



breasts

# In three dimensions

3D SCANNING TECHNOLOGY **BIOMETRIX AXISTHREE** ALLOWS SURGEONS TO SIMULATE THE PREDICTED OUTCOME OF SURGERY FOR THEIR PATIENTS. JENNI GILBERT REPORTS.

Expressing what they'd like to achieve from their surgery doesn't come easily to all patients. It can sometimes be hard for surgeons to fully understand what their patients want from their breast augmentation, facelift, rhinoplasty or other procedure. Similarly, patients might struggle to imagine the impact surgery will have on their appearance.

The ability to visualise predicted changes can help patients get a clear idea of what they are likely to look like after surgery. Imagery can also help patients and doctors communicate more clearly, giving a patient the opportunity to show their surgeon what they like and dislike, and allowing the surgeon to illustrate their recommended changes.

3D scanning technology is revolutionising the way pre-surgery consultations are performed. By visualising the predicted outcome of surgery in 3D, much of the guesswork can be removed, providing extra reassurance to both the patient and surgeon.

Biometrix AxisThree, which is distributed by Biometrix Medical, uses actual clinical data to generate a series of anatomically accurate images of a patient's face or body in a three-dimensional matrix. The surgeon can then alter the image to simulate the effect of various surgical interventions, to show patients how they could look post-surgery. This gives the patient an enhanced, interactive consultation experience, which allows them to visualise and feel more confident about future changes.

Biometrix AxisThree can be used to visualise predicted changes from procedures such as rhinoplasty, face and neck lifting, and is particularly helpful for women considering breast augmentation.

'The decision to have a breast augmentation is a major

one for any woman,' says Perth plastic and reconstructive surgeon Mr David Gillett. 'One of the most difficult aspects is deciding which size implant to use to achieve the desired result. This decision is based on the shape of the woman's chest, her existing breast size and shape, as well as her expectations.

Mr Gillett believes the Biometrix AxisThree system is helpful in showing patients what he is trying to achieve with surgery. 'It is just as helpful for patients to demonstrate to me the result they would like to achieve from surgery. It reassures us both,' he adds.

Following an initial discussion with the patient and a thorough physical examination, Mr Gillett uses the system to visualise the outcome of their discussion, drawing on Biometrix AxisThree's database of implants.

The technology uses four three-dimensional cameras, which simultaneously take an image of the patient and reconstruct it to depict the patient's measurements. The patient's existing volume in each breast is measured, which helps prevent discrepancies and makes planning much easier and more accurate. Surgeons can then use the technology to 'play' with the size and shape of implants and their position under or above the muscle until the patient is happy with how the implants sit.

With different modules, Biometrix AxisThree can also be used for the nose and face for cheek and chin augmentation. The patient's facial skeleton is simulated so that the projected volumisation is suited specifically to their facial structure.

Sydney plastic surgeon Dr Sawjin Tew believes 3D technology promotes greater confidence among her patients when considering procedures.

'When people are considering changing the size and shape of their breasts or nose, or enhancing their cheeks or chin with implants, for instance, there can be a lot of apprehension or uncertainty about how those changes will look,' she says. 'Being able to see a realistic simulation really helps a patient understand the impact of these changes, be involved in the process and then make a fully informed, empowered decision about whether or how to proceed.'

According to Dr Tew, Biometrix AxisThree really brings to life the expected change in the shape and volume of the breast by inserting different implants in the 3D matrix. '3D visualisation is particularly beneficial for breast reconstruction patients who have had a mastectomy and thus have no, or little existing breast tissue,' she says. 'Patients can be scanned with a bra or bikini top and see how different breast sizes complement their figure and lifestyle, allowing the surgeon to tailor the operation to their needs.'

Two new software components have recently been added to Biometrix AxisThree.

One simulates the results of volume extraction and modelling for body contouring procedures, for example for

liposuction. The other helps doctors and patients visualise the effect of facial contouring. Although much more subtle than the results that would be achieved with surgery, Biometrix AxisThree can help show both patient and surgeon where and how much dermal filler could be applied to enhance features or correct irregularities.

Mr Gillett says Biometrix AxisThree has improved the communication process between him and his patients – one of the most vital steps in the surgical process. 'I find it particularly helpful when discussing rhinoplasty and facial contour surgery,' he says. '3D morphing allows the patient to explain very precisely their concerns regarding their nose and exactly what they would like to achieve. The tools also help me to explain the proposed surgery.'

The accuracy of the Biometrix AxisThree system comes down to the Siemen's scanning technology, which uses Colour Coded Triangulation (CCT) to capture precise images of the patient's body.

Paired with the latest Tissue Behaviour Simulation software, it provides a clear interface for surgeons and patients to communicate with each other. **csbm**

