Behind the mask

After presenting his patented innovation for the first time at Aesthetic Medicine Live last year and having since won the BCAM Research Award for his work, **Dr Steve Harris** updates us on the Dr Harris Mask™

The Dr Harris Mask™ (DHM) is the world's first patented anti-wrinkle product which specifically targets cutaneous mechanoreceptors in order to exert its effects. The eye mask employs small raised silicone dots which stimulate free nerve endings in the skin to lower sympathetic activity and produce a restful state (Fig. 1). The DHM has been found to significantly reduce glabellar lines while promoting emotional relaxation.[1]

More than 17,000 sensory receptors have been reported in the human face.[2] The face responds to touch, or indentation via mechanoreceptors located in the superficial layers of skin. These may be divided into slowly adapting (SA) receptors firing with constant indentation of the skin and rapidly adapting (RA) receptors responding only to the onset and offset of indentation.[3]

SA receptors include Merkel cell disks, Ruffini corpuscles and

Fig. 1: The Dr Harris Mask™

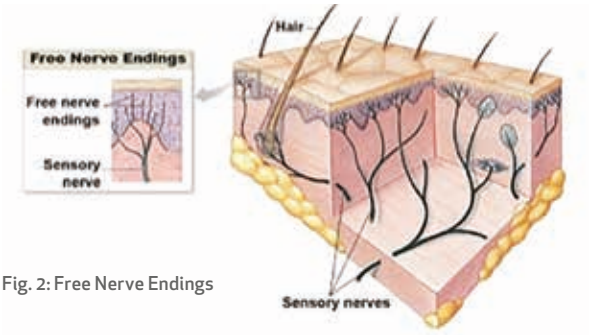

Fig. 2: Free Nerve Endings

free nerve endings (Fig. 2). Free nerve endings are the most common mechanoreceptor type in the face and may be further divided equally into low-threshold pressure (LTP) units and high-threshold pressure (HTP) units responding to light and deep touch respectively. RA receptors include Meissner corpuscles and hair receptors.[3,4]

It appears that stimulation of SA receptors involves not only the somatosensory pathways, but also the autonomic nervous system (ANS).[2,4] The trigeminal nerve which carries sensory information to the central nervous system (CNS) is accompanied by both sympathetic and parasympathetic fibres along its course.[2] Free nerve endings are associated with pleasurable touch sensation and Ruffini corpuscles have been implicated in the lowering of sympathetic activity.

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According to the model of hypothalamic tuning, the lowering of sympathetic activity is achieved via an autonomic loop between the hypothalamus and the cerebral cortex where sympathetic disinhibition leads to increased vagal activity (via a first autonomic loop) and a more trophotropic hypothalamus (via a second autonomic loop).[5]

It is hypothesised that the DHM activates this double autonomic loop to create a restful state characterised by a reduction in muscle tone and emotional arousal.

To test the effects of the DHM, a double-blind randomised controlled trial was conducted on 30 subjects with mild to severe glabellar lines. Subjects in the experimental group (n=15) were instructed to wear the DHM for 15 minutes while those in the control group (n=15) were instructed to wear a regular eye mask (REM) for 15 minutes. Changes in glabellar lines were assessed by expert grading and image analysis of digital images of subjects' faces. Emotional relaxation was assessed by subject self-assessment.

The results of this trial found that the DHM significantly improved the appearance of glabellar lines after 15 minutes in comparison to the REM (p=.001), with comparable benefits at around five hours (Fig. 3). The former also showed a greater tendency toward emotional relaxation.[1]

Fig. 3: Before and after wearing DHM; Improvement in glabellar lines.

Preliminary results from a second random controlled trial support the above findings (after wearing the mask for just 10 minutes) as well as the underlying mechanism of action; when wearing the DHM, changes in blood pressure, heart rate and brain activity (EEG) indicate a lowering of sympathetic activity.

Furthermore, it appears that the reduced muscle tone not only diminishes facial lines, but produces an overall relaxed appearance by reducing muscle activity related to stress; for example, the frown reduces (relaxed procerus, corrugators, and depressor supercilli); the corners of the mouth turn upwards (relaxed depressor angulioris); clenching of the jaw reduces (relaxed masseters) and the definition of the jaw line improves (relaxed platysma). As a result, the face becomes more heart-shaped and the patient appears less stressed and more fresh and youthful (Fig. 4).

Fig. 4: Before and After wearing the DHM mask for 10 minutes (by Dr Steven Harris)

In conclusion, the DHM introduces a novel, holistic approach to aesthetic medicine. It presents a completely non-invasive, safe and effective way to treat not only facial lines, but the face as a whole along with the body and mind. By gently stimulating mechanoreceptors, the DHM acts to reduce sympathetic activity leading to a decrease in both muscle tone and emotional arousal. The result is a simultaneous improvement in the way one looks and feels. **AM**

REFERENCES

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Dr Steven Harris, MB BCh MSc MBCAM is the inventor of the Dr Harris Mask™, the world's first product which specifically targets mechanoreceptors to produce its effects. He is one of the original members of the British College of Aesthetic Medicine (BCAM) and has gained an international reputation for his skills in non-invasive medical treatments. Dr Harris is director of the Harris Clinic based in Crouch End, North London.