

## BLASTOCYST CULTURE AND TRANSFER

A blastocyst is an embryo that consists of around 100 to 150 cells. It is at the blastocyst stage of development (5 days after fertilisation) that an embryo would normally move out of the fallopian tube and into the uterus. Once in the uterus, the blastocyst starts to attach to the uterine lining in a process known as implantation. IVF embryos can be transferred on the second or third day following egg retrieval when the embryo is at the four- to eight-cell stage of development. The embryos must continue to grow for two or three more days within the laboratory to reach the blastocyst stage, before they are ready for transfer to the uterus.



Recent advances in IVF laboratory methods and culture media have allowed for the successful culture of embryos to the blastocyst stage. Blastocysts may have a better potential to implant into the uterine wall than earlier stage embryos. Many embryos stop growing at the four- to eight-cell stage, probably because of an inherent problem. There is now evidence from research studies that suggest although embryos may have a normal appearance, up to 60% may be chromosomally abnormal. These genetically abnormal embryos usually fail to develop past the 8-cell stage. Therefore, fewer embryos will have the ability to grow to the blastocyst stage. Potentially, extending culture to the blastocyst stage allows selection and transfer of embryos that are more likely to be genetically normal, however, there is no guarantee of this! Those that successfully reach the blastocyst stage are probably more developmentally competent than earlier stage embryos. As well, their stage of development when replaced into the uterus is very similar to what it would be in a natural conception cycle.

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### WHAT ARE THE PROS & CONS OF BLASTOCYST TRANSFER?

The **advantage** of attempting to grow embryos to the blastocyst stage is that they are potentially more likely to be genetically normal and should have a greater chance of implantation because the stage of development matches the uterine environment. The extended culture to blastocyst stage has identified the embryos most able to implant following a single embryo transfer.

The **disadvantage** of attempting to grow embryos to the blastocyst stage is that fewer embryos will "survive" or grow to this stage (probably about 30 - 50% of the embryos). There is a possibility (up to 10%) that none will reach the blastocyst stage and therefore, no embryos will be available for transfer. The availability of "extra" embryos for freezing is also significantly reduced. There is also a greater risk of having twins if 2 blastocysts are transferred, plus an increased risk of identical twins. Therefore you need to discuss how many embryos to safely transfer with your IVF Doctor. There is an additional fee for blastocyst transfer.

### WHO IS ELIGIBLE FOR BLASTOCYST TRANSFER?

Blastocyst culture may not be suitable for every couple. Couples who have had repeated, unsuccessful attempts with IVF or ICSI (despite having many good quality embryos in appearance, replaced to the uterus on Day 2 or 3 after egg retrieval) may be offered blastocyst culture as an alternative treatment. Women 40 years of age or older may also consider blastocyst transfer. The ability to select the most viable embryos for transfer should improve chances of achieving a pregnancy. The embryos will be cultured in the IVF laboratory for 5 days after egg retrieval. To maximise the chances of obtaining a blastocyst, we suggest at least 4 good quality embryos (6 to 8 cells) to have continued to progress in development by the third day after egg retrieval.

MFS03 0709



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