

Applied Veterinary Photonic Therapy

Terry “R” Wood, D.V.M.

I was introduced to photonic therapy when Dr. Brian McLaren, an Australian veterinarian, spoke at a Central Oklahoma Veterinary Association meeting in the fall of 2001. I was not looking to use it as a treatment modality, but realized if just a portion of what he was saying was true, I needed to learn more. Therefore, I invited Dr. McLaren to my clinic where he gave a demonstration and I ended up purchasing one of the instruments.

I was pretty skeptical and was not utilizing any alternative treatments in my practice at that time. I did have an otoplasty scheduled the next day, so I utilized the “torch” (Australian-speak for the red super-bright LED flashlight) and was extremely surprised because there was minimal hemorrhage and the skin didn’t retract at all from the wound edge. That, and many other successes, ended up with me achieving Level II certification with Dr. McLaren and working on several projects with him.

It would be very appropriate to note red light therapy has been around for hundreds of years. It has been used as early as the 1200’s A.D. to successfully treat smallpox. Light therapy is currently used in many different applications: light treatment for neonatal icterus, seasonal affective disorder, surgical lasers etc. It is mind-boggling to imagine how and why red light was ever used in the first place. It must be the same reason purple rags were supposed to be chewed on to cure sore throats in the middle ages. As it turns out, the aniline dye used to dye cloth purple is two sulfa molecules loosely bonded together. Saliva readily breaks the bond down, in effect bathing the throat in sulfa.

Historically, many “alternative” treatments were dropped after the widespread use of penicillin started in about 1945. I personally feel this has been detrimental to patients’ health. Methicillin resistant *Staph aureus* is one of many reasons why I think the beneficial effects of light therapy should be rekindled.

I will now attempt to explain how 660nm/red light is useful in veterinary practice. It works due to the interaction of red light with collagen. Collagen represents approximately 70% of the protein in the body, and it is piezo and pyro-electric. This means when pressure or heat is applied to collagen, the crystalline structure bends without breaking. When it is compressed, it stores an electrical charge. When it is released, it releases an electrical charge.

Old-fashioned phonograph needles and telegraphs have piezo-electric crystals in them. They take the pressure imposed on them and produce an electrical signal that, when amplified, plays music or sends a signal down the telegraph line.

Higher math gives me a headache, so I won’t repeat formulas I don’t understand, but 660nm light exerts “pressure” on collagen, which in turn produces an

electrical charge. This electrical charge travels to the thalamus and hypothalamus in the brain where it causes specific neurons to release neuro-chemicals that travel to the affected body part via the blood stream. That is really a mouthful, but I feel this is the explanation why acupuncture works. It must also be pointed out most acupuncture points are areas on the skin where a nerve ramifies and is surrounded by a well of collagen.

These principles can also explain Wolffe's Law i.e. bone remodels according to the stress placed on it. Bone is really a collagen rod that is impregnated with a mineral matrix. Thus bone is piezo-electric and thus responds to stress in a very predictable way. Bone is normally negative on the inside and positive on the outside. When a bone is broken, part of it is under tension and part is under compression. Positive charges develop at the point of tension and negative charges develop at the point of compression. Therefore, to neutralize these unequal charges, calcium cations (positive) move to the area of compression (negative) and thus the bone remodels itself.

I will describe a test of this theory for you to try on your own. Have a volunteer hold their right arm out in front of them at shoulder height and make a circle with their thumb and forefinger tips touching. Then, you take your right forefinger and try, without yanking, to break the connection of the tip of the thumb and the tip of the forefinger. It should be pretty hard, or impossible to do. Then have the volunteer take the tip of their left forefinger and place it in the hollow of their throat and make a circle as before with their right thumb and forefinger. If you try and break the connection now, it comes apart very easily. If you have the volunteer then place the tip of their left middle finger in the hollow of their throat, it will be very difficult or impossible to break the connection.

I use this simple demonstration in the exam room to show people I can "touch/torch" their pet in one place and affect a body part some distance away. It also can be used to very simply explain electrophysiology, the thalamic and hypothalamic nuclei and their relationship to certain body areas, and the piezo-electric effect.

Classical acupuncture theory is utilized in the application of the torch. Dr. McLaren learned this theory at the University of Queensland taught by professors from the University of Beijing. That was the first acupuncture taught at the university level outside of China.

By combining techniques of many acupuncture masters, Dr. McLaren came up with a system that utilizes a series of standard points that are then augmented with other case appropriate points. There are 14 in the human, 12 in the dog and cat, and 9 in the horse. Treatment of the standard points alone will be effective in most conditions. By using additional points, the process can be speeded up a little bit. Generally a course of treatment is two treatments a week for 4 weeks.

Using IVAS approved nomenclature, the 12 standard points in the dog and cat are: LI 4, LI 11, BL 11, BL 23, GV 20, GV 3, GB 34, ST 36, BL 40, BL 60, SP 6, and tip of tail. As a pre-operative treatment, I also treat BL 20, GV5, GV 6, SP 1, PC 6,

CV 15, CV 12, CV 9 to help with nausea and to provide hemostasis. Post-operatively, I treat GV 20 and GV 26 to wake the patient up. I also repeat the hemostatic points and treat the incision i.e. “surrounding the dragon”.

I sometimes prefer Chinese fairy tale theories over western medical explanations. In traditional acupuncture theory, any sore spot or scar is explained by the simple fact there is a dragon living under the skin. When he hides in his cave, he is immune to any treatment, but when he comes out, he swishes his tail, causes severe pain, but is susceptible. So, when he is susceptible, the practitioner would pin his nose, pin his tail, and then kill him by surrounding him with alternating gold and silver needles. They feel this kills the dragons and allows *qi* to flow unimpeded, thus restoring health.

My very boring western explanation is the painful site on the skin actually represents an area of increased electrical potential that is the result of an injured internal organ/body part that is having a discharge of injury.

These internal organ-skin relationships are well documented in eastern and western medicine. For example, one of the most reliable indicators of appendicitis is pain at McBurney’s Point. It is considered more reliable than even an MRI.

It would be helpful to explain why I feel red light therapy is superior to needles. Anyone who has tried needling points on a horse’s extremities will appreciate the fact they tolerate the torch without any problem, whereas needling the extremities results in nasty kicks and bites. Self-preservation aside, I feel it standardizes my treatment. As a scientist, I try to have repeatability. With needles, there are many variables eg, how far is the needle inserted, is it directed up or down the meridian, is it twisted to the right or left, how long is it left in, did you hit the point? With the torch, I know if I hold the tip on the skin for 5 seconds, I have treated a 1 cm square area with 1 joule of energy, and even if I didn’t hit the point squarely, I will still be treating the desired point.

Another experience I need to share. I mentioned I treat the majority of the points pre-operatively and in my practice that means they have been treated with at least pre-operative sedatives and possibly under full anesthesia. I didn’t know acupuncture wasn’t supposed to work on sedated or anesthetized animals. Fortunately, my ignorance didn’t stop me from doing it then, and it works just fine.

In small animals, I use photonic therapy for peri-operative hemostasis, nausea relief, and analgesia. I wouldn’t dream of doing surgery without photonic therapy. “Pain packages” are a common add-on to many veterinary surgeries and most of the time that means non-steroidal anti-inflammatory drugs. In my last professional liability update from the AVMA, it told of a veterinarian that used an NSAID for post onychectomy analgesia. It was approved for dogs, but not for cats, but the manufacturer’s representative supplied a feline dose. A release form for non-label use was not obtained, the cat died of renal failure, and the veterinarian was sued. I realize

this won't happen very often, but it won't ever happen if I'm using the torch instead of NSAID's for post-op analgesia.

By stimulating GV 20 and GV 26, patients can wake up much sooner. In fact, I have to wait and treat these points only post-operatively as it will reverse the anesthesia if done pre-operatively. In addition, if the patient experiences an adverse event during surgery, I am usually able to "wake up" the patient using these two points. In a couple of emergencies, I did use a needle, as I felt time was of the essence.

Intervertebral disc disease, atonic urinary bladder, trauma with or without closed head injuries, strokes, peripheral nerve disease, and arthritis are just a few conditions I have successfully treated using photonic therapy. 660 nm light is also virocidal, so by holding the torch over the jugular vein for 15 minutes, blood borne viruses can be killed in that manner.

In horses, I have successfully treated periodic ophthalmia, fore and hindlimb lameness, and laminitis.

One incident with my older son occurred a couple of years ago. He called me at work on a busy Saturday morning. I could hear him snuffling and he told me he had a nosebleed that wouldn't stop. I told him to put some cotton up his nose, relax, and talk to his mother. He replied his mother was out shopping and he had tried the cotton 30 minutes earlier and it wasn't stopping. He then told me he knew the bleeding would stop, he just wanted to be alive when it did. Teens do listen sometimes! I couldn't go home, so I told him to squeeze each big toe, side to side at the first knuckle, for 30 seconds. This applies pressure at SP 1, which is a stop bleeding point. He called in a few minutes and said the bleeding had stopped and what should he do. I told him to remove the cotton and go about his business, it wasn't going to bleed anymore.

In conclusion, I feel photonic therapy can be a very useful tool for the practicing veterinarian. It is not a panacea, and other modalities will have to be used. However, it can help in many routine problems, as well as in the more complex. There is a significant learning curve, as the torch itself is easy to use, but anyone that is trained in acupuncture would be able to use it quite easily.

Terry "R" Wood, DVM