

Title: Wound treatment on a diabetic rat model by a 808 nm diode laser

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Abstract: This paper presents a study on the effect of laser irradiation on wound healing. 808 nm diode laser was employed to facilitate the healing of impaired wounds in experimental diabetes using a rat model. Diabetes was induced in male rats by a streptozotocin injection with a dose of 60 mg kg⁻¹. The disease was verified via measurement of the blood glucose level, which was set having 20 mmol L⁻¹ stability. The rats were randomly distributed into two groups; one served as a control group and the other group was treated with the laser. The power density of the laser used was 0.5 W cm⁻² and the wounds were treated for 8 d with the contact time of one second daily. The energy density used was 0.5 J cm⁻². The healing progress was recorded via a digital camera. The recorded images were then transferred into Inspector Matrox and image J programs for the accurate measurement of the healing area. The tissue details of the wound were studied through histology. The wound contraction rate of laser therapy group was found to be two times faster than control group. This indicates that the 808 nm diode laser can accelerate the wound healing process.