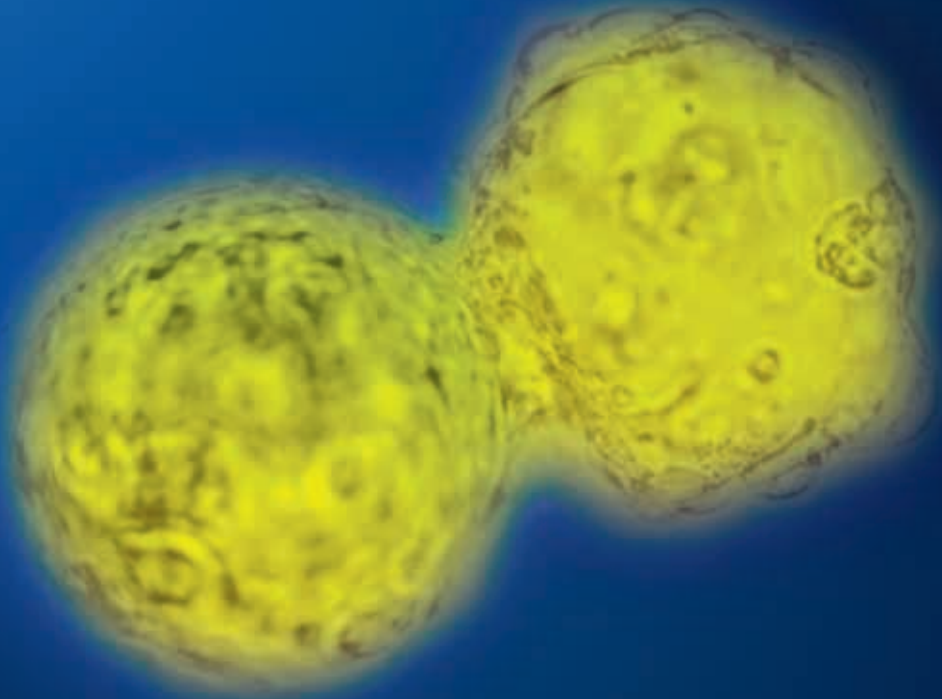




Midland Fertility Services

Blastocyst Transfer



'Building futures,
transforming lives'

What is a blastocyst?

When a sperm fertilises an egg the resulting embryo develops from the original single cell into a complete human being, consisting of billions of cells. This occurs through a series of cell divisions into two cells, then four, then eight and so on. About five days after fertilisation, the ball of cells absorbs fluid and expands. The embryo is now called a blastocyst and consists of a layer of outer cells which eventually become the placenta, and a small number of inner cells which will form the fetus (**see figure 1**). The blastocyst then expands and contracts to 'hatch' from its thin shell (the zona pellucida). At this stage the blastocyst is ready to implant into the lining of the uterus.

What is a blastocyst transfer?

Instead of transferring embryos two or three days after the egg collection or embryo thaw, the embryos are cultured for a further two or three days, by which time they should have developed into blastocysts.

The very best blastocysts are then selected and placed into the patient's uterus on the

fifth or sixth day following the egg collection, depending on how quickly they develop. MFS will attempt to freeze any good quality surplus blastocysts for possible future use.

What are the advantages?

IVF units around the world have seen an increase in the clinical pregnancy rate per embryo when blastocysts are transferred, instead of four or eight cell embryos.

There are two main advantages,

- because a healthy blastocyst has a greater chance of succeeding, it may improve the overall chance of resulting in a pregnancy
- it reduces the risk of twins or triplets as fewer are normally transferred to the uterus

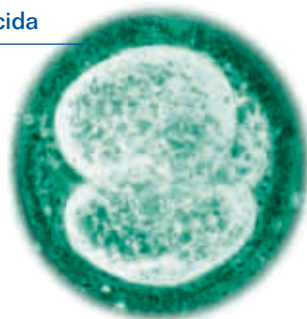
Why is the pregnancy rate higher?

Two main theories explain why blastocyst transfer may result in a higher pregnancy rate:

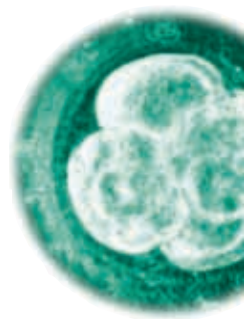
- not all IVF-created embryos have the potential to produce a full-term pregnancy and it is currently not possible to look at an embryo and know whether it will

Figure 1
Schematic presentation
of embryo development
through blastocyst

zona
pellucida



2 cell
day 1-2



4 cell
day 2-3

result in a pregnancy. However, extending the culture period is known to help embryologists select the best embryos to transfer back to the patient's uterus. Two or three days after egg collection most embryos look very similar, but by culturing embryos in highly-developed media, embryologists are able to identify those which develop faster and are more likely to result in a pregnancy. However, blastocyst culture will **not** improve the quality of an individual embryo and is therefore not suitable for all patients

- during natural conception the embryo normally reaches the uterus on day five or five. Delaying transfer of an embryo into the uterus as a blastocyst may improve its chance of survival and implantation

Are there any disadvantages?

Not knowing when the transfer will take place can sometimes be stressful when negotiating time off from work. Occasionally MFS may recommend abandoning the extended culture and opt for an earlier transfer (three days following egg collection) if the embryos do not reach

the blastocyst selection criteria. This usually means that MFS' embryologists have already been able to select the best embryos without needing to culture them for longer.

Unfortunately not all embryos develop into blastocysts; as many as two-thirds may stop dividing before this stage. It is possible that if embryos are cultured for the extra days, none will develop and be transferred, or be available to freeze for the patient's possible future use. This will result in early disappointment although information gained about such losses may help with the management of any future treatments.

Who is blastocyst transfer suitable for?

Blastocyst transfer may be suitable for some patients, including women who:

- are advised for medical reasons to avoid a twin pregnancy
- may only want one embryo transferred
- meet the criteria for elective single embryo transfer (eSET)

Most women have a good chance of



pregnancy following the transfer of two embryos three days after egg collection. For some people though, this has not been successful, for no apparent reason, even after several cycles of IVF. This group of patients may benefit from blastocyst transfer as it will confirm before transfer that the embryos have the potential to develop further. In addition, the blastocyst would be placed into the uterus at exactly the time that an embryo would reach the uterus when natural conception occurs.

Are there any risks?

Pregnancies which have resulted from blastocyst transfers from around the world show an increase in the incidence of identical twins; something worth noting when considering a blastocyst transfer. There do not seem to be any other risks although this is still a fairly new technique and other risks may not be known for many years.

Will the drugs or treatment differ?

No. Except for the timing of the transfer, everything is exactly the same as the normal

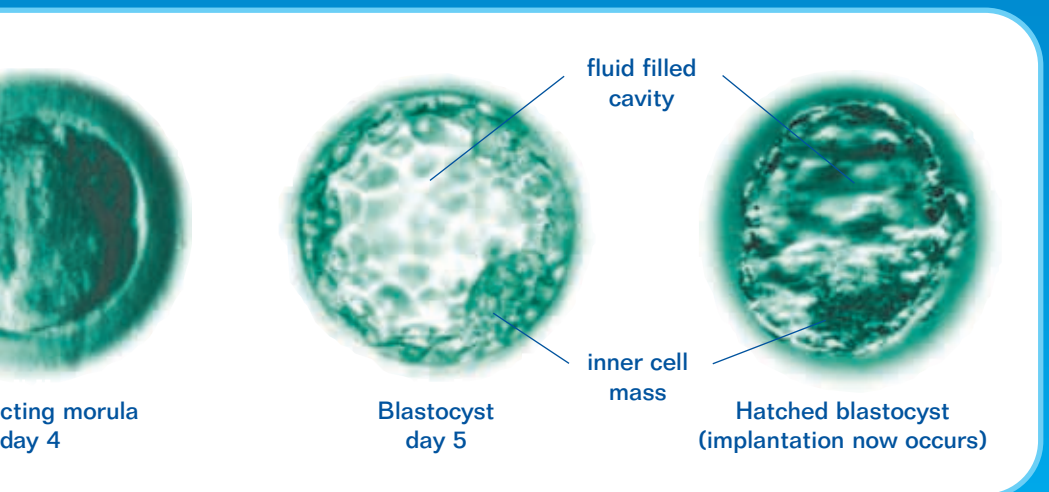
IVF two or three day embryo transfer. The patient will be asked to telephone the laboratory during the days after egg collection or embryo thaw so that she can be advised of the embryos' progress. MFS may need to adjust the day or time of a patient's planned blastocyst transfer to maximise her chance of getting pregnant, which may result in the patient having to return to MFS at short notice.

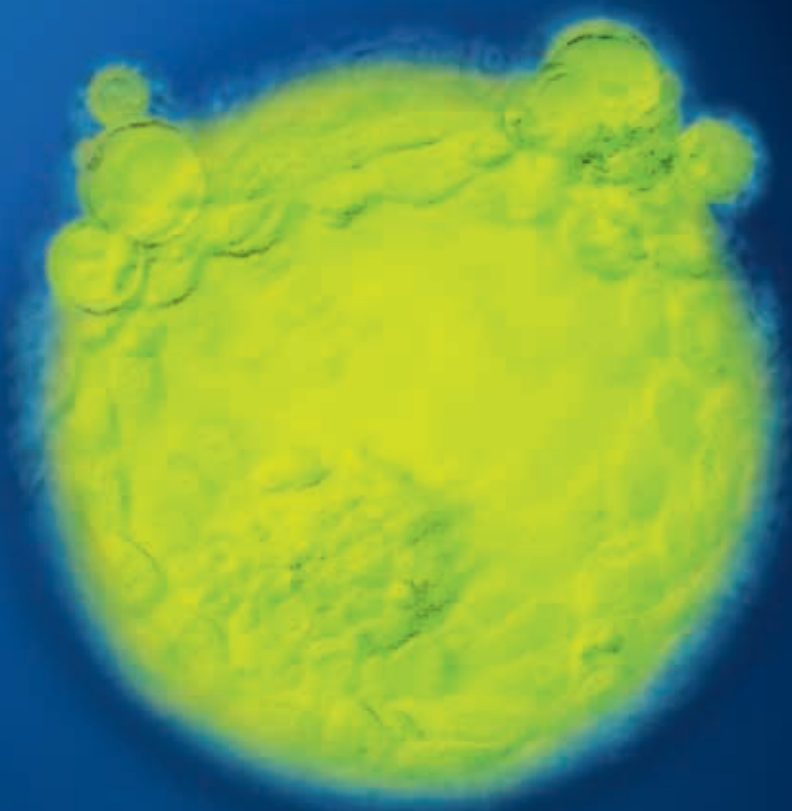
Success rates

For the latest MFS success rates for blastocyst transfers, please see the current Patients' Guide to Services or visit: www.midlandfertility.com.

Further information

Please make an appointment with an MFS fertility nurse specialist or embryologist for further information about blastocyst transfers.





Services at MFS

- Fertility Investigation Package
- Ovarian Reserve Testing
- Recurrent Miscarriage Monitoring
- Sperm Analysis
- Intrauterine Insemination (IUI)
- In Vitro Fertilisation (IVF)
- Intra Cytoplasmic Sperm Injection (ICSI)
- Surgical Sperm Retrieval
- Egg Sharing
- Egg/Embryo Donation
- Surrogacy
- Sperm Freezing
- Vasectomy Reversal Back-Up Plan
- Egg Freezing (including Vitrification)
- Embryo Freezing
- Blastocyst Culture and Transfer
- Assisted Hatching
- Genetic Screening

How to get to Midland Fertility Services

Third Floor, Centre House,
Court Parade, Aldridge,
West Midlands WS9 8LT

t: 01922 455911

f: 01922 459020

e: mfs@midlandfertility.com

w: www.midlandfertility.com

