

## **The Science behind Fat Grafting**

### **Reflecting on What Really Matters**

This was the theme of the Annual Scientific Congress of The Royal Australasian College of Surgeons held in Sydney in May 2018. Dr Rod Rohrich, a Plastic & Reconstructive Surgeon who works in Dallas USA was an invited Guest Speaker. He is the current Editor of the prestigious Journal Plastic & Reconstructive Surgery. Dr Rohrich spoke about the scientific evidence behind fat transfer.

Dr Rohrich was able to state unequivocally that there was scientific evidence that :-

The site from which the fat is taken makes no significant difference to its survival.

Local anaesthetic can be administered prior to fat harvesting without in any way harming the fat cell.

There is no discernible difference between harvesting fat with a syringe and by Power Assisted Liposuction.

There is no significant difference in fat survival with respect to the method of fat processing.

Pre conditioning of the recipient site increases fat cell survival.

Dr Rohrich stated that there was a high level of evidence from multiple institutions and well-designed trials that:-

1. There is no additional risk for breast cancer recurrence when fat grafting is used for breast reconstruction after mastectomy.
2. Fat grafting does not interfere with the detection of breast cancer – in fact there are fewer changes to the breast after fat grafting than after breast reduction surgery.

Tissue engineering may increase fat longevity raising the prospect of suspending the fat in a gel.

**“Fat grafting has transformed breast reconstructive surgery and cosmetic breast surgery”.**

According to Dr Rohrich there is evidence to support longevity of the fat graft with most studies reporting volume retention of between 55 & 82%.

Although there is evidence to support large volume fat grafting (between 100 & 300 cc) there is not a lot of evidence regarding mega volume grafting (more than 300 cc).

The scientific evidence now confirms what the pioneers in the field have always known – that Autologous Fat Grafting is a safe and effective way to increase breast volume.

### **Simultaneous Implant Exchange & Fat Grafting – SIEF**

This is becoming a popular procedure in the USA (as in Australia) where women are opting to have their old silicone implants removed and exchanged simultaneously for their own fat.

## **Stem Cells**

Dr Rohrich spoke of the hype around stem cell procedures and the total lack of evidence for its use in the plastic & reconstructive surgery setting. There is no evidence to support the many unproven claims made and we should therefore not use the term “stem cell facelift” or “stem cell breast augmentation”.

Stem cells are present in all fat grafts however there is no evidence that augmenting fat grafts with stem cells derived from the stromal vascular fraction (called a “cell enriched fat graft”) has any advantage.

Animal studies show that stem cells stimulate new blood vessel formation but the clinical data is inconclusive. There are currently 12 clinical trials in progress to determine if and when stem cells have a place in plastic & reconstructive surgery.

## **Hybrid Procedures**

This refers to using fat transfer together with breast implants to enhance the result. This is an increasingly popular procedure as it has many benefits. In fact, fat transfer and implants are the new “brother and sister”.