

## Management of Facial Asymmetry with Combination of Orthognathic Surgery and Autologous Fat Transfer

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### Clinical Image

A pan-facial approach is usually best when aiming for a harmonious aesthetic facial outcome. Addressing both skeletal and soft tissue components of the face with simultaneous orthognathic surgery and autologous fat transfer, respectively, satisfies this concept.

Facial asymmetry is a challenge for craniofacial surgeons to correct. Our center currently uses three dimensional (3-D) surgical designs by combining cone-beam computed tomography scans and 3-D photographs (3dMD, Atlanta, Ga). Computer assisted surgical designs can help the surgeon achieve facial skeletal symmetry [1]. However, even if skeletal symmetrisation can be achieved, such patients almost invariably demonstrate some soft tissue discrepancy that persists after surgery. Autologous fat grafting is a minimally invasive procedure that is useful for correcting soft tissue deficiencies. Autologous fat transfer has many advantages: The graft volume that takes is long lasting. Large volumes of fat are graftable, including in successive grafting sessions. The surgical wounds are insignificant in size, being punctures, and can be strategically hidden. Minimal complication rates and minimal donor site morbidity. Fat grafts are entirely biocompatible. The volumisation effect of fat grafting can improve the overlying skin texture. Relatively short operation time. The materials used during the procedure are relatively inexpensive. Donor sites are readily available. Fat grafting can be combined with other surgical procedures such as face lift, orthognathic surgery and others [2].

Not all fat graft volume takes, and thus patients need to appreciate that repeat grafting procedures may be necessary to achieve the desired long term volumisation effect. To maximize autologous fat graft take, it is atraumatically harvested, prepared and then transferred to the recipient site as tiny tissue parcels, which have the best chance of developing a blood supply and survival [3]. We currently use the Microautologous Fat Transplantation Gun with an 18 gauge blunt needle to deliver consistent fat parcels as small as 1/60 ml [4].

By combining orthognathic surgery and autologous fat transfer principles for patients with facial asymmetry, the craniofacial and aesthetic surgeon can correct both skeletal and soft tissue discrepancies with a pan-facial approach to achieve improved postoperative facial symmetry (Figures 1-6) [5].



Figure 1: A 22 year-old female patient with facial asymmetry.

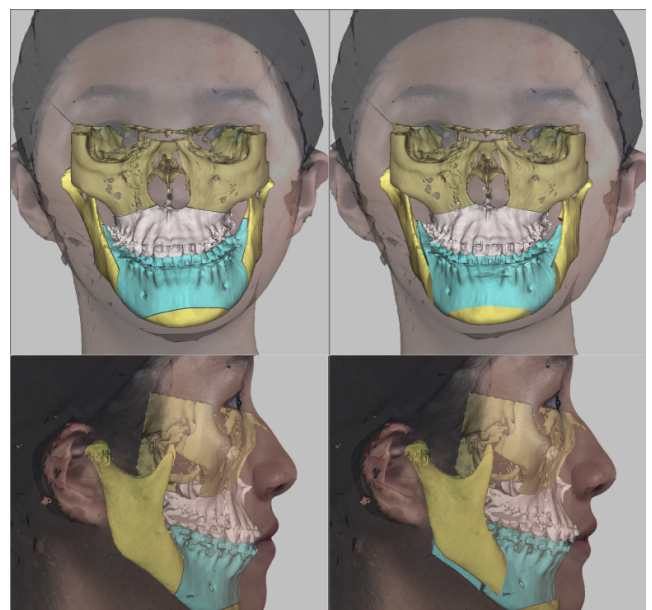


Figure 2: 3-D surgical simulation, merging cone-beam CT and 3dMD images.



Figure 3: Simulated result of orthognathic surgery.



Figure 4: Pre-operative and one week post-operative cephalometrics.



Figure 5: Left, immediately after orthognathic surgery; an upper double-eyelid blepharoplasty has also been performed. Right, following autologous fat transfer to the chin, both mandibular borders, medial cheeks, tear troughs and nasal dorsum.



Figure 6: left upper, one week postoperatively; right upper, one month postoperatively; left lower, frontal view seven months postoperatively; right lower, lateral view seven months postoperatively.

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