Schweizerischer Verband der Ernährungsberater/innen
Association suisse des diététicien-ne-s
Associazione Svizzera delle-dei Dietiste-i
SVDE ASDD

Guidelines for Pregnancy After Bariatric Surgery

A work of the Bariatric Specialist Group 2019

C. Milone, N. Greub, U. Hirsiger, C. Jordi, U. Schulz, F. Staub, M. Wessner, N. Killer, J. Schärli, N. Imbach, N. Seiler.

A pregnancy after bariatric surgery requires special attention, as a deficiency in protein and certain vitamins and minerals can have serious negative effects on the development of the fetus and the expectant mother.

In the past, there were no official recommendations in Switzerland for pregnant women after bariatric surgery. In 2018, the SVDE Bariatric Specialist Group addressed this topic and, in collaboration with gynecologists, bariatric surgeons, endocrinologists, and other physicians specialized in bariatric care, developed recommendations.

Obesity is often associated with fertility disorders as well as increased pregnancy risks (pregnancy-induced hypertension, preeclampsia, gestational diabetes, preterm birth, miscarriages, macrosomia, increased cesarean rates). Weight loss increases fertility and reduces the rate of pregnancy complications (2,4,9,10).

Patients should not become pregnant within the first 12–18 months after surgery, as this may pose a risk to the unborn child due to the catabolic postoperative phase (2,10).

Oral contraceptives are no longer a reliable method of contraception after bariatric surgery, as the reduction in absorption surface due to anatomical changes in the small intestine means that pill absorption is no longer guaranteed. Intrauterine devices or mechanical contraceptive methods are recommended (9,10).

Due to bariatric surgery, it is recommended to treat the current pregnancy as a high-risk pregnancy. In addition to regular prenatal check-ups, this includes the involvement of a registered dietitian (SVDE) experienced in the care of bariatric patients to monitor eating behavior and energy intake, including weight control. Adequate intake of protein and micronutrients should also be ensured (2).

In bariatric surgery patients, the classic oral glucose tolerance test (oGTT) is contraindicated for diagnosing pathological glucose tolerance. Experience shows that glucose rises very rapidly during this test, and there is a risk of early as well as late dumping with symptomatic hypoglycemia as early as 90 minutes. Preferably, a diabetes specialist should instruct capillary blood glucose self-monitoring. To detect pre-existing diabetes mellitus before conception, HbA1c should be determined as early as possible. However, HbA1c is not suitable for diagnosing gestational diabetes (16).

The following table on weight gain during pregnancy contains general recommendations from the Institute of Medicine (IOM). Studies on specific recommendations after bariatric surgery are not available. In pregnancies after bariatric procedures, recommendations for weight gain may vary, so individual assessment by the treating physicians must be considered (9).

Recommended weight gain according to IOM during pregnancy based on body mass index (BMI; kg/m²)

BMI before pregnancy	Total recommended weight gain (kg)	Recommended weekly weight gain (kg)
Underweight	<18.5	12.5–18
Normal weight	18.5–24.9	11.5–16
Overweight	25–29.9	7–11.5
Obesity	≥30	5–9

Twin pregnancy

BMI category	BMI	Recommended weight gain (kg)
Underweight	n/a	
Normal weight	18.5–24.9	16.8–24.5
Overweight	25–29.9	14.1–22.7
Obesity	≥30	11.4–19.1

The following laboratory tests are recommended in each trimester for all bariatric patients without pre-existing deficiencies:

- Blood count
- AST, ALT, γ-GT
- In case of hyperemesis: B1, chloride, potassium
- B6, B12, holotranscobalamin
- Folate in erythrocytes
- Ferritin
  (if possible maintain >50 ng/ml before pregnancy; supplementation only possible from 2nd trimester)
- Vitamin A, D (25-OH), K
  (Vitamin K: INR value is preferable; only important for distal gastric bypass or biliopancreatic diversion)
- Zinc, copper, selenium
- Albumin, if necessary prealbumin
- Corrected calcium
- PTH
- Capillary fasting plasma glucose (specific for gestational diabetes)

Subsequently, an overview of recommended vitamin and mineral supplementation is provided. Particular attention should be paid to the highlighted contents, as these are especially important for the child's development.

Guidelines for pregnancy post-bariatric surgery

(without pre-existing deficiencies)

SVDE Bariatric Specialist Group

Supplement	Recommendation	Remarks / Upper Limits (UL)
Multivitamin preparation	Prenatal vitamin or multivitamin with 200% of daily requirement	
Vitamin A	mg equivalent/day	UL 3000 µg/day / UL 10,000 IU/day
Calcium	1500–2000 mg/day	Calcium citrate better absorbed. Not more than 500 mg at once. Do not take with iron (wait 2 hours). UL 2500 mg/day
Vitamin B12	300–500 µg/day sublingual, spray, injection, tablet OR 1000 µg i.m./s.c. every 3 months	
Vitamin B6	In multivitamin preparation	UL 100 mg/day
Vitamin B1	(caution in frequent vomiting)	
Iron	At least 60 mg/day orally, possibly additional supplementation	UL 45 mg/day
Folate	600 µg/day from multivitamin (+ 400 µg/day additionally but max. 1000 µg/day – already when trying to conceive)	UL 1000 µg/day
Iodine	200 µg/day	
Zinc	20–30 mg/day	UL 40 mg/day
Vitamin D3	2000–4000 IU/day	
Protein	70 g/day or 1.1–1.5 g/kg body weight (normal weight)	
DHA fatty acids	200 mg/day	

The recommendations of the SVDE Bariatric Specialist Group were developed independently of the SMOB concept, which has since been established.

Acknowledgements:

Prof. Dr. med. R.S. Hauser, Dr. med. M. Hodel (President of the Academy for Fetomaternal Medicine, AFMM), Dr. med. B. Isenschmid (Chief Physician, Competence Center for Eating Behavior, Obesity and Psyche, KEA), Dr. med. S. Fischli (Co-Chief Physician Endocrinology/Diabetology LUKS), Dr. med. M. Sykora (Chief Physician Obesity Center Central Switzerland, LUKS), Dr. med. W. Decking, Dr. med. A. Siegfried, Dr. med. U. Bärtsch, Dr. med. M. Potoczna.

References:

D-A-CH reference values for nutrient intake. SGE, SSN. 2016.

Mechanick JI, Kushner RF, Sugerman HJ, et al. AACE/TOS/ASMBS Guidelines. American Association of Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic & Bariatric Surgery Medical Guidelines for Clinical Practice for the Perioperative Nutritional, Metabolic, and Nonsurgical Support of the Bariatric Surgery Patient. Endocrine Practice. 2008;14 (1).

Schultes B, Ernst B, Thurnheer M. Bariatric surgery and pregnancy. Schweiz Med Forum. 2010;10(17):304-307.

Kjaer MM, Lauenborg J, Breum BM, Nilas L. The risk of adverse pregnancy outcome after bariatric surgery: a nationwide register-based matched cohort study. Am J Obstetrics & Gynecology. 2013;208(6):464.e1–464.e5.

Weiner RA. Obesity surgery. Surgical technique, complication management, aftercare. Urban & Fischer, Munich, 2009.

Institute of Medicine, Food and Nutrition Board. National Academy of Sciences. Dietary Reference Intakes: The Essential Guide to Nutrient Requirements. National Academies Press, Washington, DC; 2006.

Institute of Medicine. National Academy of Sciences. Weight gain during pregnancy: re-examining the guidelines. National Academies Press, Washington, DC; 2009.

Harris AA, Barger MK. Specialized Care for Women Pregnant after Bariatric Surgery. JMWH. 2010;55:529–539.

Ouyang D. Fertility and pregnancy after bariatric surgery. UpToDate, 2016.

Schultes B, Ernst B, Thurnheer M. Bariatric surgery and pregnancy. Schweiz Med Forum. 2010;10(17):304–307.

Kominiarek MA. Preparing for and managing a pregnancy after bariatric surgery. Semin Perinatol. 2011;35(6):356–361.

Otten, J. J., Hellwig, J. P., & Meyers, L. D. (Eds.). (2006). Dietary reference intakes: the essential guide to nutrient requirements. National Academies Press.

McFadden DT. RDN Quick Guide to: Breastfeeding after Weight Loss Surgery. Weight Management. Academy of Nutrition and Dietetics. 2017.

SVDE, ASDD. Info. Experiences and developments in bariatric surgery. October. 5/2015.

Aills L, Blankenship J, Buffington C, Furtado M, Parrott J. ASMBS Allied Health Nutritional Guidelines for the Surgical Weight Loss Patient. 2008.

Adam S, Ammori B, Soran H, Syed AA. Pregnancy after bariatric surgery: screening for gestational diabetes. BMJ. 2017;356:j533.

Mithal A, Kalra S. Vitamin D Supplementation in Pregnancy. Indian J Endocrinol Metab. 2014;18(5):593–596.

Hollis BW, Johnson D, Hulsey T, Ebeling M, Wagner CL. Vitamin D Supplementation during Pregnancy: Double Blind, Randomized Clinical Trial of Safety and Effectiveness. J Bone Miner Res. 2011;26(10):2341–2357.