

# Having AutoCart™ cartilage regeneration surgery for osteoarthritis in your knee

Department of Orthopaedics

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## What is AutoCart™?

AutoCart™ is a procedure used to aid re-growth of cartilage. Cartilage is a tough, flexible tissue which covers the surface of joints. It acts as a shock absorber and allows joints to slide over one another. It can become damaged due to an injury or gradual wear and tear (osteoarthritis).

For many years there has been no easy way to re-grow this cartilage. Many options have been tried over the years with variable success.

Other treatment options can include

- non-operation: Treatment with physiotherapy or injection therapy.
- surgery: Re-aligning the joint (osteotomy) or total joint replacement.

In younger patients, when certain requirements are met, cartilage regeneration is a possible option to avoid these larger procedures.

AutoCart™ is a new procedure to the University Hospitals of Leicester. The technique was first described in 1983 with major developments since 2015. Studies across Germany, Switzerland and America that have shown good results up to 2 years after surgery.

## Who is suitable for AutoCart™?

If you have arthritis in your knee in 1 clearly defined area you may be suitable for this treatment. You will be seen in the outpatient clinic and your knee examined. We will find out how severe your knee arthritis is. The size of cartilage loss will need to be less than 3cm by 3cm.

We will also assess your fitness for surgery and discuss the risks and benefits of the operation.

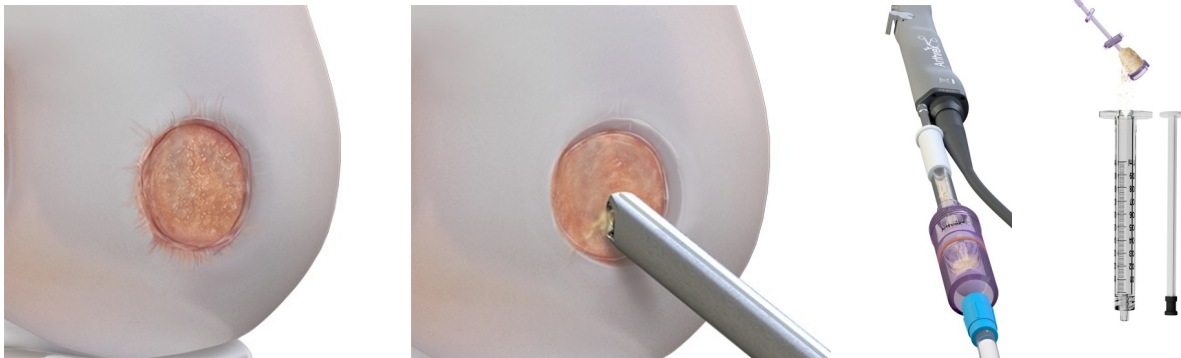
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## What does AutoCart™ involve?

AutoCart™ is a single operation. It needs a general anaesthetic. This makes it better than other procedures which need 2 operations to collect (harvest), re-grow and then implant the cartilage. Generally the operation includes the following steps:

1. A camera (arthroscope) is placed in your knee joint.
2. The affected cartilage is assessed and cleared down to fresh bone.
3. The cartilage is caught by a special shaver unit and minced into small, but active, pieces.



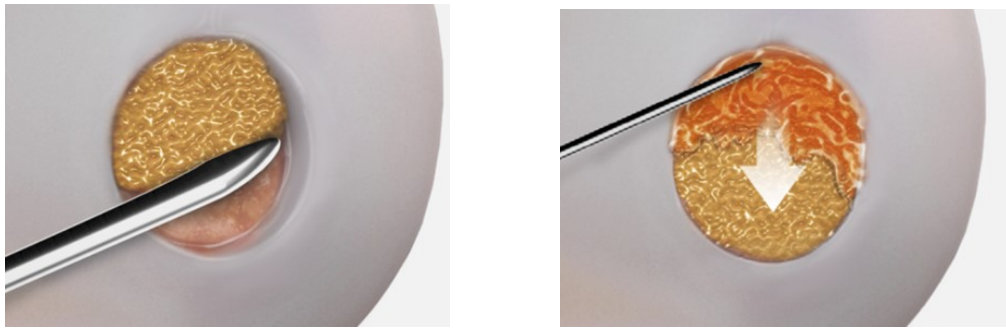
Clearance of arthritis defect and shaver unit

4. A blood sample is taken from your arm whilst you are under the anaesthetic.
5. Around 45mls of blood is spun down in a machine, separating the layers by cell type. The 'platelet-rich-plasma' is removed.
6. This is mixed with the minced cartilage to make a paste.



Blood taken and layers separated

7. This paste is re-inserted into the cartilage defect. This is done by an open or keyhole procedure.
8. The paste will grow in to the defect to create a new cartilage layer to fill in the arthritic area
9. A gel layer made from your blood cells is then applied to the top of the paste to protect the new added cartilage layer



New cartilage layer applied to arthritis

## What happens on the day of surgery?

- You will be seen by the consultant surgeon and anaesthetist.
- They will explain and discuss the procedure with you again.
- The operation will take around 1.5 hours including the time taken for your general anaesthetic.
- The operation is usually a day case meaning you can go home the same day of the operation.

## What can I expect after surgery?

You will see a physiotherapist on the same day after your operation. We will normally advise that you do not put weight on your leg for 6 weeks. They will teach you on how to use crutches and make sure you are moving around safely. The physiotherapist will arrange ongoing outpatient follow-up to help your recovery.

You will need to wear a knee brace for about 6 weeks after the operation. The brace will need to be worn most of the day including while asleep. The brace can be taken off when washing or showering.

You will get an outpatient appointment at around 2 weeks to remove your dressings and to check your wounds have healed. After that you will be seen at around 6 to 8 weeks after the operation to check how you are doing. We would expect you to restart normal activity at this time. We will then follow you up 6 monthly to yearly for at least 2 years.

If you have any concerns after discharge from hospital you will be given the contact number for the consultant surgeons secretary. They can pass on your issues.

## What are the advantages of AutoCart™?

- 1 operation to treat a painful cartilage defect.
- Can be used to treat large sized cartilage defects.
- Your own cells are used for treatment (no grafts or synthetic material used). This means there is no risk of rejection by your body's own immune system
- Can be done by keyhole surgery. This means you should heal faster, having a faster recovery.
- Your knee joint is maintained. If successful it will delay or prevent the need for bigger surgery.

## What are the risks of AutoCart™?

The risks linked with this procedure remain slightly unknown as it is still very new. Studies so far in the short term have shown good outcomes with no major concerns. The main potential risks include:

- Failure to improve pain. The risk may be around 20 out of 100 patients (20%) which is the same with other cartilage regeneration techniques.
- General complications which happen after any surgery including:
  - Infections
  - Blood clots
  - Stiffness
  - Damage to other parts of the knee or leg

## What are the other treatments available?

- Non-surgical treatment: pain relief, physiotherapy, steroid injections and weight loss.
- Autologous chondrocyte implantation: 2 procedures are needed for this. The first to take a sample of cartilage cells. These are then sent off and grown before being re-implanted.
- Autologous osteochondral transfer: suitable for smaller defects only.
- Joint replacement: reliable procedure, but has possible major risks. It is not suitable for younger active patients.

## Where can I get further information about AutoCart™?

To find out more about the service provided by the University Hospitals of Leicester please contact Mr Randeep Aujla or Mr Arijit Ghosh (lead surgeons) on 0116 258 4993 More details about the procedure can be found at <https://arthrex.com/orthobiologics/autocart-all-autologous-cartilage-regeneration> (All images used with permission and courtesy of Arthrex)

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