

Topic Page: [In-vitro fertilization](#)

Definition: **in vitro fertilization** from *Merriam-Webster's Collegiate(R) Dictionary*

(1969) : fertilization of an egg in a laboratory dish or test tube; *specif* : fertilization by mixing sperm with eggs surgically removed from an ovary followed by uterine implantation of one or more of the resulting fertilized eggs — abbr. *IVF*

Summary Article: **in vitro fertilization**

From *The Columbia Encyclopedia*

(vē'trō, vĭ'trō) (IVF), technique for conception of a human embryo outside the mother's body. Several ova, or eggs, are removed from the mother's body and placed in special laboratory culture dishes (Petri dishes); sperm from the father are then added, or in many cases a sperm is injected directly into an ovum, a process known as intracytoplasmic sperm injection. If fertilization is successful, a fertilized ovum (or several fertilized ova), after undergoing several cell divisions, is either transferred to the mother's or a surrogate mother's body for normal development in the uterus, or frozen for later implantation. Eggs also can be frozen and fertilized later. In vitro maturation is when the ova are extracted and then matured in a laboratory (instead of in the mother's body) before they are fertilized.

First developed by Patrick C. Steptoe and Robert G. Edwards of Great Britain (where the first “test-tube baby” was born under their care in 1978), IVF was devised for use in cases of infertility when the woman's fallopian tubes are damaged or the man's sperm count is low. It is also used to enable prospective parents with other reproductive problems (e.g., inability to produce eggs, poor sperm quality, or endometriosis) to bear a child, and can be used in conjunction with embryo screening to enable parents to have a child who is free of some inheritable defects or diseases. Embryo screening procedures have also been used to identify embryos that are generally free of abnormalities and are not likely to result in a miscarriage after implantation, thus improving the likely success of IVF. So-called three-parent or three-person IVF has been used in cases where mitochondria in the mother's egg have genetic defects that could be passed along to a child; a number of techniques can be used to replace the mother's mitochondria, but all involve transferring nuclear genetic material from the mother's egg to a donor's egg from which that material has been removed. In embryo donation (also called embryo adoption), frozen embryos that are not needed by the mother are donated for implantation to a woman or couple who are infertile but wish to have, and are capable of bearing, children. By 2012 the use of in vitro fertilization had resulted in the birth of more than 5 million babies worldwide. Nevertheless, the technique has raised legal, ethical, and religious issues, including concerns regarding legal custody of frozen embryos following divorce and questions regarding the appropriateness of the procedure posed by the Roman Catholic Church and other institutions.

See also artificial insemination; fertilization; reproductive system; surrogate mother.

See Andrews, L. , *The Clone Age* (1999);.

Henig, R. M. , *Pandora's Baby* (2004).

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