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# Pregnancy and Delivery Complications in Overweight Women

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**Abstract:**
Obesity, characterized by excessive adipose tissue, has become increasingly prevalent and poses significant risks during pregnancy and delivery. This article reviews the metabolic and hormonal changes associated with obesity, the implications for fertility, and the specific complications that arise during pregnancy and delivery in overweight women. The management strategies to mitigate these risks are also discussed..

**Key words:** Obesity, pregnancy, purine metabolism, cholesterol.

## Introduction

Obesity is a prevalent metabolic disorder with a rising incidence in both developed and developing countries. In women of reproductive age, obesity not only affects overall health but also significantly impacts reproductive health and pregnancy outcomes. This article aims to explore the complications associated with pregnancy and delivery in overweight women and discuss potential management strategies.

**Metabolic and Hormonal Changes in Obesity.** Obesity leads to several metabolic disturbances, including disorders in lipid and purine metabolism. Elevated levels of total cholesterol, triglycerides, HDL cholesterol, LDL cholesterol, VLDL cholesterol, and uric acid are commonly observed. Additionally, hormonal imbalances involving total testosterone, SHBG (Sex Hormone-Binding Globulin), prolactin, LH (Luteinizing Hormone), FSH (Follicle-Stimulating Hormone), and cortisol are prevalent in obese individuals. These metabolic and hormonal changes contribute to the adverse effects on reproductive health.

**Pathogenesis of Reproductive Complications.** Obesity triggers various mechanisms that regulate metabolic, vascular, and inflammatory processes. Increased levels of glucose, lipids, and pro-inflammatory cytokines affect the fetus, leading to temporary or permanent changes in metabolic programming and epigenetic modifications. These changes heighten the risk of developing various diseases later in life.

**Impact on Fertility.** Obesity impairs ovarian function, reduces oocyte quality, and negatively affects the endometrial receptor apparatus. This condition is often associated with polycystic ovary syndrome (PCOS), characterized by anovulation and insulin resistance. Weight loss and metformin treatment in women with PCOS have shown to restore ovulation, supporting the role of insulin resistance in reproductive dysfunction. Even in the absence of PCOS, obese women experience fertility issues, with pregnancy likelihood decreasing proportionally with increasing body weight.

**Assisted Reproductive Technologies (ART) and Obesity.** Obesity negatively impacts the outcomes of ART, such as IVF and ICSI. A systematic review and meta-analysis of 33 studies involving 48,000 IVF/ICSI treatment cycles found that women with a BMI of 25-30 kg/m² had lower clinical pregnancy and live birth rates compared to women with a BMI <25 kg/m². Additionally, there was an increased risk of early pregnancy loss. However, in cycles using donor eggs, clinical pregnancy rates in obese recipients did not differ significantly from those in women with normal body weight, highlighting that reduced fertility in obesity is partly due to decreased oocyte quality.

***Pregnancy and Delivery Complications*.** Obesity is associated with a higher risk of various maternal and perinatal complications, including:

***Gestational Diabetes***: Increased insulin resistance leads to higher rates of gestational diabetes in obese women.

***Preeclampsia***: The risk of preeclampsia is significantly higher in obese women due to vascular and metabolic stress.

***Cesarean Delivery***: Obese women have a higher likelihood of cesarean delivery due to complications such as macrosomia and labor dystocia.

***Macrosomia***: Excessive fetal growth is more common in obese women, leading to delivery complications.

***Birth Defects***: There is an increased risk of congenital anomalies in the offspring of obese mothers.

***Management and Prevention*.** Effective management of obesity in reproductive-age women is crucial for improving pregnancy outcomes and reducing complications. Key strategies include:

***Weight Loss*:** Encouraging weight loss through lifestyle modifications and, in some cases, medical interventions before pregnancy can significantly reduce risks.

***Metformin Treatment***: In women with PCOS and insulin resistance, metformin can help restore ovulation and improve fertility outcomes.

***Regular Monitoring***: Healthcare providers should closely monitor obese pregnant women for potential complications, providing timely interventions to manage risks.

**Conclusion.** Obesity poses significant challenges to reproductive health, pregnancy, and delivery outcomes. Understanding the metabolic and hormonal changes, implementing effective management strategies, and providing continuous support can mitigate the risks associated with obesity in pregnant women. Future research should focus on large randomized trials to further confirm the benefits of weight management and other interventions in improving pregnancy outcomes in obese women

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