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Women with Obesity and Bariatric Surgery: seeking the optimal timing for pregnancy

OBESITY AND ITS COMPLICATIONS

Obesity is a complex chronic metabolic disease that affects an increasing number of individuals and is characterized by an excess of body fat that negatively impacts health and quality of life. For diagnostic purposes, body mass index (BMI) is commonly used due to its simplicity; it is calculated as body weight in kilograms divided by height squared. Overweight is defined as a BMI between 25 and 30 kg/m², and obesity as a BMI > 30 kg/m². An increased waist circumference relative to height indicates a higher risk of metabolic complications. Multiple factors contribute to obesity, including genetic predisposition, unhealthy diet, sedentary lifestyle, stress, among others. Biological factors explain why, in the same unfavorable environment, some individuals are more prone to weight gain than others.

In Spain, according to the most recent statistics, obesity affects 18.7% of adults (18% of women). More than 200 obesity-related complications have been described, including diabetes, hypertension, joint disease, respiratory disorders, and increased cancer risk. Regarding women's health, obesity is closely associated with polycystic ovary syndrome and increases the risk of infertility and pregnancy-related complications (1–3). It is estimated that half of pregnant women in Spain are overwei-

ght or obese, and 8.3% have severe obesity (BMI > 35 kg/m²). **Table 1** illustrates the most relevant obesity-related complications during pregnancy.

Treatment of obesity requires a comprehensive approach, including a healthy diet, physical activity, and other lifestyle changes. New pharmacological treatments for obesity promote weight loss and improve obesity-related complications. However, these drugs are not without risks, including loss of muscle mass, and should therefore be prescribed by experienced physicians with appropriate follow-up.

Bariatric surgery is indicated in individuals with severe obesity who have had an insufficient response to medical treatment, with a BMI > 40 kg/m² or ≥ 35 kg/m² in the presence of comorbidities. Several surgical techniques are available, the most widely used being sleeve gastrectomy and gastric bypass (4). Bariatric surgery achieves sustained weight loss and improves obesity-related complications.

PREGNANCY AND BARIATRIC SURGERY: RISKS AND BENEFITS

Bariatric surgery reduces many of the risks associated with obesity during pregnancy:

- It **improves fertility**, particularly in cases of polycystic ovary syndrome.
- It **reduces most obesity-related pregnancy complications**, such as gestational diabetes, hypertensive disorders of pregnancy, and fetal macrosomia. Its impact on the need for cesarean section is unclear. Bariatric surgery does not increase the risk of congenital malformations.

However, surgery per se carries **specific risks** that must be considered:

- Bariatric surgery **reduces food intake and nutrient absorption**. During pregnancy, this may lead to vitamin and mineral deficiencies, anemia, reduced neonatal birth weight, and other complications.
- Some surgical techniques may predispose to postprandial **hypoglycemia**.
- Although very rare, surgical complications may occur during pregnancy that require surgical intervention, such as internal hernia.

Bariatric surgery does not increase the risk of congenital malformations in the newborn (5).

PREGNANCY AND BARIATRIC SURGERY: PRACTICAL RECOMMENDATIONS

- Planning Surgery and Pregnancy:

TABLE 1:

CONSEQUENCES OF EXCESS WEIGHT DURING PREGNANCY	
■	BEFORE PREGNANCY: <ul style="list-style-type: none"> • Obesity-related complications: diabetes, hypertension. • Infertility.
■	DURING PREGNANCY: <ul style="list-style-type: none"> • Worsening of pre-existing conditions. • Gestational diabetes. • Hypertensive disorders of pregnancy. • Other complications: depression, thrombosis.
■	LABOR AND DELIVERY <ul style="list-style-type: none"> • Increased risk of complications.
■	NEWBORN <ul style="list-style-type: none"> • Increased birth weight. • Hypoglycemia. • Higher risk of congenital malformations.
■	LONG TERM <ul style="list-style-type: none"> • Increased risk of metabolic complications in both the mother and her offspring.

FIGURE 1

Strategies for a Healthy Pregnancy After Bariatric Surgery

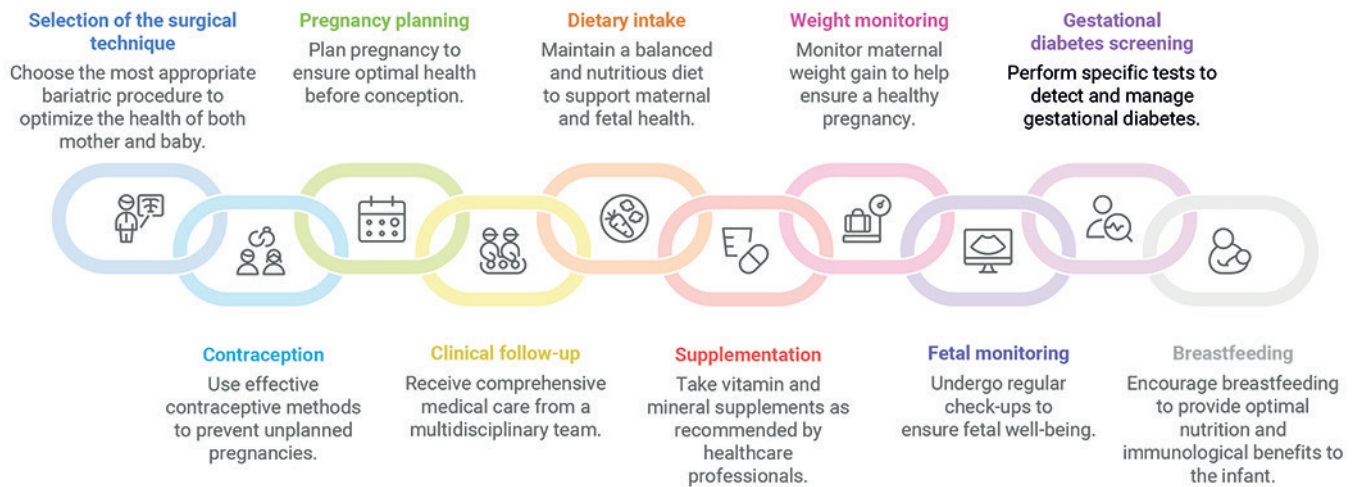


Figure 1 illustrates these recommendations, which are also included in the patient information section of the SEEN Manual: <https://www.seen.es/documentos/verDocumento/informacion-pacientes-gestacion-pacientes-cirugia-bariatrica>

» In women with severe obesity who wish to conceive and are considering bariatric surgery, the risks and benefits of each surgical technique must be carefully weighed to select the most appropriate option. There is currently insufficient evidence to recommend one technique over another; therefore, the choice should be individualized by the medical team, with particular caution regarding malabsorptive procedures due to their higher risk of nutritional deficiencies.

Pregnancy should be planned in coordination with the clinical team. Scientific societies recommend avoiding pregnancy during the first 12 months after bariatric surgery (6). Adequate contraception during this period is essential. Oral contraceptives may be less effective, particularly in the presence of nausea or vomiting or due to reduced absorption after gastric bypass.

Women wishing to become pregnant should inform their medical team in advance so that a preconception visit can be scheduled. This allows treatment adjustments, correction of micronutrient deficiencies prior to pregnancy, and planning of closer follow-up during gestation.

- **Follow-up During Pregnancy**

Pregnant women with a past medical history of bariatric surgery require close monitoring, including at least quarterly follow-up by the endocrinology and nutrition team, as well as obstetric follow-up. In some cases, more frequent monitoring may be necessary if nutritional deficiencies are detected or if reduced fetal growth is observed on third-trimester ultrasound examinations. Close communication between endocrinology and obstetrics teams is strongly recommended.

Regarding dietary recommendations and weight monitoring, adequate intake of energy, protein, and other essential nutrients is required. Studies show that many women receive insufficient nutrient intake, which may have adverse effects on maternal and neonatal health. Recommended gestational weight gain is the same as for women without prior bariatric surgery. Weight gain below recommendations may reduce neonatal birth weight, whereas excessive weight gain increases the risk of gestational diabetes and other complications.

Monitoring of **vitamin and mineral** status is particularly important during this period (7). Pregnancy increases requirements for most micronutrients, which are essential for maternal and fetal health. For example, deficiencies in iron, folic acid, or vitamin B12 may lead to anemia; vitamin D deficiency negatively affects »



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» bone health and may increase the future risk of metabolic and immune diseases. Conversely, excessive doses of certain nutrients may be harmful during pregnancy. Therefore, close clinical and laboratory monitoring by an experienced team is essential. As a general rule, pregnant women are advised not to modify or discontinue their usual supplements without consulting their endocrinology team. In most cases, standard prenatal vitamin supplements are insufficient for women with a history of bariatric surgery, and more specific supplementation for post-bariatric patients is usually required.

Screening and **diagnosis of gestational diabetes** must take into consideration prior bariatric surgery (8). Overall, oral glucose tolerance testing is not recommended. Instead, depending on individual risk, capillary blood glucose monitoring is advised at 24–28 weeks of gestation. In women with additional risk factors, screening may be performed during the first trimester. Regardless of gestational diabetes status, all pregnant women with prior bariatric surgery should follow a diet restricted in rapidly absorbed carbohydrates to reduce glycemic variability.

Labor and postpartum care should follow the same recommendations as in the general population, while considering individual risks and pregnancy-related complications. **Breastfeeding** is recommended, as in the general population (9).

- Follow-up of the Newborn

Children may have an increased risk of obesity, partly influenced by genetic factors (10). This risk is higher if birth weight is either above or below normal or if the mother developed diabetes during pregnancy. Follow-up should be adapted to individual risk, with particular emphasis on the early adoption of healthy lifestyle habits. **D**

CONCLUSIONS

1. Obesity increases the risk of pregnancy-related complications.
2. Bariatric surgery improves fertility and reduces the risk of certain complications, such as gestational diabetes, hypertension, and fetal macrosomia.
3. Due to its effects on nutrient intake and absorption, bariatric surgery may increase the risk of anemia, vitamin and mineral deficiencies, and lower neonatal birth weight.
4. Close clinical follow-up by a multidisciplinary team is required.
5. Women with a history of bariatric surgery who wish to conceive should plan pregnancy in collaboration with their clinical team.

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