



## Effects of assisted reproductive technologies (ART) in epigenetic changes

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**Introduction:** Assisted reproduction technologies (ART) are increasingly used in humans to achieve pregnancy rates in infertile patients . although, this technique has become a routine practice for treatment of human infertility but is associated with a small and important increase in the risk of a range of adverse obstetric outcomes. increased prevalence evidences of birth defect, low birth weight (LBW), shorter gestational age and multiple births suggest probably risks associated with ART. the etiology of increases in the risks for medical problems is still poorly understood. This review discusses recent findings concerning effects of assisted reproductive technologies (ART) in epigenetic changes.

### Material and Methods:

This article presents result of a systematic review of effects of assisted reproductive technologies (ART) in epigenetic changes.

**Results:** our findings showed that imprint in late oocyte stages and reprogramming of the two germline genomes for somatic development are established after fertilization. these are vulnerable to environmental factors. there are all represent artificial such as In vitro culture oocyte maturation, superovulation and embryo culture intervention in the natural development, which can impact the epigenome of the germ cells and embryos. The ART-induced changes are critical for embryonal, placental, and fetal development.

**Conclusions:** Accumulating studies suggested that effects of ART can have long-lasting effects on the epigenome of the resultant children and disease vulnerability later in life. In addition, epigenetic control may essential to prevention of hidden genetic variation.