

Novelties: the use of 3-D technology in autologous breast reconstruction

Recreating an aesthetically pleasing breast demands a combination of good measurement, some artistic insight and some level of experience of the surgeon. To counter all the challenges that it brings, the latest technology has helped us develop a technique which enables us to plan the procedure better and to further personalize the whole process and its outcome.

Modern technology enables us to scan body parts with a laser and render a 3D model using special computer software. This technology can also be used in autologous breast reconstruction. Before the procedure, we make a laser image of the healthy breast and then, using suitable computer software, render a 3-D model of the healthy breast. The model is then simply mirrored over, and a 3-D mold of the mirrored healthy breast is fashioned.

The mold, which is a three-dimensional replica of the healthy breast, is used during the procedure to help us shape the new breast quickly, easily, accurately and reliably. The 3-D model makes it possible to perform the procedure quicker and to increase the

reliability of the result even when less experienced surgeons are performing, and on top of that, it warrants a very high degree of symmetry of both breasts with only one operation needed. This method is especially useful with delayed reconstructions, where there is no information about the weight of the removed breast, or when the anatomical properties of the chest have been altered (the presence of scars, poor quality of the skin, altered submammary fold). These are the least desirable conditions for breast reconstruction.

Measurements are usually carried out a few days before the procedure, and then the technicians form a cast from a transparent material that can be sterilized. Immediately before the procedure, the mold is used to draw the incision lines of the operation, with special attention given to the location of the new breast on the chest. Then, the new inframammary fold, the upper edge and the side edges of the new breast (the footprint of the breast) are drawn on the chest. The mold is then sent to be sterilized and is used during the operation after the removal of the flap. The abdominal tissue is then easily, safely, and quickly formed into the new breast in the mold on the table next to the patient, while the abdominal wall (the source area for the flap) is being sutured. It is not necessary to further measure or weigh the tissue, neither to plan how to reshape it. We simply use the mold to shape the new breast, which will in the end be very similar to the healthy one in shape and volume, as it is its exact replica.



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Laser scanning of the chest and computer programs make it possible to make a 3D model of the healthy breast.

