

## Dark circles under the eyes

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How many times a week are we asked by our patients about “dark circles” under the eyes? The term “dark circles” is a catch-all term that refers to problems that have a vast range of genetic, environmental, and skin causes. However, it is a common frustrating problem with little structure in its definition and few foolproof treatments.

We propose a classification system for the definition of dark circles, and offer some clinical pearls in their treatment. Most patients, however, have dark circles with multifactorial causes that need to be addressed.

### I. Infraorbital fat pad protrusion (“bags under my eyes”)

Blepharoplasty is the best solution and for now, the only solution for fat pad prominence. The fat may be removed in lower lid blepharoplasty or repositioned. Referral to a board certified plastic surgeon, oculoplastic surgeon, or dermatologic surgeon is recommended. If there is also significant tear trough deformity, fillers may be placed in the tear trough to help “camouflage” the appearance of the fat pad protrusion but it does not rid the patient of the fat pads.

### II. Infraorbital edema (“puffiness”)

The infraorbital skin is very thin and highly sensitive to fluid compartmentalization. Seasonal allergies, sinus infections, crying, or water retention from high blood pressure or consumption of high sodium foods are some of the reasons the loose, thin epidermis becomes edematous. Recommendations for patients:

- Treat seasonal allergies with over-the-counter allergy medications, or see your doctor for prescription medications for resistant allergies or possible sinus infections.
- Switch your sleep position. Sleep position can be contributing to under-eye bags through gravity. Sleeping on your side or stomach can encourage fluids to collect under your eyes. If you’re a side sleeper, you may notice a heavier bag on the side you sleep on. Patients who wake up with puffy eyes can sleep on their backs and add an extra pillow under the head.

- Avoid rubbing eyes frequently, going to bed with makeup on, and harsh cleansers. Anything that irritates the eyes can cause fluids to pool. Sleeping in eye makeup can irritate eyes, causing under-eye edema.
- Eye bags might be a sign of an underlying medical condition, if they appear suddenly and none of the above conditions apply. Thyroid, cardiovascular, or kidney problems can cause under-eye fluid retention and the patients need to see their primary care doctors for further evaluation.
- Place an ice pack, slices of cucumbers, chilled tea bags, or even a package of frozen peas on eyes. This can constrict leaky blood vessels and lessen the periorbital edema.
- A few topical eye creams have been developed, such as Neotensil, that temporarily reduce the appearance of lower eyelid puffiness. The product is a blend of polymers that provide compression, smoothing, and hydrating benefits to the skin. In addition, a makeup is often applied over it to reduce the appearance further.

### III: Periorbital hyperpigmentation (“dark circles”)

Pigmentation of the periorbital skin is very common in skin of color because of the increased melanin content. Genetics, rubbing, and inflammatory skin diseases such as eczema may play a role in exacerbating the pigmentation of the thin under-eye skin. Recommendations for patients:

- Remind them to avoid rubbing the area – chronic rubbing and the development of lichen simplex chronicus can lead to dark, thickened under-eye skin.
- Retinoic acid creams can help slough the dark pigmented skin. However, it should be used in very small amounts with increasing use over several weeks to avoid severe irritation.
- Skin lightening creams with azaleic acid, kojic acid, and glycolic acid, can be found in varying strengths in dermatologist office preparations, over-the-counter creams, or prescriptions. Hydroquinone creams have demonstrated success in lightening under-eye hyperpigmentation. Strengths in over-the-counter preparations start at 1%-2% and in prescription strength can be compounded to higher than 4%.
- Chemical peels: Light chemical peels such as glycolic acid and Jessner’s peels will assist in lightening dark under-eye pigmentation. Dermatologists also can use peels with hydroquinone or retinoic acid for an added lightening benefit.
- Intense pulsed light (IPL) can help minimize under eye pigmentation, particularly UV-induced pigmentation.

### IV: Infraorbital tear trough depression

Most often, dark circles aren’t about changes in the color of the skin at all. Instead, they’re created by a loss of volume in the area around the eye. This exposes the underlying blue veins and orbital bone, creating a hollow trough that shows up as a dark circle. These changes are often caused by genetics; however, significant weight loss and aging with resorption or displacement of the infraorbital fat pads can also expose under-eye tear trough depressions.

The best way to treat this problem is with a small amount of a hyaluronic acid filler placed by a dermatologist in the trough. Very small aliquots are needed in even the deepest trough but can give outstanding results. Caution however, must be taken as this is a highly specialized technique and injector dependent procedure.

There are crucial vascular structures around the eye that need to be avoided, and overfilled troughs will give patients a puffy appearance that may pose a worse and more difficult problem to fix. Hyaluronic acid fillers are not approved by the Food and Drug Administration for treatment of under-eye depressions, so patients should be educated about the risks and benefits prior to undergoing these procedures.

#### V: Periorbital vascular prominence

With age, the skin around the eye becomes thinner, exposing the small capillaries and venules just below the thin epidermal layer. Vascular prominence can leave a bluish undertone to the infraorbital skin which can cast dark shadows and make the area appear dark or sallow.

- Eye creams that contain caffeine can constrict the underlying blood vessels and temporarily diminish small vessel prominence.
- For large blue veins, vascular lasers such as a long pulse Nd:Yag lasers can be recommended. But in darker skin types these lasers can cause hyperpigmented scars if not used with adequate skin cooling techniques. Proper eye protection should also be used.

#### VI: Periorbital static and dynamic rhytids

- Botulinum toxin placed in small aliquots around the orbital rim will reduce the dynamic rhytids in this area. Treatments spaced 3 months apart will ensure long-lasting benefits as botulinum toxin often wears off.
- Laser resurfacing with CO<sub>2</sub>, fractionated CO<sub>2</sub>, or erbium lasers may also be used to treat periorbital rhytides.

#### Additional tips for your patients:

- For most of the types of infraorbital issues, makeup can help conceal some skin imperfections. Patients should choose a concealer that matches or is slightly lighter than their skin tone. If the patient has mild discoloration, choose a liquid formula. For more prominent imperfections, a cream full-coverage concealer works best.
- Recommend that patients avoid smoking, which dehydrates the skin and causes premature aging and collagen degradation.
- Remind patients to apply a sunscreen around the eye area. Hyperpigmentation and tear troughs can accentuate with UV-induced skin pigmentation. Physical blocking sunscreens may be less irritating than chemical blockers for those with sensitive eyelid skin.
- Remind patients to apply a moisturizer to the eye area nightly to keep the skin from becoming dry, irritated, and dehydrated.
- Advise patients not to break the bank with over-the-counter creams that promise cures for under-eye circles. Most over-the-counter preparations provide temporary, mild benefits at most, and often do not provide any lasting benefit.

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