Assisted Hatching

AUSTRALIAN CONCEPT FERTILITY CENTRE

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, occurs within the uterus, involves dissolving of the zona pellucida at about 120 hours (5 days) after fertilization. This allows the embryo to leave the protected environment of the zona pellucida and commence implanting into the lining of the uterus.

The uterine lining is normally in a condition that is receptive for implantation for about 48 hours (i.e. from 120 to 168 hours after fertilization). However, in women who undergo ovarian stimulation (as occurs in IVF/ICSI cycles) this window of implantation is brought forward to between 72 and 120 hours after fertilization. Thus, if hatching does not occur, or occurs after 120 hours, implantation is unlikely to be successful 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 centers 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:

- women who have had repeated (3 or more) implantation failures after IVF/ICSI
- 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

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 a large review of Assisted Hatching research as shown an improvement in clinical pregnancy rate for sub groups of women undergoing IVF/ICSI who have been previously unsuccessful as well as those who have a poor prognosis. This review was not able to conclude whether there is an increase in live birth rate following 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 centers around the world report no changes in the rate of multiple pregnancy following Assisted Hatching, research from other centers 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 Gynecologist.

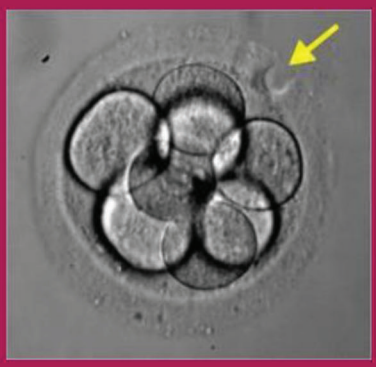
Assisted Hatching procedure can only be performed in association with IVF/ICSI (see IVF/ICSI Information Sheets).

Management of Assisted Hatching

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 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 Gynecologist..



Assisted Hatching at Concept utilizes a laser to make a small hole (see the arrow above) in the zona pellucid (outside shell of the embryo). A variety of techniques have been used to assist embryo hatching including partial zona dissection, using an acid solution, a vibrator or lasers. The laser is considered the safest method and doesn't cause harm to the embryo.



A blastocyst which has just completed the hatching process.

Questions and Notes

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