# Pregnancy after bariatric surgery

Pregnancy after bariatric surgery is safe for both mother and baby and has excellent outcomes for both mother and baby, however, becoming pregnant in the first 12 months post-surgery and, particularly whilst you are still losing weight, is not recommended as this can lead to a higher incidence of miscarriage, small birth weight babies and C-sections.

Post bariatric surgery, a prospective mother has a higher risk of nutritional deficiencies both before and during the pregnancy and these can have effects on both the mother and the unborn baby. Therefore, pregnancy after bariatric surgery is best planned to ensure everything is done for a healthy and safe outcome.

**I am wanting to start trying for a baby, what are my first steps?**

Once you are 12 months post your surgery and your weight has stabilised, we look forward to managing your pregnancy as part of your care team. Make an appointment to come and see your dietitian. It is essential to do this several months before trying to conceive as some of the nutrients vital for baby are particularly important in the first few weeks' post conception when many people are not even aware they are pregnant! Any undiagnosed nutritional deficiencies at this stage may put mother/baby at risk. Education will include:

- Weight review
- Obtaining a full set of nutritional bloods
- Reviewing your current multivitamin/mineral regimen
- Correcting any nutritional issues
- Changing to appropriate conception/pregnancy multivitamins/minerals with particular emphasis on folate (pending current BMI), calcium, vit D and iron if needed
- Weight gain during pregnancy (based on BMI)
- Glucose tolerance test (OGTT) management
- Symptom management
- Emotional support

It is recommended that you stay on your special bariatric multivitamin that contains a minimum of 400mcg of folate and a maximum of 3000IU (900mcg) Vitamin A {doses of vitamin A in the retinol form can be dangerous to the baby above 10,000IU (3000mcg)} FFM™ opti and forte and BN multi™ are considered safe to continue in pregnancy as well under the safe limit, but Barilife Just one™ and many over the counter supplements may have too higher level of vitamin A. This will be discussed with you at the pre-conception consult and changed if needed.

Continuing with your normal vitamin D and calcium is advisable.

Based on your ferritin (iron stores) level, a low dose iron supplement may also be advised. This will be discussed at your pre-conception consult.

If your BMI remains >30 then it is recommended that you also start an extra folate supplement of 5mg per day. This can be done using megafol™ 5mg from the pharmacy and needs to be taken one month before conceiving and for the duration of the first trimester.


**I am pregnant, what follow up do I require?**

Merril Bohn, dietitian October 2021

If this is your first baby, then establishing your team is your first priority. This will include an obstetrician (OB), shared care, hospital clinic etc. If your BMI remains > 40 you will be advised to have your care/baby in a level 3 hospital providing a special care nursery onsite as a precaution. Your bariatric team is happy to liaise with your OB team as they may not have had a lot of experience managing pregnancies post bariatric surgery.

We will be keen to know how the baby is growing according to your dates, so regular scans with your OB are advised.

We will also assist you in monitoring your weight, symptoms, nutrition and blood work during the pregnancy and it is advisable to check in every trimester to see how you are tracking and have your bloods monitored.

**Some possible issues that may be more difficult post bariatric surgery include:**

**Hydration** – the nature of the weight loss surgery means it is more difficult to get a lot of fluid in quickly and this can be even more difficult if you are having any nausea/vomiting with your pregnancy. Going back to sipping slowly and continuously throughout the day is best, aiming to get in a minimum of 1.5L of total fluid each day. Electrolyte drinks such as hydrolyte™ may be helpful.

**Morning sickness (hyperemesis)** – This can occur any time of the day. Thankfully, it usually improves in the second trimester but can be challenging in the early stages. Avoiding getting over tired helps, as well as having small, frequent meals and including some complex carbohydrate (eg. multigrain bread, crackers) in these meals/snacks. Some people find ginger helpful. If severe, some anti-nausea medications are considered safe in pregnancy so speak to your OB about having these prescribed. If you feel you are becoming dehydrated because of hyperemesis, you may require hydration via an IV drip and this can be organised by your OB.

It is very important to take some extra thiamine (vitamin B1) if you are experiencing excessive vomiting. Natures Own™ Vitamin B1 is available at the pharmacy, one tablet/day until the vomiting settles. If you require an IV drip, please advise that you have had bariatric surgery and may need extra vitamin B1 and the hospital can contact your surgeon for advice.


**Reflux** – is common in pregnancy especially in the first and last trimesters. Having small, frequent meals, avoiding fluids with meals and <u>not</u> eating close to lying down can help. Antacids containing calcium carbonate, magnesium oxide and magnesium hydroxide such as Mylanta™ are considered safe during pregnancy.

**Constipation** – is common as the gut slows down to ensure the growing baby gets all the nutrients it needs. Make sure you are having fibre containing foods (multigrains, seeds, nuts, fruit, vegetables, oats and pulses) and plenty of fluid (at least 1.5L per day). Benefibre™ can be added safely to the diet as a natural fibre supplement. A small serve of prune or pear juice also contain a natural laxative that can help. High dose iron supplements can contribute to constipation but some forms are better than others, so speak to your dietitian about possibly changing dose/brand.

**What is the recommended weight gain at my BMI?**

The Australian govt. recommends the following:

| Pre-conception BMI | 18.5 – 24.9 | 25 – 29.9 | 30 – 34.9 | 35 – 39.9 | >40 |
|---|---|---|---|---|---|
| Recommended weight increase | 11.3 – 15.9kg | 6.8 – 11.3kg | 5 – 9kg | 5 – 9kg | 5 – 9kg |

**What other tests do I require once I am pregnant? –** between 24 and 28 weeks pregnant every woman is required to be tested for gestational diabetes (diabetes in pregnancy). This is usually done via an oral glucose tolerance test (OGTT). After a gastric sleeve or a bypass, many women cannot tolerate the glucose drink used and therefore we need to find an alternative way to test. It is recommended that a fasting blood glucose level (FBG) and a HBA1C be conducted at this time, but you may also be required to do a capillary blood glucose (CBG) or continuous blood glucose monitoring (CBGM) for 1 - 2 weeks during this time. Your OB will advise you of what you need to do.

It is recommended that you get your usual extensive blood screening not only pre-conception, but also once every trimester and this can be organised through us as part of your treatment team.

**Abdominal pain during pregnancy** – if you are experiencing abdominal pain during your pregnancy this is not normal and you need to contact your surgeon who may organise tests to rule out a medical cause.

**Can I breast feed post bariatric surgery**? – there should be no reason for you not to be able to breast feed post bariatric surgery so long as you can meet both your nutritional and fluid needs to support both yourself and your new baby.

**After I have my baby**

All women will take 6 – 12 months to return to their pre-pregnancy weight and shape. Your dietitian can help guide you on what to expect and how to help you return to your pre-pregnancy weight in a healthy way.

**We are here to help as part of your OB team so please call/email if you have any questions:**

**MCBS** PH: 9958 3000 (Carol / Melissa) carol@melbournecbs.com.au

**Dietitian (Merril)** PH: 0405 005 354 / merril@melbourneobesitysurgery.com.au

References: 1.Pregnancy after BS: consensus recommendations for periconception, antenatal and postnatal care, Shawe et al, Obesity Reviews, 2019.

2. The King Edward Memorial Hospital (WA) Pregnancy Post Bariatric Surgery
3. The Australian Government Guidelines (based on the IOM) re: weight increase in pregnancy

# HEALTHY EATING DURING YOUR BARIATRIC PREGNANCY

- It is important **to eat a good variety of foods during pregnancy**. These food groups include: protein rich foods, fruits and vegetables, dairy and dairy alternatives and starchy carbohydrates such as bread, rice, pasta, potatoes.
- Continue to **prioritise protein containing foods such as chicken, red meat, fish, beans, lentils, tofu, soya, eggs, dairy and dairy alternatives**.
- Aim to **fill half of your plate with protein rich foods**, and the remaining two quarters of the plate with vegetables or salad and carbohydrates. **Remember your daily protein requirement: 70-100g per day**.
- **Choose healthy protein rich snacks** in between meals such as a handful of nuts, hummus with carrot sticks, low-fat cheese and crackers, a protein bar, high protein yogurt, glass of skimmed/semi-skimmed milk, cooked chicken or ham slices, low-fat custard, rice pudding.
- **Avoid snacks high in fat and sugar** to prevent dumping syndrome symptoms and avoid excessive weight gain.
- Aim to **drink at least 1.5-2L of fluids** throughout the day (avoid sugary and fizzy drinks, and avoid alcohol).
- If you feel nauseous and cannot manage a meal, then try to have a **protein shake or protein yoghurt** as you may be able to tolerate this better.
- **Continue to follow the golden rules**; eating slowly, chewing thoroughly, separating eating and drinking, and stop eating when you feel full.
- Continue to use your **side plate and small cutleries**

**Caffeine:**
Limit caffeine intake no more than 200mg per day. There is:

- 100mg in a mug of instant coffee
- 140mg in a mug of filter coffee
- 75mg in a mug of tea (green tea can have the same amount of caffeine as regular tea)
- 40mg in a can of cola
- 80mg in a 250ml can of energy drink

**Alcohol:**
If you are pregnant or planning to get pregnant, the safest approach is to not drink alcohol at all. Drinking alcohol in pregnancy can lead to long-term harm to your baby.

Merril Bohn, Dietitian, October 2021

**Listeriosis** – the NSW Government has a very clear document on those foods that are/ and are not safe during pregnancy.

http://www.foodauthority.nsw.gov.au/foodsafetyandyou/life-events-and-food/pregnancy/foods-to-eat-or-avoid-when-pregnant

**Mercury in foods –** from the NSW Government, https://www.foodauthority.nsw.gov.au/consumer/life-events-and-food/pregnancy/mercury-and-fish

## Breastfeeding

Your antenatal team will discuss feeding techniques, including breastfeeding during your pregnancy. Here are some points to consider:

- Breast milk is unique and meets a baby's nutritional requirements. The World Health Organization (WHO) recommends exclusive breastfeeding until your baby is six months of age. From six months of age, babies require additional nutrition provided by solid foods (weaning), and breastfeeding alongside this is recommended. There are no known contraindications for mother's breastfeeding after bariatric surgery.
- Breastfeeding normally uses around 500 calories a day once established. You do not usually need to eat extra calories for this (unless you have lost a lot of weight or are underweight). Continue to have regular protein rich meals and snacks, and foods rich in calcium such as dairy foods and dairy alternatives throughout the day, to ensure that you and your baby are receiving adequate nutrition.
- You are not required to take additional vitamins and minerals other than the usual post-operative recommendations summarised above. If you do not take your vitamins and minerals routinely, this may cause vitamin and mineral deficiencies that may affect the quality of your breast milk.

**CLINICAL PRACTICE GUIDELINE**

# Pregnancy Post-Bariatric Surgery - Dietary Management

**This document should be read in conjunction with the Disclaimer**



## Aim

The aim of this guideline is to provide an overview of the key points of medical nutrition therapy (MNT) for the dietary management of: Pregnancy post-bariatric surgery, consistent with best practice and current evidence.

## Background

Pregnant and postpartum women post-bariatric surgery are at risk of nutrient deficiencies due to increased nutrient needs, surgery-induced changes to intake, absorption, and metabolism of nutrients(1).

Royal Australian and New Zealand College of Obstetricians (RANZCOG) recommends referral of all patients in pregnancy post-bariatric surgery to a dietitian for assessment and monitoring since additional nutrient supplementation may be required during pregnancy(2).

## Management Goals

Dietetic management of pregnancy post-bariatric surgery aims to:

- Early Referral to Dietitian.
- Assess the patient's current nutritional status and detection and prevention of nutritional deficiencies.
- Promote a diet which is nutritionally adequate for pregnancy and lactation.
- Promote healthy gestational weight gain (GWG) based on pre-pregnancy body mass index (BMI) consistent with the Institute of Medicine (IOM)(3) and RANZCOG guidelines(2).
- Promote regular safe exercise.
- Avoid ketonuria/ ketonemia.

## Medical Nutrition Therapy

Medical nutrition therapy for pregnancy post-bariatric surgery should include the following:

### Nutrition Assessment

| Topic | Management |
|---|---|
| **Past medical history** | Timing and type of surgery (note: if less than 12-18 months post-op be particularly alert of nutritional deficiencies).<br>Complications and co-morbidities.<br>History of deficiency and compliance with post-surgery supplementation. |
| **Medications and supplements** | Chronic use of certain medications can exacerbate:<br>• Nutrient deficiencies with examples as follows:<br>  ○ Proton-pump inhibitors: Vitamin B12, Vitamin C, Calcium, Iron and Magnesium.<br>  ○ Anticonvulsants: Calcium and Vitamin D.<br>  ○ Metformin: Folate and Vitamin B12.<br>  ○ Colchicine (treatment of gout): Vitamin B12<br>  ○ Neomycin (antibiotic): Vitamin B12<br>• Constipation with examples as follows:<br>  ○ Antacids (e.g. Rennie, Mylanta)<br>  ○ Doxylamine (e.g. Restavit for N&V)<br>  ○ Opioids<br>  ○ Calcium and Iron Supplements<br>  ○ Diuretics |
| **Diet history** | • Food and fluid intake<br>• Aversions and intolerances<br>• Nutrition and health awareness<br>• Food availability<br>• Psychosocial and economic issues impacting nutrition therapy and co-morbidities |

| Topic | Management |
|---|---|
| **Weight history** | • Height, pre-pregnancy weight, pre-pregnancy BMI, current weight.<br>• Assess gestational weight status in context of pre-pregnancy BMI and fetal growth scans.<br>• Determine duration of weight stability post-bariatric surgery - if experiencing active weight loss be alert of nutritional insufficiency. |
| **Nutrient deficiency** | • For **all** women at the beginning of pregnancy, or as soon as possible, screen for the nutrients listed below(4):<br>  ○ Iron studies.<br>  ○ Folate (RBC folic acid optional).<br>  ○ B12<br>  ○ Vitamin D.<br>  ○ Vitamins A and E.<br>  ○ Thiamine.<br>  ○ Optional:<br>  ▪ Copper (i.e. In persistent iron deficiency or zinc supplementation).<br>  ▪ Zinc and Selenium if deficiency is suspected (i.e. gastric bypass surgery).<br>  ▪ Vitamin K using INR<br>• **Re-conduct** blood tests every trimester for gastric bypass patients and for all other patients as clinically indicated needed (5). |
| **Diabetes screening** | Assess likelihood of tolerating oral glucose tolerance test. Liaise with team to organise alternative screening (e.g. FBGL or HbA1c) as required:<br>• Lap/gastric band: Most women tolerate the OGTT well.<br>• Gastric Sleeve: OGTT normally well tolerated when more than 12-18 months since surgery although consider potential for reactive hypoglycaemia.<br>• Roux-en-Y Bypass: Most women can NOT tolerate the OGTT.<br>Refer Diabetes in Pregnancy for OGTT policy for patients post-bariatric surgery. |
| **Gastrointestinal symptoms** | Assess any gastrointestinal symptoms of:<br>• GORD<br>• Dumping syndrome<br>• Vomiting – recurrent vomiting<br>• Decreased appetite/early satiety<br>• Regurgitation<br>• Constipation/Diarrhoea<br>• Steatorrhea (i.e. post-gastric bypass surgery)<br>• Abdominal pain/bloating |

## Nutrition Diagnosis

- Based on the assessment the Dietitian makes an initial nutrition diagnosis using Nutrition Care Process Terminology (NCPT), which could include, but is not limited to:
  - Obesity (class I, II, or III).
  - Swallowing difficulty.
  - Altered gastrointestinal (GI) function.
  - Growth rate below/above expected.
  - Unintended weight loss
  - Inadequate protein intake.
  - Limited adherence to nutrition-related recommendations.
  - Food and nutrition related knowledge deficit.
  - Undesirable food choices.
  - Excessive oral intake.
  - Excessive energy intake.
  - Inadequate oral intake.
  - Inadequate energy intake.
  - Inadequate vitamin intake (specified) / predicted suboptimal vitamin intake.

## Nutrition Intervention

| Topic | Management |
|---|---|
| **Weight management** | • Discuss GWG goals based on pre-pregnancy BMI(2, 3), current gestational weight status, timing of surgery and duration of weight stability, and fetal growth scans.<br>• Encourage up-to-date Physician or Surgeon review of fluid in gastric bands with the aim of achieving optimal nutritional intake, hydration, and normal fetal growth(6). |
| **Diet education** | • Diet and lifestyle strategies to optimise diet, minimise nutrition impact symptoms, support healthy gestational weight and fetal growth with provision of relevant written resources.<br>• An energy restricted diet (≈1600 Cal) is recommended for women who continue to have obesity in pregnancy: See 'Better Lifestyles and Obstetric Outcomes for Mothers (BLOOM) Program'.<br>• When GWG is inadequate and/or there are increased protein/energy requirements discuss dietary methods to improve intake +/- prescribe additional oral nutritional supplements as indicated. Check for ketones if there is any concern with carbohydrate restriction.<br>• Ensure adequate hydration and fibre, as per NRVs(7).<br>• As required, discuss postnatal dietary management to support nutrient sufficiency (including during lactation) and healthy weight (8, 9). |
| **Supplements** | • Standard pregnancy-approved multivitamin (ideally containing beta carotene)(4) |

| Topic | Management |
|---|---|
| | • For high risk pregnancies, including all obese women, a mega dose of **5.0 mg** folic acid/daily is recommended three months prior to conception, and throughout the first trimester (refer Folic Acid Supplementation). For all other women supplement with **0.5 mg** folic acid/daily.<br>• Additional supplementation as required to meet deficiencies. Pls refer to appendix Appendix 1 and 2 |
| **Gastrointestinal symptom management** | • First-line treatment of gastrointestinal symptoms is dietary management where possible.<br>• Where pharmacotherapy may be indicated (e.g. pancreatic enzymes to assist in digestion), discuss with team consultant.<br>• Constipation is common – 1. Lifestyle intervention: ensure adequate hydration 6-8 glasses fluid/day), dietary fibre (25-35g/day) and physical activity. 2. May recommend bulk-forming laxative: e.g. Benefibre/wheat dextrin, Metamucil/psyllium husk, Fybogel/ispaghula husk). 3. Other aperients as appropriate (see Bowel Care guideline).<br>• Regurgitation is usually from eating too fast or too large a quantity at any one time, otherwise the issue may need further investigation by a specialist.<br>• Dumping Syndrome - recommended dietary management (10):<br>  ○ Early dumping occurs within 1 hour of eating. Management includes small frequent meals, drink liquids between meals.<br>  ○ Late dumping syndrome occurs 1-3 hours after eating and results in post-prandial reactive hypoglycaemia. Recommend a diet of low glycaemic index (GI) carbohydrate combined with protein and fat.<br>  ○ **Treatment of Post-prandial Reactive Hypoglycaemia:** LOW GI carbohydrate (e.g. wholegrain crackers) with a source of protein and fat (e.g. peanut paste or cheese).<br>• **NB:** Be suspicious of abdominal symptoms (e.g. epigastric pain, distension/bloating) as intestinal obstruction during pregnancy is possible following abdominal surgery. Band slippage may cause severe vomiting. Discuss with team consultant(8). |
| **Physical Activity** | Encourage 30 minutes of planned physical activity/day as tolerated. |

**Monitoring and Evaluation**

- Dietitians plan ongoing monitoring and evaluation of women who are pregnant post-bariatric surgery based on their progress, gestational weight gain/fetal growth, comorbidities and measurement and evaluation of the outcomes from the prescribed nutrition intervention.
- Frequency of follow-up:
    - Gastric Bypass (e.g. BPD or RYGB): Initial consult and a minimum of one (1) review each trimester based on clinical need.
    - Gastric sleeve or gastric band: Initial consult. Ongoing review as needed.

## Resources

The following resources could be considered for women with obesity in pregnancy or pregnancy after bariatric surgery:

- KEMH BLOOM Diet Plan and supplementary resources – menu plans, tips for exercise, common diet strategies, menu planning, budgeting, shopping lists;
- RANZCOG Weight Management in Pregnancy patient handout, 2015 (not available online);
- Queensland Clinical Guidelines Patient Information Sheet – Weight Management in Pregnancy;
- Nutrition Education Materials Online (NEMO). Weight gain during pregnancy chart for tracking GWG:
    - Pre-pregnancy BMI <25 kg/$m^2$
    - Pre-pregnancy BMI >25kg/$m^2$

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## Related policies

RANZCOG Management of Obesity in Pregnancy, 2017

## Related WNHS policies, procedures and guidelines

Anaemia and iron deficiency: Management in pregnancy and postpartum

Bowel Care

Dietitian Referral

Increased Body Mass Index - Management of a woman with Diabetes in Pregnancy

Vitamin B12 Deficiency during Pregnancy

Vitamin D Deficiency in Pregnancy

Folic Acid Supplementation

| | | | |
|---|---|---|---|
| File path: | WNHS.DIET.PregnancyPostBariatricSurgery-DietaryManagement | | |
| Keywords: | Bariatric, obesity, obese, pregnancy, weight gain, overweight, body mass index, BMI, BLOOM, better lifestyle and obstetric outcomes for mothers | | |
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