

The James Cook University Hospital
Department of Reproductive Medicine

BLASTOCYST CULTURE

During natural conception, fertilisation takes place in the fallopian tube and the embryo enters the womb 4-5 days later when implantation takes place. At this stage of implantation the embryo is termed a blastocyst. Blastocyst is the term given to an embryo which has grown normally for 5-6 days after fertilisation and normally has about 100+ cells. We can recognise a blastocyst because it has certain characteristics – for example a small central fluid-filled area and the developing fetal cells to one side of the embryo.

Research has shown that replacement of embryos into the uterus at the blastocyst stage of development may improve the likelihood of implantation. The possible reasons for this are:

- Firstly, that the embryo is being replaced into the uterus at a more natural time; and
- secondly, that observation of the growth of embryos to the five/six day stage allows us to select those embryos that are most likely to have the potential to continue development as it is known that embryos can stop growing at certain stages in the first few days.

The drawback of extended embryo culture is that approximately only 25% of the embryos are likely to survive to the blastocyst stage and it is not known whether this is because of the artificial culture medium they are grown in or the fact that the embryo would not have developed anyway.

Those patients best suited to this type of treatment are those that produce more eggs than average and have good rates of fertilisation. In these cases, it is much more likely that there will be embryos reaching the blastocyst stage. If ten eggs are fertilised there is a very good chance of having two blastocysts for replacement.

There are no proven risks to the embryo using this technique; indeed, the very first IVF baby was created in this way. However, some experts have raised concerns about prolonging culture outside the body longer than is absolutely necessary. The known risks of blastocyst transfer are those of the general IVF process itself (see our separate information sheet on the risks associated with IVF treatments), except that there is likely to be an increased chance of a multiple pregnancy.

At this centre we offer blastocyst culture and replacement to selected patients and we are happy to discuss this with you. We have recently audited our results with blastocyst replacement and ongoing pregnancy rates are in excess of 65%.

The process of blastocyst culture relates specifically to the laboratory procedure. All aspects of the treatment for the male and female partner are the same as for normal IVF with the exception that the timing of the embryo transfer is delayed. The replacement of the embryos is also the same as in normal IVF (although the embryos are further advanced, they are still microscopic).

Freezing of blastocysts It is possible to freeze blastocysts in the same way as embryos at earlier stages of development.