Guidelines for the prescribing of nutritional supplements post bariatric surgery

Prescribing recommendations:

NHS patients should be directed to purchase nutritional supplements that are available over the counter (OTC) post-bariatric surgery if they have had an adjustable gastric band fitted or sleeve gastrectomy (postoperative risk of impaired absorption is low) – **LSCMMG RAG status 'Do not prescribe'**

NHS patients should be prescribed nutritional supplements post-surgery if they have received a gastric bypass, one anastomosis bypass or duodenal switch (postoperative risk of impaired absorption is high) – **LSCMMG RAG status 'Amber 0'**

1. Introduction

The main bariatric surgeries are gastric band, sleeve gastrectomy, gastric bypass (Roux-en-Y), one anastomosis bypass (treat as gastric bypass) and duodenal switch. Recommendations for postoperative supplementation vary in accordance with the type of procedure:

	Patient to purchase supplements OTC – except those items only available on prescription		**Supplements to be prescribed**				
Nutritional Supplement	**Procedure**			**Product Example**	**Indicative BNF price (January 2022)/month**	**Dosage**	**Course Length**
	Laparoscopic Adjustable Gastric Band (the patient **must** be advised to purchase Forceval® OTC)	**Laparoscopic Sleeve Gastrectomy** (the patient **must** be advised to purchase Forceval®, Iron and Calcichew® D3 Forte OTC. Vitamin B12 will need to be prescribed and administered in primary care)	**Roux-en-Y Gastric Bypass and duodenal switch** (prescribe all preparations)				
Multivitamin and Mineral	Yes	Yes	Yes	Forceval®*	£9.92	One daily	Lifelong
Iron	Yes	Yes	Yes	Ferrous Sulphate	£0.81	200mg once daily	Lifelong
				Ferrous Fumarate	£3.99 (3-months)	210mg once daily	
				Ferrous Gluconate	£1.01	300mg once daily	
Folate	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Forceval®*	£9.92	One daily	
Vitamin B12	No	Yes	Yes	Hydroxocobalamin	-	1mg every 3-months	Lifelong
Vitamin B	Yes	Yes	Yes	Vit B Co strong	£1.35	One or two three times a day	for 3 – 4 months post-surgery
Calcium and Vitamin D	No	Yes	Yes	Calichew® D3 Forte	£4.24 (20-days)	Three times daily	Lifelong
Zinc	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Forceval®*	£9.92	One daily	

		May require additional supplementation up to 15mg o.d.	May require additional supplementation up to 15mg o.d.				
Copper	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Forceval®*	£9.92	One daily	
Selenium	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Separate preparation is not required - Included in Forceval®*	Forceval®*	£9.92	One daily	
Vitamin A **(only if deficiency is found)**	No – separate preparation is not required - Included in Forceval®*	No – separate preparation is not required - Included in Forceval®*	Yes – separate preparation is required above that in the standard multivitamin	-	-	-	
Vitamin E	No – separate preparation is not required - Included in Forceval®*	No – separate preparation is not required - Included in Forceval®*	Yes – separate preparation is required above that in the standard multivitamin	-	-	-	
Vitamin K **(only if deficiency is found)**	No – separate preparation is not required - Included in Forceval®*	No – separate preparation is not required - Included in Forceval®*	Yes – separate preparation is required above that in the standard multivitamin	-	-	-	

* Forceval® is the only complete multivitamin and mineral supplement available both on and off prescription. Forceval® is available in both soluble and capsule form. Other A to Z multivitamins and minerals are also available to buy perhaps at a lower price. However, it cannot be guaranteed that these contain everything that is required.

Table 2: Recommended nutritional supplements after different bariatric procedures [4]

Generally, in the initial stages after surgery, patients are advised to start on a liquid diet, before progressing onto pureed food, soft food and then more normal textured food. At two years, the patient should be able to manage a wide range of textures of foods but may still report difficulties with some. It can be assumed that all are not receiving the benefits of eating a “well-balanced” diet to a greater or lesser extent depending on the type of surgery they have had. Therefore, **life-long supplementation is indicated in all patients**.

Hence, blood monitoring should be performed at intervals that are dependent on the type of bariatric surgery performed (see Table 3) or as directed by the specialist bariatric service.

Blood Test	Procedure		
	Laparoscopic Adjustable Gastric Band	**Laparoscopic Sleeve Gastrectomy**	**Roux-en-Y Gastric Bypass and duodenal switch**
Calcium	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
Ferritin	N/A	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
Folate	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
Full Blood Count	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
HbA1c or Fasting Blood Glucose (patients with preoperative diabetes)	Monitor as appropriate	Monitor as appropriate	Monitor as appropriate
Lipid Profile	Monitor in those with dyslipidaemia	Monitor in those with dyslipidaemia	Monitor in those with dyslipidaemia
Liver Function Tests	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
Parathyroid Hormone	Check if not done so prior to surgery	Check if not done so prior to surgery	Check if not done so prior to surgery
Selenium	N/A	If clinically indicated*	Annually
Thiamine	3, 6, 12 months after surgery, then annually	Routine blood monitoring is not required – only in patients with prolonged vomiting	Routine blood monitoring is not required – only in patients with prolonged vomiting
Urea and Electrolytes	Annually	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
Vitamin A	N/A	Measure if concerns regarding steatorrhea or symptoms of vitamin A deficiency e.g., night blindness	Monitor every three months for the first year then annually
Vitamin B12	N/A	6, 12 months after surgery, then annually – not required if the patient is receiving B12 injections	6, 12 months after surgery, then annually – not required if the patient is receiving B12 injections
Vitamin D	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually	3, 6, 12 months after surgery, then annually
Vitamin E and K	N/A	Annually	Annually
Zinc, Copper	N/A		Annually

* GP to be informed by the specialist service if indicated.

Table 3: Recommended schedules of blood monitoring after different bariatric procedures [5] [2].

2. Nutritional Deficiencies – What to Look For

Clinicians should also be aware of the signs and symptoms of potential nutritional deficiencies especially anaemia, vitamin D deficiency, protein malnutrition, as well as other vitamin and micronutrient deficiencies (see Table 4).

Nutritional Deficiency	Notes
Protein malnutrition	May present as oedema several years post-surgery Requires urgent referral back to the bariatric team
Anaemia	Iron deficiency (rule out and investigate other potential causes, such as blood loss) Folate deficiency Vitamin B12 deficiency Less common deficiencies such as zinc, copper, and selenium are a potential cause of unexplained anaemia Some patients may need parenteral iron or blood transfusions if oral iron does not correct the deficiency
Calcium and vitamin D deficiency	It is recommended that vitamin D should be replaced if deficiency is severe – aim for levels of 75 - 250nmol/L post weight-loss surgery.
Vitamin A deficiency	Suspect in patients with changes in night vision Patients with steatorrhea or those who have had a duodenal switch are at high risk
Zinc, copper and selenium deficiency	Unexplained anaemia, poor wound healing, hair loss, neutropenia, peripheral neuropathy and cardiomyopathy are potential symptoms Ask about over-the-counter supplements and liaise with bariatric unit, as zinc supplements can induce copper deficiency and vice versa
Thiamine deficiency	Suspect in patients with poor intake, persistent regurgitation or vomiting This may be caused by anastomotic stricture in the early postoperative phase, food intolerances or an over tight band Start thiamine supplementation immediately and refer urgently to the local bariatric unit due to brisk of Wernicke's encephalopathy Do not give sugary drinks as they may precipitate Wernicke's encephalopathy

Table 4: Potential nutritional deficiencies post-bariatric surgery [5]

3. When to Request Specialist Biochemical / Nutritional Advice or Refer

Diagnosis and management of micronutrient deficiency syndrome can be complex and so when in doubt, it is recommended that specialist advice is sought, especially in the following cases:

- Newly identified biochemical deficiency, where there is differential diagnosis, or its appropriate investigation and treatment are uncertain
- Unexplained symptoms that may be indicative of underlying micronutrient / trace element deficiencies
- Women who have undergone previous gastric bypass, sleeve gastrectomy or duodenal switch surgery and who are planning to become pregnant or who are pregnant
- The patient is regaining weight

4. References

1. Health and Social Care Information Centre, Lifestyles Statistics. Statistics on obesity, physical activity and diet: England, 2014, [Internet], London, The Health and Social Care Information Centre.

Available from: http://www.hscic.gov.uk/catalogue/PUB13648/Obes-phys-acti-diet-eng-2014-rep.pdf [Accessed 07 December 2016]

2. British Obesity & Metabolic Surgery Society. Guidelines on peri-operative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery – 2020 update

3. Al-Momani H, Williamson J, Greenslade B, Krawec V, Mahon D (2015). Biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery: A review of British Obesity and Metabolic Surgery Society guidelines. *British Journal of Obesity* 1: 61–67.

4. Francis R, Aspray T, Fraser W, Gittoes N, Javaid K, MacDonald H, Patel S, Selby P, Tanna N, Bowring C (2013). A practical clinical guideline for patient management. National Osteoporosis Society [Internet].

   Available from: http://www.nos.org.uk/document.doc?id=1352 [Accessed 07 December 2016]

Please access this guidance via the LSCMMG website to ensure that the correct version is in use.

Version Control

Version Number	Date	Amendments Made	Author
Version 1.0	March 2017	Approved	AG
Version 1.1	June 2019	Reference to commissioning responsibilities removed. Logo updated.	AG

Version 1.2	December 2019	Prescribing for private patients' recommendation changed.	AG
Version 1.3	July 2020	References checked and prices updated.	AG
Version 1.4	January 2022	Revised as due update. BOMSS updates incorporated.	AG
Version 1.5	November 2022	Reference to private patients removed.	AG
Version 1.6	July 2023	Improved clarity of table indicating which items should be prescribed or purchased.	AG

Midlands and Lancashire Commissioning Support Unit,

Jubilee House, Lancashire Business Park, Leyland, PR26 6TR

Tel: 01772 644 400 | www.midlandsandlancashirecsu.nhs.uk