortuitous the descent of the testes occurred immediately following a treatment, if a requirement of scientific experimentation is the repeatability of a given condition under given circumstances, the fact that the testes descended (as has happened in other reported cases and as suggested would occur here), this case may be seen as a single blind replication (the pups did not know what was supposed to happen). To this end the authors agree with previous authors that Photonic Therapy can be used in lieu of acupuncture for the treatment of cryptorchidism in young puppies. Roach ⁽¹⁷⁾ has subsequently also reported success with this method, having treated a 3 month-old unilateral cryptorchid pup only once, to have it normal on the return visit, the following week.

CONCLUSION

A proposition of great heuristic value is that certain sections of the electromagnetic spectrum can stimulate cutaneous photoreceptors, that in turn stimulate the hypothalamus and the autonomic nervous system, providing if not a total explanation, at least a working paradigm for all the phenomena grouped into the healing process.

Six (6) case histories have been presented to demonstrate the effectiveness of athermic, broadband monochromatic light as a scientific therapeutic modality, which can easily be incorporated into every veterinary practice. Case histories were discussed demonstrating the versatility of Photonic Therapy as a non-invasive, safe, painless and easy to use medium, which can be simply integrated into existing practices.

The treatment of conditions such as the case of cryptorchid littermates raises the question of what constitutes a genetic disorder? What other conditions might also be amenable? In a previous case history the statement was made regarding the treatment of Factor VIII deficient hemophiliacs. What wastage of genetic material has occurred in the Canine world through the testing and culling for Von Willebrand's disease, if such a condition also responds to Photonic Therapy?

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If in 1997, 42% of all human patients visiting medical doctor's offices used Complimentary and Alternative Medicine (CAM) on their own, mostly without telling their physician ⁽¹⁾, what percentage of veterinary clients would appreciate Complimentary and Alternative Veterinary Medicine for their pets?

If we as veterinarians do not provide this service can we complain if others do? All the better if we, as western trained veterinarians can now scientifically explain how alternative physical therapies work, and have at our disposal a totally safe, painless form of treatment which will satisfy both the sceptics wanting "science based" medicine, and the "alternatives" yearning for a simpler non-pharmacological regime. To be noted also, is that some 75 medical schools now have courses on Complimentary and Alternative Medicine and some 82% of American Medical Students want formal training in CAM ⁽⁴⁾. It is not known what number of Veterinary Colleges train or what percentage of Veterinary Students also want such training. However, it is known that when "Introductory Acupuncture and Photonic Therapy" were taught as an extra-curricular subject to the final year veterinary students at the Queensland University (Australia), these lectures were voted by the students to be the best provided. The only complaints received were that not enough time was spent in the course on this subject ⁽³⁾.

Photonic Therapy works equally well on all species and breeds, not only the common domestic animals and pets but also avian, reptiles and other exotic pets. The methodology can be easily taught to technicians and does not require senior professional personnel to utilize it. Photonic Therapy may be used prophylactically or therapeutically, and its use is only limited by the imagination of the operator.

Prophylactic uses include :-

- prior to surgery to reduce bleeding in obese animals
- to reduce nervousness, fear and aggression
- analgesia to prevent post operative pain
- prevention of the side effects of cytotoxic chemotherapy and ionising radiation
- prevention of the general anesthesia suppression of antibody response, (reduced lymphocyte blastogenesis) and associated depression of the immune function including those of the foetus

Therapeutic uses include :-

- post surgical hemorrhage control
- reduce post operative pain
- reduction of adhesions without interfering with wound healing
- improve recoverability from anaesthetics
- treatment of thoracolumbar and cervical disk disease, cardiovascular disorders, chronic respiratory disorders, gastrointestinal disorders, urinary disorders, reproductive disorders, immune mediated disorders, dermatological disorders, ophthalmological disorders, neurological disorders, and endocrine disorders
- stimulation of tissue healing in burns, ulcers, indolent wounds, ischemia, necrosis and gangrene
- viral conditions such as herpes, FIV, FeLV
- allergies, anaphylaxis or shock regardless of aetiology
- post-infection sequelae, fever, and treatment from the side effects of cytotoxic chemotherapy and ionising radiation
- it is particularly more powerful than drugs to treat (or prevent) nausea, vomiting and inappetence

Photonic Therapy in Veterinary Medicine

Acupuncture is a therapeutic modality that is as effective as, or in some cases more effective than Western medicine, but it is basically an invasive technology. While having been practiced for thousands of years in Asia, in the west it remained the province of a few enthusiasts and depending on the practitioner's experience, the results were sometimes unreliable.

As medical history documents in other areas, the contribution of technological innovation has been not only to enlarge the scope of medical intervention, but also by simplifying the complex, to enlarge its range as well. Photonic Therapy increases both the range and scope of conditions that can be adequately treated in a clinical setting both prophylactically and therapeutically.

Photonic therapy is particularly useful in the treatment of very sick patients, paediatric or geriatric patients, as it can preclude the requirement for depressant drugs. As veterinary care and nutrition improve, our patients live longer and there are more geriatric patients with chronic degenerative joint disease. This factor alone increases the demand for safe alternative therapy to benefit these pets and maintain the quality of their lives.

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