

Zygote Intrafallopian Transfer ^[1]

By: Zhu, Tian Keywords: Reproductive assistance ^[2] Fertilization ^[3] Medical procedures ^[4]

Zygote intrafallopian transfer (ZIFT) is an assisted [reproductive technology](#) ^[5] (ART) first used in 1986 to help those who are infertile conceive a child. ZIFT is a hybrid technique derived from a combination of [in vitro](#) ^[6] [fertilization](#) ^[7] (IVF) and gamete intrafallopian transfer (GIFT) procedures. Despite a relatively high success rate close to that of IVF, it is not as common as its parent procedures due to its costs and more invasive techniques. Some patients prefer ZIFT, however, considering it more natural because the fertilized [oocyte](#) ^[8], the [zygote](#) ^[9], is placed in the woman's body for [implantation](#) ^[10] much sooner than with IVF.

To be a suitable candidate for ZIFT, a woman must have at least one healthy fallopian tube where the physician can implant the [zygote](#) ^[9]. The entire ZIFT process takes approximately four weeks, including the period when the patient must first undergo [hormone](#) ^[11] treatment called [superovulation](#) ^[12]. With [superovulation](#) ^[12], the physician administers fertility medications such as [Clomid](#) ^[13] to stimulate the ovaries to produce several mature eggs, or ova. [Clomid](#) ^[13] will increase the amount of follicle-stimulating [hormone](#) ^[11] (FSH) and [luteinizing hormone](#) ^[14] (LH) in the female, two [hormones](#) ^[15] that are required for [oocyte](#) ^[8] maturation. If [Clomid](#) ^[13] is not enough to stimulate [oocyte](#) ^[8] maturation, the physician can also inject the patient with additional FSH and LH intravenously to supplement the oral [Clomid](#) ^[13] medication for a more aggressive [hormone therapy](#) ^[16].

Once the [hormone](#) ^[11] treatment helps produce several mature ova, the physician extracts the ova through a noninvasive procedure called [transvaginal oocyte retrieval](#) ^[17], the same technique used with IVF and GIFT. For [transvaginal oocyte retrieval](#) ^[17], a thin needle guided by sonogram is inserted through the vaginal wall and enters the ovaries to extract several mature ova. Then shortly before [implantation](#) ^[10] the physician obtains [sperm](#) ^[18] from the male either by masturbation, by using a collection condom, or with surgical methods if there is an obstruction preventing the normal ejaculation of [sperm](#) ^[18].

Once the [sperm](#) ^[18] and oocytes are prepared, the physician allows the [sperm](#) ^[18] to fertilize the [oocyte](#) ^[8] in a petri dish either naturally or manually with a procedure called [intracytoplasmic sperm injection](#) ^[19] (ICSI). If there is a male fertility problem such as low [sperm](#) ^[18] count, a high concentration of misshapen [sperm](#) ^[18], or low [sperm](#) ^[18] motility, ICSI is a good procedure to use in conjunction with ZIFT. With ICSI, the [sperm](#) ^[18] is injected directly into the [egg](#) ^[20] in the petri dish to increase the chances of [fertilization](#) ^[7]. Studies are conflicted on whether ICSI will increase the chances of [birth defects](#) ^[21] in newborns, but any increased chance is too low to determine accurately.

After [fertilization](#) ^[7] [in vitro](#) ^[6], the physician monitors the fertilized [oocyte](#) ^[8](s) for approximately twenty-four hours until cell division begins. With ZIFT, the physician then implants the [zygote](#) ^[9] into the fallopian tube. This differs from IVF, where the physician waits until the [fertilized egg](#) ^[22] has divided into eight cells before implanting it into the [uterus](#) ^[23]. The location where the physician implants the developing embryo depends on the stage of the

embryo's development and thus models the path that the developing embryo would follow after natural [conception](#) [24].

During ZIFT, the physician places one to four zygotes in the [fallopian tubes](#) [25] through a surgical technique called laparoscopy, an invasive procedure utilizing a small abdominal incision unlike IVF, where the physician places the 8-cell embryo in the [uterus](#) [23] by entering through the [cervix](#) [26]. The [zygote](#) [9] then travels down the fallopian tube and hopes are that at it will implant on the uterine wall. In a healthy young woman, there is approximately a 32-36% chance that the [fertilized egg](#) [22] will implant in the uterine wall and result in [pregnancy](#) [27]. The number of zygotes the physician places in the fallopian tube will depend on the patient's age as well as her preference. The greater the woman's age, the more difficult it becomes for [pregnancy](#) [27] to occur, thus physicians may insert more zygotes to increase the chance of a successful [implantation](#) [10] and resulting live birth.

As with GIFT, there is a greater chance of an [ectopic pregnancy](#) [28] (the [fertilized egg](#) [22] implants anywhere other than inside the [uterus](#) [23]) when using ZIFT. Although the probability of [pregnancy](#) [27] with ZIFT is close to that of IVF, it makes up only 1% or less of all ART currently used in the United States. The invasive surgery of laparoscopy and the relatively higher costs have made ZIFT less appealing than IVF, which due to its popularity has attracted more research and resulted in higher success rates for both fertilizations and live births.

ZIFT, like GIFT, followed the development of IVF as another technique to help achieve [pregnancy](#) [27]. Currently, every year in the United States approximately 250-280 babies are born as a result of ZIFT compared to 40,000 babies born from all assisted reproductive technologies.

Sources

1. Brody, Steven A., and Robert G. Edwards. *Principles and Practice of Assisted Human Reproduction*. Philadelphia, PA: W.B. Saunders, 1995.
2. Burfoot, Annette, ed. *Encyclopedia of Reproductive Technologies*. Boulder: Westview Press, 1999.
3. Simon, Harvey. "Infertility in Men." *New York Times*, October 21, 2008, Health Section.

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Subject

Zygote Intrafallopian Transfer [29]

Topic

Technologies ^[30] Reproduction ^[31]

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[1] <https://embryo.asu.edu/pages/zygote-intrafallopian-transfer>

- [2] <https://embryo.asu.edu/keywords/reproductive-assistance>
- [3] <https://embryo.asu.edu/keywords/fertilization>
- [4] <https://embryo.asu.edu/keywords/medical-procedures>
- [5] <https://embryo.asu.edu/search?text=reproductive%20technology>
- [6] <https://embryo.asu.edu/search?text=in%20vitro>
- [7] <https://embryo.asu.edu/search?text=fertilization>
- [8] <https://embryo.asu.edu/search?text=oocyte>
- [9] <https://embryo.asu.edu/search?text=zygote>
- [10] <https://embryo.asu.edu/search?text=implantation>
- [11] <https://embryo.asu.edu/search?text=hormone>
- [12] <https://embryo.asu.edu/search?text=superovulation>
- [13] <https://embryo.asu.edu/search?text=Clomid>
- [14] <https://embryo.asu.edu/search?text=luteinizing%20hormone>
- [15] <https://embryo.asu.edu/search?text=hormones>
- [16] <https://embryo.asu.edu/search?text=hormone%20therapy>
- [17] <https://embryo.asu.edu/search?text=transvaginal%20oocyte%20retrieval>
- [18] <https://embryo.asu.edu/search?text=sperm>
- [19] <https://embryo.asu.edu/search?text=intracytoplasmic%20sperm%20injection>
- [20] <https://embryo.asu.edu/search?text=egg>
- [21] <https://embryo.asu.edu/search?text=birth%20defects>
- [22] <https://embryo.asu.edu/search?text=fertilized%20egg>
- [23] <https://embryo.asu.edu/search?text=uterus>
- [24] <https://embryo.asu.edu/search?text=conception>
- [25] <https://embryo.asu.edu/search?text=fallopian%20tubes>
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- [27] <https://embryo.asu.edu/search?text=pregnancy>
- [28] <https://embryo.asu.edu/search?text=ectopic%20pregnancy>
- [29] <https://embryo.asu.edu/medical-subject-headings/zygote-intrafallopian-transfer>
- [30] <https://embryo.asu.edu/topics/technologies>
- [31] <https://embryo.asu.edu/topics/reproduction>
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