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FEATURE ARTICLE

The Eye-Boost Technique for Tear Trough Hydra-Rejuvenation

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As we age and the skin loses its elasticity, which is often accelerated by sun damage, smoking, diet and lifestyle, fine lines and wrinkles start to appear around the eyes, where the skin is already much thinner than on the rest of the face. Darker shadows will begin to appear under the eye, as early as in the mid-20s for some people, and a hollow begins to appear in the eyelid-to-cheek junction – the tear trough.

Consultant Ophthalmologist and Aesthetic Oculoplastic Surgeon, Mrs Sabrina Shah-Desai has developed her own technique to address under eye dark circles and a tear trough deformity, by improving the texture and quality of the very thin eyelid skin. The '*Eye-Boost*' which uses the Restylane® range of dermal fillers offers a new and safe treatment option in an anatomically challenging area.

I caught up with Sabrina at this summer's FACE conference to find out more about the '*Eye-Boost*' and the 'tricky' tear trough region, which is something of an enigma by many aesthetic practitioners.

Lorna: How has the understanding of tear trough anatomy changed in recent years?

Sabrina: The main thing that improved our understanding of this complex & delicate anatomy, the discovery of the tear trough ligament, which was published in 2012 based on cadaver studies. Cadavers were dissected specifically study what was happening at the junction where the eyelid meets the cheek. There's a ligament that attaches the skin and muscle to the bone where the eyelid meets the cheek at the inner corner, which is the true tear trough, as opposed to the lid –cheek junction, (which is what practitioners are addressing with dermal fillers when they talk about techniques such as the six-point lift). The inner hollow is due to a true tear trough ligament . It is this bit of anatomy that has really improved our understanding of the tear trough, and I feel that is what has led expert practitioners to rethink current tear trough treatments. The one's who are evaluating their results seriously, are looking at the tear trough in a completely different light.

Because the tear trough changes at a subcutaneous level and at a deeper one, and we know that whilst things deflate and descend deep down, they also loose volume superficially; it's this newer understanding that has altered how we are addressing this inner corner. If you try to fill this inner corner at a deep level all you'll get is a big 'sausage' of filler there, which is the problem, people were doing that because they didn't realize the anatomy. But it's the anatomical finding of the fact that there's a ligament that is sticking the skin all the way to the bone that has altered practices, not only non-surgical treatment, but even surgical treatment, such as eye bag surgery, because now when we perform a lower lid blepharoplasty, we release that tear trough ligament.

L: Can you explain the new classification system for tear troughs and the definition for each of the three types?

S: The classification for tear troughs came out in 2010, so it came out before the tear trough anatomy paper that I mentioned before.

Essentially it's looking at the whole length of that groove. So if you had a short hollow (approximately one third of the whole groove), that is a class one; if you had a groove that extends to half the whole extent then that is a class

Mrs Sabrina Shah-Desai

Consultant Ophthalmologist & Aesthetic Oculoplastic Surgeon.

Combining the micro precision of Ophthalmology with the aesthetic concepts of Facial Plastic Surgery, Mrs Shah-Desai provides a modern management of functional, reconstructive and cosmetic problems.

As a leading UK accredited Consultant Ophthalmic Plastic & Reconstructive Surgeon, she is well known for her artistic approach to achieving natural looking results with surgical & non-surgical aesthetic facial rejuvenating procedures.

two, and then obviously if you had the full groove that is a class three. Along with the class three tear trough you will also have volume loss in your cheek. See these reference illustrations from *Anatomy and Nonsurgical Correction of the Tear Trough Deformity*, Haideh Hirmand, M.D Plast Reconstr Surg. 2010; 125:699–708), (Fig 1a,b,c).

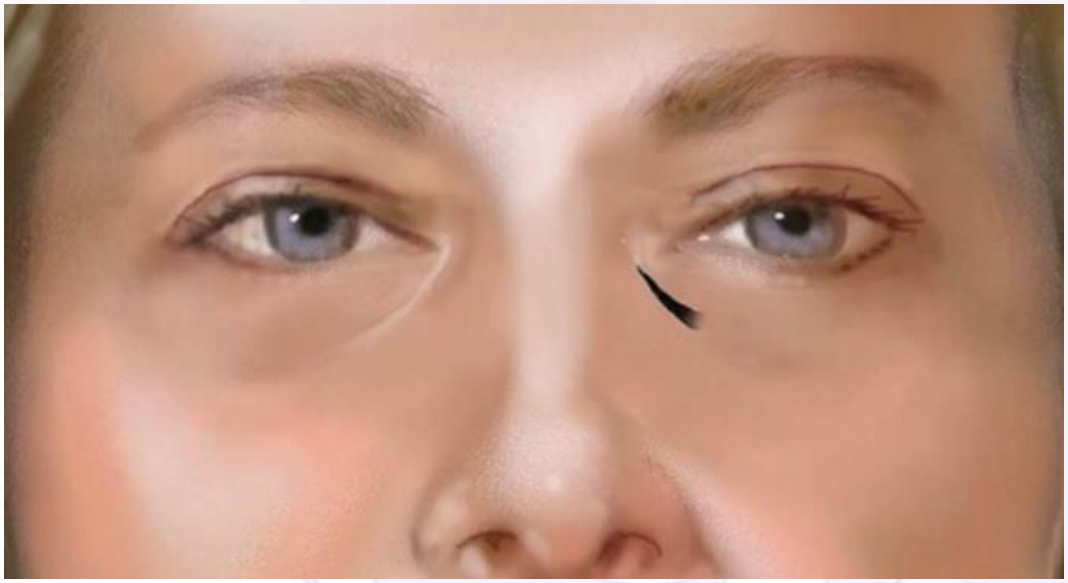

Fig 1a, class 1 tear trough.

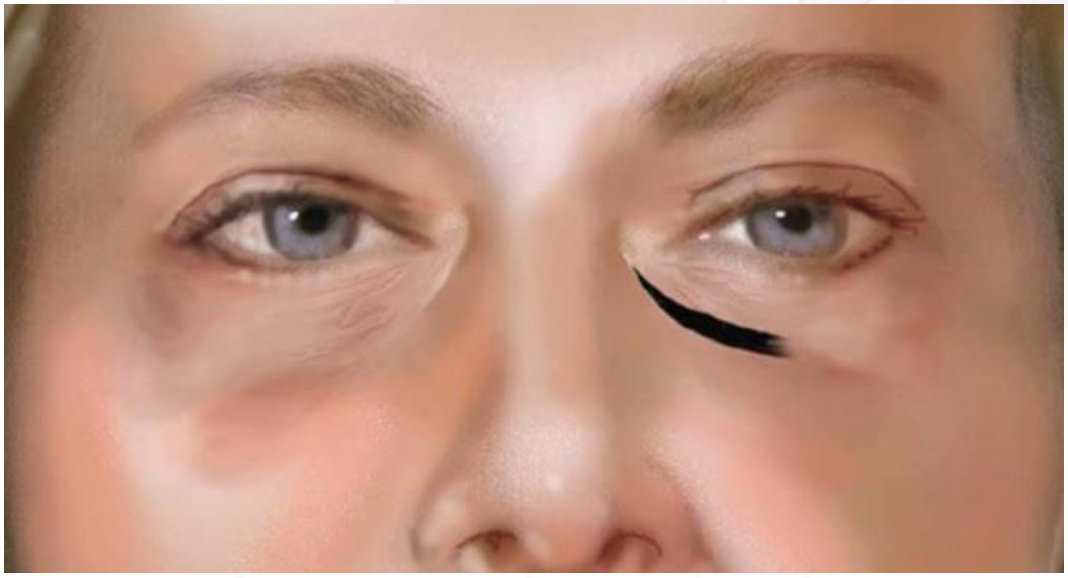

Fig 1b, class 2 tear trough.

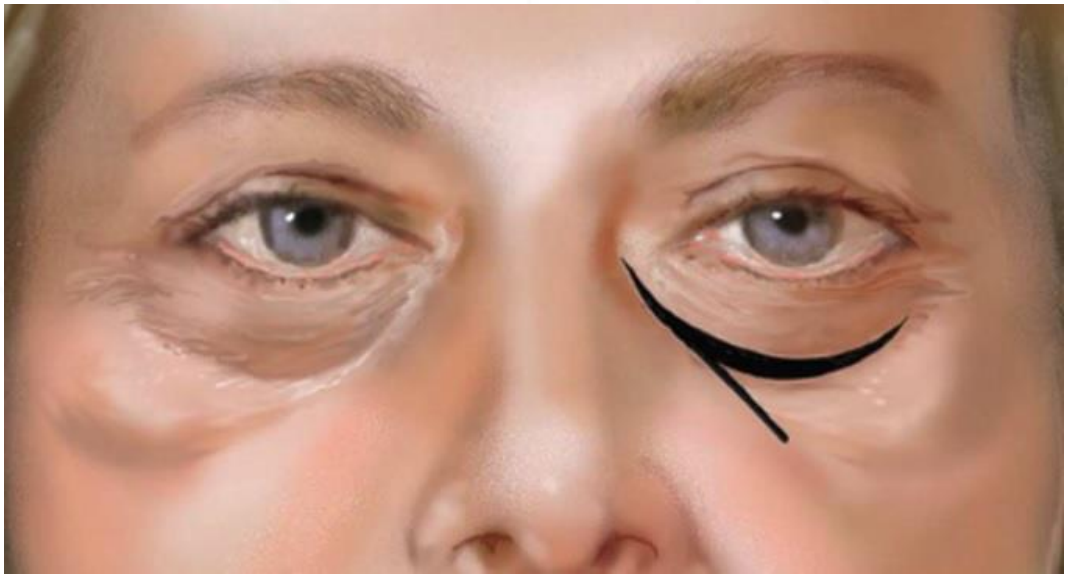

Fig 1c, class 3 tear trough.

L: When treating the tear trough, is it all about the hollow, or should practitioners also be thinking about the skin texture, skin pigmentation and the lack of fat in the area?

S: I think the concept of tear trough treatments is relatively new, when you look at scientific literature, there's very little published on tear troughs. Even in the papers that have been published, virtually all the techniques are different. A lot of people are using needles to inject in the tear trough and people are still trying to find out which plane to inject into. There have been cadaver studies that used experienced injectors who injected on the bone, but then they dissected to see where the filler was actually lying and they found that the filler migrates and is lying more superficially than where you think you've injected it.

So even if you think you've injected it above the bone, it may not be lying above the bone, but it ends up lying within the muscle, and that's because this muscle is attached to the inner corner of the eye and overlies the rim. Practitioners have focused on the hollow and weren't looking at the eyelid skin – this has been commented on by a lot of people.

When you read the publications and the clinical papers, a lot of the authors will say "*it's the skin, you have to look at the eyelid skin*". But nobody knows what to do with the eyelid skin.

Eyelid skin is different in virtually every person, because how you are looking after your skin is going to be very different from how I'm looking after my skin, plus inherently, as an Asian, my skin is pigmented, so I have more pigment cells in my under eye area than you do to start with, at a resting level.

Another consideration is how we behave with regards to the sun, none of us use SPF all the way up to our eyelid margins, we just sort of dab it up to there, so we've got this exposed skin all the time that is photo-ageing much faster.

Although we talk about extrinsic ageing as a general concern, this being environmental and stress related impacts such as smoking and sun damage, the effects of extrinsic ageing under the eye is huge. If you have allergies or if you have a late night, your eyelids will puff up. If you are an eye rubber and you have allergies, your skin will become looser early, so your extrinsic ageing in the eye area may be completely different from how you're ageing extrinsically elsewhere. The same can be said for the daily removal of eye make-up compared to those who don't wear make-up.

In my clinic, I also have patients with blepharitis, which is an inflammatory condition of the eyelids. In fact one of our main recommended treatment modalities for this condition, is getting patients to massage their eyelids, so the condition and its treatment can adversely affect eyelid skin.

Intrinsic ageing starts in your mid-30s, that's your biological clock, but if you've already inherently got thin skin then your extrinsic ageing will show earlier and around about the same time as your intrinsic ageing is just starting. So by the time you're in your late 20s the skin under eye area is thinning already.

So if people present in practice there is a rational for offering them the 'Eye Boost' at a younger age for their under eye, purely because you are plumping up that thin skin as a preventative measure.

L: Do you think that differences in the eye area due to ethnicity are perhaps being overlooked?

S: You can't ignore it and that's the problem, everybody is being treated in the same way. But everybody's skin and soft tissues are different, as Mr. Rajiv Grover pointed out in a presentation here at FACE, the Japanese SMAS is different to the English SMAS.

Likewise your eye socket size is different, how the bone is changing, (it's a round socket which becomes a square socket), how you're losing volume in the temples and cheeks, everything is indirectly, or directly effecting how your eyelid area is ageing. So you can't apply one algorithm to all, it's not one standard injection, it's not this one-size fits all approach for everybody.

L: Have you treated any Oriental pa tients? I ask this because it is apparent that individuals from the Far East have a completely different ocular presentation to other ethnicities, having no upper eyelid crease for example? And what about a darker Fitzpatrick skin types, such as Afro-Caribbean patients, how do they present?

S: Oriental patients have very, very thick eyelid skin. You will not see the loss of subcutaneous tissue of these patient's, they have also got a lot of subcutaneous fat in the region. So you won't see the same tear trough problems with them.

With Afro-Caribbean patients, I noticed that they are a much older age group, because the thinning of their skin occurs much later, in their mid-50s. They do pigment, so most of their under eye change may be because of hyper pigmentation. And we all have that. If you stretch my eyelid skin you will see that the skin is pigmented and there's a different colour skin, and that's because the skin has more pigment cells in it.

Lambros has commented on this in clinical papers, there is a demarcation; you see it in your children. If you look at your children they don't have tear troughs, but they may look as if they have a shallow trough, because the eyelid skin is different.

L: Tell me more about the 'Eye-Boost' technique that you are employing with your patients to treat tear troughs using the Restylane™ range of hyaluronic acid fillers.

S: The eyelid skin is so unforgiving. If I inject anything into it, it's just going to bruise and swell up and it's just going to retain the filler. The lymphatic system of the eyelid is also a complex concern, you can have persistent swelling for a very, very long time if you're injecting very large boluses of filler. The skin is very thin, so filler placed superficially is very visible. If you use particulate products, and there have been some papers on this, where practitioners have injected Radiesse™ to try and improve the tear trough hollow, they've had migration and yellow particulate matter visible for a few weeks in some patients.

So, in the eyelid and tear trough area you don't want to use very big particles, and it's the particle size that's important, Restylane Perlane™ (with lidocaine) for example, has a much bigger particle, it is only 20mg per ml of HA, but it's a heavier product with big particles. Big particles cause the Tyndall effect, as they reflect and refract light more easily. You want to use something that's very smooth, that's very, very thin and that's very malleable, which will absorb quickly.

I believe that there is a distinct group of patients who will benefit from gentle hydra rejuvenation of their tear trough, by placing Restylane Vital Light™ in the subcutaneous place of thin skin of the lower eyelid and tear trough.

The same treatment may not produce the optimal aesthetic outcome in an older age group where volume loss can be global and the skin has significant laxity.

I prefer to inject a 12 mg/ml smooth hyaluronic acid filler (Restylane Vital Light™) sub-dermally into the thin skin of the lower eyelid and medial tear trough, to plump the lower eyelid skin and volumise the subcutaneous plane of the tear trough, and gently hydra rejuvenate the tear trough (Fig 2).

Using this technique and filler type to improve the quality of the under eye skin and restore volume in the subcutaneous plane of the tear trough, thus improving under eye dark circles.

Fig 2.

Although the intrinsic colour of the eyelid skin does not alter with hyaluronic acid filler, I have seen that it can produce an illusion of reducing pigment by reducing the shadow caused by a hollow (Fig 3 a,b).

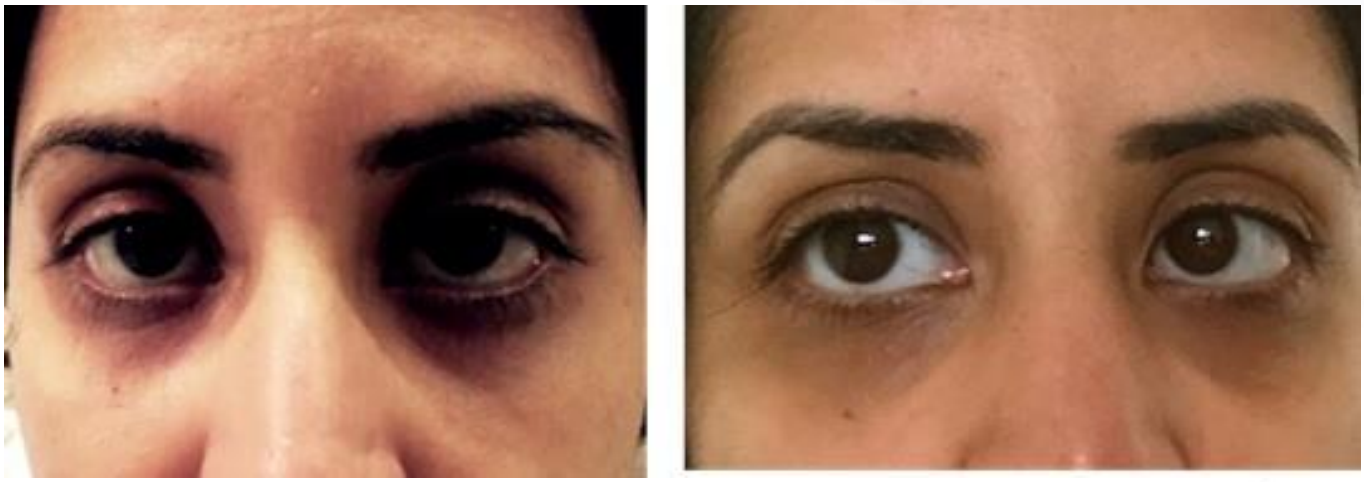

Fig 3a: 34 year old lady with under eye dark circles and pigmentation.
Fig 3b: 3 weeks after treatment with Restylane Vital Light to under eye skin and medial tear trough, note apparent improvement in dark under eye skin pigmentation, due to reduction in shadow caused by hollow.

L: You have said that injecting the tear trough is probably the most technically challenging of all the areas targeted with facial aesthetic injections. What are the primary considerations when treating this area?

S: Less is more with the deposition of the filler. Over-correction and the Tyndall effect are common place due to the technical challenge.

Also, never go up in the high area of the tear trough with your injections, avoid that bit right into the corner. So that's from the medial canthal angle to what is categorised as class one of the tear trough. If you're trying to inject deep in that area, it's going to look abnormal.

All of us have a hollow there, and it's very important to have that hollow because that's how we look, whether we're Oriental, Asian, Caucasian, Afro-Caribbean, whatever our skin type or ethnicity. We all have that little hollow there. So that is a normal cosmetic hollow.

If the hollow is more of a class two or class there that becomes a treatable problem.

The higher part of the class two tear trough is more thin skin and loss of subcutaneous fat, and it's the lower part of the class two and then of course the class three that is deep. I think that's the anatomical change taking place.

If I had a patient with a class two tear trough, I would want to efface the upper part with Restylane Vital Light™ (delivered subcutaneously), and the lower part I would have to support with some Restylane Lido (delivered supra periosteally).

If I had a patient with a type three then I would give some Perlane™ (deeply, delivered supra periosteally) to lift the cheek and support the midface SOOF area, then I would give the Restylane Lido in the upper part of the hollow (Fig4a,b,c, d). And as you go higher towards the tear trough with your injections then you want to go into the subcutaneous area.

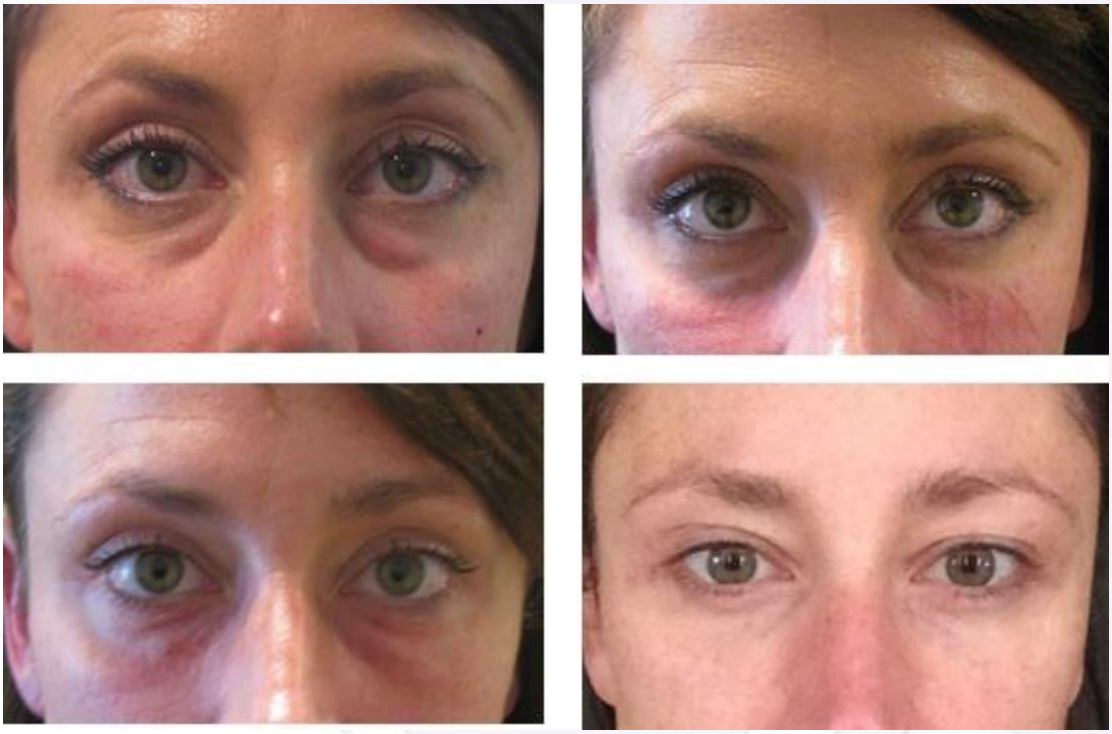

Fig 4a: 35 year old lady with tear trough hollows and superior fat bulging
Fig 4b: Same patient after 0.5ml of Restylane Perlane with lidocaine in deep plane of each lateral tear trough
Fig 4c: Same patient after injection of 0.1 ml of Restylane Vital Light in thin skin of superior-medial tear trough
Fig 4d: Same patient 4 weeks after Restylane Vital Light - note improvement in appearance of puffy eyelids and dark circle

So for me the question you're not asking, and which nobody asked me when I gave my presentation is - what is the particular patient type that you think this is fabulous for?

I think it's fabulous for Asian (Indian/Pakistani) and Caucasian skin as they have thin skin due to early photoageing, which literally looks like a deep shelf under the eye ball. I think this treatment is really excellent for them.
Of course you can use it successfully on all the skin types if they've got thin skin and loss of subcutaneous fat.

I would like to thank Mrs Shah-Desai and Galderma for the opportunity to discuss this innovative technique. Anyone interested in the Restylane range of dermal fillers or further training in tear trough techniques should speak to their Galderma rep or contact Customer Services on 01923 208 950.

Lorna Jackson

Lorna has been Editor of The Consulting Room™, the UK's largest aesthetic information website, for over a decade, since 2003. She has become an industry commentator on a number of different areas related to the aesthetic industry, collating and evaluating statistics, plus researching, investigating and writing feature articles, blogs, newsletters and reports for The Consulting Room™ and various consumer and trade publications, including *Cosmetic News, Journal of Aesthetic Nursing, Body Language*, *PMFA News*, *Aesthetic Medicine* and *Aesthetic Dentistry Today.* Lorna has also been asked to present at various industry events, including Smart Ideas, BACN and Merz Aesthetics Business Workshops, the FACE Conference and the Clinical, Cosmetic & Reconstructive Expo.

Lorna was recently awarded *Journalist of the Year* at the MyFaceMyBody Awards 2014.
