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The Effect of Plasma on Tail Regeneration of Tadpoles *Xenopus Laevis*[1] JOYCE JUNE, CHIMA AMADI, JAISHRI MENON, KEVIN MARTUS, William Paterson University — Healthy wounds require a balanced combination of nutrients and growth factors for healing and tissue regeneration. Nitric oxide, (NO), is also crucial in wound healing processes and linked with production of several cytokines, interaction with other free radicals and influence on microcirculation. Hypothesize is that exposure to plasma will affect wound healing and tail regeneration in tadpoles *Xenopus laevis* and plasma induced endogenous NO production may have an important role to play at the cellular level. Tail amputation was immediately followed by exposure of the wound to the helium plasma. For histological features, blastema (growing regenerate) was fixed in 4% neutral buffer formalin for paraffin sections. *In situ* staining for NO was carried out 5 days post amputation. The rate of the regenerating tail was proportional to the plasma exposure time at the expense of metamorphic rate. Histological features show that the tadpoles exposed to the plasma had a higher level of cellular proliferation and microvasculature in blastema. *In situ* staining for NO indicated its increased endogenous production compared to the control. These findings suggest that accelerated wound healing and tail regeneration following exposure to the plasma may be due to its direct effect on cell proliferation and increased NO production which may be involved in microvascularization.

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