Blastocyst culture and transfer

This is a relatively new technique that, in selected patients, has the potential to increase pregnancy rates. Embryologists can now grow embryos to the blastocyst stage, which occurs on day 5, rather than the traditional 4-8 cells on Day 2 or 3. This allows them to determine with greater certainty, which embryos are the best quality. It has taken many years of research to develop the best culture medium and systems for this.

What is a blastocyst?

Fertilized eggs divide and develop over three days into an embryo consisting of between four and ten cells. A blastocyst is an embryo that has grown for five days, so its cells have divided many more times. Blastocysts are recognizable by the way the cells have divided and then separated to form the cells for the baby and the cells which will aid implantation. The majority of fertilized eggs develop into embryos, but usually only about 40% develop to the blastocyst stage. This means that blastocysts are a more select group of embryos with a higher chance of implantation and pregnancy.

What are the advantages of blastocyst culture?

The main advantage of blastocyst culture and transfer is the ability to select the best one or two embryos for transfer and minimize the risk of multiple pregnancy.
The selection of one or two blastocysts for transfer makes multiple births less likely, thus, reducing the complications of pregnancy and helping couples avoid having to make the difficult decisions on selective reduction.
The blastocyst transfer pregnancy rate is higher compared to the usual day 2 or 3 transfer as the embryologists are in a better position to select the best embryos by the day 5 development.
It should be noted that blastocyst culture in no way improves the quality of embryos.

How does blastocyst culture and transfer work?

Perhaps the best way to show this is to use an example.
If a woman has 15 eggs retrieved, on average about 10 or more are expected to fertilize, but nobody knows which of these is the most likely to implant. On the traditional day of embryo transfer (day 2 or 3), perhaps five of the ten will seem to be developing normally. The others may have slowed or stopped altogether. As we may only transfer at most three embryos, it is difficult to select the one that will develop

further. All five embryos may seem to have the same potential. Two additional days in the blastocyst culture medium allows the selection process to continue.
After five days of growth, only one, two, or three of the original ten may remain viable, showing the best embryos to transfer. Without compromising pregnancy rates, we need to only transfer one or two blastocysts into the womb instead of two or three earlier embryos. Any remaining blastocysts may be frozen providing they are of good quality.

What are the disadvantages of blastocyst transfer?

It is important to note that selecting for Blastocyst Transfer can result in no embryos reaching this stage and therefore no embryos suitable for transfer on the day. To ensure this does not happen we are extremely strict with which patients are suitable and whose embryos display signs on Day 3 that fit the strict developmental criteria.
We believe that if blastocyst development does not occur, it is unlikely that pregnancy would have happened if the embryos had been transferred earlier.
A disadvantage of blastocyst culture may be the reduced number of embryos available for cryopreservation (freezing). Culturing embryos to day 5 allows for the embryologist to assess better which embryos have continual development and which have arrested. (It should be said that this could also be seen as an advantage, a sort of 'filtering out' of embryos from day 3 with developmental potential and a prevention of freezing possibly non-viable embryos).
Blastocysts can divide after transfer and there is evidence to suggest that blastocyst transfer can result in a higher incidence of monozygotic twins (identical twins) but this evidence is still subject to confirmation. There is also the very small possibility that two blastocysts can result in a triplet pregnancy.

Is blastocyst transfer for me?

We recommend blastocyst transfer to those women with a better chance of having blastocyst development, such as those less than 37 years of age with a reasonable number of good quality embryos.
Patients who have fewer oocytes retrieved, fewer fertilized or fewer dividing embryos by day three in culture have no advantage using blastocyst culture, since little is to be gained in further embryo selection. Sadly, the blastocyst culture medium does not improve the health or viability of an individual embryo that is not otherwise able to grow for five days and then implant. Rather, it allows healthy embryos to continue in culture and reach their maximum inherent capability. Blastocyst transfer is also considered for those patients who have strong concerns about twin or triplet pregnancy, although identical twins may be more likely after blastocyst transfer.

Blastocyst transfer is an excellent choice for women planning transfer of frozen embryos. The embryologists can thaw most or all of the frozen embryos and see which ones become blastocysts.

Blastocyst Transfer Results

A summary of the literature worldwide has shown clinical pregnancy rates per transfer to be in the area of 45-60% if two good quality blastocysts are available for transfer. This has been demonstrated on a given population of patients: young women who have a good response to gonadotrophin stimulation. As with all ART procedures, the risks of this treatment (if any) are generally unknown.

Please be aware that blastocyst culture and transfer generates an extra cost. Please refer to the price list or contact reception for more information.