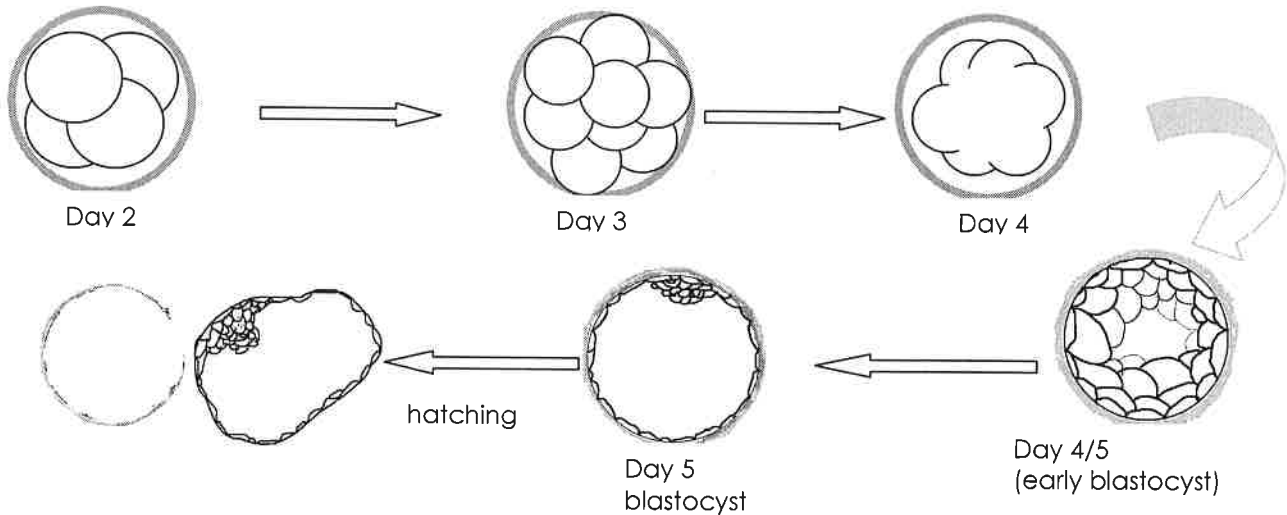


PATIENT INFORMATION EXTENDED CULTURE AND BLASTOCYST TRANSFER

What is a blastocyst?

A blastocyst is an embryo that is at a particular stage of development usually seen around day 5 or 6 after egg collection.

IVF used to involve putting embryos into the womb two or three days after egg collection and insemination. This is referred to as Day 2 or Day 3 transfer, when embryos usually contain from 2-4 cells (Day 2) up to 8 cells (Day 3). In natural conception, embryos at the Day 2/3 stage are still in the Fallopian tube, not the womb.



In natural conception, embryos start entering the womb around Day 4 when the cells in the embryo begin to merge; a stage called compaction. A day later, Day 5, the embryo is now around 30 cells and starts to undergo several changes. At this stage the embryo is still surrounded by the transparent shell that surrounded the original egg – called the 'zona pellucida'. A small fluid-filled area, called the blastocoel then begins to develop – this gives the name to this stage of the embryo's development as "blastocyst". The blastocyst at this stage remains surrounded by the shell until the end of Day 6 when it begins the process "hatching" from the surrounding shell. When hatching is completed it is called a 'hatched blastocyst'. Hatching is usually completed by the end of Day 6 when, if in the womb, it begins its attachment to the womb lining. This 'attachment' is the first phase in the process of 'implantation' that is complete by Day 9.

ADVANTAGES

- **Selection of embryos**

We know that at least 50% (or higher in women over 40) of embryos are not viable, and many of these stop their development before the blastocyst stage. A large proportion of these embryos have a chromosome or genetic defect. It is thought that those embryos that failed to develop to the blastocyst would not, in any event, have established a pregnancy.

Where there are large numbers of good quality embryos available at the blastocyst stage these can be frozen. CARE has excellent post thaw survival and pregnancy rates with frozen blastocysts.

- **Embryos are transferred to the right place at the right time**

In natural conception the conditions in the womb are optimal for a blastocyst on days 5 or 6. Therefore putting an embryo back at the blastocysts stage more closely mimics the natural process. .

- **A higher pregnancy rate in women having blastocyst transfer**

Data suggests that blastocyst transfer can increase the chances of a live birth,

- **Confirmation of development to the blastocyst stage**

In those patients who have recurrent failure of implantation, extended culture allows us to look at embryo quality over a longer period. If the embryos arrest or become fragmented this may help clarify a potential problem.

- **Single blastocyst transfer and reduction of multiple pregnancy risks**

Selecting the "best" single embryo to replace from a group of embryos helps to reduce the chance and risks of multiple pregnancies.

- **Extended Culture and Blastocyst transfer with frozen embryos**

Some patients have large numbers of earlier stage frozen embryos and it is often difficult to know which have the best potential for pregnancy. An option in these cases is to thaw all embryos and grow them through to the blastocyst stage. This allows the best 1 or 2 embryos to be replaced based on development.

POSSIBLE DISADVANTAGES

- **No Embryos to transfer**

We know that not all embryos will develop to a blastocyst. We cannot say for certain that this would have been the case in a more natural environment (for example, if replaced in the womb on day 2/3). However we believe that our incubation and culturing systems provide a suitable environment for embryo growth.

Some patients will not achieve an embryo transfer because none of their embryos reach the blastocyst stage. Therefore these are the patients most likely to have been unsuccessful even if the embryos had been replaced on day 2/3. For this reason, *careful selection of the right approach for an individual couple is very important.*

- **Safety factors**

Extended culture and Blastocyst transfer are newer techniques than standard IVF procedures. Data on safety has so far been very reassuring. However, long term effects of extended culture on genetic development of the embryo and the long term health of children will not be known for many years. Extended culture may be associated with an increased risk of identical twinning though the absolute chance of this remains low

REQUIREMENTS FOR EXTENDED CULTURE

The main benefit of the blastocyst transfer approach is in the ability to choose between embryos in terms of their quality and implantation potential. It is essential to understand that the extended culture process does not improve an embryo's quality, it is principally a method for choosing the "front runner" or "runners" from a group of embryos.

We generally aim for blastocyst transfer but if you require an earlier transfer your embryologist will discuss this with you.

Costs: an additional fee is payable over and above the standard treatment fee. The fee is detailed in CARE's price list available from CARE Reception.