

Beautifying the Eye Contour by Brightening Dark Circles and Reducing Puffiness

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Dark circles and undereye bags compromise facial appearance and emotional wellbeing, often signaling fatigue, exhaustion, or premature aging. These concerns affect people of all skin types, genders and ages, including teenagers. The skin around the eyes is delicate, thin, and contains less fat, making it vulnerable to intrinsic factors such as genetics and aging, as well as extrinsic factors such as UV exposure, allergies, lack of sleep, and stress. Dark circles, ranging from light purple to deep brown, are primarily caused by melanin deposition and increased vascular permeability. In addition, the skin thins with age, exposing the underlying blood vessels. Eye bags result from weakened tissue and skin, causing fat migration and puffiness. A dysfunctional lymphatic system can further accumulate fluid, leading to swelling around the eyes.

The skin's vascular system, located within the dermis, comprises blood and lymphatic vessels essential for skin function. Blood vessels supply oxygen and nutrients while removing waste, and the lymphatic system manages immune surveillance and fluid balance. These networks maintain the skin's health and functionality. Dark circles and bags under the eyes often result from impaired blood and lymph vessel function. Dark circles are caused by melanin accumulation and leaky blood vessels, leading to blood pigment accumulation and reduced microcirculation. Undereye bags result from reduced lymphatic function, causing fluid and waste product accumulation and tissue swelling. Improving blood microcirculation and stimulating lymphatic drainage can improve undereye appearance.

A comprehensive solution for a range of undereye area concerns is **VividEYE™**, an active ingredient derived from organic apple mint leaves. Apple mint (*Mentha suaveolens*), a member of the mint family (*Lamiaceae*), is known for its distinctive hairy leaves and stems. This perennial herb is native to southern Europe, North Africa, and parts of temperate Asia, and can also be found in the Alps. Unlike many other mints, apple mint contains no menthol, and it has a mild green apple flavor that makes its leaves a popular ingredient in various culinary dishes. Apple mint is associated with freshness, which perfectly suits its use in cosmetic undereye treatments. Additionally, apple mint is renowned for its antimicrobial, anti-inflammatory, and antioxidant properties, attributed to its high polyphenolic and terpenoid content.

In *vitro* studies have demonstrated that apple mint extract can effectively enhance skin barrier function, improve epidermal hydration, and inhibit melanin production. Furthermore, apple mint extract has been shown to prevent blood vessel hyperpermeability induced by inflammation. In an *ex vivo* model based on human vascularized adipose tissue, apple mint extract strengthened the vascular network and promoted the formation of lymphatic vessels. These efficacy studies suggest that **VividEYE™** can reduce dark circles and puffiness by decreasing blood capillary leakiness, improving blood microcirculation, maintaining fluid homeostasis and removing pigmented molecules. To test this, a placebo-controlled clinical study was conducted. Volunteers applied either a cream containing 2% **VividEYE™** or a placebo twice daily



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for 56 days. The results showed significant improvement in the undereye area, visibly reducing discoloration and the volume of undereye bags.

By targeting the blood and lymph networks, **VividEYE™** represents a holistic solution for eye care. **VividEYE™** effectively improves the eye contour area by brightening dark eye circles and reducing puffiness.

