

## Time Lapse Imaging (TLI)

Nature provides a very stable environment for embryos to develop in the fallopian tubes and womb which we try to mimic in the IVF laboratory. A high proportion of embryos are abnormal, whether they are naturally created or IVF-derived (up to 70%). We understand that this is mostly due to nature's imperfections and predetermined genetic reasons that make them unable to develop into a baby. This results in failure of implantation or miscarriage. Hence, embryo selection for transfer forms an important part of our day to day work.

### What is done routinely?

During conventional treatment by in vitro fertilisation (IVF) or intra-cytoplasmic sperm injection (ICSI), embryos are kept in strictly controlled and heated incubators.

Until now, monitoring embryo development has involved removing the dishes containing the growing embryos from the incubator to examine them under a heated microscope. The dishes are returned to the incubator as quickly as possible to keep the temperature and surrounding conditions constant, to avoid any damage to the embryos. Changes and developments are happening constantly as an embryo grows. However in order to minimise disturbances, the embryos are assessed only once or twice throughout treatment, for quite brief intervals, or "snap shots".

In a glimpse of a few seconds, the embryologists assess the embryos and give them a score based on the evenness and appearance of cells, and the presence or absence of fragmentation (particles that may have broken away) at that particular time. We choose the best of those available for transfer. We may select more than one embryo, based upon the individual embryo and overall batch quality, if we feel this would increase your chances of pregnancy. This does also increase the risk for a multiple pregnancy. We are keen to minimize the risk of twins for your health and that of your babies.

### How does Time lapse Imaging help?

Using EmbryoScope™, we can record images of your embryos every 10 minutes, and view them in rapid sequence as a 'video', for as long as, and as many times as we like, without disturbing them from their incubator.



A large screen provides a continuous view of all your embryos and the touch screen allows fingertip selection of individual embryos to view at any time. These images are stored automatically within your file, capturing and recording information about the embryos' development that is currently not available using standard incubator culture. For example, the EmbryoScope™ allows the embryologist to observe and record the exact time at which the embryo divides and to monitor in detail the way in which this happens.



Using this information, your embryos can be compared and the embryo with the highest chance of becoming a pregnancy can be more easily identified and chosen for transfer or freezing.

### What is the evidence?

It has been found that human embryos with the best chance of developing into a baby:

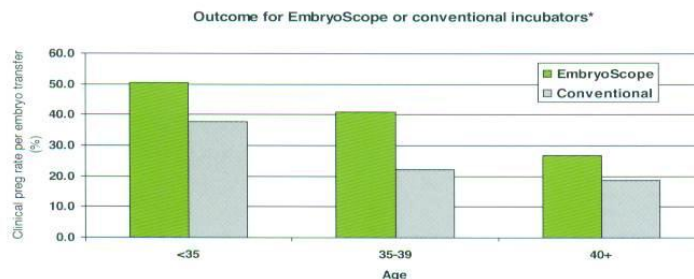
- Have a uniform and consistent pattern of growth

- Will 'repair' if they fragment (This will only show up over time. Persistent fragmentation is a negative sign).

The information gathered continuously through the day and night enables your batch of embryos to be scored more accurately to identify those with a better chance of producing a baby than those embryos that have had a "snap shot" evaluation which might miss abnormal growth behaviour in between these assessments.

### Does it help?

Using these systems, many clinics across the world have reported a 10-20% increase in the clinical pregnancy rate achieved with conventional embryo scoring. Below are the results from Liverpool Women's Hospital showing that for women under 40 years of age, pregnancy rates of 20-30% were increased to 40-50% with Embryoscope™ technology.



### What do I do if I want to use this technology?

At present, there is no NHS funding and so it can be only offered on a fee-paying basis. Genesis Reproductive Health would like to give the opportunity to all of our patients (NHS and non-NHS) to achieve a higher success rate. However, a limited number of slots are available. All patients wishing to use this technology are requested to reserve a slot in the incubator by ringing the Genesis office to confirm availability before your ovarian stimulation begins on 0113-2063156.

We strongly advise that you also discuss the reservation policy with the nurse specialist at Nurse Consultation. Patients with a very large number of eggs fertilized (>12) may have some of their embryos placed in the conventional incubator so that everyone with a booked Embryoscope slot is able to utilize it.

Very occasionally, through unforeseen reasons, you may not get to use the EmbryoScope™ although, if booked in advance, we shall do all that we can to prevent this from happening.

We will then need to program your cycle in such a way that your slot is available to you when required. Please ask your doctor for the current costs.

For further advice please speak to the doctor at your LCRM clinic appointment or ring for advice on 0113 206 3156. Your query will be forwarded to the most appropriate individual who will respond promptly within 24 hours.