

# In vitro fertilization (ivf): history and technologies



**ASSIGN  
BUSTER**

Since the inception of the idea of artificially inseminating an egg outside of the female body in the 1890s, when “Walter Heape reported the first known case of embryo transplantation in rabbits” (Ivf-worldwide. com, 2018), and then the first successful instance of this process in 1973, In Vitro Fertilization (IVF) has continued to be improved upon technologically, to become safer for patients, and to become more affordable for the general population. “In 1973, the first IVF pregnancy was reported in Australia, but that pregnancy would result in a miscarriage. Good news arrived in 1978 when Louise Brown was born, as a result of collaborative work between Robert Edwards and Patrick Steptoe.” (Fertilitysolutions. com. au, 2018) This first known instance of a human egg being fertilized outside of a human body was a technological marvel in the time period, and proceeding from this point, IVF has only continued to evolve. However not all of the information about IVF is common knowledge, which would tie in to the purpose of this essay: A wealth of information standing to provide information about IVF. Therefore to begin just after IVF became publically available, the focus of development in In Vitro Fertilization has been to make it safer, to increase success rates, and raise public awareness, and through all of this a complex but efficient process has been derived. In order to take IVF under consideration when attempting to conceive, the patient must meet certain criteria for safety reasons, as well as to qualify for Ontario Health Insurance Plan (OHIP) coverage. There are also a number of health concerns that should be acknowledged by potential patients before considering IVF as a treatment option. And finally, as with all pioneering technologies, there are ethical issues that have arisen as a result of IVF, and these are decidedly founded in personal morals and/or beliefs. Each of these points will be subject to careful

<https://assignbuster.com/in-vito-fertilization-ivf-history-and-technologies/>

examination and explanation, which will be presented in the following paragraphs.

IVF is an incredible technology, and as with most modern medical marvels, its steps can appear quite complicated at first glance, or without explanation.

To put the whole process plainly “ IVF is the process by which eggs are removed from your ovaries and mixed with sperm in a laboratory culture dish.” (Advancedfertility. com, 2018). This definition works for those who are looking in on a patient’s treatment, or supporting someone experiencing treatment, but for those considering this as a genuine treatment option, a more careful explanation is in order. The process begins with fertility drugs and hormone treatments, neither of which are covered by OHIP, according to Ontario. ca (2018). These drugs and hormones will regulate the menstrual cycle to better align with the scheduled treatment, and the hormones will “ encourage” the ovaries to produce an above average number of eggs.

Normally only one egg would be produced by the ovaries per month (one from each ovary every two months) but during and for the purpose of IVF, a larger number of eggs is optimal to increase the chances that one of them will be viable. The patient’s fertility specialist will continue to monitor the patient’s status, and once the eggs have been fully developed, it is time for them to be retrieved. The physician will use an ultrasound to guide a hollow needle-like tube through the vaginal opening, and into the ovaries to reach the follicles in which the eggs are stored until ovulation. The hollow needle is used to then aspirate the fluid around the egg so that the egg can be vacuumed out of the ovary. While this procedure is being done, if the patients has a male partner and wants to conceive with them, then a seminal

sample will be collected from them, or if the patient wishes to use frozen or donor sperm, then this sample is cleaned and searched for the most viable sperm. Once both specimens have been collected, the fertility specialist will combine the two samples in glass petri dish (which is where the term “in vitro” originates from) and the two are left to incubate overnight, and the following morning they will be examined to see which eggs have been successfully fertilized. After a few more days of incubation, the fertilized eggs will be re-inserted into the woman’s uterus to proceed through the regular pregnancy cycle. This information from [Advanceddertility.com](https://www.advanceddertility.com) (2018), and confirmed by [verywellfamily.com](https://www.verywellfamily.com) (2018). Although one would assume that after this the pregnancy will continue as normal pregnancies do, IVF pregnancies do tend to have lower success rates than conventional pregnancies, be it because it is commonly used by couples or individuals who have had difficulties conceiving prior to IVF treatments, or because of the embryo’s time outside of the female’s body. Therefore this process can seem daunting when commencing the treatment, but as any fertility specialist could explain, the process becomes less so as each treatment passes by, and of course the patient’s fertility specialist will accompany the patient through each and every step in the process.

There are of course, as with most medicines, some potential health risks involved with IVF. These risks apply to mother and baby, and should be considered before deciding if IVF is the best conception option for any patient. There is a potential that the woman attempting to conceive will encounter difficulties with the fertility drugs administered, however the patient’s fertility specialist/physician will attempt to select the best of a

multitude of drugs, for the patient to be administered, to aim for the lowest possible amount of negative physical reactions to the drug. Since the patient is administering their own doses of these drugs/hormone supplements, there exists also the potential that the patient could accidentally deliver a larger than necessary dosage which could be harmful, which is why it is important that the patient's doctor fully explain all required patient participation, and that the patient ask any questions that arise, and stick to the established plan. If this treatment goes well, the next issue that may arrive would be over stimulation of the ovaries, which occurs when the hormones or fertility drugs that have been self-administered remain in the patient's body longer than expected, and continue to stimulate the ovaries after the necessary eggs have been retrieved. " Approximately, 1-2% of women develop Severe Hyperstimulation Syndrome, a potentially dangerous medical condition requiring hospitalization." (Geneyouin, 2018) On top of this, since the fertilized egg is being artificially implanted in the uterus, there is a small percentile chance that the egg will implant in a fallopian tube, or in between the intestines and the uterus. In this case the pregnancy is no longer viable, as a fertilized egg cannot develop outside of the uterus. The pregnancy at this point can become dangerous to the mother's health, and will be removed immediately in the patient's best interest. And now, to speak briefly to the patient's financials during IVF treatments, OHIP has significant coverage over what is funded during the first round of IVF, should the patient meet the requirements that make IVF success more likely. (Ontario. ca, 2018) The government of Canada has also published a comprehensive list of legislation as to what will and will not be legal in Canada, as well as what can legally be covered by health insurance policies, which patients are viable for <https://assignbuster.com/in-vito-fertilization-ivf-history-and-technologies/>

treatment, and how many times they can do so. (O'Neill and Blackmer, 2018) These would be the more common potential health concerns, but for more comprehensive or patient specific risk assessment, speak to your personal physician or fertility specialist.

Controversy is a part of any pioneering development. Controversy even comes to light in some older, well known technologies, methods, or events, as any conspiracy podcast or morning talk show could tell you. However IVF brings with it a manner of special controversies, which can be anything from religious or ethical issues, to homosexual rights, to even human rights and what humans should or should not be allowed to do to their bodies and the bodies of their yet unborn children. There are even some cultures/nations that prohibit IVF, or limit which parts of it are or are not legal. For example “The prohibition of egg cell donation is part of Germany’s “ Embryo Protection Law,” which was passed in 1990. Sperm donation, however, is permitted.” (Schaefer, 2007) A likely reason for this is that German culture, as well as numeral other (mostly European countries) have strong beliefs about motherhood and biological connections between parents and children. In direct correlation to this quote, the culture in question strongly believes that biological mothers share a stronger natural bond with their children than biological fathers do (as babies are often shown to recognize their mother’s voice very early in their lives) and therefore egg donation should be prohibited to maintain the bond between mother and child. (Schaefer, 2007) Ironically enough, adoption is completely legal for individuals, heterosexual couples, or any individual in a homosexual relationship but not as a married couple, and yet egg donation is illegal for the reason of a child bonding to

their biological mother. In Canada, the laws on egg donation are limited to reason (i. e. no egg donation from non-human species with or without intent to form a chimera, etc.) but there are no restraints as per receiving egg donations from familiar or voluntary donors. (O'Neill and Blackmer, 2018)

Issues have also arisen with religions, most prominently Christianity (Catholicism will be used as an example), such as how the church believes that the conception of a child should occur solely for the reasons of love from the man and woman involved, and of course procreation, as well as the belief that a human life begins once an egg has been fertilized. (Catholicscomehome. org, 2018)

Since IVF evidently includes many medical professionals in the process of conception, as well as there are often many eggs that are fertilized in an attempt to create one that is viable, many are often wasted as a result. The church however claims that they accept those who undergo this process, as they value all human lives, however as with all religion, these issues in purest form are simply personal beliefs and morals. As homosexual rights are still blossoming into most societies, most countries have heavy restrictions on what homosexual couples are allowed to donate or receive, adoption, and whether they can undergo the treatment at all. These issues are plentiful as are their specific subjects, however in Canada these issues are no longer corporeal, therefore if you live in a country other than Canada, I would suggest that you peruse your country's specific laws on this topic. In earlier years this technology was highly controversial even when only discussing its general existence, but these days the questions have been angled towards what IVF can be used to accomplish, and its potentially life-changing possibilities. These issues however pale in

comparison to those of other countries, giving us Canadians another reason to take pride in our country.

In the modern era of medicine, IVF is one of the most innovative technologies to have arisen. Burgeoning from its roots in the 1890s, when the concept of medically assisting human reproduction was merely and unfathomably difficult reverie, to the very first IVF birth in 1978, to the beautifully complex method that is modern day IVF, this technology has continued to evolve and grow prosperous with the times. As with any medical procedure, there are of course health risks that are associated, such as negative reactions to hormones, or that an ectopic pregnancy (when the egg implants itself in the fallopian tubes) may occur, or any other normal pregnancy risks. These prospects should of course be taken into consideration when considering conception methods, but should also be weighed with the potential of conceiving one's own child. Then of course we come to controversies, of which there are a plethora. There are religion related issues, legal issues, monetary issues, ethics issues, and of course, personal issues, but what advancement hasn't come with controversy? Each of these issues should be weighed, but in the end the choice is personal. When considering conceiving, IVF can be discussed with your physician or specialist, loved ones, or advisors to consider the benefits and detriments, which are always custom to each individual patient. I hope that this essay has provided some enlightenment in the world of assisted fertility, and potentially encouraged you to consider IVF not only as a method of conception, but as a way to bring your child into the world should you have difficulties as more and more people do. Should you have any questions,



please seek further research, as nourishing curiosity is often the best relief of it. Above all IVF is a marvellous method of artificially conceiving, and should you yearn to conceive, let IVF be a method to be taken under your consideration.

## Reference List

O'Neill, S. and Blackmer, J. (2018). AssistedReproduction In Canada. [pdf] Canadian Medical Association. Available at: <https://www.cma.ca/Assets/assets-library/.../en/.../assisted-reproduction-in-canada-e.pdf>[Accessed 23 Mar. 2018].

Fertilitysolutions. com. au. (2018). The First Successful IVF Birth | Fertility Solutions. [online] Available at: <http://fertilitysolutions.com.au/the-first-successful-ivf-birth/> [Accessed 23Mar. 2018].

BabyCenter Canada. (2018). Fertilitytreatment: in vitro fertilization (IVF). [online] Available at: <https://www.babycenter.ca/a4094/fertility-treatment-in-vitro-fertilization-ivf>[Accessed 23 Mar. 2018].

Fertility. treatmentabroad. com.(2018). Ethical And Legal Issues | Fertility Treatment Abroad. [online]Available at: <http://fertility.treatmentabroad.com/going-abroad-for-treatment/ethical-and-legal-issues>[Accessed 23 Mar. 2018].

Ontario. ca. (2018). Get Fertility Treatment. [online] Available at: <https://www.ontario.ca/page/get-fertility-treatments> [Accessed 23 Mar. 2018].

<https://assignbuster.com/in-vitro-fertilization-ivf-history-and-technologies/>

Natural Fertility Breakthrough.(2018). Is IVF The Best Fertility Option For You? | Fertility Education.

Available at: <https://naturalfertilitybreakthrough.com/fertility-education/best-fertility-option/>[Accessed 23 Mar. 2018].

Ivf-worldwide. com. (2018). IVFHistory – IVF-Worldwide. [online] Available at: <https://ivf-worldwide.com/ivf-history.html>[Accessed 23 Mar. 2018].

Advancedfertility. com. (2018). IVFEgg Retrieval, In Vitro Egg Aspiration Process | Video. [online] Available at: <https://www.advancedfertility.com/aspiration.htm> [Accessed 23 Mar. 2018].

Geneyouin. (2018). 5 Potential HealthRisks of In Vitro Fertilization. [online] Available at: <https://www.geneyouin.ca/health-risks-of-in-vitro-fertilization/> [Accessed 24Mar. 2018].

Verywell Family. (2018). What to ExpectAlong the Path to Conceiving With IVF. [online] Available at: <https://www.verywellfamily.com/understanding-ivf-treatment-step-by-step-1960200>[Accessed 26 Mar. 2018].

Schaefer, L. (2007). Germany’s EggDonation Prohibition Is Outdated, Experts Say | DW | 12. 12. 2007. [online]DW. COM. Available at: <http://www.dw.com/en/germanys-egg-donation-prohibition-is-outdated-experts-say/a-2999675>[Accessed 27 Mar. 2018].

Catholicscomehome. org.(2018). What Does the Church Teach About IVF? | Catholics Come Home. [online]Available at:

What Does the Church Teach About IVF?

<https://assignbuster.com/in-vitro-fertilization-ivf-history-and-technologies/>

[Accessed 27 Mar. 2018].

Mydr. com. au. (2018). Female infertility –myDr. com. au. [online] Available at: <http://www.mydr.com.au/babies-pregnancy/female-infertility>[Accessed 27 Mar. 2018].

TheFreeDictionary. com. (2018). in vitrofertilization. [online] Available at: <https://medical-dictionary.thefreedictionary.com/in+vitro+fertilization>[Accessed 27 Mar. 2018].