

## Assisted Embryo Hatching

### **What is Assisted Embryo Hatching**

Embryo hatching involves a spontaneous rupture of the zona pellucida (ZP), a membrane which surrounds the egg, to release the embryo for implantation into the womb. The failure of human IVF embryos to implant is thought to be partly due to the failure of their ZP to rupture. To help embryos to hatch from their ZP, different types of assisted hatching procedures have been developed, including mechanical partial zona dissection (PZD), chemical zona drilling with Tyrode's acid solution, and with the use of a laser. The main advantage of laser is its absence of touch and mechanical, thermal, and chemical side effects on the embryo. It enables a rapid, efficient, precise and safer no-touch hatching procedure.

Assisted hatching is usually performed on embryos at the 6 to 8-cell stage (three days after egg retrieval, just prior to embryo transfer). It has been suggested that the opening created in the zona by the laser either assists hatching of the embryo and/or allows earlier interaction between the embryo and the endometrium (lining of the uterus) thereby accelerating the implantation of embryos during this critical period of time.

### **What Are The Potential Benefits of Assisted Hatching**

- Implantation rates may be enhanced by this procedure.
- However, studies suggest that assisted hatching is most beneficial if used on a select group of patients including: a) patients 38 years or older with or without elevated day 3 follicle stimulating hormone (FSH), and/or a thickened zona pellucida; b) patients with 3 or more previously failed cycles with a transfer of good quality embryos.
- To date there is no strong evidence strong evidence that is beneficial to use with all patients.

### **What Are The Risks and Discomforts of Assisted Hatching**

- The risks and discomforts of the clinical procedures are the same as for conventional IVF.
- There is a small risk of damage to the embryos during the hatching procedure.
- The assisted hatching is performed at the 6 to 8-cell stage of development. If embryos do not develop to this stage, the hatching procedure cannot be preformed.
- Assisted hatching may increase the risk of a multiple pregnancy.
- On the basis of world-wide experience with more invasive micromanipulation methods, it is expected that rates of genetic or developmental abnormalities will be similar to that of IVF pregnancies. However, there are few long-term follow-up studies for any of those methods.

### The Assisted Hatching Procedure



Hatching is done by injecting a solution through the hollow needle on the right



Hatching a high quality 8-cell embryo  
A small opening is being made in the embryo's shell (zona pellucida)



A gap in the zona has been created



Hatching completed