



OBESITY AND IMPLANTATION

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Female obesity is related to a three-fold increased risk of subfertility (prolonged time to pregnancy) and infertility (no pregnancy achieved after at least one year of non-protected sexual intercourse). Classically, fertility problems in obese women have been related to their high prevalence of ovulatory disorders. However, more recent studies have highlighted reduced chances of conception even in obese ovulatory women pointing out alterations at the level of the oocyte, embryo and/or endometrium. Therefore, obese women are more prone to initiate assisted reproduction treatments than normoweight women. Male overweight and obesity have been also related to increased infertility rates, being the combination of male and female weight excess a poorer situation for spontaneous conception.

Ovarian response in ovulation induction and controlled ovarian hyperstimulation is reduced with female weight excess. The results of low rank assisted conception cycles (scheduled intercourse and intrauterine insemination) in obese women are controversial with some studies showing reduced chances of conception but others a similar outcome than normoweight women. However, studies performed on IVF are more consistent, highlighting a significant poorer outcome as women body mass index (BMI) increases. Implantation, clinical pregnancy and live birth rates are progressively reduced from 30 kg/m² of BMI using own or donated oocytes. Hence, an oocyte/embryo quality impairment and/or reduced endometrial receptivity are clinically evident. Male obesity may also affect assisted reproduction results. However, no evident alteration has been detected in gametes or embryos according to the conventional morphological criteria commonly used in the IVF lab to assess their quality. Metabolomic analysis has recently shown a different composition of the metabolites that the embryo takes from- or excretes to- the culture media in obese women. In addition, a dysregulated pattern of gene expression during the window of implantation has been detected in women with weight excess.

The best way to avoid the negative effects of weight excess on fertility is to achieve conception once BMI is below 30 kg/m² -better below 25 kg/m². This goal can also reduce the increased risks of congenital malformations, maternal and fetal pregnancy complications and metabolic and non-metabolic diseases in the offspring described in obese women.

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