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## Canine Rehabilitation

### Therapy Laser Benefits

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- 1) **Decreased Inflammation and Edema**: Laser therapy stimulates vasodilation (an increase in the diameter of blood vessels) and activates the lymphatic drainage system. As a result, there is reduced swelling, edema, and inflammation. Laser therapy may also lower levels of inflammatory mediators.
- 2) **Decreased Pain (Analgesic)**: Laser therapy blocks pain signals transmitted by nerve cells to the brain which in turn decreases nerve sensitivity and pain sensation. It also stimulates the production of high levels of pain regulating chemicals such as endorphins from the brain and adrenal gland. Decreased inflammation and edema also leads to less pain and increased comfort after laser treatment.
- 3) **Accelerated Tissue Repair and Cell Growth**: Photons, or light energy, from therapy lasers penetrate deeply (approximately 2 inches) into tissues and increase the energy available to the cells. This allows the cells to increase nutrient uptake and metabolic activity, accelerating cell reproduction and growth and facilitating tissue repair after injury.
- 4) **Faster Wound Healing**: Laser light stimulates increases in growth factors, DNA and protein synthesis, and the development of fibroblasts in damaged tissues. Fibroblasts are the building blocks of collagen, a protein required to replace old tissue or repair tissue injuries. As a result, laser therapy aids in the healing of open wounds and leads to greater healed wound strength.
- 5) **Improved Vascular Activity**: Laser light may significantly increase the formation of new capillaries in damaged tissue, and stimulates the development of blood circulation in growing/healing tissue. This speeds up the healing process and reduces scar tissue formation. Additional benefits include temporary vasodilation, an increase in the diameter of blood vessels.
- 6) **Increased Metabolic Activity**: Laser therapy creates higher outputs of specific enzymes and increases oxygen and nutrient availability for cells. This leads to greater energy production, DNA and protein synthesis, and metabolic activity within cells and tissues.

- 7) **Trigger Points and Acupuncture Points**: Laser therapy stimulates muscle trigger points and acupuncture points on a non-invasive basis providing musculoskeletal pain relief.
- 8) **Reduced Fibrous Tissue Formation**: Laser therapy reduces the formation of scar tissue following tissue damage from cuts, scratches, burns, or surgery.
- 9) **Improved Nerve Function**: Slow recovery of nerve functions in damaged tissue can result in numbness and impaired limb use. Laser treatment may help speed the processes of axonal sprouting, nerve cell reconnection and regeneration, and increase the amplitude of action potentials to optimize muscle action.
- 10) **Immunoregulation**: Laser light has a direct effect on immunity status by stimulation of immunoglobulins and lymphocytes. It directs stimulating light energy to the body's cells which is then converted into chemical energy to affect all the biological processes and chemical reactions in the cells.

