

VOYAGES IN (IN)FERTILITY

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A Project of the Portuguese Society For Reproductive Medicine (SPMR) on its 40th anniversary, in collaboration with the Center For Neuroscience and Cell Biology (CNC) of the University of Coimbra.

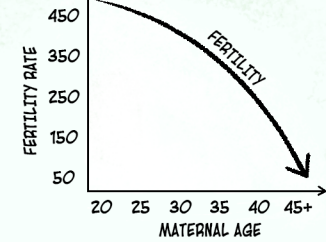
InFertility is defined as the incapability of achieving a pregnancy, and taking it to term, after one year of regular sexual intercourse in the absence of contraception.

According to the World Health Organization it affects one in every eight couples

In certain regions infertility is increasing, due both to biological and social causes.

Besides the cumulative effect of different diseases or environmental contaminants, delaying parenthood for personal reasons is also a factor.

Parental age, especially maternal age, is key, with female fertility dropping off sharply after the age of 35.



InFertility is considered a couple problem, with possible components from either side.

HUMAN REPRODUCTION SERVICE

These may include genetic causes or infections, or even sexual intercourse outside the monthly reproductive window.

Above all it should not foster to any feelings of guilt or shame, but stimulate a search for professional help.

In the woman clinicians will check for ovulation and the overall condition of the female reproductive system.

In the man, a key issue is the correct production of enough mobile sperm cells.

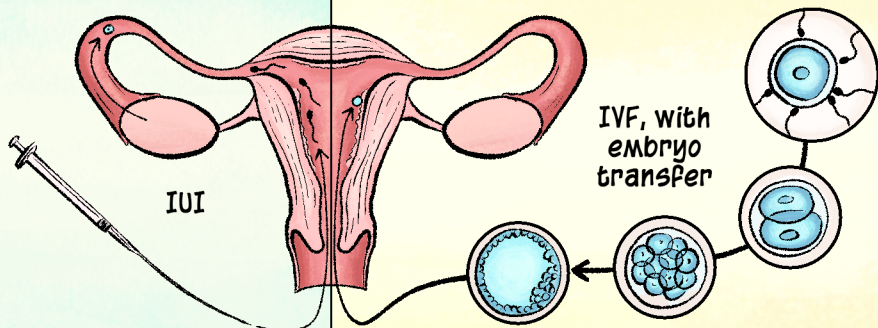
Some issues may be easily solved with counseling, medication or minor surgical procedures.

Assisted Reproduction

But if this doesn't work, or there is no obvious cause for infertility, patients may be referred to Assisted Reproduction Technologies (ART).

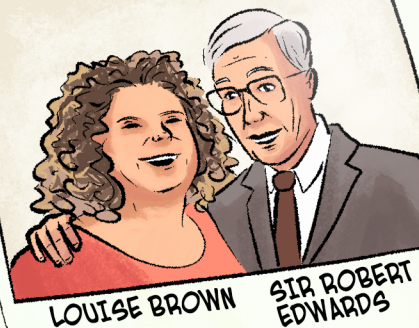
The use of ART has increased enormously in previous decades, and is responsible for 3% of babies born in Portugal (about 9% in Scandinavia).

The simplest procedure is Intrauterine insemination (IUI), a common staple in animal breeding. It requires monitoring oocyte release from the ovary (ovulation) and, when it takes place, introducing in the female reproductive tract an appropriate amount of previously selected motile sperm.



If for some reason sperm and egg cannot meet, for example if the Fallopian tubes are obstructed, fertilization may take place outside the body, followed by embryo transfer to the uterus.

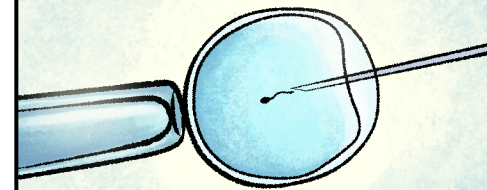
The first case of successful human "in vitro" fertilization (IVF) was Louise Brown, born in England in 1978.



LOUISE BROWN SIR ROBERT EDWARDS

This led to the Nobel Prize being awarded to Sir Robert Edwards, in 2010.

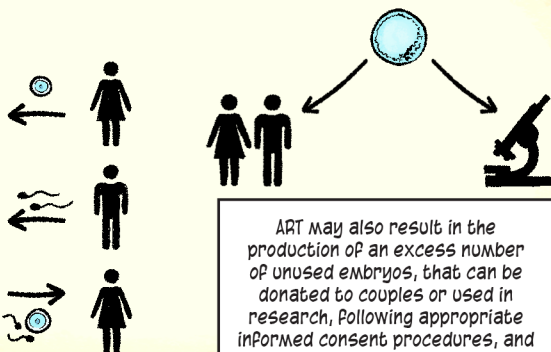
Later, in 1993, an embryologist in Belgium injected a sperm directly in the oocyte, thus forcing fertilization. This technique was named intracytoplasmic sperm injection (ICSI), and allowed for the successful use of immotile sperm in ART.



Furthermore, with ICSI clinicians could also use sperm directly retrieved from testicular biopsies, when the male gametes are not able to exit the testis.

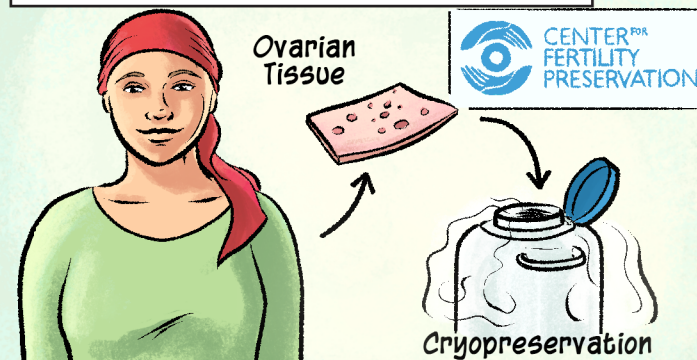
When there are no other possibilities, gamete donations may be a possibility for ART, relying on appropriate gamete banks.

Another possible option is gestational surrogacy, which may be the only option if, for example, the woman was born without a uterus, or is has been surgically removed.



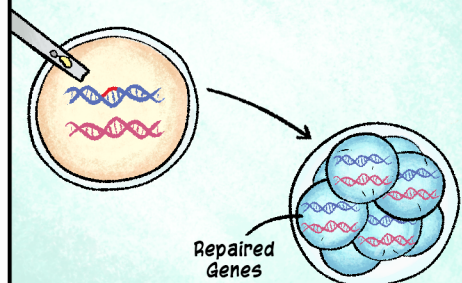
ART may also result in the production of an excess number of unused embryos, that can be donated to couples or used in research, following appropriate informed consent procedures, and authorization from appropriate legal entities.

Another application of ART relates to the fact that oncological treatments may result in infertility as a side effect.



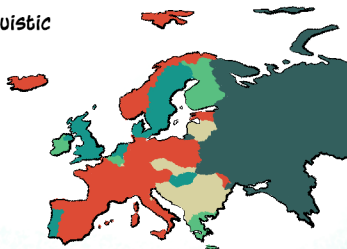
It is already possible to freeze sperm, oocytes or ovarian tissue to preserve the fertility of these patients. This is a very promising development, globally dubbed OncoFertility.

The genetic modification of embryos, on the other hand, may be possible and safe someday, but currently is still in an experimental phase.



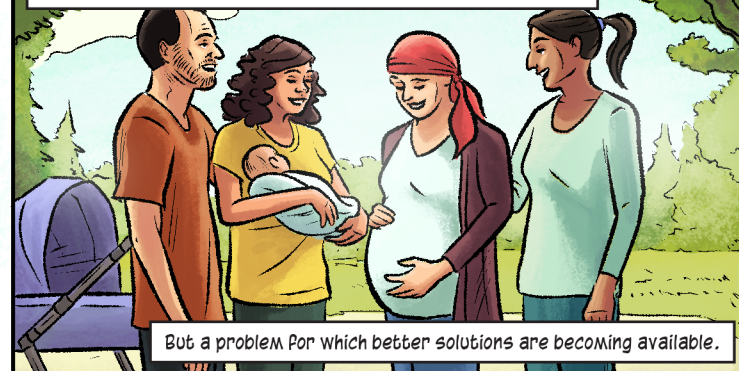
LEGAL FRAMEWORK REGARDING GESTATIONAL SURROGACY IN EUROPE

- Both gamPul and altruistic forms are legal
- Only altruistic is legal
- Banned
- No legal regulation
- Unregulated /Uncertain situation



It is important to note, that while the technology and science behind it are universal, the possibility of using different aspects of ART may vary from country to country, depending on local legal frameworks.

The discussion of the ethical implications of different aspects of ART, as well as the establishment of priorities, is up to all of us, and will help in establishing guidelines to address a problem that may increase in the coming decades.



But a problem for which better solutions are becoming available.