

## Increasing the healing rate of skin wounds

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**Increasing the healing rate of skin wounds** ROXANA SILVIA TIPA, GERRIT KROESEN, Eindhoven University of Technology — Cold plasma treatment of wounds is gaining a lot of interest lately, because it has the potential to offer a non-contact, painless and harmless therapy to manage large-area lesions (such as burn wounds and chronic ulcerations). One of the key considerations in plasma wound healing is the safety of the method. In this work we studied *in vitro* the effects of plasma treatment and electrical field effects on cell proliferation, wound healing and DNA damage. Several cell lines have been investigated in order to see both the effects of plasma and electrical field effects. In order to provide more accurate results, for our experiments we used confocal microscopy to see if there is any DNA damage generated by the treatment and the XCelligence system for monitoring real time proliferation. We performed a parametric study of plasma-treated 3T3 fibroblast cells. For the treatment, a cold atmospheric plasma needle (13.56 MHz micro-jet in helium) was used. The influence of plasma on cell viability was measured using the MTT assay method. We observed the long-term effects of plasma on cell viability, dependent on the dosage of plasma treatment. Under high doses cell suffered damage that led to decreased viability.

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