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Poster 3

Continuous Wave High Level Laser Therapy promotes deep wound healing in dogs and cats

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Photobiomodulation is a type of therapy that is known to stimulate healing of tissues through signaling of cell chromophores. Thus, it can decrease inflammation, promote angiogenesis and neovascularization, induce fibroblast proliferation, collagen synthesis, and stimulate granulation. Most of studies developed in this field used pulsed wave Low Level Laser Therapy (LLLT-PW) as phototherapy over damaged skin, particularly superficial wounds, with or without photosensitizers use. This means that low light energy reaches the tissues making its effect over deeper wounds uncertain. Instead, High Level Laser Therapy (HLLT) is known to reach higher amounts of energy in a shorter period. In addition to saving time, more powerful beams of light reach deeper cells, as the depth of penetration increases with increased power; however, the thermal effect produced by their light beams suggests that it can be deleterious to live tissues. The aim of this study was to report HLLT effectiveness over a group of animals with traumatic, infected deep skin wounds associated with standard medical wound management, through debridement, irrigation, and dressing. A specific HLLT continuous wave (HLLT-CW) protocol was applied before covering the wound, daily over the first five days, and then every-other-day until epithelization phase was established. Wound healing was assessed using an adapted Bates-Jensen Wound Assessment Tool (BWAT). BWAT scores significantly decreased over time, meaning that wounds drastically improved, particularly during the first days of treatment. Our results highly suggest that HLLT-CW was effective stimulating wound healing on these patients, promoting granulation tissue formation and deep wound filling at an early stage, with no reported adverse effects. These findings agree with the studies denoting that laser light alters cellular DNA and RNA synthesis, modulates the inflammatory response, promotes extracellular matrix production, and modulates prostaglandin production, leading to improvements on would microcirculation, nutrition, and cellular metabolism. According to our results, HLLT is a safe, effective tool that stimulates the repair process, making it especially attractive for this type of wounds and patients.