

# OXYGENATED NEEDLING WITH DTS ROLLER AND OXYGEN INFUSION

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## INTRODUCTION

Needling (or multiple skin micro-perforation) is a technique invented by the South African doctor Desmond Fernandes. It consists in treating the skin of face and body with many tiny needles placed on a roller in such a way as to penetrate the stratum corneum of the epidermis reaching the papillary derma and stimulating in a natural way the synthesis of new collagen and elastic fibres.

## MATERIALS

Oxygenated needling, invented by Maya Beauty Engineering, is performed thanks to a practical sterilizable device which is positioned on the Oxygen Infusion handpiece of the Oxy Xtra Med unit. On this a sterile DTS Roller with surgical steel micro-needles is inserted; the length of the needles of the different models vary from 0.5 to 2 mm.

## METHOD USED

After having disinfected the area to be treated and having applied the topical anaesthetic, horizontal, longitudinal and diagonal movements must be performed on the skin so as to create a dense network of canals. At the same time the pedal of the Oxy Xtra Med device must be constantly held down so that Oxygen pressurised at more than 2 atm is delivered during the treatment.

## RESULTS

Oxygenated needling allows us to stimulate the production of growth factors which can trigger various cellular mechanisms connected to tissue growth such as angiogenesis, macrophage chemotaxis, proliferation and migration of fibroblasts, collagen synthesis.

For regeneration to be possible, skin cells must "communicate" with each other, using "messengers" produced by the cells involved in the regeneration process (growth factors) to exchange biochemical information.

There are many growth factors involved in the oxygenated needling procedure with Oxygen Infusion.

- **Platelet Derived Growth Factors (PDGF $\alpha$ , PDGF $\beta$ , PDGF $\gamma$ ):** these growth factors trigger mitogenesis of the stem cells in our tissues and favour the synthesis of the extracellular matrix; they also trigger the replication of the endothelial cells

(of the blood vessels) and favour angiogenesis (creation of new blood vessels);

- **Transforming Growth Factors (TGF- $\alpha$ , TGF- $\beta$ ):** they trigger the synthesis of DNA, the proliferation of the connective tissue and of the mesenchymal stem cells. They favour collagen synthesis;
- **Insulin-like Growth Factors (IGF-I, IGF-II):** Important in wound healing;
- **Epidermal Growth Factor (EGF):** it triggers the proliferation and differentiation of epidermis cells and co stimulates angiogenesis, the reepithelisation and collagen activity;
- **Vascular Endothelial Growth Factor (VEGF):** is involved in processes such as inflammation and angiogenesis. It induces an increase of the permeability of the capillaries, generating an oedema.
- **Fibroblast Growth Factor:** it triggers fibroblast growth.



## CONCLUSIONS

Thanks to this innovative technique, the treated patients experienced visible improvement in acne scars, stretch marks, and in red stretch marks and chrono-ageing related alterations were substantially corrected.

When treating lax tissues and wrinkles on face, neck and décolleté, the sagging of the tissues improved, bringing about a consequent improvement in photo-ageing related damage.

The treatment is not ablative and is ideal for long lasting results.

Compared to traditional needling, oxygenated needling performed with Oxy Xtra Med achieves enhanced results: DTS Roller treatment stimulates type III collagen and elastin; Oxygen Infusion triggers angiogenesis, maintaining good cytomorphosis, improves the quality of hyaluronic acid and the reorganizes collagen and elastic fibres.