



Patient Pathways

Metabolic/Bariatric Surgery for Enhanced Fertility

- **Appropriately timed metabolic/bariatric surgery can improve fertility rates and reduce the risk of pregnancy-related complications.¹**
- **Obesity is increasingly prevalent in the Australian population, particularly in women of childbearing age. It increases the risk of infertility for both men and women, and decreases the effectiveness of assisted fertility therapies.¹**
- **Obesity increases the risks of foetal morbidity and mortality, maternal pregnancy complications and the likelihood of complex delivery.^{1,2}**
- **Lifestyle interventions on their own for weight loss are insufficient to improve live birth rates or decrease complications for most patients with obesity and infertility.³ Therefore adjunct multimodal therapies including very low energy diets, pharmacotherapy and bariatric surgery should be considered.¹**

Do you know the impact of fertility on couples with obesity?

- The mechanisms underlying the link between reduced fertility and obesity include insulin resistance, hyperglycaemia, gut microbiome alterations, low grade chronic inflammation and oxidative stress.⁴
- One year after metabolic/bariatric surgery, 56% of women who were dissatisfied with their sexual life reported a meaningful improvement. This improvement was associated with weight loss and improved mental health and persisted for 52% of women five years after surgery.^{5,6}

Women living with obesity

- The **relative risk of infertility is threefold higher (up to 78%) in women with obesity** compared with women without obesity.^{1,7,8}
- The **probability of pregnancy is reduced by 5% for every unit of BMI exceeding 29**, so a woman with a BMI of 40 has a 45% chance of becoming pregnant.¹
- Polycystic ovary syndrome (PCOS), which is bidirectionally related to obesity, has a 12–21% prevalence in Australian women of reproductive age.¹
- A large prospective cohort study from Sweden showed that pregnancy with obesity was associated with a 2.79 fold increase in still births.¹
- **Women with obesity take longer to conceive with in vitro fertilisation (IVF)** and are also less likely to respond to assisted fertility treatments/therapies.^{4,8}
- Women with obesity undergoing IVF are less likely to achieve a live birth than normal weight women due to poor oocyte quality, lower pre-implantation rate and reduced uterine receptivity.⁷

Men living with obesity

- Obesity has been related to changes in sperm count, motility, and morphology as well as hormonal disturbances that decrease total and free levels of testosterone.⁹
- **Men with obesity have a 36% increased chance of infertility** due to abnormal sperm parameters, DNA damage and epigenetic changes that can be transferred to their children.^{7,10}
- **Children born from fathers with obesity are more likely to develop obesity.¹⁰**
- Obesity in men may be as equally involved in the pathogenesis of infertility and embryo quality as obesity in women.¹⁰

Did you know weight loss is a fundamental part of increasing fertility?

- In anovulatory women with obesity, weight loss interventions improve the chance of unassisted conception and the ovulation rate in response to ovulation induction.¹¹⁻¹³
- Pre-pregnancy weight loss reduces the hormonal imbalances of PCOS and favourably affects female fertility factors.^{1,2,5,14}
- Two randomised controlled trials reported a 2.5-fold increase in the live birth rate and a 40% increase in the rate of ovulation in women with pre-conception weight loss.¹

In Australia...

- Almost 60% of female patients who have metabolic/bariatric surgery are 20-44 years of age.¹
- Of the women who gave birth in Australia in 2018, 20% were living with obesity - which may be associated with maternal and foetal complications.¹

Did you know that appropriately timed weight loss via metabolic/bariatric surgery can improve fertility and pregnancy outcomes for men and women?

- **Metabolic/bariatric surgery generally leads to more than 20% of total body weight loss**, which is sufficient to ameliorate PCOS, gestational diabetes and pre-eclampsia in the majority of cases.^{1,2,14}
- Metabolic/bariatric surgery significantly improves hormonal balance and sexual functions in both males and females, sperm count in males, and pregnancy in females.^{1,2,14-16}
- A study amongst women having a vertical sleeve gastrectomy showed a 66% excess weight loss when they also had PCOS compared to a 60% excess weight loss in the group without PCOS (p=0.05). In this study, 22% of the women with PCOS became pregnant within a year of bariatric surgery compared to 3% of the women in the non-PCOS group.^{2,17}
- **The incidence of infertility in women with obesity can be reduced from 18% to 4% a year after metabolic/bariatric surgery.**²

Reductions in female cancer following metabolic/bariatric surgery

- **Obesity is associated with increased risk of female-specific cancer**, such as breast and endometrial cancer.⁵
- Weight loss following metabolic/bariatric surgery has been shown to decrease the risk of; endometrial cancer by 67%, ovarian cancer by 53% and breast cancer by 49%.^{5,18}
- Research indicates that metabolic/bariatric surgery can lead to regression and healing of endometrial hyperplasia, a precancerous condition that can develop into endometrial cancer.⁵



Patient Consultation Guide

- Pregnant women with a current or past history of obesity should be managed as high risk pregnancies and receive particularly close follow-up.^{1,19}
- Metabolic/bariatric surgery for fertility should be considered and discussed with patients on a case-by-case basis.¹
- Women having metabolic/bariatric surgery in the context of infertility need close multi-disciplinary management around effective contraception, peri-conception nutrition, supplementation including higher folic acid requirements, mental health and weight management during and after pregnancy.^{1,2,11,13,15}
- Following metabolic/bariatric surgery, pregnancy should be delayed by at least 12-18 months (bariatric clinic will advise based on woman's particular circumstances/health profile) due to adverse pregnancy outcomes associated with the usually rapid weight loss soon after surgery.^{1,2,11,13,15}
- Given that some symptoms of pregnancy e.g. abdominal pain, are similar to time critical complications of metabolic/bariatric surgery e.g. small bowel obstruction, there should be good and timely collaboration between bariatric clinic, obstetrician & GP in the care of post-bariatric women of childbearing age.^{1,15}
- Metabolic/bariatric surgery can cause accelerated gastric emptying which means that some pregnant women will find it difficult to tolerate the standard oral glucose tolerance test (OGTT) for gestational diabetes. Bariatric surgery also increases the variability in results of the OGTT in these women. A non-fasting glucose challenge test is a possible alternative to an OGTT.²⁰

BMI, body mass index.

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Disclaimer: There are risks with any surgery, such as adverse reactions to medications, problems with anaesthesia, problems breathing, bleeding, blood clots, inadvertent injury to nearby organs and blood vessels, even death. Bariatric surgery has its own risks, including failure to lose weight, nutritional or vitamin deficiencies and weight regain. Patients should consult their doctor to determine whether this procedure is appropriate for their condition. Alternative options to surgery include a healthy energy-controlled diet and physical activity.

Johnson & Johnson Medical Pty. Ltd. 1-5 Khartoum Road, North Ryde NSW 2113. EOS 223040-220804. September 2022.