Introduction
The cheek is one of the most influential features of the ageing face. Rohrich and Pessa (2008) studied the chronological changes in subcutaneous fat distribution and observed the existence of separate anatomical compartments which appear to lose volume in a specific order (see Figure 1). Volume depletion and re-positioning of the malar fat pad occur early in the ageing process (Rohrich and Pessa 2008, Coleman and Grover 2006). They create a gradual flattening of the malar eminence, both frontally and laterally, and lead to a hollowing out of the mid-facial region and emphasis of the nasolabial furrow (see Figures 5-7). The downturn of the oral commissure is also exacerbated and, in some cases, tissue decent extends as far as the pre-jowl sulcus, accentuating the S-shaped curve of the lower mandibular border. Cheek augmentation restores youthful convexity and helps support the lower facial tissues, giving rise to a mid-

Non-surgical volumising of the cheek
The continual evolution of injection techniques and products tailored to specific areas of the face has increased the treatment options for patients seeking aesthetic correction or enhancement. The introduction of Restylane® SubQ (Q-Med, Uppsala, Sweden) means that patient choice is no longer limited to surgical lifting or insertion of alloplastic implants. Restylane® SubQ has a larger particle size (1000 per mL) and greater thickness and viscosity than other products in the Restylane® range. It has been developed specifically for use as a subdermal, submuscular and supraperiostal filler in areas where greater volume augmentation is required. As a product of NASHA™ technology, Restylane® SubQ is supported by extensive safety and efficacy data (Friedman et al 2002, Verpaele and Strand 2006) and published clinical experience of its use in the chin and cheek area shows it to be associated with long-lasting efficacy, typically between 9-12 months (Belmontesi et al 2006, Khanna 2007).
The cheek is a relatively safe area into which to inject Restylane® SubQ but nevertheless important anatomical features to consider include branches of the facial nerve, in particular the zygomatic and buccal branches, the infraorbital nerve and vessels and the parotid duct. The position of the associated muscular tissue, i.e. the zygomaticus major and minor and orbital aspect of the obicularis oculi should also be noted alongside the superficial musculo-aponeurotic system (SMAS).

In my practice, the cheek is divided into upper, middle and lower areas as this helps me to adopt a staged approach to treatment (see Figure 3). In younger patients, it is rarely necessary to treat beyond the upper cheek (stage one); however, in older patients, we often need to consider stage two or stage three treatment following malar fat atrophy.

Cheek sculpting and augmentation with Restylane® SubQ – a step-by-step guide

(1) Patient counselling
Managing patient expectations with regard to what they can expect both during and after treatment is a key to achieving success in facial aesthetics. An accurate and comprehensive assessment of the face is essential before discussing all aspects of the procedure. Good clinical pre-operative photographs are then taken of the facial, three-quarter and full profile views (see Figure 2). This provides an invaluable medico-legal record and diagnostic tool.

(2) Marking of the skin (see Figure 3)
After cleansing the cheek area with topical antiseptic to avoid the risk of subsequent infection, the area is marked for augmentation (see Figure 3).

This is usually done prior to numbing as anaesthesia distorts the facial tissue. For augmentation of the upper cheek, the orbital rim is marked as the outer limit - I inject no closer than 1.5cm from the orbital margin. Then, starting anteriorly, a line is drawn vertically down the face from the mid-pupillary line. This defines the anterior extent of the augmentation. Continue back posteriorly by approximately 6cm and the superior–inferior extent is between 2 and 3cm. These dimensions are of course only approximate and vary from individual to individual. The mid-cheek area is a continuation of the upper cheek extending a further 2 to 3cm inferiorly. The lower cheek compartment can extend inferiorly up to a further 4cm, as far as the level of the oral commissure and therefore be commensurate with the buccal fat.
(3) Anaesthesia
Augmentation of the upper cheek alone can be carried out using topical anaesthesia. However, if the patient prefers a totally pain-free procedure or is particularly anxious, the area can be infiltrated with local anaesthetic. The anaesthetic is usually injected (usually no more than 0.5ml of lignocaine plus adrenalin) about 1cm posterior to the entry point extra-orally. Anaesthesia of the mid- to lower-cheek region requires intra-oral administration of local anaesthesia to block the infraorbital nerve.

(4) Injecting Restylane® SubQ
Although a cannula can be used to place Restylane® SubQ in this area (Lowe and Grover 2006) to minimise neurovascular trauma and damage, in my experience the rigidity of the needle provides tactile feedback, helping to achieve greater control and precision during placement. A needle between 18 and 21G is tended to be used, of at least 1.5 to 2 inches in length, to ensure access to the entire area requiring augmentation.

In the upper cheek, it is desirable to place the Restylane® SubQ just supraperiostally or in the subobicularis oculi fat (SOOF) following the contour of the bone and accentuating the natural contour of the zygomatic arch and malar prominence. Placing the product more superficially, for example above the obicularis oculi, can lead to an impairment of muscular function and early migration of the product. The needle is inserted posterior to the anticipated area for augmentation at the point marked on Figure 3. Generally speaking, the aim of treatment for the upper cheek region is to improve both frontal and lateral projection. Between 0.5 and 3.0ml of Restylane® SubQ is used depending on the amount of augmentation required or indicated for a given case.

It is rare for a younger patient (i.e. below 35 years of age) to require anything other than stage one upper cheek augmentation (see Figure 4). However, in the older patient, there can be some benefit from also injecting Restylane® SubQ in the mid- and lower-cheek area, i.e. carrying out stage two or stage three augmentation (see Figures 5 and 6). Tear trough or nasojugal augmentation may also be indicated in older patients. This can be achieved by continuing a stage one augmentation anteriorly and superiorly (see Figure 7). Thinner overall tissue cover in this area means that a less viscous product, such as Restylane® or Perlane™, is usually required.

When augmenting the mid-cheek, Restylane® SubQ is injected subdermally in the mid to deep subcutaneous fat and generally above the SMAS, as injecting too superficially in this area can lead to a lumpy appearance, especially if there is extensive loss of tissue cover and skin thinning. It is important to note that both the supraperiostal injection for the upper cheek and the subdermal injection of the mid-cheek can be achieved from the same entry point as shown in Figure 3. The same size needle is used (between 18 and 21G) in this area but inject slightly smaller volumes of Restylane® SubQ, usually between 0.5 and 2.0ml.

Injecting into the lower cheek area requires careful attention to the parotid duct. The entry point for augmentation of this region is much lower, approximately 3cm below the ala-tragal line (the imaginary line joining the tragus of the ear to the alar of the nose). When injecting into the mid- or lower-cheek areas, whilst it is important to make sure that the needle is placed subdermally care must be taken not to place the product too deep through the SMAS and underlying muscular tissue thereby potentially penetrating the oral mucosa. Inserting a gloved finger into the mouth when injecting minimises the risk and allows you to palpate the Restylane® SubQ from inside the mouth. I normally inject 0.5 to 1.5ml in this region.

I would usually only inject in all three zones in the older patient (see Figure 6). One of the problems, however, is that the skin can be quite thin; therefore, the Restylane® SubQ is carefully manipulate under the skin to help confine it to the desired area and then overlay it with Restylane® or Perlane™ to smooth out step deformities and create a smooth contour.

(5) Post-treatment recommendations
My recommendations to patients following cheek augmentation are identical to those following any facial aesthetic procedure involving Restylane®. The patient is instructed to avoid manipulation of the area, which includes advising them to go to sleep lying flat on their back and not on their side. In addition, the patients are warned that they may experience a little post-procedural discomfort and recommend the use of standard NSAIDs for a couple of days following treatment if required.

(6) Patient review
Patients are usually reviewed three weeks after treatment for a ‘fine-tuning’ appointment. At this point, they are assessed for any asymmetry and checked if they are satisfied with the result. If necessary they are re-injected, using small volumes of Restylane® SubQ as described above or Perlane™, to address any small inaccuracies. Post-operative photographs are usually taken at this appointment.

Conclusion
As treatment techniques for facial aesthetic enhancement continue to evolve at a phenomenal rate, it is our responsibility as ethical professionals to discuss both surgical and non-surgical options with our patients.
Restylane® SubQ is a safe and effective, non-invasive option for cheek augmentation which can be tailored specifically to address age-related changes in a structured and staged way. It is extremely easy to use and creates a big impact in patients of all ages.

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I would like to sincerely thank all my patients for their kind permission to use their clinical photographs in this article. In Figures 4, 5 and 6, full facial shot is not shown to respect patient’s wishes.

References
Verpaele A, Strand A. Restylane SubQ, a non-animal stabilized hyaluronic acid gel for soft tissue augmentation of the mid- and lower face. Aesthetic Surg J 2006; 26(suppl): A