

Regenerative and Biological Treatment with Adipose Derived Regenerative Cells (ADRC)
Dr Usamah Jannoun- Harley Street

Dr Usamah Jannoun is now able to provide Regenerative Biological Treatment (Mesenchymal Stem Cells) for patients with Osteoarthritis affecting the Knee, Hips, and the Lumbar (facet) joints.

Scientists and clinicians are finding more and more uses for regenerative cells but at this time, the most common uses are in plastic & reconstructive surgery and orthopaedics/sports medicine.

Plastic surgeons have used 'stem cell' enriched fat grafts for many years and there is strong evidence that this use is safe and effective (2). More recently, Orthopaedic Surgeons and Sports Medicine Physicians have started to use regenerative cells to repair damage to cartilage in the joints and spine as well as to ligaments and tendons. Clinical studies show that the use of regenerative cells for these conditions is also safe and effective (3,4,5,6,7,8,9,10).

Regenerative cells are a population of cells from adipose tissue with stem cell and wound repair capabilities and consist of several cell types, including adult stem cells. These cells contribute to wound repair through a variety of mechanisms and ADRC can differentiate into several tissue types, such as bone, cartilage, fat and cardiac muscle (1). Some specialised cells, such as blood, cartilage and muscle cells, are unable to make copies of themselves through cell division. Instead they are replenished from populations of stem cells. Stem cells have the unique ability to both produce copies of themselves or become more specialised cell types every time they divide. They are essential to the maintenance of tissues such as cartilage that undergo continuous cell replacement.

Dr Jannoun works closely with a team of Consultant Specialists (Orthopaedic Surgeons, Consultant Radiologists, Plastic Surgeons) to assess your suitability to have such a treatment. He works closely with Biogenex that has provided the know-how, equipment, and advanced technology to provide such a unique service. Working in specialist facilities, the team of BAAPS and BAPRAS registered plastic surgeons use the latest technology to safely and comfortably harvest a small amount of your fat (adipose tissue). This tissue is then processed to isolate and concentrate the powerful regenerative cells that it contains; regenerative cells that have stem cell capabilities and are able to help your body repair itself. A typical Biogenex case will deliver approximately 50,000,000 mesenchymal stem cells (MSC)s.

Stem cell therapies are not for everybody and Dr Jannoun will discuss with you in detail your suitability for this treatment. In assessing your suitability, he will discuss your condition and the results of any diagnostic tests you have undergone. If he decides that you are a candidate, you will then meet with one of Biogenex's team of highly trained plastic surgeons who will review your medical history and evaluate your suitability to undergo the fat harvesting portion of the treatment. As approximately 250ml of fat is required in order to isolate the regenerative cells, if you have a very low body mass index or body fat percentage, you may not be suitable for this kind of treatment. This will however be discussed with you in detail during your consultation.

What does the treatment process involve?

There are three stages in this single treatment process:

1. *Tissue harvest* - This is where the plastic surgeon will perform a micro-liposuction to harvest around 250ml of your fat. Usually this fat will be taken from your tummy but it can be removed from anywhere you have some. This stage typically takes around 30 minutes and can be performed with either local or a general anaesthesia. This will be discussed with you by your surgeon.
2. *Tissue processing* - Once your adipose tissue has been harvested, it must be processed to isolate and concentrate the regenerative cells that will eventually cause your body to heal itself. Tissue processing takes between 60 to 90 minutes depending on the quantity of tissue used. At the end of this process Dr Jannoun will have a syringe containing 5ml of ADRC. For each 1ml of adipose tissue, the Biogenex process will deliver on average 250,000 nucleated mesenchymal stem cells

(MSC) so a typical Biogenex case will deliver approximately 50,000,000 MSCs. Far more than any other process.

3. *Delivery of ADRCs* - After processing, Dr Jannoun will have a syringe containing 50,000,000 or more MSCs and a small amount of purified fat which can be injected where needed.

Your recovery time will vary depending on the number of harvest sites required. Most patients return to work within a few days; but this can take a little longer. Swelling is usually gone in under four weeks. Dr Jannoun will provide you with complete post-operative instructions, however some general guidelines are provided below.

After treatment

In the first few days after surgery you should rest quietly. Most patients will take some kind of pain medication but patients should consult with their doctor before taking aspirin or other anti-inflammatory medications. You can expect a small amount of swelling and bruising at both the harvest and injection sites which will go away over the course of a few weeks. Some surgeons will leave the small incision sites, from where the fat was harvested, open to allow drainage. Other surgeons will suture the small incision with a single stitch. In either case the sites will drain, so you should plan to use absorbent pads and a compression garment after surgery. The small incisions will heal and fade over several months, usually becoming barely visible. ***You will be offered as part of the package provided by Dr Jannoun three complementary follow up consulting room appointments (6 weeks and 12 weeks, and 6 months) for review of your progress made.***

Any Possible Risks?

Fortunately, significant complications from microliposuction are infrequent. Liposuction surgery is one of the two most common procedures performed by plastic surgeons each year. Most often, this surgery is performed without any major complications however all surgical procedures carry some degree of risk. It is important to ask your surgeon to review these risks with you. Some of the potential complications that may be discussed include haematoma (an accumulation of blood under the skin that may require removal), infection, changes in sensation, scarring, allergic reactions, damage to underlying structures, need for revisions, unsatisfactory results possibly necessitating additional procedures and medical risks. Other risks more specific to liposuction may include indentations and irregularities. You can help minimise certain risks by following the advice and instructions of your plastic surgeon, both before and after your surgery.

Information contained in this brochure is intended to provide you with a better understanding of regenerative cells and their use. This is not intended as a substitute for medical advice. The best way to get complete information and answers to your specific questions is through a personal consultation with your physician.

References:

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- 10** Pak J, Lee J, Park K, Park M, Kang L, Sang H; (2017) Current use of autologous adipose tissue-derived stromal vascular fraction cells for orthopedic applications. *Journal of Biomedical Science*, 24:9.