

Egg Vitrification (Freezing)

--- putting the biological clock on hold

Over the past 20 years, reproductive endocrinologists have had good success freezing embryos (*fertilized eggs*) but very poor success freezing *unfertilized* eggs. However, in order to fertilize an egg (oocyte), one must have sperm available. In the past we have cared for many single women who are comfortable getting pregnant with anonymous donor sperm because they are getting older and running out of time. Women are born with all of their eggs. The biological clock keeps ticking. A woman's fertility decreases after age 35 and is dramatically reduced after 40 (often requiring donor egg). This remarkable new technology (vitrification) for successfully freezing unfertilized eggs is a major improvement over previous techniques and allows women more options.

The survival of eggs following the older, slow-freezing technique has been very low, as have pregnancy rates, often due to damage to the egg cells caused by ice crystal formation during the freezing process. Vitrification involves a new *flash-freezing technique* where the delicate egg, once unfreezable without damage, can now be safely preserved for future use. In the process of vitrification, an oocyte is placed in a small volume of the vitrification medium and is then cooled at an extremely rapid rate. This fast freezing eliminates the formation of ice crystals in the eggs. Following this freeze, the egg is stored in liquid nitrogen until such time as it is to be thawed and fertilized by a sperm.

There are several indications for egg freezing (Vitrification) including:

- 1) Young women facing the loss of reproductive function due to upcoming chemotherapy, radiation, and/or surgery for cancer may wish to preserve their eggs.
- 2) Women who want to defer pregnancy until later in life, either because they do not have a "significant other" or simply have social and/or professional needs that require them to delay childbearing.

Since the numbers of pregnancies are still very small, the American Society for Reproductive Medicine (ASRM) considers oocyte freezing investigational. Fertility Centers of Illinois (FCI) is accepting women interested in oocyte freezing for its Investigational Review Board (IRB) approved study. FCI is one of only a handful of IVF programs nationwide approved to perform vitrification of eggs.

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