



Peak Physical Therapy and Wellness News . . .

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Low-Level Laser Therapy and Its Use in the Clinical Setting

Physical therapists are experienced in treating a multitude of conditions, most of which involve dealing with inflammation. Inflammation occurs when the body has been damaged in some way, whether through injury or disease. As a result, the body produces a protective response, in the form of inflammation, to remove damaged cells or pathogens. Familiar symptoms of inflammation include redness, swelling, heat, and pain. These symptoms occur as a result of a physiological process in which specific inflammatory cells rush to the site of the injury to aid in protecting the disrupted tissue. Inflammation is necessary for tissue healing, however, in some cases it can become chronic, lasting for several months or even years. In physical therapy, several modalities are used to help expedite the inflammatory process and promote better recovery. Low-level laser therapy, also known as cold laser, is one such modality used for treating both acute and chronic inflammation.

When a tissue is first injured, the body immediately produces an inflammatory response which consists of three major steps. First, blood vessels that supply the injured region dilate, allowing for an increase in blood flow to the damaged tissue. In addition, capillaries become more permeable to allow for proteins and fluids to move more freely between the tissues. This increased blood flow carries white blood cells to the area to aid in protecting the injured area. Again, this process is necessary and beneficial but can also be painful and limiting as the increased blood flow causes redness and the influx of inflammatory cells causes swelling. Swelling is often what causes pain, as it irritates the sensitive nerve endings that carry pain signals to the brain. In some cases, inflammation resolves quickly without much intervention, but in other cases it may last longer and be more functionally limiting, especially when pain level is moderate to severe.

Patients presenting to physical therapy often have some level of pain and functional limitation that has prompted them to seek treatment. In most cases, the patient has tried to manage the symptoms independently but has not been successful. Low-level

laser therapy is one of the many modalities a physical therapist can offer to help a patient move away from inflammation and pain to being healthy, well, and back to prior functional level. Low-level laser therapy uses light to alter cellular function. While the exact mechanism of laser therapy is still unclear, studies have shown that light energy is effective in lowering the levels of inflammatory cells and chemicals, as well as stimulating cellular mitochondria which increases cellular metabolism. In simpler terms, inflammation is eliminated more quickly and on a deeper level, allowing the patient to gain mobility and pain relief faster.

Patients receiving cold laser treatment do not feel any pain during the treatment, and in some cases, notice improvement in symptoms relatively quickly. When combined with manual therapy and therapeutic exercise, laser treatment is very effective in treating a multitude of conditions such as osteoarthritis, tendinitis, lower back injury, and chronic pain. While cold laser therapy is relatively safe, there are some cases in which laser should not be used. Such instances include during the first trimester of pregnancy, over cancerous growths, over growth plates in children, over the thyroid gland, and for patients with epileptic seizures or pacemakers.

Research is constantly being conducted to determine the optimal dosage and frequency of cold laser treatment in physical therapy. At this time, there are therapeutic ranges for dose and frequency that the physical therapist will follow based on the patient's condition. As previously mentioned, patients find this treatment fast, easy, and painfree. Low-level laser therapy is an effective way to reduce inflammation and pain while decreasing reliance on medication, thus promoting better health and wellness. For patients seeking conservative management of inflammatory conditions, low-level laser therapy is an excellent way to address these injuries, allowing for a safe return to prior level of function.

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