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## ***Significant visual results within the first treatment using Venus Freeze® powered by (MP)<sup>2</sup>® A synergy between multi polar RF and pulsed magnetic field developed by Venus Concept.***

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### **INTRODUCTION**

The field of aesthetic dermatology has gained remarkable interest all over the world. In recent years, several new radiofrequency (RF) devices have been introduced to the aesthetic market for treatment of a variety of skin conditions, particularly, skin wrinkling, laxity & cellulite<sup>1</sup>.

Recently a novel device named Venus Freeze® powered by (MP)<sup>2</sup>® technology which stands for **M**ulti **P**olar **M**agnetic **P**ulses was developed by Venus Concept. Through its algorithm applied via uniquely handheld Magnetic Field RF Synthesizer, (MP)<sup>2</sup> creates a highly efficient woven energy matrix.

The matrix forms a dense, energy rich field that penetrates the dermis and hypodermis. Each electrode simultaneously emits RF and magnetic pulses in varying phases that homogeneously cause supra normal temperatures over the treated area.

Uniform heat distribution allows lower overall energy that minimizes the risk of side effects and completely eliminates the need for skin cooling. The supra normal temperatures in the dermis, induced by the RF, break a small number of consecutive hydrogen bonds and cause an immediate unfolding and shrinkage of collagen fibers making the fibers shorter & thicker<sup>2,3</sup>. The RF mediated thermally wounding stimulates the dermal fibroblasts to increase synthesis of new collagen fibers<sup>4,5</sup> as well as elastic fibers after several weeks<sup>5</sup>

RF decreases fat cell volume by increasing the breakdown of triglyceride (Lipolysis) in the subcutaneous fat layer with lipotransfer<sup>6</sup> (but no weight loss). **Pulsed Magnetic Fields (PMF)** significantly increase production of collagen fibers by dermal fibroblasts<sup>7,8</sup> not via thermal mechanisms<sup>9</sup>, and stimulate angiogenesis<sup>10</sup>.

The above interrelated biological effects induced by RF and PMF namely: shrinkage of collagen fibers, synthesis of new collagen and elastic fibers, lipolysis and angiogenesis are important components to produce immediate and non-immediate visual results through dermal collagen remodeling and effect on subcutaneous fat layer without disruption of the overlying epidermis, obviating a significant recovery period or risk of serious adverse consequences.

### **METHOD**

The study group included 5 men and 20 women at the age of 27-65 year. During the study the participants were instructed not to change their nutrition and exercise habits. Sessions were conducted once a week for a period of 6 to 10 weeks. Each session lasted between 20 to 60 minutes.

The treated areas were different (according to the participants needs as well as the condition of the treated area) and included: abdomen, buttock, thighs and arms.

Clinical photographs and measurements were taken before and after treatments by the same operator in the same conditions to assess circumference and textural changes induced by the treatment.

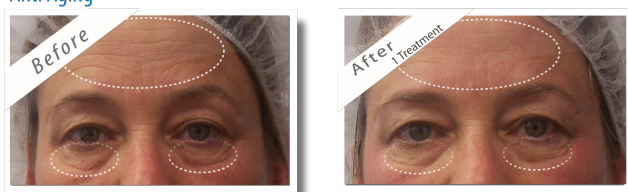
The measurements of circumference were taken from reference points in a very accurate way with measurement tape at 2 or 3 points. All the data was condensed and processed on excel.

## RESULTS

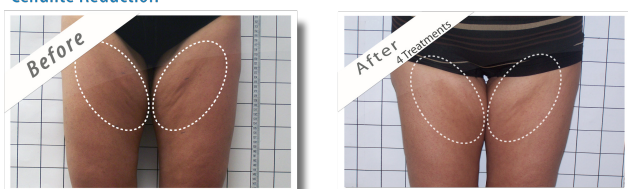
All participants, showed improvement of skin's condition texture and elasticity, immediately after the four treatments (Fig 1). All participants which suffered from cellulite showed significant improvement following the first treatment (Fig 2). All participants except 2 reduced their abdomen circumference in average of 3.9 cm, following 8 treatments (Fig 3) and most of them reduced immediately after the first treatment in average of 2.1 cm. In addition, all of them reduced their thighs' circumference in average of 3.2 cm following 6 treatments (Fig 4).

Buttocks lifting were seen for all participants following the first treatment and along the sessions. Finally, the arms' circumference was reduced in average of 2cm and the skins tonus and elasticity has been improved immediately. No side effect were observed or reported.

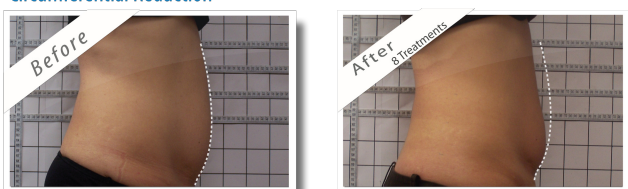
Anti Aging



Cellulite Reduction



Circumferential Reduction



Skin Tightening



## REFERENCES

1. Alster TS, Lupton JR. Nonablative cutaneous remodeling using radiofrequency devices. *Clin Dermatol.* 2007;25:487-91.
2. Wright NT, Humphrey JD. Denaturation of collagen via heating: an irreversible rate process. *Annu Rev Biomed Eng.* 2002;4:109-28.
3. Zelickson BD, Kist D, Bernstein E, et al., Histological and ultrastructural evaluation of the effects of a radiofrequency-based nonablative dermal remodeling device: a pilot study. *Arch Dermatol.* 2004;140:204-9.
4. Hantash BM, Ubeid AA, Chang H, Kafi R, Renton B Bipolar fractional radiofrequency treatment induces ne elastogenesis and neocollagenesis. *Lasers Surg Med.* 2009;41:1-9.
5. Brian D. Zelickson, MD; David Kist, BA; Eric Bernstein, MD et al. Histological and Ultrastructural Evaluation of the Effects of a Radiofrequency-Based Nonablative Dermal Remodeling Device. A Pilot Study. *Arch Dermatol.* 2004;140:204-209.
6. Emilia del Pino M, Rosado RH, Azuela A, et al. Effect of controlled volumetric tissue heating with radiofrequency on cellulite and the subcutaneous tissue of the buttocks and thighs. *J Drugs Dermatol.* 2006;5:714-22.
7. Akira Soda et al. Effect of exposure to an extremely low frequency-electromagnetic field on the cellular collagen with respect to signaling Pathways in osteopath-like cells. *J Med Invest.* 2008;55:267-78.
8. Shain A, Saeed RZ and Bahram B. The effects of extremely low pulsed electromagnetic field on collagen synthesis of rat skin: a Biochemical and Histological approach. *J. Iranian Biomedical Journal.* 2006;10:33-38.
9. Murray JC, Farndale RW. Modulation of collagen production in cultured fibroblasts by a low-frequency, pulsed magnetic field. *Biochim Biophys Acta.* 1985 Jan 28;838:98-105.
10. Tepper OM, Callaghan MJ, Chang EI, et al. Electromagnetic fields increase in vitro and in vivo angiogenesis through endothelial release of FGF-2. *FASEB J.* 2004;18:1231-3.