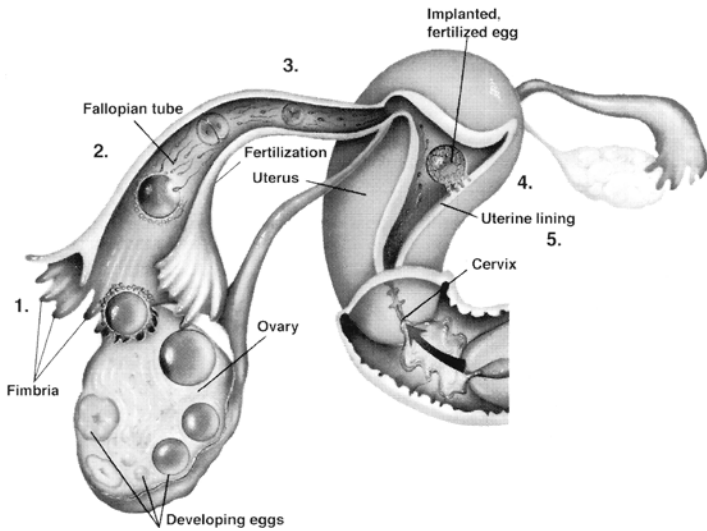


## SPONTANEOUS CONCEPTION

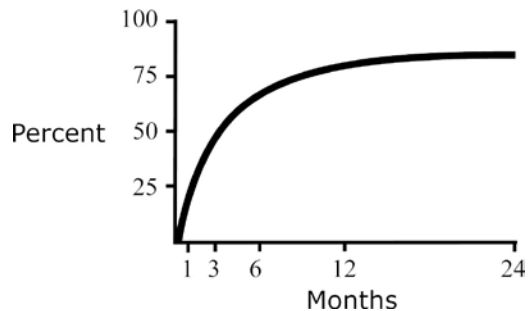


1. Fourteen days prior to the beginning of a new cycle, an ovarian follicle releases a microscopic egg.
2. Sperm, which can wait in the Fallopian tubes for several days, must fertilize the egg within 12 to 16 hours of ovulation.
3. The fertilized egg (embryo) moves through the Fallopian tube and starts to divide the day after fertilization. In two days, it has 4 cells, in three days, 8 cells and in six days it has over 100 cells.
4. Female hormones estrogen and progesterone, produced by the ovulating follicle, prepare the lining of the uterus for implantation.
5. Six to eight days after fertilization, the embryo hatches out and implants into the lining of the uterus and starts to produce the pregnancy hormone (hCG).

## INFERTILITY

Infertility is defined as no ongoing pregnancy after 6-12 months of sexual activity without contraception.

A. Speed of conception in the general population:



Monthly pregnancy probability:

- 1<sup>st</sup> month: 20-25%
- 13<sup>th</sup> month: 1.5%
- 25<sup>th</sup> month: 0.1%

B. There are three groups of causes of infertility:

1. Male Factor: Sperm production and sperm fertilizing capacity
2. Ovulation: Egg production, egg quality and preparation of uterine lining for implantation
3. Passage: The joining of sperm and egg in the Fallopian tubes and transport of the fertilized egg

C. Female age and fertility:



Loss of female fertility:

The decrease in female fertility potential is due to the loss of high quality eggs. The receptivity of the uterus is not decreased. This age-related loss of fertility magnifies the impact of any other infertility factor(s) present.



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 treatment and minimize the likelihood of transferring genetically abnormal embryos into the uterus.

Risk of Chromosomal Abnormality in Newborns by Maternal Age

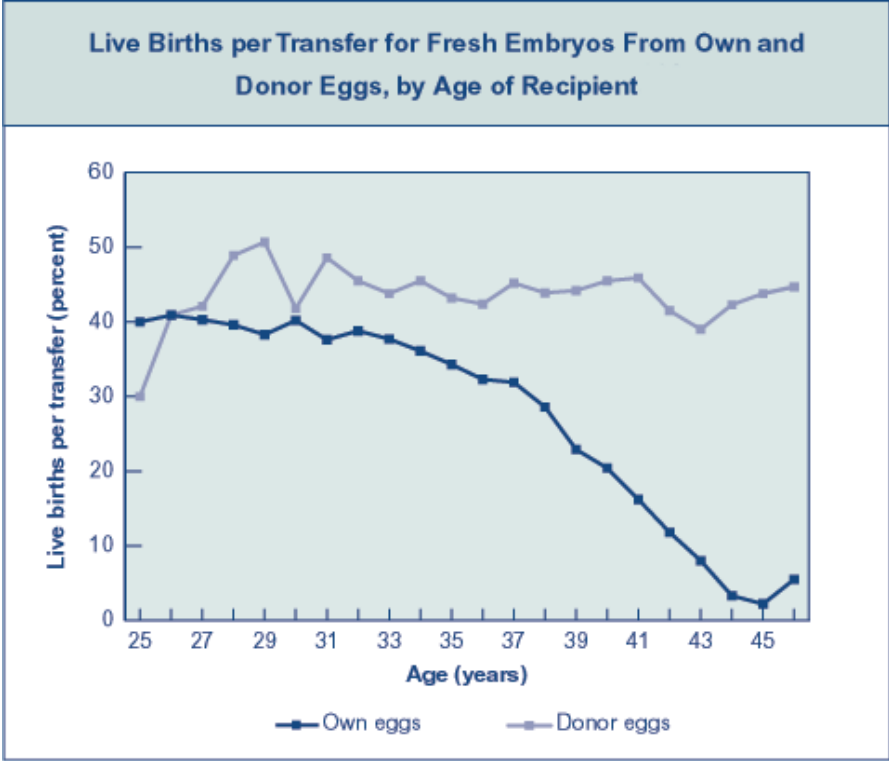
Maternal Age (years)	Risk of Chromosomal Abnormalities
20	1/526
25	1/476
30	1/385
35	1/192
40	1/66
41	1/53
42	1/42
43	1/33
44	1/26
45	1/21

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.

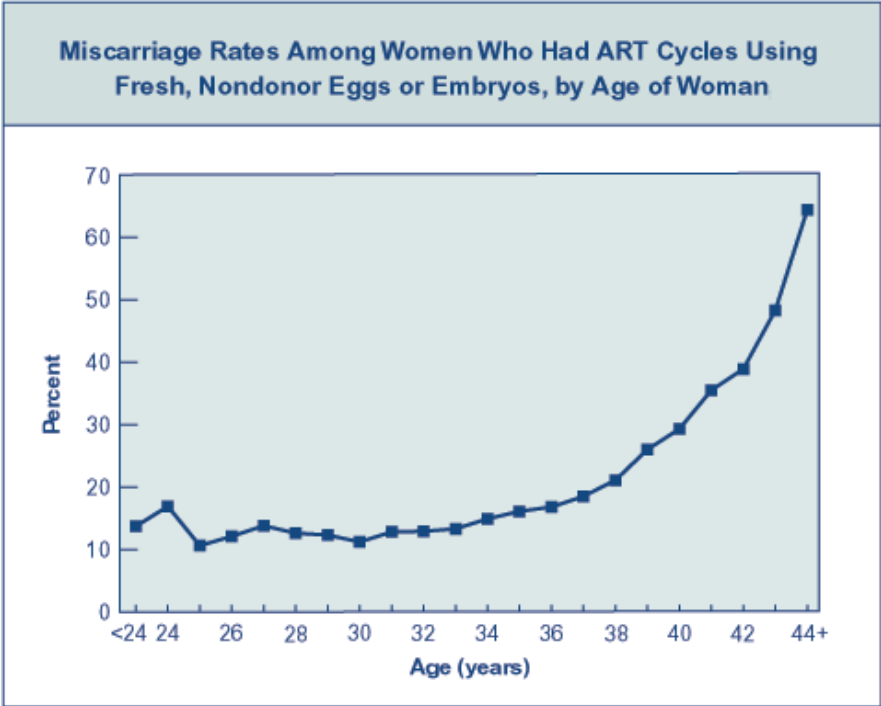
The following illustrations, from the Center for Disease Control (CDC) compilation of national IVF and oocyte donation data, show the impact of female age on the female fertility potential.

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.



N o v a   I n   V i t r o   F e r t i l i z a t i o n

Treatment Protocol  
Family Gender Balancing  
Pre-implantation Genetic Diagnosis (PGD)

Pre-implantation genetic diagnosis is a technique that can be added to *in vitro* fertilization, oocyte donation and gestational surrogacy treatments. With this method, the prospective parents will know the gender of each embryo with close to 100% accuracy prior to their transfer in the uterus.

This procedure can also identify genetically abnormal embryos. There are many incurable diseases or disorders which are genetically based such as chromosome translocations and inversions, Cystic Fibrosis, Fragile X, Myotonic Dystrophy, Thalassaemia, Tay Sachs disease and others. Using PGD, it is possible to select only the unaffected embryos.

PGD requires the creation of embryos by *in vitro* fertilization, oocyte donation or gestational surrogacy. It consists of:

1. Removal of embryonic cells
2. Embryonic chromosomal analysis
3. Extended embryo culture

1. Removal of Embryonic Cells

Once embryos reach the 5 to 8 cell stage (three days after egg retrieval), an embryo biopsy is performed by creating an opening in the egg shell around the embryo.

Since at this stage any cell inside the embryo has a full developmental potential, it is possible to safely remove a single cell through this opening using a micropipette. The procedure is performed under a special microscope with micromanipulators.

2. Embryonic Chromosomal Analysis

After the biopsy, the embryos are placed back in an incubator to await the results of the genetic analysis. The biopsied cell's chromosomes are analyzed outside of Nova IVF in a PGD laboratory. The embryos themselves do not leave Nova IVF laboratory.

3. Extended embryo culture

The genetic analysis takes approximately one to two day. The embryos will be typically transferred at the morula (day 4) or blastocyst (day 5) stage.

The results of the PGD analysis are obtained. The embryo(s) of the desired gender and/or that did not show chromosomal abnormalities is/are transferred.

The accuracy of PGD cell analysis approaches one hundred percent but it is not guaranteed. It is possible, even though highly unlikely, that embryo(s) that have tested as normal may not be genetically perfect.

So far, there is no evidence that PGD embryos result in an increased chance of abnormalities in the baby or that the risk of birth defects is higher than the usual risk of abnormalities (2-5%) when compared to conceptions that occur spontaneously.

Treatment Fees  
Family Gender Balancing  
Pre-implantation Genetic Diagnosis (PGD)

Pre-implantation genetic diagnosis, whether done for family gender balancing or to identify genetically abnormal embryos, is billed separately from the procedure to which it is added (see cost of *in vitro* fertilization, oocyte donation, gestational surrogacy and oocyte donation with gestational surrogacy).

PGD cost (\$5,800) includes microsurgical removal of cell(s) from embryo(s), fixation of the removed cells, transport to a PGD laboratory, genetic analysis of the embryo(s) and necessary extended embryonic culture.

PGD also requires additional media preparation done prior to the PGD procedure (\$875).

In *rare* circumstances, there is an additional one-time PGD laboratory fee (\$2,000) for selected genetic disorders (not required for family gender balancing).

Please note that these fees are per *each* occurrence of the PGD procedure. If your treatment is a part of a multiple cycle plan requiring repeating the PGD in subsequent treatment cycles, the fees are due each time the PGD is added.

Please see additional information on Nova Treatments and Fees page. If you wish, you can request an initial appointment for family gender balancing/pre-implantation genetic diagnosis with one of the Nova physicians.

Fees are subject to change without notice.

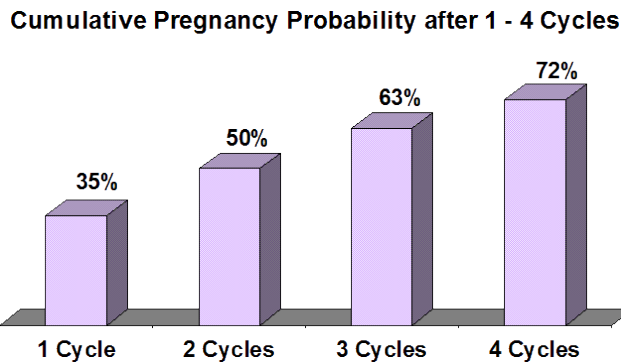


## MAXIMIZING PREGNANCY PROBABILITY

You can significantly contribute to the successful outcome of your infertility treatment. Optimizing your health and selecting a treatment plan of two or more treatment cycles can have a considerable impact on the probability of a successful pregnancy.

### Multiple Treatment Cycles

Having more than one cycle of treatment can substantially increase the likelihood of having a baby. The following graph illustrates the increase in live birth probability if you decide to have more than one cycle of treatment. In this example, we used an arbitrary 35% live birth probability per treatment. Your actual likelihood of a live birth could be higher or lower.



NOVA provides a diverse selection of very competitive multiple cycle treatment fee plans which can significantly reduce your per cycle cost.

### Optimizing Your Health

Your physical condition could make the difference between successfully achieving a live birth and going through years of frustration of unfulfilled dreams. We urge **both partners** to adhere to the following recommendations as closely as feasible and to start implementing them **as soon as possible**.

#### 1. Optimize your body's acid-alkaline balance

The pH of our blood is slightly alkaline. If we eat acidic food, our bodies have to work extra hard to keep the blood in an alkaline state. This extra work stresses our body and can lead to decrease of our fertility potential.

The choices of foods that we eat affect this balance. The typical North American diet is highly acidic. The best way to maintain the proper blood pH balance is to avoid acid producing foods and increase consumption of alkaline foods. Try not to go out to eat; prepare your own food as much as possible.

##### A. Eliminate or minimize the intake of the following acid-forming foods:

- All grains including corn, oat and flour-based foods (**bread, pasta, pastry, dumplings, tortillas, chips...**) except buckwheat and white rice up to 1 cup (cooked) a day
- Dairy (**cheese**) except milk, buttermilk, kefir and yogurt up to 1 cup a day
- Alcohol
- Coffee except de-cafeinated up to 2 cups a day
- Cocoa (use carob products instead)
- Nuts (except hazelnuts)
- Beans/legumes except up to 1 cup (cooked) a day (not canned!)
- Cranberry
- **Processed meat** (salami, sausages, hotdogs, canned meat)

**B. Increase intake of the following alkaline foods (organically grown if possible):**

- Apples
- Apricots
- Artichoke
- Asparagus
- Avocado
- **Bananas**
- **Berries** (all)
- Beets
- Bell peppers
- Bok choy
- Broccoli
- Brussel sprouts
- Cabbage
- Cantaloupe
- Carrots
- Cauliflower
- Celery
- Chard
- **Coconut**
- Cucumber
- Dates
- Eggplant
- **Figs**
- Garlic
- Ginger
- Green peas
- Grapefruit
- Grapes
- **Kale**
- Kiwi
- Lemon
- Lettuce
- Mango
- Melons (all)
- Nectarine
- Olives
- Onions
- Orange
- Papaya
- Parsley
- Peach
- Pear
- Persimmon
- Pineapple
- Potatoes
- **Raisins**
- **Spinach**
- Salad mix
- String beans
- Sweet potatoes
- Tomatoes
- Zucchini

**2. Consume an *abundance* of essential fatty acids:**

- Deep-sea fish and fish oil from non-polluted sources (<http://novaivf.com/images/pdf/Best Fish for Your Health.pdf>)
- Flaxseed and pumpkin seed oils
- Broccoli, cauliflower, beets, carrots, kale, collards, cabbage and brussel sprouts
- Raw seeds
- Eggs (no more than one a day on average)

**3. Eliminate or minimize intake of trans fatty acids (very important):**

- Fried foods (if you must have occasional fried food, use coconut oil only)
- Vegetable shortening
- Margarine
- Lard
- Animal fat
- Hydrogenated vegetable oils
- Junk food

**4. Vitamins**

Take high-potency, high-quality natural multivitamins and mineral supplements (both partners-very important). Take a minimum of 1mg of Folic Acid daily.

**5. Exercise**

Unless you exercise regularly, several times a week, start daily walks (outdoors!) for a minimum of 45 minutes each.

**6. Volatile Organic Compounds (VOC)**

Many everyday products off-gas VOC's. It is very important to minimize your exposure (both partners) to VOC's:

- Petroleum products (avoid car exhaust fumes and solvents, use disposable gloves when filling up your car)
- Off-gassing from plastics and building materials (do not drive a new car when trying to conceive, do not remodel your home or buy a newly constructed house)
- No exposure to cigarette smoke (both partners)
- Eliminate or minimize use of perfumes and colognes (unscented deodorant is ok)
- Do not dry-clean your clothes
- Eliminate air fresheners at home and in your car(s)
- Consider purchasing a VOC-scrubbing air purifier for your bedroom if you sleep with the windows closed (search internet for "voc air purifier")

**7. Stress**

Get plenty of sleep and try to minimize your everyday stresses.

**8. Acupuncture**

It is ok to have acupuncture

**9. Chinese medicine**

It is ok to use Chinese herbs as long as they are for strengthening your health only and do not have any female hormone-like effect.