

## **12.3.7.1 ASSISTED HATCHING**

### ***WHAT IS ASSISTED HATCHING?***

Assisted Hatching is a Laboratory procedure whereby the shell (zona pellucida) around the early 2-3 day old embryo is mechanically weakened in a way that assists the embryo to "hatch" from the zona more easily and allow implantation into the lining of the uterus.

Normally, the "hatching" process involves dissolving of the zona pellucida at about 120 hours (5 days) after fertilisation. This allows the embryo to leave the protected environment of the zona pellucida and commence implanting into the lining of the uterus.

Normally, the uterine lining is in a condition that is receptive for implantation for about 48 hours (i.e. from 120 to 168 hours after fertilisation). However, in women who undergo ovarian stimulation (as occurs in IVF/GIFT etc) this window of implantation is brought forward to between 72 and 120 hours after fertilisation. Thus, if hatching does not occur, or occurs after 120 hours, implantation will be unsuccessful and a pregnancy will not ensue.

The Assisted Hatching technique was commenced in 1990 by a team led by Dr Jacques Cohen at Cornell in New York. Since then a large number of reputable centres have commenced these procedures with an improvement in the subsequent implantation and pregnancy rates in a particular group of women who may benefit from this procedure.

### ***WHO CONSIDERS ASSISTED HATCHING?***

Research shows that Assisted Hatching may benefit:

- a) women 38 years or older with elevated basal FSH and poor prognosis embryos - in some embryos (ie thick zonae, low development rate and/or excessive fragmentation) it is possible that the cellular energy level required for normal hatching may be insufficient.
- b) women who have had repeated (3 or more) implantation failures

### ***BENEFITS OF ASSISTED HATCHING***

There is some evidence that Assisted Hatching of embryos in selected cases (set out above) may improve the percentage of embryos that implant. Current research shows that pregnancy rates after Assisted Hatching in various units around the world have either increased in those groups that are thought to benefit from this procedure or remained unchanged. Results from research by Cohen and colleagues has shown that the implantation rate of embryos with thickened zonae that were assisted to hatch was 25% compared to 18% in embryos that did not have Assisted Hatching. In these studies the increase in implantation rate occurred without causing damage to the embryo or increasing rates of miscarriage and birth defects.

### **12.3.7.2 ASSISTED HATCHING**

Research from Atlanta – Georgia shows that no differences in the rate of birth defects were observed in babies born from embryos that were assisted to “hatch” (2.4%) compared with those did not have Assisted Hatching (2.6%). However, due to the small number of offspring studied these findings are inconclusive.

#### ***DISADVANTAGES OF ASSISTED HATCHING***

In some instances, the creation of a weakness in the zona pellucida will not be enough to improve the chances of the embryo to adequately hatch.

Current research shows that the benefits of Assisted Hatching are limited to selected cases and there is no evidence of benefit for the overall patient population including women of advanced age alone.

Although some centres around the world report no changes in the rate of multiple pregnancy following Assisted Hatching, research from other centres suggests that there may be an increase in multiple pregnancy following Assisted Hatching. A recent study showed that although Assisted Hatching did not increase the multiple pregnancy rate, it was associated with a 2-fold increase in monozygotic twins (identical). It is therefore important to carefully consider the number of embryos assisted to “hatch” and the potential risks associated with multiple pregnancy, particularly monozygotic twinning. These issues should be discussed with your Gynaecologist.

Assisted Hatching procedure can only be performed in association with IVF/ICSI. (see IVF/ICSI Information Sheets).

There is an extra fee for couples who wish to use Assisted Hatching above what is normally charged for IVF. Please speak to the Co-Ordinating Sister who will discuss this with you before you commence treatment.

#### ***MANAGEMENT OF ASSISTED HATCHING***

Concept does not wish to use Assisted Hatching unless it is considered absolutely necessary and meets the conditions set by the WA Reproductive Technology Council. Where there is a suggestion that reduced hatching rates are likely, such as in women 38 years of age or older with elevated basal FSH and poor prognosis embryos or those with repeated implantation failure, and you may benefit from Assisted Hatching then this procedure will be offered.

Up to 2 embryos (3 in exceptional circumstances) may be assisted to “hatch”. This can only be performed on embryos with at least 6 cells, so replacement of embryos will be undertaken 3 days after egg collection.

Should you require any further information please make an appointment to see your Gynaecologist or the Scientific Director at Concept.