



The impact of obesity on oocyte maturation, fertilization and oocyte metabolism

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Introduction: Obesity is an important risk factor for some diseases such as type 2 diabetes, cardiovascular disease and certain forms of cancer. There is little claim that the rising incidence of obesity is a major public health issue worldwide. Maternal obesity is a improving problem in many parts of the world. It is generally defined using the body mass index (BMI) measurement in the units kg/m^2 . Based on World Health Organization (WHO) standards, a BMI of 18.5–24.9 is considered normal, 25–29.9 overweight, and ≥ 30 as obese. The impact of obesity on reproductive health is particularly important because it can have long lasting consequences on future generations. Despite the variations in results from these clinical studies, obesity is clearly associated with subfertility.

Materials and methods: This review briefly discuss about the impact of obesity on oocyte maturation, fertilization and oocyte metabolism.

Results: Obesity may impact on oocyte competence and maturation by changes in various hormones, particularly hormones that trigger oocyte maturation. In addition, adipose tissue is a crucial site for steroid hormone production, and its excess in obesity can change concentrations of steroid hormones. In obese women that need greater amounts of gonadotropins for IVF, a situation that can lead to changes in oocyte maturation and competence. Also, one of the major effects of obesity is increased serum insulin concentrations and resistance to insulin action in cells. Insulin also stimulates steroidogenesis and upregulates LH receptor expression in theca and granulosa cells. Because of LH hypersecretion, ovulation and the resumption of oocyte maturation is impacted through obesity in women.

Conclusion: Our studies showed that obesity negatively affects the developmental competence of oocytes. This occurs by disruption endocrinology and metabolism of systematic maternal, and direct impacts on the oocyte.