

Photobiomodulation Treatment Protocols for Companion Animals

Ronald E. Hirschberg

DVM



Therapy guidelines

The following protocols have been created with input from established human treatment guidelines, equine use of low level laser and empirically established schedules in small animal medicine. In initiating treatment there are general guidelines that should be observed in designing protocols for specific patients

Safety

- Laser operator as well as all present in the treatment area should wear protective eyewear while laser equipment is in use.
- NEVER STARE DIRECTLY INTO ANY PROBE.

Treatment Considerations

Some basic observations that have emerged to assist the new Laser clinician follow.

- Generally, LED clusters are used to treat lymphatics as well as the target tissue.
- Laser probes and laser clusters are utilized to effect deeper tissues (6-8 cm) as well as to promote analgesia associated with neural blockade.
- Treatment times are based on patients with light color shorter coats.
- Longer and darker coats may require additional treatment time as penetration may be affected.
- It is important not to overlap areas during treatment although, if greater depth is needed, the laser probe may at times be used over an area that has been previously treated with LED.

Treatment Techniques

- When using the LED cluster probe over adjacent areas approximately 1-2 cm should be left between placements to avoid over treating one area due to the diffusion of the light once it strikes the surface and tissue layers.
- In treating pets with black coats, a slight odor or tingling sensation may be noted when using the single point or cluster laser probe. Reducing time to 20 seconds or wetting the hair with water in the area to be treated will help to reduce any sensation that may be perceived by the patient. This has not been observed during LED cluster probe use.
- An attempt should be made at all times to minimize any medium interference such as fur when applying the probe.
- A “rooting” motion should be used when applying the probe to eliminate as much fur as possible between the skin surface and hand piece.

Probe Settings

- All LED cluster probes, Laser single probe, and Laser cluster probe treatments for the purpose of activating healing are performed at a frequency of 2.5 Hz.
- All treatments made with a Laser single probe and Laser cluster probe for the purpose of achieving analgesia should be performed at Continuous Wave (CW).

Treatment Process

- Treat the regional lymph nodes adjacent to the target area first.
- Next treat the target area with both LED cluster probe and Laser single or cluster probes as directed.
- If significant swelling of an area is noted, treat over the venous return pathway of the affected tissue.
- When applicable treat appropriate trigger points.
- Lastly treat over the spinal segments and peripheral nerves to initiate neural block and promote analgesia.

Treatment Schedule

Treatment schedule

- Initially treat every 2-3 days for 4 treatments
- Then treat weekly for 2 treatments
- Then treat every 10-14 days for 2 treatments
- Further reduce frequency until the problem completely resolves or a maintenance frequency is reached.
 - This interval may vary depending upon the nature of the injury and age of the patient.

Expected Outcomes

- Acute injuries
 - in a young patient may be resolved in as few as 3 to 4 treatments
 - (appropriate reduction in exercise is advisable)
- Chronic conditions
 - in older patients will require long term treatment at 3-6 week intervals.
 - In most cases improvement is noted after the third or fourth treatment although some chronic conditions may show a slower degree of progress.
 - If no improvement is noted after six treatments, a reevaluation of the diagnosis and treatment schedule should be considered.
 - The client is a key part of the process in determining how long the chronic patient is able to comfortably exist between treatments.
 - The practitioner should encourage the pet owner to avoid allowing symptoms to recur to any degree as maintenance of comfort is often easier than recovering from a return of painful conditions.

LLLT and Rx Considerations

- There is some question regarding the effectiveness of Low Level Laser Therapy when a patient is currently taking anti-inflammatory agents. Although it is best to have the patient free of any medications such as steroids or NSAIDs, positive results have been observed when LLLT is used while these medications are still “on board”. When initiating a course of Laser treatment it is advisable to slowly withdraw these medications during the course of treatment.
- Use of glycosated aminoglycans (Adequan injectable) during the onset of treatment appears to improve the speed of response in appropriate cases of osteoarthritis. This is strictly an empirical observation

In order to maximize the success of LLLT, treatment should not be initiated until an appropriate diagnosis is made. To do otherwise will increase the likelihood of treatment failure and frustration for the new laser practitioner.

Laser therapy is used to inhibit cellular function at times (neural blockade for pain management) and is therefore not to be taken casually. Although long term negative effects have not been demonstrated there is differing opinions on how long cellular recovery takes after inhibition.

Diagnostics should include radiography, palpation, lameness evaluation and advanced imaging, serologies and chemistries when indicated. Current assessment regarding possible vector borne diseases (eg. Lyme, Ehrlichia, RMSF) should also be evaluated.