

# Method for Improving In Vitro Fertilization (IVF) Success Rates with Novel Therapeutic/Catheter Device

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## Technology description

### Technical Summary

Globally, one out of six couples suffers from some form of infertility. In vitro fertilization (IVF) is a medical procedure that offers the ability to fertilize an embryo outside of the body and transfer it directly to the uterus where successful implantation will lead to pregnancy. There are two million IVF cycles performed on a global basis annually. Success rates for this procedure are low at approximately 25% for single embryo transfer (SET). In addition, the cost for one IVF cycle ranges from \$10,000 to \$14,000, so many couples who may benefit from IVF are reluctant to try given the current cost/benefit ratio. Patients and physicians routinely transfer multiple embryos in an IVF cycle in order to increase the likelihood of implantation. There is a need for enhancements to this procedure to increase the success rate for the infertile couple to achieve pregnancy, as well as to reduce the number of multiple births, as a multitude of fetal and maternal complications are associated with multiple birth pregnancies.

One underlying factor in low success rates with IVF is the inability of an embryo to attach to the uterine wall. In the body of a fertile woman, an event called the window of implantation is necessary for implantation, as progesterone trickles down from the fallopian tubes to the uterus, yielding a hormonal effect on the uterine lining that supports implantation. Hormonal influences initiate and sustain protein synthesis and the formation of aquaporins that create uterine fluid absorption, the key initial force required for embryonic implantation. During an IVF cycle, conventional systemic approaches via intramuscular injection or vaginal suppositories are used attempt to mimic this complex event, often with limited success. The inventor has discovered a way to more closely mimic this environment through direct, targeted intrauterine application of progesterone and estrogen (or progesterone alone) in an embryo transfer (ET) wash through a specialized transfer catheter.

## Application area

Method (use of a pharmaceutical product and a modified embryo transfer catheter) of increasing the embryonic implantation rate during IVF.

## Advantages

Direct, targeted intrauterine application of hormones increases the implantation rate.

## Institution

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