The Impact of Botulinum Toxin on the Aging Brow:  
A Randomized, Split-Face Study

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**Introduction:** Brow descent with age has been felt to be due to both the static force of gravity and the dynamic force of depressor muscles. It is most significant in the lateral brow due to lack of support from the orbital retaining ligaments, gravitational decent of the temporal structures and the downward force of orbicularis oculi. Botulinum toxin has been used to achieve brow elevation. The objective of this study is to analyze the effect of different patterns of botulinum injection on brow elevation.

**Methods:** This was a pilot study for a single centre, evaluator-masked study in which 6 healthy volunteers under the age of 50, and 5 over the age of 50 were randomized to receive one injection of 6.25 units of botulinum toxin into the orbital orbicularis oculi fibres, with the contralateral side treated with the same total dose injected into the preseptal orbicularis oculi fibres. A blinded evaluator assessed brow position during rest at baseline, 14 and 21 days post treatment. Standardized caliper measurements, digital photography and subject self-assessment were performed at each visit.

**Results:** Preliminary results demonstrate an improvement in brow elevation that is greater in the age over 50 group. Lateral brow elevation is greater than central brow elevation. Due to low study numbers, statistical significance is not reached. No complications were identified.

**Conclusion:** This is a pilot study designed to assess the optimal injection technique to address the changes of the aging brow particularly with respect to the lateral brow.