

# Embryology



## Fertility Facts

In IVF, eggs are fertilised in the laboratory and usually cultured for 3 to 5 days before they are transferred to the uterus or frozen for future use. At embryo transfer, you will be able to see a photo of your embryo(s) before they are transferred into the uterus. Human embryology is a fascinating subject, and embryos are beautiful to look at!

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### Adding sperm to the eggs

The eggs are placed in a fluid called culture medium in an incubator at 37°C in plastic dishes. The culture medium contains a small amount of human serum albumin, a protein purified from blood that has been screened to Blood Bank standards. It also contains low levels of some antibiotics.

Sperm are isolated from semen and in IVF, about 50,000 sperm are added to each dish. If intra-cytoplasmic sperm injection (ICSI) is used, a single sperm is injected into each egg. Please see the Fertility Facts PDF sheet 'Intracytoplasmic sperm injection (ICSI) and Surgical Sperm Retrieval (SSR)'.

### Checking fertilisation

The next day, 16-18 hours after adding the sperm, the eggs are inspected to check for signs of fertilisation and moved into fresh culture medium.

### Embryo culture

The cells in the embryo keep dividing over the next several days (*see images over page*). On the fifth or sixth day, embryos may develop into 'blastocysts'. A blastocyst is a hollow sphere of approximately 100 cells, comprising of an outer layer of flat cells that then go on to form the placenta, and a ball of cells known as the 'inner cell mass' which then goes on to form the baby. In the next day or so, the shell that encases the embryo (the zona pellucida) thins, the embryo expands, the zona splits and the embryo hatches from the zona and implants into the lining of the uterus.



### Embryo transfer

Usually one embryo is selected for transfer. Embryo transfer is usually very simple. The embryologist loads the embryo in a tiny amount of culture fluid into the tip of a thin tube called a catheter. The doctor puts a speculum in the vagina, just as during a cervical smear. Any mucus or blood left from the egg collection is carefully removed, and the catheter gently passed through the cervix into the uterus. Usually ultrasound is used to help with the transfer, or to see the size and angle of the uterus. Having a full bladder makes embryo transfer much easier.

### You Tube

View the time-lapse photography showing embryo development on You Tube

<http://www.youtube.com/watch?v=6lnr4HWiz9M>

Contact us

[www.fertilityassociates.co.nz](http://www.fertilityassociates.co.nz) | phone 0800 10 28 28

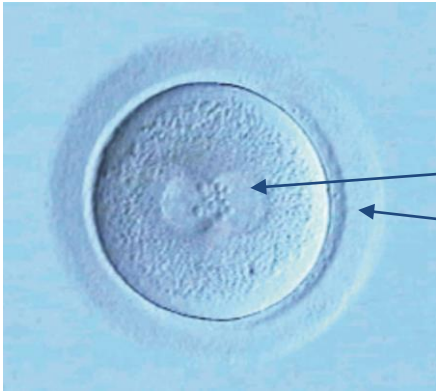


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# Embryology continued...

## Stages of embryo development checked in the laboratory



Fertilised egg, about 18 hours after adding sperm

This is what is seen at the fertilisation check on day 1.

Male and female 'pronuclei' (the genetic material from the egg and the sperm before they join).

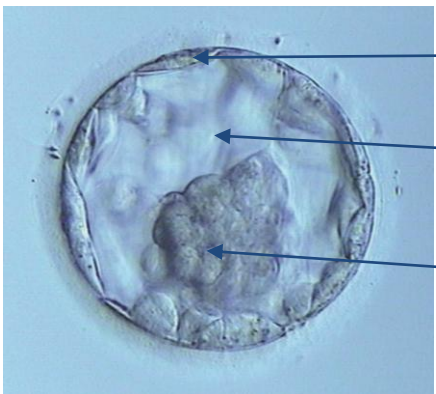
Zona Pellucida (soft shell surrounding the egg).



8-cell embryo, day 3

Many embryos are at the 8-cell stage on day 3 after egg collection.

One of the 8 cells.



Blastocyst, day 5-6

Outer layer of cells, which becomes the placenta.

Fluid-filled cavity.

Inner cell mass, which becomes the fetus.

