

Wound Dressing Transillumination

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Low-level laser therapy for wound healing: feasibility of wound dressing transillumination.

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OBJECTIVE: The purpose of this study was to assess the feasibility of exposing wounds during low-level laser therapy (LLLT) by transillumination of the wound dressings. **BACKGROUND DATA:** LLLT has been associated with accelerated wound healing in chronic ulcers. The usual approach is to remove wound dressings prior to exposure and to treat three to five times weekly. Frequent change of wound dressings is time consuming and costly; it disrupts the healing process, increases the risk of wound infection, and may be traumatic for the patient. **METHODS:** A double integrating sphere setup was employed to quantify the diffuse transmittance and reflectance of various wound dressings. Differences in transmittance for large area sources and point sources were demonstrated through the use of a diode laser and an incoherent light source. **RESULTS:** **There were a number of gels and membrane style wound dressings with diffuse transmittance of more than 50%. Hence, for these dressings the prescribed radiant exposure to the wound surface could be achieved by increasing the exposure duration, while maintaining reasonable overall treatment times.** **CONCLUSIONS:** Although LLLT by transillumination of wound dressings is feasible for a variety of wound dressings without significant commitments in additional treatment time, the specific transmission of products not included in this study needs to be determined at the intended treatment wavelength. A transillumination approach may facilitate a faster rate of wound healing than LLLT applied to exposed wounds by reducing trauma and the risk of infection.