Aging and Female Fertility Potential

Of the three primary factors playing a role in human conception (egg quality, sperm quality and the function of Fallopian tubes), egg quality is the most crucial in determining the probability of a live birth. It is the quality of eggs within the ovaries, rather than the receptivity of the uterus, that determines female fertility potential.

Female fertility begins to decline many years prior to menopause despite continued regular menstrual cycles. The probability of a live birth decreases 3-5% per year after the age of 30 and at an even faster rate after the age of 40. Unfortunately, as women age they also have a higher miscarriage rate.

The decreased probability of a pregnancy is due to the normal changes which occur in the woman's ovaries with aging. Most women have about 600,000 eggs in their ovaries at puberty. For each egg that matures and ovulates during a menstrual cycle, at least 500 to 1000 do not fully mature and are reabsorbed by the body.

As a woman ages, the remaining eggs in her ovaries also age, rendering them less capable of fertilization and of being able to develop into normal embryos. In addition, fertilization of these eggs is associated with a higher risk of genetic disorders. Fortunately, the vast majority of genetically abnormal pregnancies end very early, often resembling a normal menstrual period.

It is now possible to genetically test early embryos (PGD: Pre-implantation Genetic Diagnosis) as a part of *in vitro* fertilization, oocyte donation and gestational surrogacy treatments and minimize the likelihood of transferring genetically abnormal embryos into the uterus.

Risk of Chromosomal Abnormality in Newborns by Maternal Age

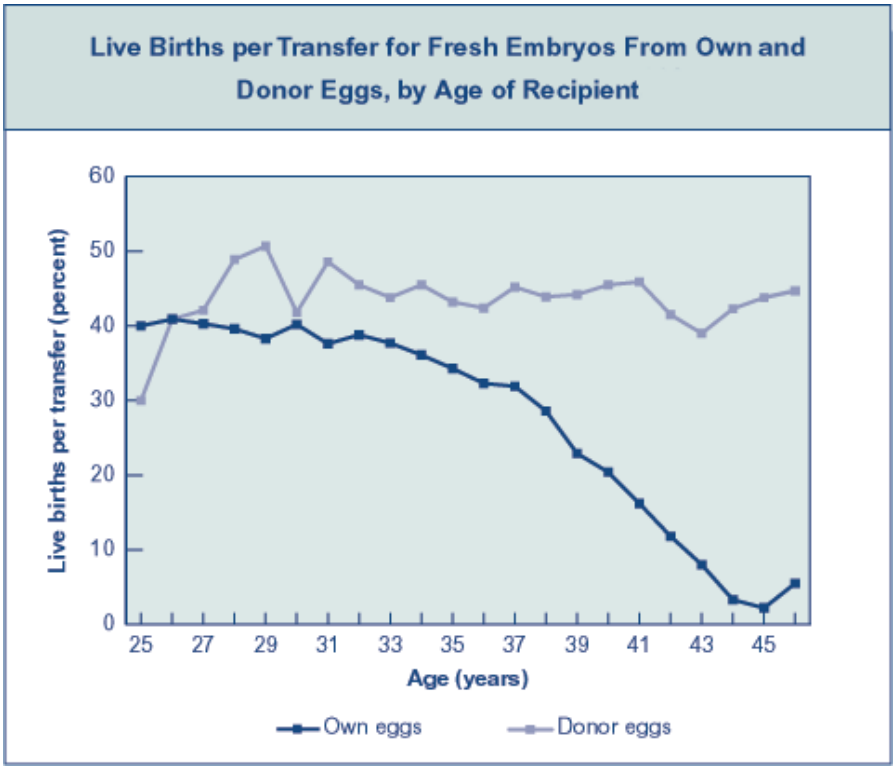
Maternal Age (years)	Risk of Chromosomal Abnormalities
20	1/526
25	1/476
30	1/385
35	1/192
40	1/66
41	1/53
42	1/42
43	1/33
44	1/26
45	1/21

Even with advanced infertility treatments, such as *in vitro* fertilization which is among the most powerful techniques to help infertile couples conceive, fertility decreases and the chance of miscarriage increases with advancing female age.

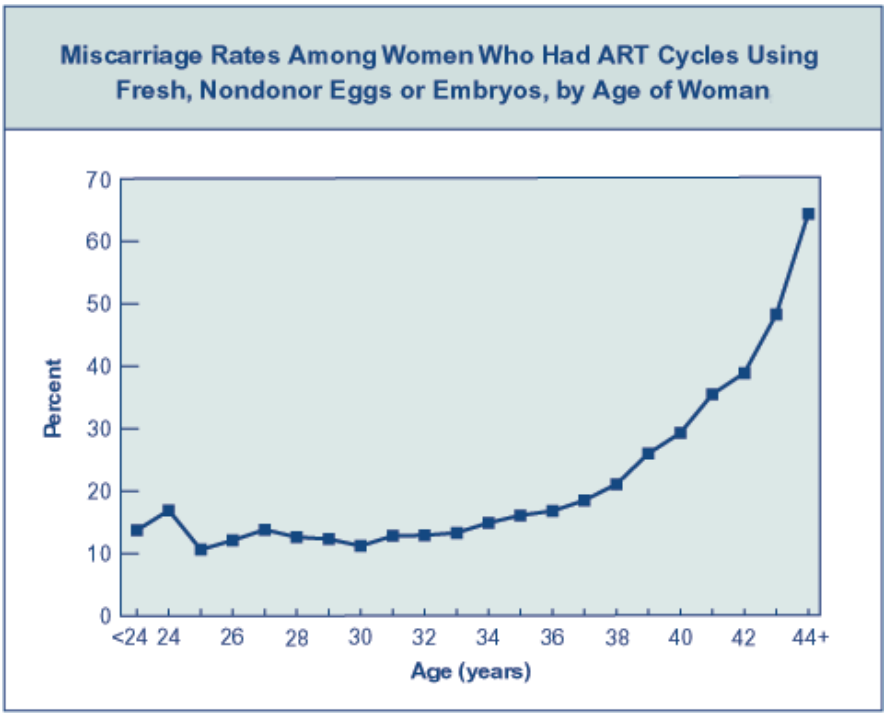
The following illustrations, from the Center for Disease Control (CDC) compilation of national IVF and oocyte donation data, show the impact of female age on the female fertility potential.

Please note that these graphs represent the nation-wide statistic; the live birth probabilities at Nova are higher.

Many infertility specialists recommend that women over the age of approximately 38 years, who are trying to conceive, should have aggressive treatment and proceed to *in vitro* fertilization quickly before their remaining fertility potential is lost.



IVF live birth rates begin to decline in the early thirties and are very low in the early forties. The likelihood of a fertilized egg implanting is related to the age of the woman who produced the egg and not to the receptivity of the uterus. Egg donors are typically in their twenties, thus the live birth rate for egg donation treatment varies only slightly across all age groups of the recipients.



This graph shows that a woman's age also affects her risk for miscarriage. The rates begin to increase among women in their mid-to-late thirties and continue to increase with age, reaching 43% at age 42 years. The miscarriage rates observed among women undergoing ART (Assisted Reproductive Technologies, i.e., IVF) procedures appear to be no higher than in pregnancies conceived through intercourse.