



AESTHETIC AND COSMETIC DERMATOLOGY (LASERS SEPARATE CATEGORY)

## CLINICAL RESULTS FOR SKIN REJUVENATION WITH AUTOLOGOUS CONDITIONED SERUM

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**Objectives:** Autologous conditioned serum (ACS) is a cell-free serum with an increased concentration of anti-inflammatory cytokines and growth factors designed to counteract skin's aging processes by stimulating neocollagenesis. In this study, the effects of ACS were investigated by biophysical measurements, patient questionnaires and in vitro on human dermal fibroblasts.

**Introduction:** Skin aging is related to decreased activity of dermal fibroblasts. Consequently collagen neosynthesis is reduced being responsible for the gradual decline in skin firmness and elasticity. To compensate these deficiencies regenerative treatment procedures addressing fibroblast activity could be of interest.

**Materials / Method:** After four facial treatments with ACS microinjections patients were followed up for 24 weeks. Biophysical measurements for elasticity and skin hydration were performed. Clinical effects were evaluated through Global Aesthetic Improvement Scale by patients themselves. In vitro, human dermal fibroblasts were incubated with ACS to analyze cell viability, procollagen type 1 and TGF- $\beta$ 1 after 2, 6 and 24 h incubation. Incubation with FBS was used as a control group.

**Results:** Skin hydration did not change significantly throughout the observation period, while skin firmness and net elasticity improved significantly. Patient satisfaction increased from 33% at week 12 to 40% at week 24. Cell vitality increased equally when incubated with ACS. TGF- $\beta$ 1 was detected only in samples incubated with ACS, but not in the control group. In the supernatant procollagen type 1 concentration increased with incubation time.

**Conclusion:** Microinjections with ACS significantly improve viscoelastic properties of the skin. This might be caused by an increase in the activity of dermal fibroblasts as suggested by an increased cell viability, synthesis of TGF- $\beta$ 1 and procollagen after stimulation of human dermal fibroblasts with ACS in vitro in contrast to the control group. ACS treatment seems to be an effective autologous approach to increase skin elasticity and to reverse dermal aging signs.

