

MORPHOLOGICAL, CELLULAR AND GENETIC EFFECTS OF DIABETIC INDUCED HUMAN SKIN FIBROBLASTS EXPOSED ONCE OR TWICE TO A HE-NE LASER (632.8nm) - AN *IN VITRO* STUDY.

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Although not established, an alternative treatment modality for diabetic wound healing includes low level laser therapy. Laser biostimulation of such wounds may be of benefit to patients by reducing healing time. Structural, cellular and genetic events in wounded and unwounded diabetic induced human skin fibroblasts was evaluated after exposing cells in culture to a He-Ne laser at either 5J/cm² or 16J/cm². Cells were exposed once or twice. Structural changes were evaluated by assessing colony formation, haptotaxis and chemotaxis. Cellular changes were evaluated using cell viability, (ATP production and the Trypan blue exclusion test), and proliferation, (ALP and MTT), while the Comet assay evaluated genetic integrity.

The irradiated diabetic wounded cells show structural, cellular as well as molecular resilience comparable to that of unwounded normal skin fibroblast cells. With regards to dose, there is a statistical difference in ALP, ATP, percent viability and DNA damage. There is a statistical difference in MTT, ATP, percent viability and DNA damage in cells exposed either once or twice. A dose of 5J/cm² appears to have a positive effect, while 16J/cm² increase cellular and genetic damage and cellular morphology is altered.

These results may be indicative of the cellular value of LLLT *in vitro*. LLLT is an amazing option as it has no side effects and offers much more predictable results in comparison with other, more or less conservative methods. Further work in this field is required to establish LLLT as a reliable, safe and inexpensive treatment modality, not only for diabetic wounds, but also for other skin conditions.