

The Yang and Yin of Facial Acupuncture - Part 4

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Hypothesis Regarding the Mechanisms Involved in Facial Acupuncture as Extrapolated From an Examination of Conventional Facial Rejuvenation Techniques

Recently, I was interviewed by *Cosmetic Surgery Magazine* for an article on the merits of facial acupuncture versus Botox. While the article was perhaps, a little surprisingly, even-handed in its treatment of facial acupuncture (even going so far as to include a series of three before-and-after photos taken over a 10-week course of treatment; www.chiakra.com), the tone of the cosmetic surgery experts cited was one of generalized antipathy toward such an "unscientific" remedy for the visible manifestations of aging. They called for double-blind studies of facial acupuncture side-by-side with Botox injections and cast doubt upon the prevailing notions about the mechanisms believed to produce, if less dramatic, improvements associated with a facial acupuncture treatment, i.e., enhanced *qi* and blood flow, and a subsequent increase in the production of collagen and elastin.

In pursuit of our previously stated aim to establish a more authentic, scientific justification for facial acupuncture, we will examine the mechanism of some of the more "conventional" facial rejuvenation techniques, including Botox, in relation to the comparative effects of facial acupuncture. Only those whose outcome is similar to the latter will be discussed in detail.

Western Approaches to Facial Rejuvenation

The conventional Western treatment strategies employed in facial rejuvenation can be classified according to their various aims, which include: refilling (implants, etc), relaxing (Botox), resurfacing (ablative and non-ablative), and resuspending or lifting (surgery, liposuction, etc). Acupuncture is most effective for very gentle resurfacing, relaxing, resuspending and lifting. The effects of a single facial acupuncture session are not as dramatic as many of the invasive conventional treatments such as ablative resurfacing (strong chemical peels and laser resurfacing), Botox injections and surgical intervention. Consequently, the effects and mechanisms of acupuncture are best compared to the non-invasive techniques, more specifically, the non-ablative resurfacing techniques, in which there are some mechanistic similarities. The mechanism by which acupuncture is able to relax, resuspend, lift and improve other qualities, such as facial color and radiance, also is related to these mechanisms.

These non-invasive, facial resurfacing techniques can be divided into two categories, ablative and non-ablative, in terms of their mechanism of action. The primary difference is the degree of cellular and tissue disturbance associated with the treatment. The ablative techniques aim to resurface the skin (exfoliate) and range from simple scrubs and special creams to intensive peeling treatments, including laser resurfacing and dermabrasion. All of these techniques aim to remove layers of the skin. They vary with regard to the extent or number of layers of skin that are removed. This also is directly tied into the appearance of the face afterwards and the recovery time. Intensive treatments, such as strong chemical peels, dermabrasion and laser resurfacing remove the epidermal layers and some of the dermis. Consequently, the face will look red and raw, and the

healing process can take anywhere from weeks to months. The benefit, however, is derived from the regeneration of the epidermis and dermis along with the associated new proteins (collagen and elastin) that the regenerated cells produce. This new tissue looks better because it is newly produced, especially the collagen and elastin extracellular matrix, which normally would not regenerate to any great extent within such a time period. Wrinkles, scars and skin blemishes can be significantly reduced due to the production of this new tissue, and the skin is tighter and more elastic.

The non-ablative, less invasive techniques such as photomodulation, intense pulsed light (IPL), and low-level lasers cause much less tissue damage and are more targeted in their approach. IPL, for example, is commonly used for hair removal and selectively destroys hair follicles. Of these techniques, photomodulation or LED phototherapy is the closest to acupuncture in terms of considering the mechanistic basis. The others use higher-intensity radiation that is not comparable to acupuncture.

Parallels Between LED Phototherapy and Facial Acupuncture

The following possible explanation for how LED phototherapy works could be equally applied to acupuncture. It has been proposed that LED phototherapy works by penetrating the epidermal layers and stimulating the dermal fibroblasts to produce new collagen and elastin. This then improves the tightness and elasticity of the skin. In addition, the relatively small amount of non-visible tissue damage is thought to elicit an inflammatory and wound-healing response. During the initial inflammatory response, leukocytes peak, monocytes transform into phagocytes and mast cells peak and degranulate. This activates wound healing, which is a complex process involving many different physiological and molecular responses. Cells in the neighboring region (keratinocytes and fibroblasts) secrete growth factors and immune modulators (cytokines), which regulate the proliferation and migration of new cells. Blood and lymphatic circulation to the area is increased to supply oxygen, nutrients and essential immune system cells. LED phototherapy uses a wavelength in the red region of the visible light spectrum (633 Nm) which corresponds with frequencies that commonly are used for laser acupuncture (600 - 700 Nm). Overall, this can significantly improve the appearance of the skin and face, but cannot achieve the same results as the ablative techniques because it does not involve the complete regeneration of dermal and epidermal layers.

Another Possible Mechanism for Facial Acupuncture

The mechanism explained above for LED phototherapy is relevant to possible effects that might occur at the site of acupuncture needle insertion. The concept that an acupuncture needle can cause a mild and localized inflammatory wound-healing response often has been proposed but still awaits further scientific investigation and verification.

However, there is a growing body of scientific data to support the ability of acupuncture to modulate the immune and endocrine systems, increase blood circulation and reduce stress, anxiety and depression. These more global effects certainly would be an additional important consideration for thinking about the mechanism of acupuncture in facial rejuvenation. What often is most noticeable about clients undergoing facial acupuncture is that the overall appearance of their face improves, not just the aspects of their skin. In Chinese medicine, there is a concept called *shen* that describes the general appearance of a person's face and eyes. It could be said that facial acupuncture improves a person's *shen*. One of the most commonly reported effects of acupuncture treatment is that people feel more relaxed. The relaxation effects of acupuncture and its ability to increase the synthesis of a range of neuropeptides, including endorphins, could enhance the appearance of the face and skin by improving sleep quality, reducing stress and improving mood.

The ability of acupuncture to modulate the endocrine system is relevant to countering the effects of declining estrogen levels upon the quality and appearance of the skin. This especially is important to women during and after menopause. In younger women, hormonal imbalances may result in skin problems such as acne, especially at certain times during the menstrual cycle. In our previous article, we documented the use of the eight extraordinary meridians in the treatment of hormonal imbalance.

The ability of acupuncture to increase blood circulation probably is a major factor in the beneficial effects of facial acupuncture. Increased blood circulation would improve oxygenation of the skin, facilitating metabolic processes and removing waste products, which would promote improvements in skin quality, color and texture. It is not known if acupuncture can increase the rate of synthesis of collagen and elastin, or increases the rate of regeneration of epidermal and dermal cells. However, the most likely hypothesis for how acupuncture could facilitate these processes likely would be centered on the ability of acupuncture to increase blood flow to the skin.

It should be noted, as well, that there are different schools of thought as to how best to needle the face. While all of these approaches address the facial landscape via acupuncture points, the majority omit what we might term "realignment" of the facial muscles themselves, which, in assuming habitual configurations that are disharmonious as a result of underlying constitutional imbalance and/or emotional distress, eventually etch these contortions into the skin itself in the form of wrinkles. The noted French acupuncturist Jacques Lavier, a member of a significant group of French practitioners including Yves Requena and Soulie de Mourant (who first exported acupuncture to the West from Vietnam), was a direct advocate of a treatment protocol which targets facial muscles.

A more specific instance of this comprehension involves the use of a deeper needle insertion into the facial muscles, utilizing a specialized category of acupuncture points that are classified as motor points. These are found in regions of the face where there is a neuromuscular junction, i.e., where a facial nerve innervates a particular muscle. Treated motor points can modulate the degree of muscular contraction, relaxing habitually contracted muscles or tightening muscles that have become relaxed.

Conclusion

Although there have been no formal studies into the mechanistic basis of facial acupuncture, a number of mechanisms can be hypothesized from what currently is known about the physiological effects of acupuncture. It likely is that acupuncture improves the quality of the skin by modulating the immune and endocrine systems, reducing stress, and possibly via a localized increase in blood circulation, thereby enhancing the natural regenerative properties of the epidermis and the synthesis of extracellular matrix proteins such as collagen.

JUNE 2007