**BRISTOL WEIGHT MANAGEMENT AND**

**BARIATRIC SURGERY SERVICE**

**PATHWAYS AND STANDARD OPERATING PROCEDURES**

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**December 2019**

Date for review: December 2020

**The** Bristol Weight Management and Bariatric Service is a tertiary specialist service committed to providing state of the art care in the treatment of patients with complex and severe obesity. This is a diverse population of patients often with complicated and challenging healthcare issues that require a focussed multidisciplinary approach. Clear and well-defined pathways for the management these patients are therefore crucial, as is accurate and open communication between primary and secondary care. This document outlines the pathway from referral to and discharge from the service including referral back to the centre, details of governance and safety protocols, teaching, training and research. These pathways will be reviewed annually and be made available to the public via the Trust website.

**Bristol Weight Management and Bariatric Surgery Service Team:**

Mr J Hewes, Consultant Upper GI and Bariatric Surgeon, Lead Clinician

Mr A Osborne, Consultant Upper GI and Bariatric Surgeon

Mr J Hopkins, Consultant Upper GI and Bariatric Surgeon

Mr D Pournaras, Consultant Upper GI and Bariatric Surgeon

Mr S Zino, Senior Clinical Fellow, Upper GI and Bariatric Surgery

Dr K Lonnen, Consultant Endocrinologist

Dr G Russell, Consultant Endocrinologist

Dr H Kahal, Consultant Endocrinologist

Dr M Darby, Consultant Bariatric Radiologist

Dr J Homewood, Consultant Bariatric Anaesthetist

Dr M Pyke, Consultant Bariatric Anaesthetist

D Wilson-Evans, Bariatric Dietetic Practitioner

R Burns, Specialist Obesity Dietitian

J Lamb, Specialist Obesity Dietitian

M Morgan, Obesity Dietitian

J Dacombe, Obesity Dietitian

Dr Karen Coulman, Dietetic Clinical Lecturer

Dr H Mustard, Clinical Psychologist

Dr A Mendieta-Tan, Clinical Psychologist

E Kewin, Counselling Psychologist

A Rossiter, Bariatric Nurse Practitioner

D Sharp, Specialist Radiographer

P Clifford, Bariatric Coordinator

D Smith, Bariatric Coordinator

Z Woodward, Obesity Coordinator

1. **Referral to service** 
   1. Criteria for referral into the service are in keeping with the guidelines published by the National Institute for Health and Clinical Excellence (NICE) Guideline 43, 2006, updated November 2014 (CG 189).
   2. Criteria for consideration of revisional surgery are in keeping with the Revision Obesity Surgery specialised services circular from NHS England SSC1441 August 2014.
   3. Referrals will be received from GPs by the bariatric or outpatient coordinators via e-Referrals based in the Brunel Building, Southmead Hospital (Appendix 1).
   4. The e-Referral will then be vetted by a consultant. If suitable the patient will be booked into an assessment clinic. If unsuitable for entry into the service, a letter will be generated to the GP explaining the reasons why they don’t fulfil the criteria for enrolment into the weight management process.
2. **Pre-operative Assessment (Tier 3)**
   1. NBT provides a Tier 3 weight management service funded by local Clinical Commissioning Groups (CCGs). These include Bristol, North Somerset, South Gloucestershire (BNSSG) and Wiltshire. We also receive patients from a separately run service at RUH Bath.
   2. All patients considered appropriate will be offered an initial one-stop assessment with an obesity consultant and specialist dietitian. The assessment by the clinician will focus on identifying medical reasons behind weight gain, the identification and optimisation of comorbidities as well as preparing the patient for the possibility of surgery. The dietitian will aim to identify abnormal eating behaviours or disorders as well as making a full dietary assessment and offering advice on changing eating behaviours. Later in the pathway (Appendix 2- Service Pathway), that patient will be assessed by a psychologist, who will focus on any underlying psychological issues that may be contributing to weight gain for example comfort eating, systematic difficulties, low self-esteem as well as identifying patients with binge-eating disorder, alcohol and drug misuse, untreated depression or anxiety, and other psychological difficulties that may inhibit successful surgery.
   3. Following this assessment a plan for the ongoing treatment will be made, as highlighted within the service pathway via the Tier 3 MDT meeting (Appendix 2- Service Pathway). Onward referral to other services will be initiated as appropriate. A review of treatment will be conducted at different time points within the service.
   4. If the patient has been considered for bariatric surgery, they are assessed using the traffic light system (Appendix 3).
   5. There may be circumstances when a patient will circumvent the need for full Tier 3 assessment before surgical review. This may include patients who have other conditions that require a rapid significant weight loss (such as patients with a cancer diagnosis who require urgent surgery, with renal disease requiring transplant or Idiopathic Intracranial Hypertension). In addition, patients may be identified early in the process as prohibitively high risk for surgery when an early surgical assessment can be made to manage expectations appropriately. These patients will be discussed at MDT and may then proceed directly to surgical assessment if considered appropriate.
   6. A full discharge summary from Tier 3 will be generated and sent to the GP and Tier 4 team.
   7. All patients who smoke will be actively encouraged to stop smoking. Advice on local NHS smoking cessation services will be given.
   8. Outcome data from Tier 3 will be collected prospectively and made available via the Trust website via the annual report. This will include weight loss, comorbidity resolution and quality of life data as well as information on patient satisfaction.
3. **Pre-operative Assessment (Tier 4)**
   1. Before the surgical consultation patients will be required to attend a pre-operative group session run by the bariatric specialist nurse, where types of surgery are discussed as well as the pre-operative diet and expectations of the day of surgery.
   2. Patients will be seen in the one stop Tier 4 clinic. They will be offered a 30 minute appointment with a consultant bariatric surgeon and a separate appointment with a bariatric practitioner.
   3. The appointment with the surgeon will involve a full medical and surgical assessment that will include an assessment of surgical risk. The different types of surgery will be discussed as well as the individual risks and benefits. The surgeon will explain which type of operation, if any, would be best suited for the patient. Any other investigations identified that are required will be booked at this time.
   4. If surgery is indicated then a pre-operative upper GI endoscopy may be booked.
   5. The consultation with the bariatric practitioner will reiterate the risks and benefits of the operations. The patient will be given an information pack that includes information about the selection process for surgery, written information on the operations and details of the pre, peri and post-operative management (Appendix 4). There will be full contact details of the team, and a feedback questionnaire. There will be ample opportunity to ask questions at this time
4. **Multidisciplinary Team Meeting (MDT)**
   1. Core members of the MDT consist of consultant bariatric surgeon, specialist dietician, psychologist, bariatric practitioner and CNS, bariatric coordinator, consultant endocrinologist, consultant anaesthetist and consultant radiologist, and will meet on a weekly basis for 90 minutes.
   2. Following Tier 4 assessment each patient will be discussed in the MDT.
   3. A proforma and letter will be generated after each discussion with a summary of the clinical findings and the outcome (Appendix 5). If considered appropriate the patient will be listed for surgery at that time. If further investigation is required, letters will be generated to the relevant speciality. A letter to the GP and patient will also be generated outlining the outcome of the MDT.
   4. Other cases to be discussed in this meeting include complicated pre and post-operative cases and the radiology of post-operative patients.
   5. This meeting will also be used to allow for team discussions about the service and ways to improve pathways including research and audit, finances and throughput. There will be a monthly meeting with the bariatric team managers.
5. **Pre-operative Assessment** 
   1. If indicated, some patients will undergo an upper GI endoscopy prior to surgery by a member of the Upper GI surgical team. The result will be forwarded to the bariatric coordinator to ensure that the patient is appropriate for the proposed operation.
   2. Oesophageal manometry will be performed on an individual basis depending on pre-operative symptoms.
   3. Each patient will be required to attend a pre-operative assessment as per standard Trust protocol. They will be seen by the pre-operative assessment nurse, consultant anaesthetist and bariatric CNS. Standard investigations including blood tests, MRSA screening and ECG will be undertaken. Assessment of DVT risk and the difficulty of endotracheal intubation will be carried out at this time.
   4. The patient will be reviewed by the bariatric pharmacist who will write the drug chart and ensure that the patient is aware of any issues surrounding their regular medication in the peri-operative period.
   5. The patient will also be required to sign the Trust pre-bariatric consent form at this stage (Appendix 6)
   6. An individualised plan for the management of diabetes will be formulated by the practitioner. This will be communicated to a consultant endocrinologist to ensure that it is appropriate.
   7. If a patient is identified as being at very high risk for surgery, then they will be required to attend a further assessment with a bariatric consultant anaesthetist. This will specifically focus on the surgical and anaesthetic risk of the operation and decide whether a High Dependency bed is required after surgery. If deemed necessary a cardiopulmonary exercise test (CPEX) will be performed to further stratify risk. If the risk is determined to be excessively high for surgery then the patient will be re-discussed in the MDT, although the outcomes of these assessments will be presented at MDT.
   8. Two weeks prior to surgery the patient will be required to start the very low calorie diet (VLCD) and the details of this will be given to the patient in PAC.
6. **Operation**
   1. Most patients will be admitted on the day of surgery as per Trust protocol. High risk patients may be required to be admitted before surgery in cases where optimisation of other conditions is required, in particular anticoagulation, cardiac or respiratory conditions or poorly controlled diabetes.
   2. The patient will be weighed on the morning of surgery and will go through the formal consent process with the consultant surgeon and be required to sign the consent form.
   3. The operation will be carried out by a consultant bariatric surgeon or by a trainee under their direct supervision. All operations will also have a consultant anaesthetist with an interest in bariatric surgery and specialised trained bariatric theatre staff. All operations will be carried out in the dedicated bariatric theatre in the Brunel building.
   4. The operative technique will be standardised as much as possible but there will be variation between surgeons on the precise methods of performing the surgery.
   5. In high risk or complex cases two consultants will operate together with the lead surgeon being the surgeon whose list is being used.
   6. High risk patients and those with BMI >60 will be considered for intra-gastric balloon placement as a bridge to surgery if not contraindicated.
7. **Post-operative care (ward)**
   1. After surgery the patient will be recovered in the recovery Mediroom or to the discharge Mediroom if a daycase. The patient will be reviewed after surgery by the consultant surgeon and bariatric nurse practitioner.
   2. Post-operative care will be outlined in the care pathway for the specific operation (Appendix 7). The patient will be reviewed regularly by the surgical team. If there are any concerns regarding the recovery then the bariatric consultant will be contacted directly by members of the team.
   3. The patient will be reviewed by the bariatric nurse practitioner before discharge. Full details of the after care will be outlined including dietary restrictions, vitamin and mineral supplementation, wound care and diabetic plans. They will also be given full details about what to look out for should there be a problem following discharge and how to contact the team or access the Emergency Department out of hours should there be a concern.
   4. The patient will be discharged when considered fit by the team with a prescription for all relevant medications including post-operative thromboprophylaxis with thromboembolism (TED) stockings and a supply of subcutaneous low molecular weight heparin to be self-administered at home. Training on how to do this will be given by the ward or recovery staff before discharge.
   5. TED stockings will be required to be worn at home and LMW Heparin given daily for 14 days post-surgery
   6. A standard discharge letter will be sent to the GP by the surgical team outlining the operation and post-operative course.
8. **Follow up**
   1. All patients will be contacted by phone within the first week of discharge by the bariatric practitioner. This point of contact is to establish whether there are any problems with recovery and to prevent unnecessary readmission to hospital. The phone consultation will follow a standard format and will cover all aspects of the immediate recovery (Appendix 8). If concerns are raised the practitioner can discuss this with the consultant surgeon and has the option to bring the patient to clinic for a review, or book an early clinic appointment.
   2. All patients will be followed up for a maximum of two years after surgery. Appointments will be made every 3-6 months within the first year with an option to alter the frequency depending on the patient’s progression. Blood tests will be performed at these appointments in accordance with National guidelines (Appendix 9). These results will be checked by the dietician or practitioner and the GP informed if there are any concerns raised.
   3. Patients with gastric band will be seen at 6 weeks post-surgery for the first band assessment by the bariatric practitioner. Should there be concerns with the band or port position, then a band fill under fluoroscopic control will be made.
   4. All patients with a gastric band will be offered a contrast swallow at 22 months post-operatively to ensure that the band is correctly positioned and adjusted to give adequate restriction prior to discharge back to primary care.
   5. At the end of the 2-year follow up a discharge letter will be sent to the GP. This will formally summarise the patient’s progress from referral to discharge. It will outline the change in weight and BMI, improvement in comorbidities as well as formally handing over the care back to primary care. Information on long term follow up will be given including the need for lifelong vitamin and mineral supplementation and annual blood monitoring. Ways to refer back into the service will be outlined, but this will require separate funding to be established by the GP.
   6. Should the patient need more intensive follow up, or the GP think that further input is required from the bariatric team the patient can be re-referred.
   7. Any patient who becomes pregnant following bariatric surgery will be discussed in the next available MDT as per pregnancy pathway (Appendix 10). They will be offered an appointment with the dietician and close liaison will be kept between members of the bariatric and obstetric teams.
   8. Should a patient with a gastric band need future non-bariatric surgery under general anaesthetic then their band will be managed depending on the type of operation and symptoms experienced (Appendix 16). The bariatric practitioner can be used as a first port of contact for members of other surgical and anaesthetic teams for this.
   9. Occasionally patients require revisional surgery converting one procedure to another (usually band to bypass). This is typically a two stage process of removing the band and completing the revision at a later date. Patients are offered an appointment with the practitioner six weeks following band removal when an assessment will be made of their suitability to proceed to revisional surgery and the pathway that they need to undertake for this.
   10. The pathway and timings of revisional surgery will be made on a case-by-case basis. Individualised care will mean that patients will require differing lengths of assessment based on their medical, psychological and dietetic needs as well as clinical urgency and logistics of surgery. Patients will be required though to have a stable weight throughout this time period.
9. **Emergency referrals**
   1. North Bristol NHS Trust is committed to seeing emergency bariatric patients at any time admitted through the usual channels (usually ED or GP) via the acute surgical take.
   2. Patients will be assessed by the acute surgical team and any necessary investigation or treatment will be carried out. This includes emergency surgery as well as outpatient investigations required to investigate and treat acute emergency problems. There will be no distinction between patients who have had their initial surgery at NHS or private hospitals in the UK or abroad.
   3. NBT will be unable to follow up or treat these patients in the long term once their acute problem has been dealt with, unless specific funding has been established by the GP.
10. **Data collection and Governance**
    1. Data from all patients who have progressed through the service will be collected prospectively and entered into the local database (Bluespier). This will include correspondence from and to patients and other healthcare professionals. This will also act as a patient record and administrative system.
    2. All data regarding the peri and post-operative period will be prospectively entered into the National Bariatric Surgical Registry (NBSR). This will be updated at each post-operative outpatient consultation by surgeon, practitioner or dietician.
    3. Reports on morbidity and mortality will be generated by the MDT and discussed at dedicated bariatric governance meetings.
    4. A meeting with members of the team will routinely be offered to any patient or relative who has been affected by an adverse outcome.
    5. Bristol Weight Management and Bariatric surgery Service will comply with surgeon specific outcome reporting via NBSR.
    6. An annual report will be generated at the end of each financial year. This will incorporate activity and financial data as well as waiting times, personnel changes, research and audit summary, plans for the upcoming year, compliments and complaints.
    7. All members of the team are consultant or affiliate members of the British Obesity and Metabolic Surgery Society (BOMSS), IFSO or Society of Bariatric Anaesthetists (SOBA) and will attend and present at National and International conferences to maintain CPD and appraisal.
    8. All members of the team will undergo annual appraisal and revalidation as per trust requirements where aspects of their practice in bariatrics will be analysed.
11. **Education, Training and Research**
    1. North Bristol NHS is a teaching hospital and is committed to the teaching of Medical and Nursing students as well as Foundation, Core and Specialist doctors. All members of the team are encouraged to be actively involved in the teaching of healthcare professionals in relevant aspects of the care of bariatric patients.
    2. Bristol Weight Management and Bariatric Surgery service participates in National and Local research projects and trials.

**APPENDICES**

**Appendix 1: e-Referral Proforma**

**REferral form for the BNSSG TIER 3 MULTI-DISCIPLinary Weight Management SERVICE (BNSSG patients)**

**Multi-Disciplinary Weight Management Service**

This service provides assessment and management of BNSSG patients with severe or complex obesity. It offers a specialist multi-disciplinary weight management assessment (including psychological, dietitian and medical/surgical support), followed by a 6-12 month programme of care comprising of group and individual treatment sessions with the following key aims:

* To encourage long term behaviour change through promoting healthy eating, physical activity and recognising the psychological barriers to unhealthy relationships with food;
* To prevent / reduce / improve the management of any co-morbidities associated with severe obesity together with costs associated with these;
* Where appropriate, refer patients for Tier 4 surgical assessment and prepare these patients by supporting them to understand the risks of the surgery, the need for behaviour change pre and post-operatively and to assist in the decision making process.

**To Note:**

Please fill in all sections of the referral form along with any other information you think is relevant to this patient’s case. Please could you ensure that the relevant blood tests in section 2b have been completed and the results (within the last 3 months) attached. **The referral will not be accepted unless the referral form is complete and all of the blood tests have been completed.**

**­­­­­­­­­­**

**Criteria for Referral to the BNSSG Tier 3 Multi-Disciplinary Weight Management Service**

The Criteria Based Assess policy for this service is available on the relevant CCG website.

In order to refer a patient to this service they must be in one of the following three categories\* **(✓)**

|  |  |
| --- | --- |
| BMI ≥40¹ without co-morbidities **and** patient has actively/persistently engaged with losing weight over the last 2 years with a structured tier 2 or equivalent programme. |  |
| BMI ≥35¹ with co-morbidities(established cardiovascular disease, type 2 diabetes, hypertension, obstructive sleep apnoea, NASH or idiopathic intracranial hypertension) **and** patient has actively/persistently engaged with losing weight over the last 2 years with a structured tier 2 or equivalent programme. |  |
| BMI ≥50¹ |  |

¹a tolerance of BMI 2.5 on each criteria above for at risk groups: black African, Caribbean and South Asian origin.

**Status & entry criteria\* (✓)**

In order for the patient to be successfully referred to the BNSSG Tier 3 Multi-Disciplinary Weight Management service the following questions must all be answered positively:

|  |  |
| --- | --- |
| Patient does not have a significant mental health disorder that would prevent engagement with the service. |  |
| Patient does not have active binge eating disorder or bulimia nervosa |  |
| Patient does not have an active history of substance/alcohol misuse or dependence |  |
| Patient has not been referred and then left the service early within the last 12 months |  |
| Patient is not pregnant |  |
| Patient in agreement with referral to weight management team and understand they must demonstrate a long-term commitment to making lifestyle changes (dietary and activity) |  |

**Thank you for referring your patient to North Bristol NHS Trust**

**Part 1 – Patient Information**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** |  | | |
| **Address** |  | | |
| **Date of Birth** |  | | |
| **Telephone** |  | | |
| **Mobile** |  | | |
| **Email** |  | | |
| **NHS Number** |  | | |
| **GP Name** |  | | |
| **GP Address** |  | | |
| **Weight (kg)** |  | **Height (m)** |  |
| **BMI (kg/m2)** |  | **BP (mmHg)** |  |

**Part 2a: Medical Assessment**

**Co-morbidities**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Yes** | **No** | **Year diagnosed** |
| **Type 2 Diabetes** |  |  |  |
| **Hypertension** |  |  |  |
| **Obstructive Sleep Apnoea** |  |  |  |
| **Heart Disease** |  |  |  |
| **NASH** |  |  |  |
| **Idiopathic intracranial hypertension** |  |  |  |

**Other significant medical or mental health history – or attach EMIS print out**

|  |  |
| --- | --- |
| **Medical Diagnosis** | **Current Treatment** |
|  |  |
|  |  |
|  |  |
|  |  |

**Medications – please write below or attach current list**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Medication** | **Dose** | **Medication** | **Dose** | **Medication** | **Dose** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Part 2b: Investigations/Blood Test Results**

**The following blood test results should be attached to the referral:**

**Full blood count B12 and folate**

**Urea and electrolytes Thyroid function tests (TSH)**

**Liver function tests and Fib-4 Fasting lipid profile**

**Calcium and Vitamin D HbA1c**

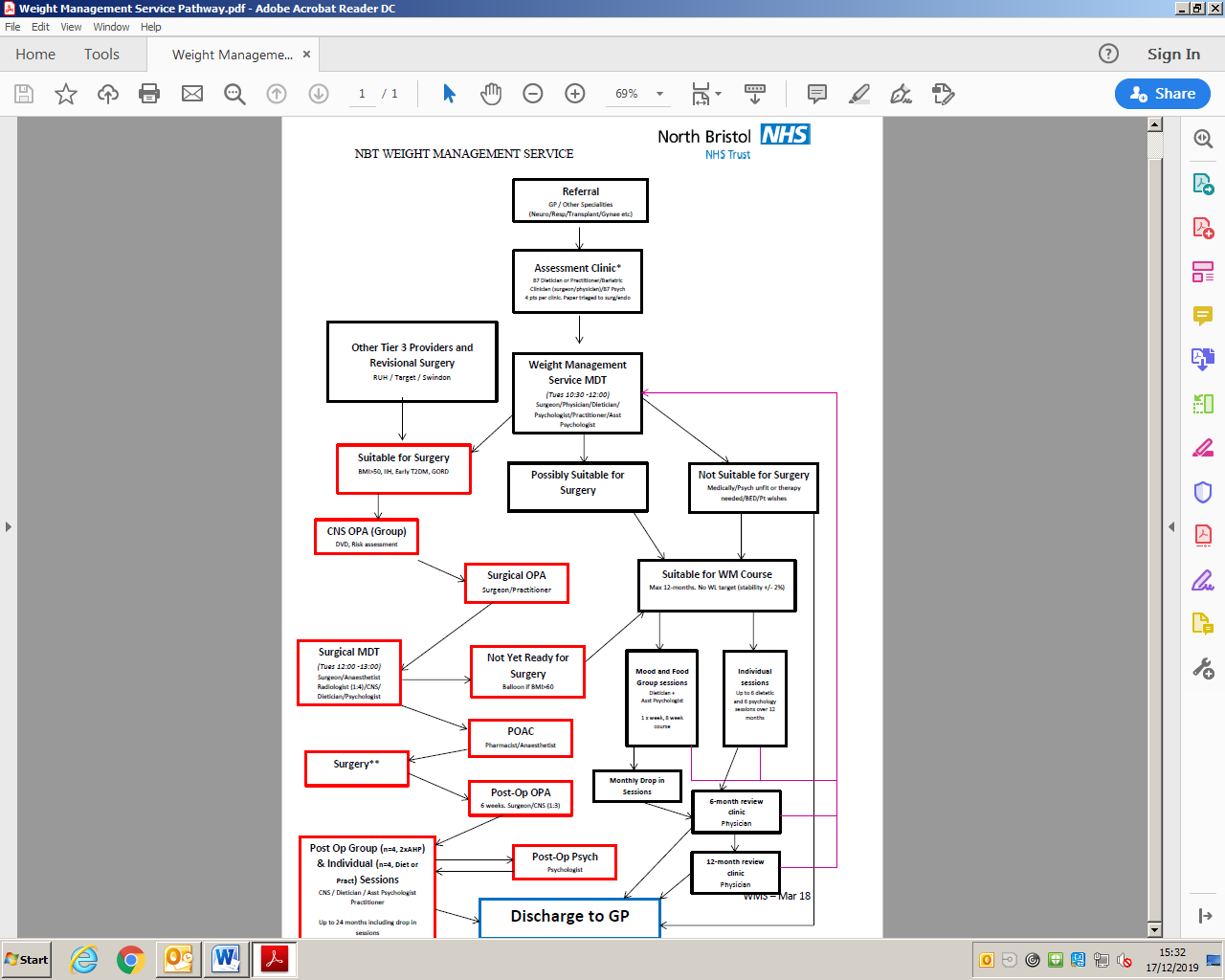
|  |  |  |  |
| --- | --- | --- | --- |
| **Has patient had bariatric surgery before?** | **Yes** | **No** |  |
|  |  |  |
| **Is patient keen on weight loss surgery, should this be an appropriate option for them?** | **Yes** | **No** | **Unsure** |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Name of Referring Doctor** | **Signature** | **Date** |
|  |  |  |

Please submit this via e-referral system.

For enquiries please contact our weight management co-ordinator on 0117 4141028.

**Appendix 2- Service Pathway**



**Appendix 3- Tier 3 Traffic Light System**

**Green**

* Appropriate motivation – health rather than mental health
* Good understanding of procedure and outcomes
* Appropriate expectations for weight loss etc
* Regular balance diet
* Insight into eating and causes of weight gain
* Proven compliance

**Amber**

* In cases of severe mental illness
  + Mental state should be stable. 12 months of no history of
    - hospital admissions
    - Act of deliberate self-harm
* History of alcohol or substance misuse
* History of eating disorder
* Mild learning difficulties
* Poor motivation
* Unrealistic expectations
* Binge eating disorder
* Inadequate insight into eating behaviours
* History of poor compliance

**Red**

* Unstable psychosis
* Active substance misuse and alcohol dependence
* Severe / moderate learning difficulties
* Dementia
* Severe personality disorder
* Self harm within last 12 months
* Active bulimia nervosa
* Current non-compliance with treatment

**Appendix 4: Patient Information Pack**



**North Bristol Centre for Weight Loss, Metabolic and Bariatric Surgery**

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**Information for Patients and Carers**

*Exceptional healthcare, personally delivered*

Welcome to the North Bristol Weight Loss, Metabolic and Bariatric Surgery Unit

Our team of experts are dedicated to help you along your lifelong pathway of achieving long lasting weight loss. We are convinced that this will be hugely beneficial to your overall health and wellbeing. Weight loss surgery is a big step to take and is not to be undertaken without a great deal of thought as your life will never be the same again.

We are a team of experienced and dedicated healthcare professionals and we offer a weight loss service that can lead to surgery (often called Bariatric surgery). This whole process can last for

a number of years, although follow up after surgery is limited to two years. As weight loss is a lifelong process we will give you guidance on how to maintain this in the long term and ways to contact us in the future if necessary.

This pack is designed to give you as much information as possible about our unit, the different types of operations that we perform and what to expect before, during and after surgery. We would encourage you to read it thoroughly, use the web based resources and ask us as many questions as you would like. You will then be much better informed, to allow you to make clear and sensible decisions about the treatments that we offer.

We would also encourage you to use this pack as an ongoing record of your time with us. There are sections to keep the letters and correspondence from us as well a weight loss chart. We suggest that you keep a record of your weight (approximately once a fortnight). This allows a greater understanding of reasons behind weight gain and helps us to identify areas that we can help you with.

Please bring this pack with you to hospital appointments or visits with us as it is a valuable source of information for other doctors or healthcare professionals to understand where you are in your journey. We will also update this record at your visit.

Once again well done on getting this far! We appreciate how difficult it is to successfully lose weight and keep it off in a healthy way and we are pleased that we are in a position to be able to help you with this. Please feel free to feedback to us at any time, and any suggestions on how to improve our service are gratefully received.

The Bariatric Surgery Team

**North Bristol NHS Trust Bariatric Surgery Team:**

Mr James Hewes Lead Consultant Surgeon

Mr Alan Osborne Consultant Surgeon

Mr James Hopkins Consultant Surgeon

Mr Dimitri Pournaras Consultant Surgeon

Dafydd Wilson-Evans Bariatric Practitioner

Alexandra Rossiter Clinical Nurse Specialist in Bariatric Surgery

Emma Kewin Counselling Psychologist

Jeanette Lamb Specialist Dietician

Rachel Elliott Specialist Dietician

Pauline Clifford Bariatric Co-Ordinator

Diane Smith Bariatric Co-Ordinator

Tel: 0117 4140855

* North Bristol Centre for Weight Loss, Metabolic and Bariatric Surgery



Introduction

The aim of this booklet is to provide you with the necessary information to help you make important decisions about bariatric surgery and to guide you through the process of surgery at North Bristol NHS Trust.

You will also find information on nutrition, exercise and general advice about bariatric surgery. We hope that it will support you in getting the best results in terms of weight loss and improving your general health in the long term.

We value the importance of individualised support, and we don’t apply a ‘one size fits all approach’ to patient care. Should you have any questions or concerns about the surgery, or need more support then please do not hesitate to contact us on the number listed on the front page.

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North Bristol Centre for Weight Loss, Metabolic and Bariatric Surgery 3

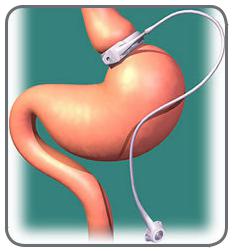


What Surgical Options are Available?

Bariatric surgery is very safe and has gained acceptance as a mainstream treatment for obesity over the last decade within the UK. The operations are performed using the laparoscopic (or keyhole) technique and generally involves 5 small incisions on the front of the tummy each about 2cm (or 1 inch) long. This makes the recovery quicker as the wounds are much smaller. With any laparoscopic surgery it is important to be aware that a larger incision may need to be made if there are any problems or technical issues encountered at the time of surgery.

The main operations performed across the UK that we undertake here at North Bristol are highlighted below.

**Gastric Banding**

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The band works by creating a small stomach pouch (volume of about 25ml) on the upper part of the stomach. This pouch will fill with food on eating and leads to a sensation of fullness quicker, therefore reduces the quantity of food you can eat at one time.

It’s a soft, inflatable band, made of silicone, with a balloon on the inside surface of the band that can be inflated and deflated by injecting fluid into the port (the port is placed under the skin).

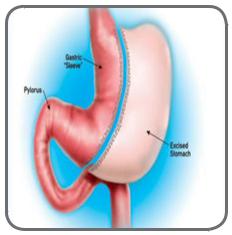
There is no cutting or stapling of the stomach and it is usually reversible by a repeat keyhole operation. Occasionally, keyhole surgery

may not be possible, and may be abandoned or alternatively changed to open surgery. This is more likely if the pre-operative diet is not followed (for details on pre-operative diet see page 11).

Any form of surgery can have complications. With gastric banding surgery the risk of early complications is rare but includes bleeding, infection, and perforation of oesophagus or stomach. There is also an extremely rare risk of death (less than 1 in 1000). However the life span of a gastric band is unknown and approximately one third of patients need a further operation due to the band slipping, eroding or the band simply not working for the patient. This re – operation carries greater risks than the original surgery due to scar tissue. Other complications include, band infection, flipping of the port, breaking of the tube, or other device failure.

**Sleeve Gastrectomy**

This operation involves removing approximately 80% of the stomach, leaving a thin tube or sleeve (about the width of your thumb) which holds about 50-100mL of fluid (about ½ cup of tea). The ‘gut’ or digestive tract remains intact below the stomach. It works by restricting the volume of food you can eat. It also removes some stomach cells that produce a hormone that controls hunger, so patients often don’t feel as hungry afterwards.



With sleeve gastrectomy surgery, the large part of the stomach is removed using a stapling device. There is a small risk of a bleed or leak

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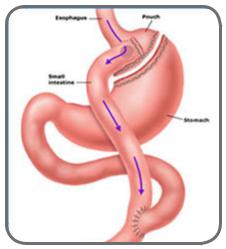


from the staple line which can require conversion to an open operation, re-operation with a delayed discharge and can take months to heal. The risk of death is 1 in 500 and long term risks include narrowing or twisting of the stomach tube, acid reflux and ulcers.

Long term weight loss maintenance is less well known than for the other operations, although data suggests it is equivalent to bypass surgery with similar early effects on diabetes control. It may also worsen severe acid reflux and is irreversible. You are at higher risk of developing nutritional deficiencies following a sleeve gastrectomy than a band.

**Gastric Bypass (Roux-en-Y Bypass)**

The gastric bypass is a more complicated procedure and involves the creation of a small pouch at the top of the stomach with staples. The remaining stomach stays in place. A section of intestine is ‘plumbed’ into this pouch so that the food bypasses the rest of the stomach and enters the intestine lower down. There are therefore 2 joins of the intestine inside. It works by limiting the amount you can eat at each mealtime but also by altering the hormone levels produced by the gut to make you less hungry.



The risk of death from surgery is 1 in 500 and complications include anastomotic leak, bleeding or internal injury which can require conversion to open operation, re-operation and a prolonged hospital stay. Longer-term complications include internal hernias, adhesions and stomach ulcers. It’ is very effective at promoting weight loss and may be the best option in patients with diabetes and acid reflux, however long term there is a greater risk of developing nutritional deficiencies than with the band or sleeve.

**Gastric Balloon**

The gastric balloon involves inserting a soft balloon into the stomach. It’s inserted using an endoscope through the mouth and inflated using saline solution, leaving less room in your stomach. It aims to reduce feelings of hunger and help you feel fuller for longer after eating only small amounts of food. The gastric balloon can be used as a first step to help promote weight loss prior to future surgery or it can be used as a standalone weight loss procedure. This option is only temporary and will usually be removed after 6 months (also removed with an endoscope).

The risks of this procedure are low compared to other bariatric surgery options but the weight loss is less. Occasionally the balloon can obstruct food from passing into the stomach or intestine, and will need to be removed. Nausea (feeling sick) is a common side effect of the gastric balloon and usually occurs if nutritional advice is not followed.

**Revision Surgery**

In some cases revision surgery may be an option. This means that a second bariatric surgery procedure would be undertaken e.g. gastric band to a gastric bypass. Usually revision surgery is required if there are complications with the first procedure or it has not achieved the desired effect. It is important to note that the risks of surgery and complication rates increase significantly during revision surgery. Usually additional funding for this will be required.

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**Points to consider**

All bariatric surgery operations are an effective tool to help people lose weight. Many people find it helps them make the necessary long term changes to their diet to lose weight and keep it off. However, it isn’t a ‘quick fix’ or a certainty that you will lose weight. Successful weight loss will be entirely down to you making good dietary choices and increasing your physical activity.

In the initial period after surgery you will only be able to eat very small portions and will probably not feel hungry. Both these factors may change with time. With some surgery operations you may also not absorb some of the food you eat, meaning you could lose valuable nutrients from some of the foods you eat.

It is important to realise that we don’t always eat because we are hungry. We might eat out of habit or because we have learned to turn to food as a comfort when we are bored, or upset, or even happy. This “head hunger” does not disappear with surgery and you must learn to overcome this if you want to be successful with your weight loss.

Before surgery it is very important to show that you are able to cope with these feelings after surgery. **In general we don’t operate on patients whose weight is increasing as it shows that there**

**is no control of eating behaviours.** In addition it has been shown that the people who lose weightbefore surgery generally do much better afterwards. Occasionally we will give patients a weight loss target to achieve before we will consider them for an operation.

What to Expect

**Before Surgery**

By now you should have been seen by the Tier 3 team (dietitian, psychologist, and consultant physician), and had your surgical assessment with the consultant surgeon and bariatric practitioner. Following these appointments your case will be discussed at our multidisciplinary team meeting within the next 2 weeks and a decision will be made on whether you are suitable to be listed for bariatric surgery. A letter will be sent to you and your GP with the outcome.

If listed for bariatric surgery you will have an endoscopy and a preoperative assessment appointment prior to surgery. The endoscopy is to determine whether there are any abnormalities in the oesophagus, stomach or duodenum that may affect the type of surgery performed. This will be a day case procedure under local anaesthetic or a mild sedative. The results from this will be given to you at the time.

The preoperative assessment clinic allows us to perform our pre-operative checks. You will have some blood tests, an ECG and you may be sent for other tests depending on what is picked up by the pre-assessment team. You will see our Bariatric Specialist Nurse who will start the consent process and formulate a plan for the management of diabetes around the time of surgery should you have it. Your weight will also be checked and if your weight has increased your surgery may be delayed. They will also discuss the surgery in more depth and what will be expected from you on the day of surgery. There will be ample opportunity to ask questions at this stage. You will also be reviewed by a pharmacist to discuss a plan for any medication alterations needed for the time of surgery. After surgery your medications will need to be in crushable or soluble forms. If you are considered to be at

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high risk for surgery you may be required to attend a further appointment with our Senior Bariatric Anaesthetist in order to fully optimise your health prior to surgery.

You will be asked to start on a low calorie diet before the operation. This is to allow shrinkage of the liver that overlies the stomach and makes the operation easier for the surgeon and therefore safer for you. Details of this are outlined on page 11 our specialist Bariatric nurse will discuss this further when you attend your pre-operative clinic appointment.

**Day of Surgery**

You will be given additional information about time of arrival and what to do with your medications prior to this date. You will need to check in with the reception staff at **Gate 21 in the Brunel** **Building, Southmead Hospital** and you will be taken through to a Mediroom. You will then beseen by a member of the nursing staff who will take your blood pressure, pulse and temperature. You will be seen by The Consultant surgeon who will go through the operation in detail with you and ask you to sign the consent form. There will be an opportunity to ask any last minute questions about the operation and recovery at this stage. You will also be seen by the anaesthetist who will explain how the anaesthetic will be performed and what to expect when you are put to sleep and woken up. Our specialist Nurse will weigh you and make sure your weight has decreased or maintained. We must stress that if your weight has increased your surgery may be cancelled. You will be asked to change into a gown and thromboembolism (TED) stockings and then walked to the operating theatre with the nurse or operating department practitioner.

**After Surgery**

You will be woken up after the operation either in the operating theatre and you will be asked to move yourself onto your bed. You will then go back into your mediroom where you shall either recover there or be transferred to a ward.

The surgeon will come and see you once you are fully awake and explain how the operation went and to check that you are feeling well. It is normal to have some pain from the wounds after surgery and you will be given pain relief and anti-sickness medication. You will be allowed to drink sips of water immediately after surgery.

The length of hospital stay will depend on the type of surgery but usually our patients go home the next day following surgery. Before discharge you will be reviewed by the surgical team and our Bariatric Practitioner/Specialist Nurse.

When it is decided that you are safe to be discharged the paperwork will be completed and you will be given a copy of your discharge summary. You will need to continue wearing your TED stockings for 6 weeks and will need to give yourself blood thinning injections (Clexane) for at least 14 days after discharge. You will be shown how to do this before you leave hospital. You will also be given guidance about wound care and dressings. If you become concerned about any of your wounds when discharged then you will need to make an appointment with your GP or practice nurse.

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**Things to look out for**

Overall bariatric surgery is safe and the complications are few and far between. Occasionally people do have problems and need to be seen by us again at the hospital. Things to look out for are:

****Worsening tummy pains

****Increasing difficulties in eating and drinking

****Vomiting and dehydration

****Increased temperature

****Swollen, red, hot and tender legs or calves

Should you experience any of these symptoms or are worried about your progress don’t hesitate to contact us on the numbers in the booklet. If you have problems out-of-hours or at the weekend then you should attend the Emergency Department at Southmead Hospital. If you have any complications after surgery and attend any other hospitals please inform us as soon as possible.

Diet Prior to Weight Loss Surgery

**Why do I need to follow a special diet?**

Many people who are overweight have an enlarged liver. This can make surgery more difficult and increase the risk of complications.

For this reason it is essential you to follow a strict calorie and carbohydrate controlled diet for 14 days before your operation. The diet is designed to shrink the size of the liver making surgery easier and safer. You may hear it being called the Liver Shrinking Diet.

Following this diet will encourage the body to use up its stores of glycogen (a form of stored sugar in the liver and muscles). This causes the liver to shrink rapidly and you will notice that you lose a lot of weight during this diet. A large amount of this weight will be water.

For the diet to be successful in reducing the size of your liver, you need to stick to the diet plan for 2 weeks prior to your operation date.

***This dietary restriction is designed to reduce your operating risk and should not be followed long term.***

**During Your Diet**

**Keep hydrated:**Drink a minimum of 2 litres of fluid a day. This includes drinks of any type,****but remember these count in your recommended calorie intake so go for low calorie options e.g sugar free squash, water, tea, herbal teas, low calorie flavoured water. **Avoid alcohol.**

**Take a vitamin and mineral tablet**every day. You will need chewable/liquid versions for 4****weeks after your operation so you may wish to start these now.

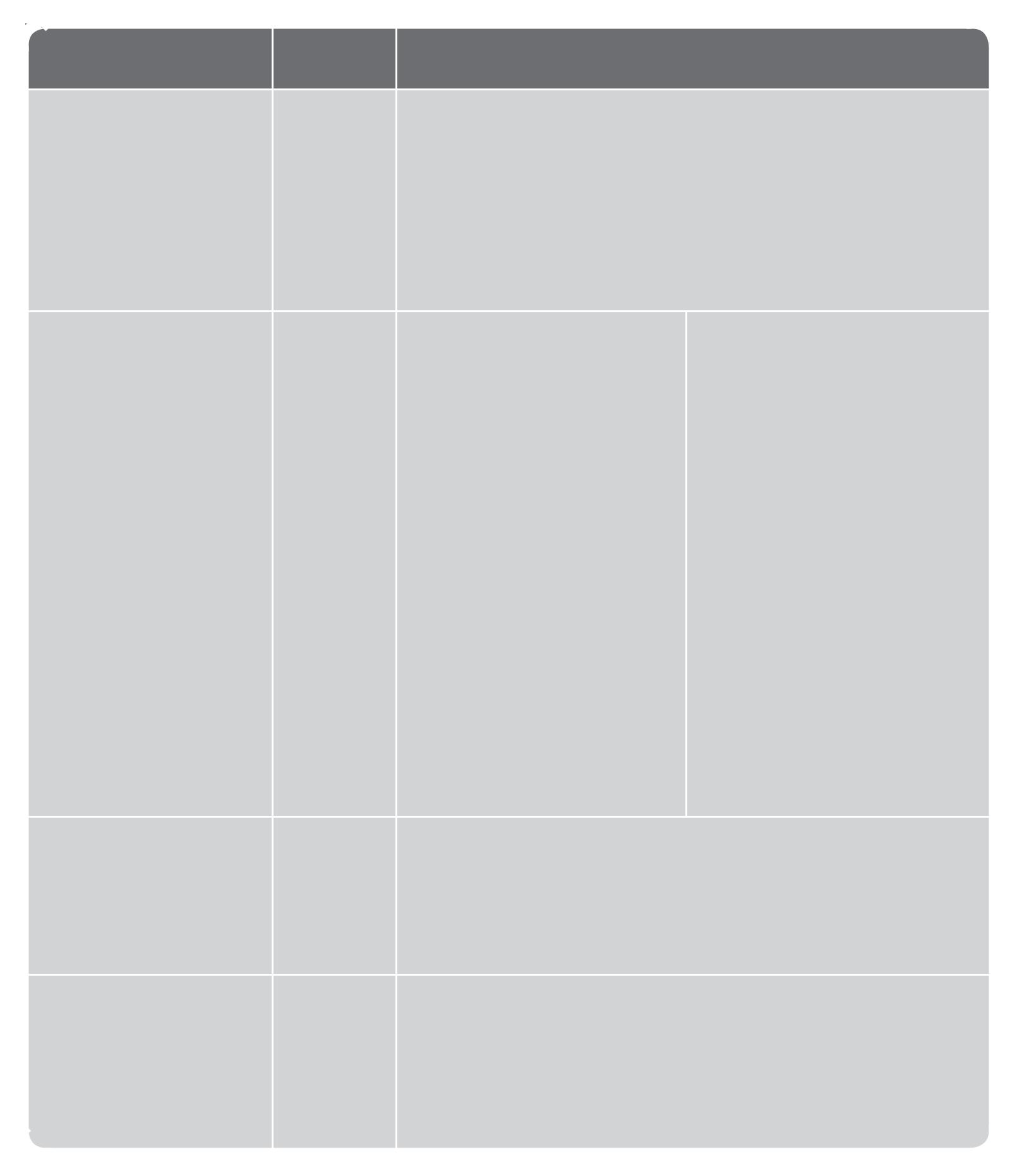
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**What does the diet involve?**

It is important that you follow the exact recommendations listed below. This is designed to significantly reduce the calorie and carbohydrate content of your diet, and provide valuable nutrients needed for general health. If for any reason you find yourself unable to follow any part of the diet, please ensure you discuss this with your dietitian. The following plan will provide approximately 800 calories a day.

**Option 1**

****

|  |  |  |  |
| --- | --- | --- | --- |
|  | Portions | Examples of 1 portion |  |
|  | per day |  |
|  |  |  |
|  |  | ****Cooked lean meat (100g) e.g. chicken breast with no skin/ | |
|  |  | low fat (5%) mince/ lean pork/ turkey | |
|  |  | ****100g of cooked white fish or tinned tuna (in brine/spring | |
| **Protein** | **3** | water) |  |
| ****2 medium eggs |  |
|  |  |  |
|  |  | ****Tofu (80g) |  |
|  |  | ****Quorn Pieces/mince (150g) |  |
|  |  | ****Asparagus | ****Leeks |
|  |  | ****Spinach | ****Cress |
|  |  | ****Broccoli | ****Lettuce |
| **Vegetables** |  | ****Watercress | ****Green beans |
|  | ****Cabbage | ****Marrow |
|  |  |
| \*Does not include |  | ****Onions | ****Aubergine |
| potatoes, yams, lentils/ |  |
|  | ****Cauliflower | ****Mushrooms |
| pulses, baked beans | **5** |
|  |  |
|  | ****Carrots | ****Tomatoes |
|  |  |
| 1 portion = 80g |  | ****Courgettes | ****Okra |
|  | ****Pepper | ****Pumpkin |
|  |  |
|  |  | ****Cucumber | ****Brussels sprouts |
|  |  | ****Artichoke | ****Radish |
|  |  | ****Curly kale | ****Swede |
|  |  | ****Celery | ****Peas |
| **Fruit** |  |  |  |
| 1 portion is |  | ****1 medium sized piece of fruit e.g. apple, pear, orange | |
|  |  |  |
| approximately palm size | **2** | ****2 small pieces of fruit e.g. Satsuma, apricot, plum | |
| (80g). |  | ****1 palm of loose fruit e.g. grapes, cherries, strawberries. | |
|  |  |
|  |  | ****200ml of skimmed/semi-skimmed milk | |
| **Dairy** | **2** | ****1 small pot of low fat, low sugar Yoghurt (diet range e.g. | |
| Muller light, Shape Zero, other lite versions) | |
|  |  |
|  |  | ****Soya/non-dairy milk fortified with calcium | |

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**Note** that if you chose to do a combination of food and shakes, you will need to reduce the portionallowance. Please discuss with your Bariatric Team.

To add extra flavor add herbs, spices and stock to your meals.

**Fats:** Do not use or cook with oils, butter or margarine. You can use low calorie cooking sprays. Donot eat any high fat foods (see what is a lot, what is a little below)

**Sugars:** Do not use any type of sugar or honey or eat any foods high in sugar e.g. cake, chocolate,sweets, fruit juice . **You can use artificial sweeteners.**

**Suggested Menu**

**Breakfast**

2 medium boiled egg + Mushrooms and tomatoes

**Mid-Morning**

1 medium apple

200ml glass of semi-skimmed milk

**Lunch**

Bowl of salad (cucumber, lettuce, peppers, tomatoes) with balsamic vinegar with small lean chicken breast or protein choice.

or

Chicken and vegetable soup/ stew

**Mid-Afternoon**

1 palm of fresh strawberries and yoghurt

**Evening meal**

Grilled fish/ meat with stir fried vegetables

**Drinks:** All drinks should be sugar-free with a carbohydrate content of virtually zero.

Examples are:

****Sugar-free squash

****‘diet’ drinks such as diet coke, ‘zero’ versions of soft drinks, Slimline tonic (but remember that****you cannot have fizzy drinks following your surgery)

****Black tea, black coffee, fruit teas (you can use milk from your allowance if you wish)

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**Option 2**

This approach consists of mainly liquid formulas supplying around **800 calories (kcal) per day**. There are many companies that make these liquid formulas which contain a balance of nutrients that your body needs. Some companies provide options of sweet and savory products, which consist mainly of shakes and soups.

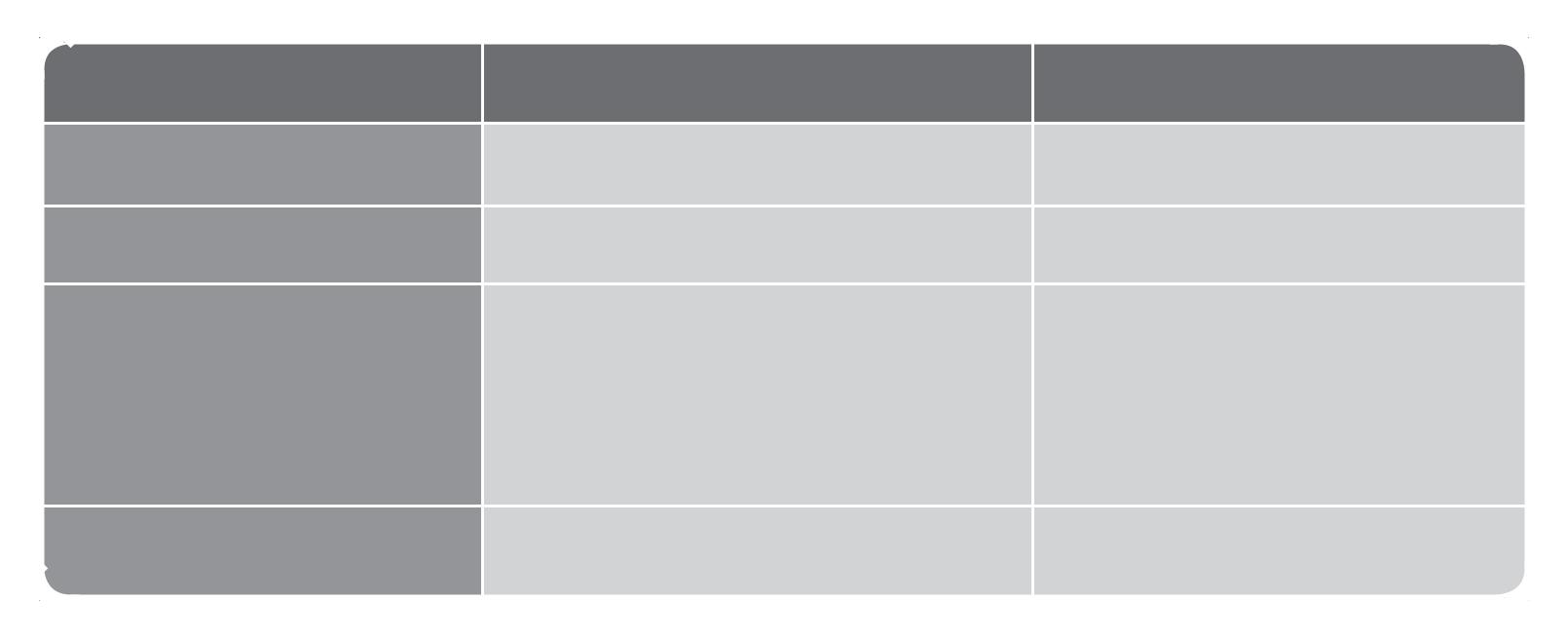
**Using Meal Replacements Alone**

Depending on the calorie content of the product, you will need 3-4 per day. It is important you check the label and **do not exceed 800kcal** in total.

Each shake needs to provide around 200-300 calories (Kcal) and 12-25g protein per serving. They contain fibre, vitamins and minerals. A lot of the shakes are quite high in sugar, so please take time to read the nutritional information. We recommend drinking them slowly, rather than drinking all in one go.

**Using both Food and Meal Replacements**

It is possible to plan a diet based on food and meal replacements. A typical day may look like this:



|  |  |  |
| --- | --- | --- |
| **Meal** | **Food/Meal Replacement** | **Calories (kcal) per Portion** |
| **Breakfast** | Meal Replacement Shake | ~200-250kcal |
| **Lunch** | Meal Replacement Shake | ~200-250kcal |
|  | Evening meal |  |
| **Evening meal** | Allowance: | ~250-350kcal |
| - 1-2 portions protein |
|  |  |
|  | - Unlimited vegetables |  |
| **Snack** | Vegetable sticks/ sugar free jelly | 20-50kcal |

**Diabetes**

If you have diabetes and treated with tablet medication and/or insulin it is likely that these medications will need changing. Your diet before and after surgery will contain very little carbohydrate and can increase the risk of hypoglycaemia. A plan will be made during your pre-operative assessment appointment. You will need to monitor your diabetes control more closely during this time.

**Constipation**

It is common to get constipated during this diet, due to you eating a lot less than usual. It is most common if you follow the shake only option. Please make sure you drink plenty of fluids.

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**Contact Information**

This diet will be discussed with you in more detail during your pre-operative assessment. Prior to this appointment please consider which approach you would like to adopt.

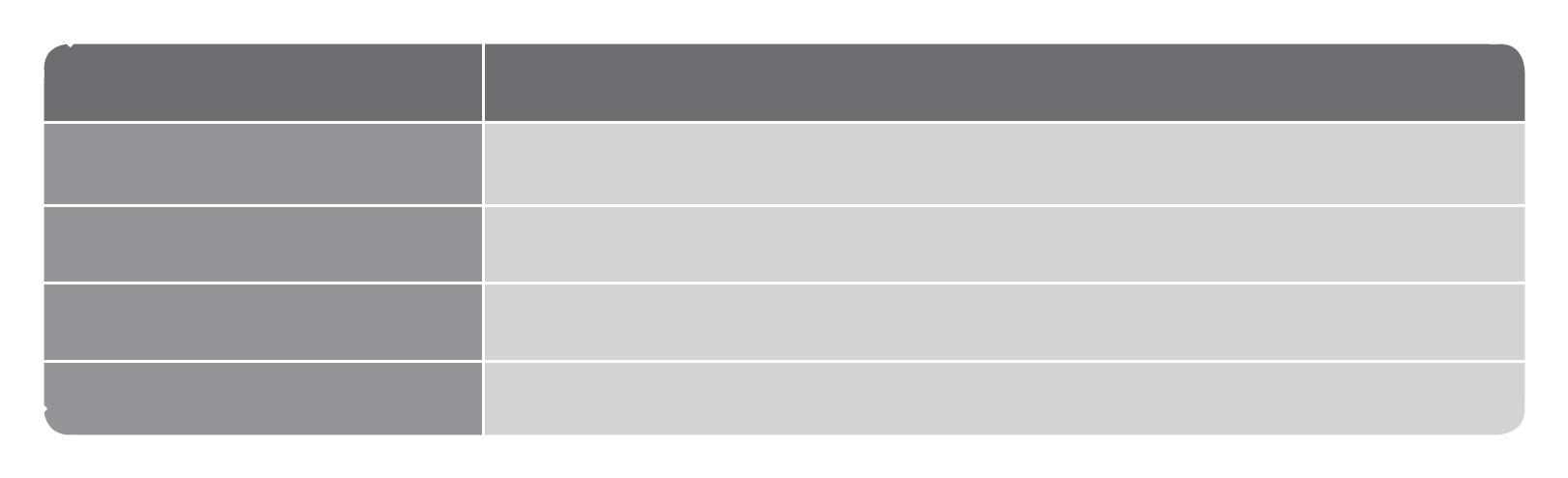
If you have any questions please don’t hesitate to contact us:

|  |  |  |
| --- | --- | --- |
| **Dafydd Wilson-Evans** | **Bariatric Practitioner** | **07889647629** |
| **Alexandra Rossiter** | **Bariatric Specialist Nurse** | **07803203463** |

**Your Diet following a Gastric Bypass or Sleeve Gastrectomy**

Following your operation you will follow a staged eating plan designed to gradually reintroduce foods safely. It is important that you follow this advice as otherwise it may delay your recovery.

**Overview**

****

|  |  |
| --- | --- |
| **Stage** | **Description** |
| **1** | Thin watery liquids for 1-2 days |
| **2** | Smooth liquids for 12-13 days |
| **3** | Soft, moist, mashable foods for 2 weeks |
| **4** | Normal diet from now on (4 -6 weeks after your operation) |

**Stage 1: Thin liquids on Day 1**

****Once you are allowed to drink, have small amounts of fluid. Sip every 10-15 minutes**aimingfor at least 200ml per hour**. You will probably be very thirsty at this stage but it is veryimportant that you drink only small quantities at a time.

****Do not gulp drinks or medications. Sip about 1 teaspoon at time and wait between****mouthfuls. If you get any discomfort, stop.

****Suitable drinks: Water / low calorie squash / tea and coffee / semi-skimmed milk.**No fizzy**

**drinks.**

**Fluid Intake:**

****Start with a couple of sips of fluid and slowly build up the quantity until a sensation of fullness****occurs.

****It is important to stop drinking as soon as you feel full. (Some patients don’t feel full especially****in a bypass).

****Aim to drink at least 200mls an hour of fluid, sipped slowly.

****If stomach pain or nausea is experienced while drinking stop until the feeling passes.

****If the quantity of fluid taken is too large the stomach will overfill and vomiting may occur.

****DO NOT drink fizzy drinks at any time after surgery as they cause bloating and will increase****your stomach size.

****Leave around 20 minutes before and after eating before you have a drink. This is particularly****important if you have had a sleeve gastrectomy.

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Getting enough fluid: This can be challenging with such a small stomach, trying to fit in medications, eating and drinking.

**Tips:**

****Sip constantly between meals. Sip every 15 minutes.

****Set reminders or download an app to help you remember to drink.

****Always have a bottle of drink with you and keep it in sight so you remember.

****Try freezing liquids to suck on, this can help you drink more slowly.

**Stage 2: Smooth liquids on Day 2-13:**

****You are still aiming to drink at least 200ml per hour between meals- keep sipping!

****Aim for 1 pint milk per day.

****No lumps. The consistency should be no thicker than custard and able to run off the spoon.****E.g. Soups, smoothies, frozen yoghurt, jelly, Weetabix made with plenty of milk, yoghurt diluted with milk.

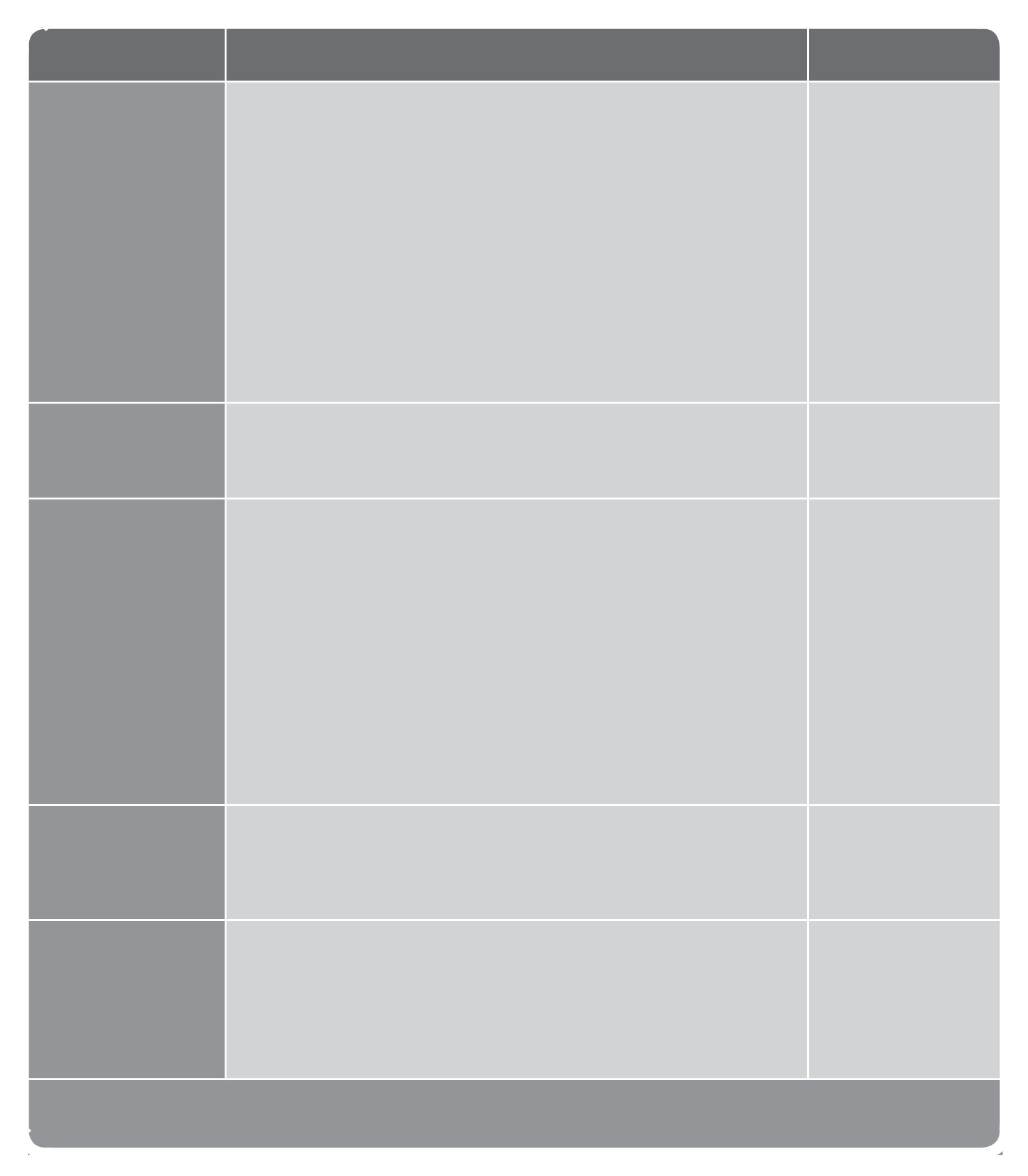
****Meal sizes should be as you can tolerate - from 100ml-300ml. Stop eating at the first signs of****fullness or if you have any pain.

****Eat as slowly as possible.

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|  |  |  |
| --- | --- | --- |
| **Sample Day Stage 2** |  |  |
| **Meal** | **Food** | **Protein** |
|  | 1/2 to 1 weetabix/ with 100ml milk/ high protein milk\* | 10g |
|  | see protein list for recipe |  |
| **Breakfast** | 100g (4tbsp) Instant porridge with milk/ high protein | 10g |
| milk |
| **Options** |  |
|  |  |
|  | 4tbsp of High protein yogurt diluted with milk- add |  |
|  | honey or puree fruit \*see protein list for types of |  |
|  | yoghurt | 10-15g |
| **Mid-morning** | 150ml high protein milk/ meal replacement drink/ Sugar | 10g |
| free jelly made with milk/ Yoghurt |
|  |  |
|  | 150ml Soup (ensure the protein content is around 10g |  |
|  | for the serving) |  |
|  | \*see protein list for the higher protein options. Add |  |
| **Lunch Options** | skimmed milk powder/ high protein yoghurt to boost | 10g |
|  | protein content. |  |
|  | or |  |
|  | Breakfast option |  |
|  | 150ml high protein milk/ meal replacement drink/ |  |
| **Mid-afternoon** | Yoghurt/ Frozen smoothie/ Sugar free jelly made with | 10-15g |
|  | milk or yoghurt |  |
|  | 150ml soup (ensure the protein content is around 10g |  |
| **Dinner** | for the serving) | 10g |
| Or |
|  |  |
|  | Breakfast option |  |
|  | **Provides 60-65g protein a day.** |  |



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**Stage 3: Soft, Moist Foods for weeks 2-4**

****You may wish to puree foods with a food blender to start with.

****Foods should mash down easily with a fork.

****Foods should either be naturally moist or add extra sauce e.g. gravy, cheese sauce.

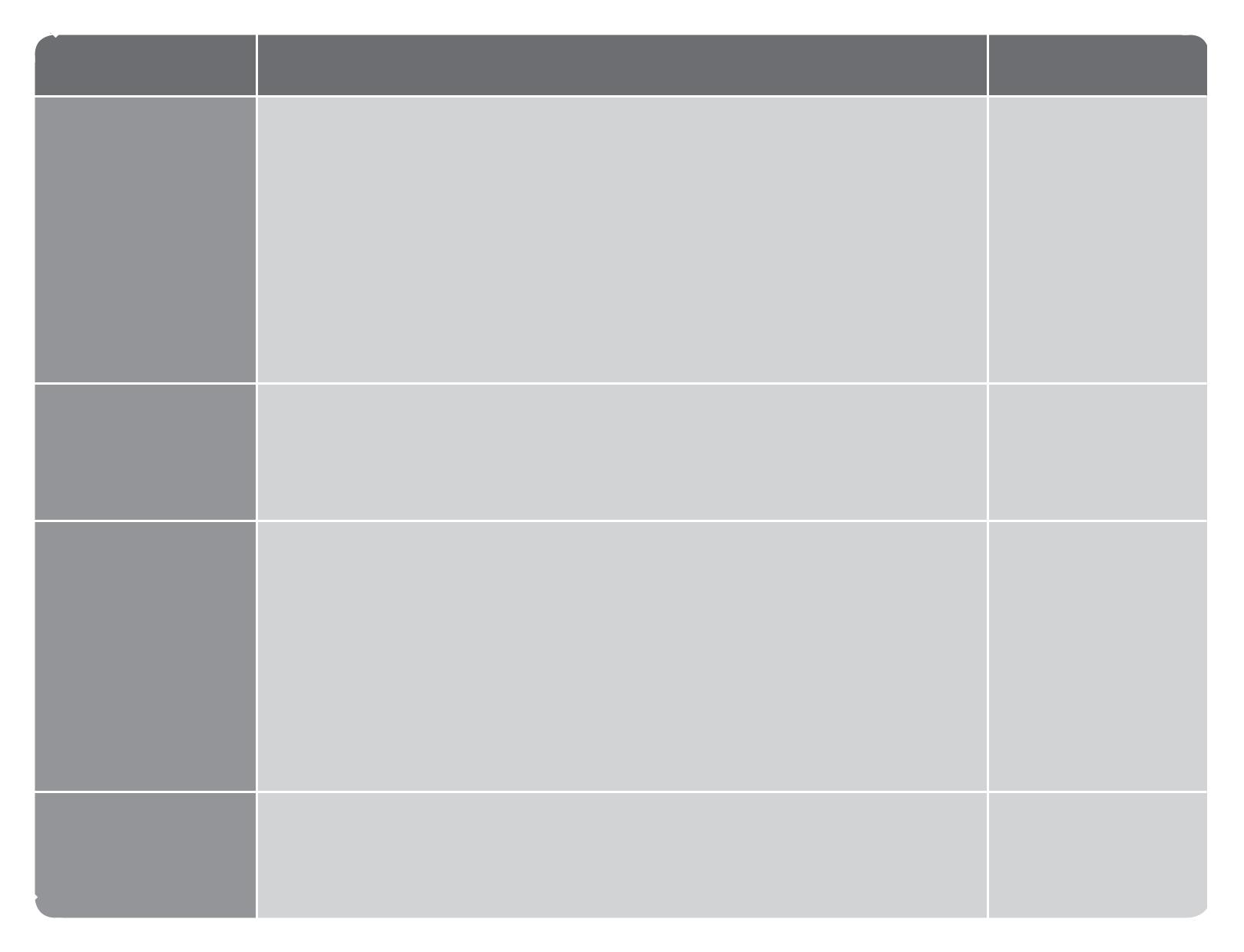
****Foods should be able to be chewed down completely to a puree consistency.

****Start with small amounts e.g.**3 tablespoons**and increase depending on your tolerance.

****Examples: baked beans and soft scrambled egg/ Shepherds pie. Lentil dahl/ Fish in a sauce/****well cooked vegetables/ soft fruits/ cereals/ casseroles/yoghurts/ Soups with lumps.

****You can also have crumbly, crispy foods such as crisp breads and crackers. Can put a soft****topping on them.

**Sample Day Stage 3**

****

|  |  |  |
| --- | --- | --- |
| **Meal** | **Food** | **Protein** |
|  | 1 x Weetabix with 100g high protein yoghurt or milk | 10g |
| **Breakfast** | 25g Porridge made with high protein milk | 10g |
| 1-2 tbsp baked beans with 1x scrambled egg | 13g |
| **Options** |
| 1x Baked eggs with cheese | 15g |
|  |
|  | 125g Low fat greek yoghurt and 1tbsp fruit | 15g |
|  | 200ml semi-skimmed milk/ high protein yoghurt with 30g |  |
| **Mid-morning** | soft fruit |  |
|  | Or Meal replacement drink |  |
|  | Crackers/ Crisp bread / Jacket pot (inside) ½, With x 1-2 |  |
|  | with salmon pate/ cottage cheese/ Pate/ tuna/ tinned fish/ |  |
| **Lunch Options** | corned beef |  |
| Or |  |
|  |  |
|  | Soup/ Dinner option |  |
| **Mid-** | 200ml Smoothie/ yog and fruit |  |
| **afternoon** | Jelly made with milk |  |

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|  |  |  |
| --- | --- | --- |
|  | Shepherds pie |  |
|  | 1/2 Salmon fillet with 1-2tbsp soft veg and 1x egg sized |  |
|  | potato |  |
|  | Fish pie |  |
|  | Chicken Casserole |  |
| **Dinner** | Bolognaise with 2tbsp soft veg/ potato | 10-20g |
| Lasagne |
|  |  |
|  | macaroni cheese |  |
|  | Tuna, sweetcorn and cheese pasta bake |  |
|  | quiche Lorraine |  |
|  | Shepherds pie |  |
|  | Cauliflower cheese |  |

**Provides approximately 50-75g protein per day.**

**Stage 4: Normal Texture, Long-term Healthy Eating Week 4-6 onwards**

It is now safe to gradually start switching over to a diet of healthy protein rich, low calorie solid foods. Take things slowly until you’re sure about the amounts and types of foods you can tolerate. Experiment to find out what quantities and types of food work for you.

**How much, how often?**

**You should eat:**

****3 small meals a day

****AND 2-3 high protein snacks/ drinks a day (see snack ideas in protein section)

****Do not miss meals, even if you don’t feel hungry. This is important to get enough protein,****fibre, nutrients, help prevent hair loss, prevent constipation and ensure your energy levels are good. Going for long periods without eating may also slow down your weight loss.

****Keep sipping fluids between meals, remembering not to fill up on fluids 20 minutes before or****after eating.

****The average calorie intake within the first 6 months is around 800kcal a day. A year after the****operation, this increases to an average of 1200kcal a day.

****Expect your meal size to increase over the first year. To start with 3 tablespoons of a meal may****completely fill you up, but by a year we expect people to be eating a child’s sized portion.

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* + **ƒ**ƒ **Start with 3-6** tablespoons and increase as tolerated.
  + **ƒ**ƒ **Stop** as soon as you feel any signs of fullness or pain and pay attention to your body’ssignals of fullness.
  + **ƒ**ƒ **CHEW FOOD VERY WELL.** This means chewing it to a thick porridge consistencybefore you swallow the food.
  + **ƒ**ƒAs soon as you feel full or you feel pressure in the centre of your abdomen stop eatingor drinking. One extra mouthful of food after these early signals could lead to pain, discomfort and vomiting.
  + **ƒ**ƒProtein should be your priority so remember **P.V.C** – Protein first, then Vegetables, thenlast of all Carbohydrates. You do need some carbohydrates for energy and well-being.
  + **ƒ**ƒThis stage can be challenging as you learn how much you can eat of certain foods andthe importance of paying attention to your body as you eat.
  + **ƒ**ƒ **A guide to eating slowly:** 20:20;20;20
  + **ƒ**ƒCut each mouthful into a 20pence sized piece
  + **ƒ**ƒChew each mouthful at least 20 times or until all lumps are gone **ƒ**ƒWait around 20 seconds between each mouthful **ƒ**ƒStop eating after 20 minutes.

**If you do experience problems try to think back and identify the cause.**

* Have I eaten too fast or not chewed the food well enough?
* Have I eaten too much, taken fluids with the meal or taken fluids too soon before/ after themeal?

**Am I eating too much?**

This can be a concern for many people. Ask yourself these questions:

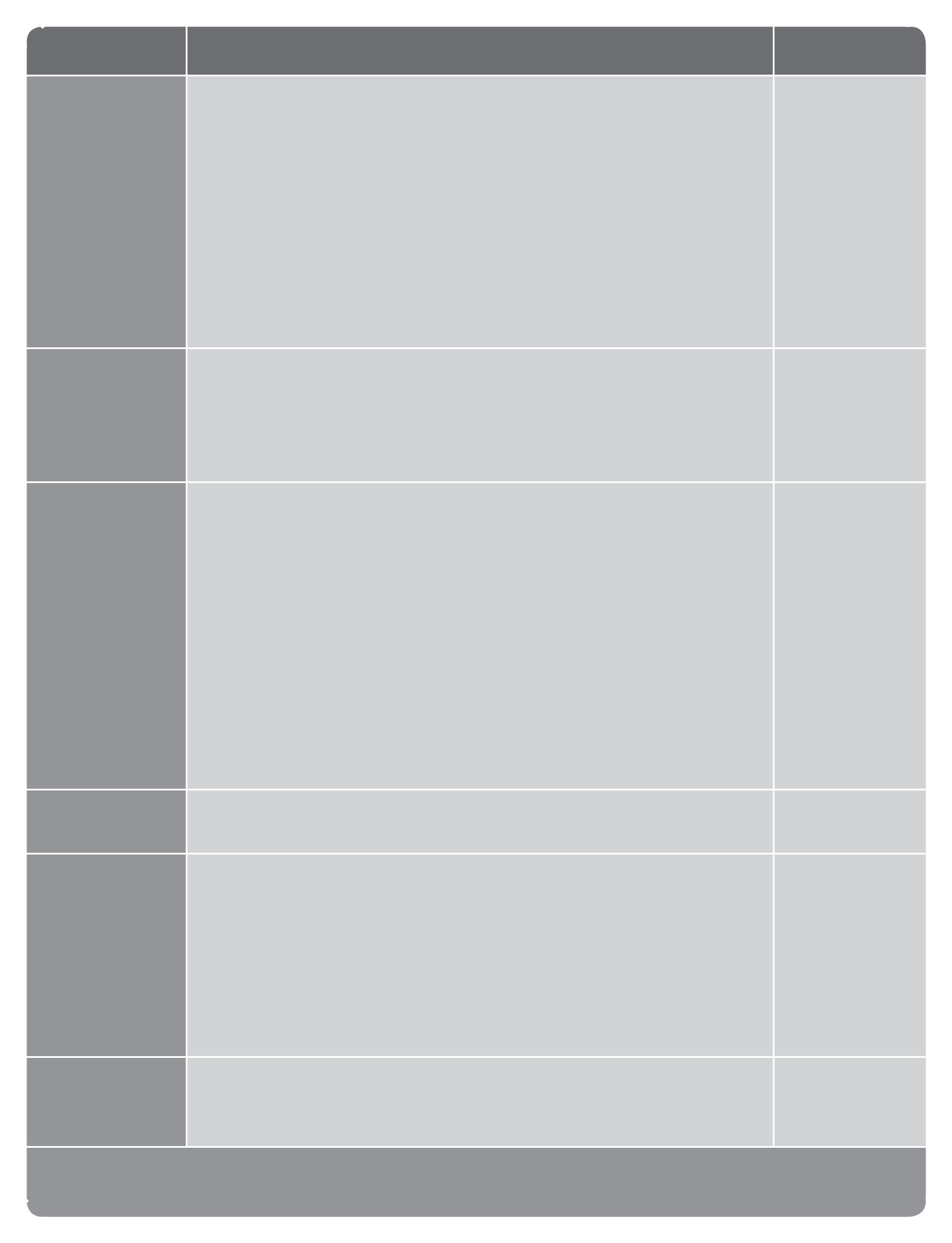
1. Am I eating a lot less than I was before my operation? If yes, then you can feel confident that you are on the right track. If no, please contact the bariatric team.
2. Am I making good food choices? If yes, then keep going. If no, think about ways you could change this and contact the bariatric team for advice
3. Am I experiencing pain/ sickness/ reflux after every meal? If no, then keep going.

If yes; slow down your eating, pay attention to your stomach area when eating- listen to your body and leave food on the plate if needed. Contact the bariatric team if your symptoms don’t improve.

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|  |  |  |
| --- | --- | --- |
| **Sample Day Stage 4** | |  |
| **Meal** | **Food** | **Protein** |
|  | 40g Porridge/ cereal with milk | 10g |
|  |  |
|  | 1x Egg/ baked beans on 1 x toast | 15g |
|  |  |
| **Breakfast** |  | 15-20g |
|  | 30g granola with low fat greek yogurt and fruit |
|  |  |
|  | Egg and banana pancake | 10g |
|  |  |
|  | Banana with low fat Greek yogurt and 1tsp honey | 15g |
|  |  |
| **Mid-morning** |  |  |
|  | Sliced meat/ tuna/ cottage cheese on crisp bread x 1-2 | 5-10g |
|  |  |
|  |  | 15g |
|  | 1 small wrap with ½ chicken breast and salad |  |
|  | Salad and chicken/ meat with 1 x crispbread | 15g |
| **Lunch** |  |  |
|  | Leftovers |  |
|  |  | 10-15g |
|  | Soup with 2 x crisp breads and low fat cheese |  |
|  |  | 10-20g |
| **Mid-** | Smoothie/ Handful of nuts/ fruit and yoghurt | 5-10g |
| **afternoon** |
|  |  |
|  | Baked salmon fillet with vegetables and 2 egg sized potatoes | 20g |
|  |  |
| **Dinner** | 1-2 egg omelette with cheese/ham | 20g |
|  |  |
|  | Stirfry chicken noodles with cashew nuts | 20g |
|  |  |
| **Supper** | Banana and frozen yoghurt | 10-20g |



**Total Protein intake approximately 55- 90g depending on choices and quantity eaten.**

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|  |  |
| --- | --- |
| **Challenging Foods** | **Alternatives** |
| **Fresh Bread** | Toast, crackers, toasted pitta, wraps |
| **Pasta** | Serve in a generous sauce |
| Use small shapes |
|  |
| **Rice** | Risotto |
| **Certain meats** | Small pieces/ minced |
| Marinade/ slow cook/ stew or casserole |
|  |
| **Fibrous Vegetables e.g.** | Peel off skins |
|  |
| **sweetcorn, celery, raw** | Cook well until soft |
| **vegetables** | Cauliflower, broccoli, tinned veg, beetroot |
|  |
| **Fruit e.g. oranges,** | Peel fruit |
| Puree or stew |
| **grapefruit** |
| Tinned fruit in juice |
|  |

**Tips to avoid dumping syndrome:**

Following your gastric bypass you are at risk of developing dumping syndrome. It is less common with a sleeve gastrectomy. This is because sugar from all kinds of food (not just sweet foods) is released too quickly into your body. This will make you feel dizzy and sweaty. You might notice your heart rate increases and your pulse starts to race. People around you might notice that you are pale and wobbly. You will feel unwell and need to lie down as your blood pressure will have dropped.

So:

****Eat slowly and chew well

****Do not drink at the same time as eating

****Limit the portion size of high sugar foods e.g. ice-cream, sugar coated cereals, chocolate

****If you do eat sweet food, have a small portion after a meal

****Fibre helps reduce dumping syndrome, so fruit is usually OK****

****Drink low sugar drinks only

****Do not drink alcohol on an empty stomach.

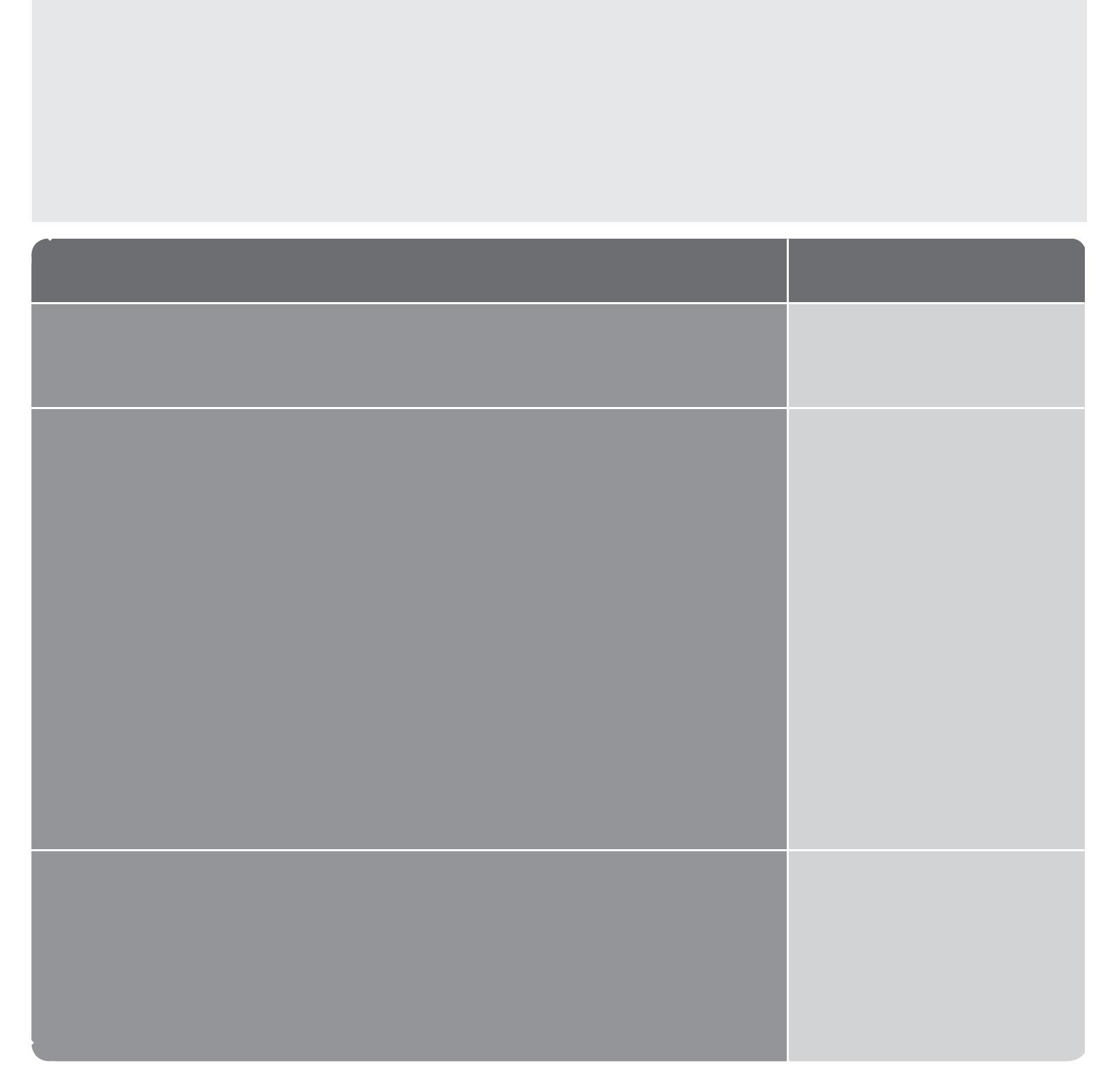
**Alcohol**

We recommend you do not drink any alcohol within the first 3 months following your surgery. We advise that caution is taken when drinking alcohol as your body will absorb it at a much faster rate. If you notice you are drinking more alcohol since your operation, please contact us for support.

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**Getting Enough Protein**

****You can add extra protein to meals and drinks by using ‘fortified milk’ instead of water: Add****1-2 tablespoons of skimmed milk powder to ½ pint (300ml) milk. Add this to cereals, drinks, soups/stews, sugar free jellies, and to make sauces.

**** Some people buy protein powders/drinks/bars. Please check with your Dietitian before using.****

****Aim to have 20g protein at a main meal

****You will need to plan your eating very carefully to achieve the recommended protein intake.

|  |  |
| --- | --- |
| **Food item** | **Protein Content Per** |
| **Bariatric Portion** |
|  |
| **Dairy- Aim to have 3 portions a day** |  |
| 1 pint skimmed milk + 4 heaped tablespoons of skimmed milk | 45g |
| powder. This can be used on cereal, to make sauces, jellies. |  |
| **Standard yoghurt (125ml)** | 5g |
| Low fat Greek yoghurt/High protein yoghurt e.g. Arla/ Liberty/ total |
|  |
| 0% |  |
| Tip: add high protein yoghurt to sauces, breakfasts, mix with | 15-20g |
| pureed fruit to turn into high protein lollies |  |
| 1x wbix with 100ml milk | 5g |
|  |
| Porridge made with milk | 5g |
|  |
| Toast with 1tsp peanut butter- | 3g |
|  |
| 1 egg omelette with cheese | 15g |
|  |
| Cottage cheese 2tbsp | 5g |
| Cheddar cheese 25g | 5g |
| 150ml semi-skimmed milk/ soya/ goats | 5g |
| Skimmed milk powder 20g | 7g |
| Latte 235ml | 6g |

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Meat and Fish

|  |  |
| --- | --- |
| 75g Lamb, beef, pork, chicken | 20 |
| 1 slice bacon | 2g |
| Lean Burger (small) | 27g |
| 1 slice roast beef | 12g |
| 1 slice corned beef | 8g |
| Wafer thin chicken 1 slice | 3g |
| Wafer thin ham 1 slice | 2g |
| Ham slice | 6g |
| 1/2 turkey slice | 5g |
| 30g pate | 4 g |
| 3tbsp beef chilli and 2tbsp rice | 8g |
| Stirfry chicken noodles 100g | 10g |
| ½ chicken salad sandwich | 10g |
| ½ ham salad sandwich | 7g |
| Fish |  |
| Breaded fish 50g | 7g |
| 1x Fish finger | 3g |
| Prawns 2tbsp | 5-10g |
| ½ tin sardines | 10g |
| 50g smoked salmon | 10g |
| Cod 60g | 15g |
| Salmon steak 60g (half a salmon fillet) | 15g |
| ½ small can tuna (45g) | 20g |
| Seafood sticks x 3 | 3g |

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Vegetarian

|  |  |
| --- | --- |
| Peanuts (25g) | 6g |
| 1/3 tin baked beans (135g) | 10g |
| Nature valley Chewy Protein | 8g |
| 1 quorn sausage | 7g |
| Quorn mince (6 tablespoons/ 100g) | 15g |
| Humous (100g/ 2 tablespoons) | 5g |
| Lentils/ pulses (1 tablespoon) | 2g |
| 1 egg | 8g |
| Ryveta | 1 g |
| Pasta 3 tablespoons | 2g |
| 1x bread with 4tbsp beans | 6g |
| 3x broccoli florets | 3g |
| Peas 3tbsp | 3g |
| Beans 3tbsp | 5g |
| 1tbsp nuts | 2g |
| 1tbsp seeds | 2g |
| 3tablespoons mashed potato | 2g |
| 3tablespoons quinoa | 4g |
| Cereal bar | 2g |
| 1tsbp peanut butter | 4g |
| 40g (2 tbsp) chickpeas | 3g |
| **Soups** |  |

**Ensure they are at least 10g per portion. Homemade are often higher in protein. Add meat/ lentils to increase the protein content.**

|  |  |
| --- | --- |
| 200ml Broccoli and stilton soup | 5g |
| 200ml chunky veg soup | 4g |
| 200ml mushroom soup | 2g |
| 2000ml tomato soup | 2g |
| 200ml pea and ham | 10g |
| 200ml lentil and bacon | 13g |
| 200ml chicken and vegetable | 11g |
| 200ml chicken and sweetcorn | 10g |
| **Snack ideas:** 5-15g | High protein yoghurt/Handful nuts |

Babybel light/Cracker/crisp bread with topping/Sliced meat/FruitSmoothie/ glass of milk

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**Portion Size Advice:**

The amount you will be able to eat is likely to change over the first year. The average portion of a meal in the first 3-6 months following your surgery is 3-6 tablespoons in total. By a year, most people can manage a child’s portion.

**How much you can eat will depend on:**

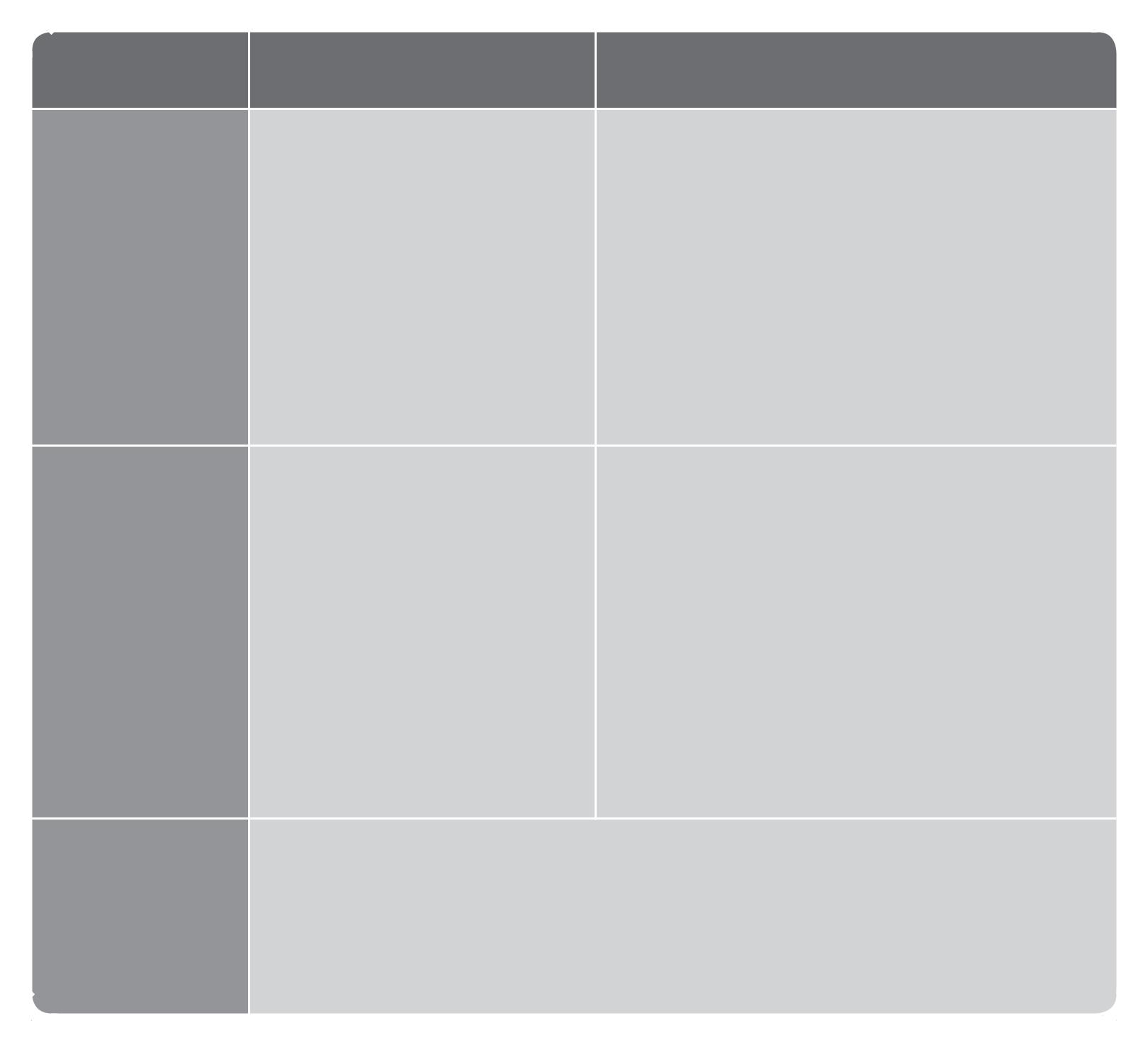
****The type of food; the softer and sloppier the meal e.g. soup, cottage pie, the more you will****be able to eat. The more you have to chew a food e.g. Meat, salad, vegetables, the smaller portion you need to fill you up. Try to avoid staying on soft foods, just because they are easier.

**** How quickly you eat- eat slowly to spot the first signs of fullness.

**** Listening to your body- do not eat beyond the first signs of fullness. This is common over the****first few months, but try not to do this in the long-term as you may stretch your stomach pouch.

****How much you have had to drink just before a meal****

****The day! Every day can be different.

**Vitamins and Minerals, Medications and Follow-up**

|  |  |  |
| --- | --- | --- |
|  | **Discharged with** | **After 4 weeks** |
|  | **2 week supply** | Please get your GP to swap to |
|  |  | 210mg Ferrous Fumarate tablet |
|  |  | once- twice daily |
|  | Ferrous Fumarate syrup | If you are suffering from constipation, try |
| **Iron Lifelong** | taking iron every other day to see if this |
|  |
| Once daily | helps. |
|  |
|  |  | You may not need iron forever, but will |
|  |  | if you are at risk of anaemia or unable to |
|  |  | manage much meat in your diet. |

|  |  |  |
| --- | --- | --- |
|  |  | Calcium citrate is better absorbed as it does |
|  | Cacit D3 sachets | not need stomach acid for activation. |
|  | Twice a daily (1000mg | DO NOT TAKE AT THE SAME TIME AS YOUR |
| **Calcium /** | calcium + 11micrograms | IRON |
| **Vitamin D**  **Lifelong** | cholecalciferol). | But if you are struggling to take this then |
|  |  | ask your GP to swap to a chewable/ capsule. |
|  | Let the bubbles disperse. | You must take this to protect your bones |
|  |  | from weakening. |

**Vitamin B12**

1mg IM injection every 3 months. The first injection to be given 3 months after their operation.

You may need these from time to time after the first year as your stomach no longer produces as much vitamin B12.

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|  |  |  |
| --- | --- | --- |
|  |  | 2 x Sanatogen A-Z complete or |
|  |  | 2 x Superdrug A-Z multivitamins or |
|  |  | 2 x Tesco Complete Multivitamins and |
|  | OTC chewable preparation, | minerals or |
|  | 2 x Lloydspharmacy A-Z multivitamins and |
| **Multivitamin** | 1 dose twice daily |
|  | minerals |
| **and mineral Lifelong** | Or |
| Or |
|  | Forceval soluble once daily |
|  | Forceval once daily (on prescription) |
|  |  |
|  |  | If you buy a different brand, please check |
|  |  | with the Bariatric team as not all are |
|  |  | suitable. These are required life-long. |
|  | If you are suffering with constipation (No bowel action for 3 days or more) | |
|  | then ask your GP to prescribe you a laxative, but avoid fybogel. You can use | |
|  | over the counter remedies such as senna. | |
| **Constipation** | - Increase your fibre intake- add more vegetables, wholegrain, snack on | |
| fruit, add golden linseeds/ flaxseeds to your diet | |
|  | - Do not miss meals and ensure you are eating regularly | |
|  | - Drink plenty of fluids. 1 cup of coffee/ caffeinated drink can help. | |
|  | - Keep moving to stimulate bowel movements | |
|  | For gastric bypass patients, please chose sugar free preparations where | |
| **Check your** | possible, to avoid dumping syndrome. | |
| **medications** | Some doses of medication may need to be changed e.g. blood pressure or | |
|  | diabetes medications |  |
| **Blood tests** | We will arrange blood tests at 3,6,12, 24 months (as per BOMSS guidance). | |
| Additional blood tests may be required. | |
|  |
|  | Surgical follow-up : 6 weeks and as required | |
| **Appointments** | Dietitian/ Bariatric Practitioner follow-up: 3, 6, 9,12, 24 months or a | |
| monthly group session for the first 6 months. Please let us know if you are | |
|  |
|  | unable to attend any appointments. | |

Bariatric Co-ordinators: Pauline Clifford 0117 414 0855 and Diane Smith:

0117 414 0854

**Contact Details** Bariatric Nurse Specialist: Alexandra Rossiter 07803203463

Bariatric Practitioner/ Dietitian: Dafydd Wilson-Evans 07889647629

Bariatric Dietitian: Jeanette Lamb 0117 414 0855 or 0117 414 0854

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**Help and support**

We are here as a team to help you get the most from your surgery. Following bypass surgery we will make appointments for you to come and see us at regular intervals or as required. Please make every effort to attend these appointments. We will check your bloods at these appointments to check that you are not becoming deficient in certain nutrients. You do not need to have these done prior to your appointment.

Should you have questions or concerns between appointments then please do call or email us. We love to hear how you are getting on and also whether there is anything else that we could be helping you with to ensure that you reach you goals.

**How much weight can I expect to lose, and how quickly?**

The National Bariatric Surgery Registry, 2010 reported that the average excess weight patients lost after 1 year was approximately 40% for gastric banding, 50% for sleeve gastrectomy and 70% for gastric bypass. The amount of weight lost after surgery however varies greatly from person to person. Ultimately, it is down to the changes you make to your lifestyle and eating habits. Weight loss requires reducing your food intake and increasing exercise. If you don’t stick to this then you will not lose enough weight and may even to put it back on again.

It is important to be realistic about weight loss. The primary aim of bariatric surgery is to improve the problems caused by your obesity. If you lose more than half of your extra (excess) weight and it doesn’t come back on again this is regarded as a success.

Most of the weight lost after bariatric surgery happens in the first 6 months, a bit more until about 18 months when most people put a bit back on again. This is entirely normal and as long as the weight levels out again there is nothing to worry about.

**Remember:**

****Do not compare yourself to others- everyone starts at different weights and lose weight at****different rates.

****Your body has just undergone a major operation and is recovering. In the first month, there****will be a lot of changes happening that you can’t see on the scales. The fluid level in your body will be changing, especially as you start eating and drinking again.

****Do not weigh yourself too often. Ideally, do not weigh for the first month. If you do weigh,****only weigh once a week and look at the trend over a 3 week period.

****It is not a race- those who lose it the fastest do not always keep it off. The faster you lose the****more muscle and water you are losing. Slower weight loss e.g.1-2lbs a week are more likely to be fat loss.

****It will not come off at the same rate every week and there WILL be times when it stays the****same or even goes up slightly. This is normal.

****People lose the majority of their weight over the first year, but it can take some people longer****depending on a number of things including activity level.

****Your body will slow down weight loss if it’s coming off quickly or when you reach the lowest****weight you have been in a long time. This is called your ‘set-point weight’. Keep eating regularly and don’t panic, it will re-adjust in time and your weight will come down further.

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**ƒ**ƒ **Stay focussed on these 2 questions**

1. **Am I eating significantly less than I was before my operation?** If yes, thenyou can feel confident that your weight will keep coming down. If no, please contact the bariatric team.
2. **Am I still making good food choices?** If yes, then keep going. If no, thinkabout ways you could change this and contact the bariatric team for advice.

If at a year you have lost 50% of your excess body weight (the extra weight you are carryingon top of what your normal weight should be), then the operation is considered a success.

**Will I burst my stitches?**

Many patient’s ask us whether they will burst their stitches and the answer is no. As long as you are following the above rules and take your time eating this will not affect your stitches. If you do have any concerns regarding this then please contact one of the team.

**Exercise**

Exercise after bariatric surgery is essential and needs to become a daily part of your new lifestyle. It not only helps in losing weight, but it can boost your immune system, improve your mood, enhance your self-esteem and confidence, reduce stress and anxiety and may help tighten loose skin.

You should aim to be generally more active and walk for at least 30 minutes every day to a point where you feel are slightly short of breath and sweaty. We suggest non-weight bearing exercises to start with (such as swimming, aqua-aerobics or cycling) to avoid extra load on the joints. When exercising you should start at an intensity level where you can talk comfortably. Start with more strength training after about six months from surgery. Make sure you drink plenty of water before, during and after exercise and wear well-fitting shoes.

You don’t need to enrol at a gym to become more active but simple measures such as walking up stairs instead of taking the lift, or getting off the bus 2 stops early and walking the rest of the way will soon add up. Take a walk after lunch and dinner, walk the dog and dancing is one of the best regular exercises you can take! Exercise outdoors, make it varied, and above all have fun!

**Pregnancy**

Losing weight can increase fertility but we strongly recommend that you do not become pregnant for 2 years following surgery as weight loss may have effects on the unborn child. Bariatric surgery may affect the absorption of oral hormonal contraceptives so please visit your local family planning centre for advice.

If you do get pregnant following bariatric surgery then it is important to let your GP, Obstetrician, midwife, and bariatric unit know as soon as possible. You may require extra monitoring during the pregnancy to ensure that you and the baby get enough nutrients to keep healthy.

**Social**

Being socially active is very important to positive emotional wellbeing, but be careful not to overdo it. You may be more prone to the intoxicating effects of alcohol than you used to be. Also bear in mind that alcohol contains calories without any nutrients and can be high in sugar.

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**Monitoring your progress**

It is worthwhile buying a set of bathroom scales and weighing yourself on a regular basis (approximately fortnightly) and keeping a diary. This will help in keeping an eye on your progress, although it is important not to become too obsessive about your weight. You need to have a general overview and as long as you are happy with your weight and it is stable you need not worry. It is common for people to put some weight on again after about 18 months following the operation, but as long as this levels out in a few months then that is quite normal. If your weight continues to rise, then you may need some extra help.

**Will I have loose or sagging skin after I lose weight?**

After significant weight loss there will inevitably be some areas where the skin starts to sag (around the tummy, under the arms and thighs, and breasts). How bad this is depends on many factors including how much weight you lose, your age and skin tone (generally younger patients have a better skin tone). How much this affects you is personal with some patients not being bothered by it, and others finding it very difficult to cope with. Occasionally the skin folds can become infected or sore if they are difficult to keep clean and dry.

The only way to effectively deal with loose skin is with plastic surgery although this is not routinely funded within the NHS unless there are exceptional circumstances. You will need to discuss this with your GP if you feel that it becomes a major problem.

**What can I do about hair loss?**

Some people notice that they lose some hair or that it becomes thinner after weight loss. This can be distressing, but it is only temporary and usually gets better after a few months. Many patients describe developing very dry skin when losing weight rapidly. You can combat this by drinking plenty of fluids, taking your multivitamin and mineral supplements and applying a good moisturising cream daily.

**Do you require me to stop smoking before surgery? How will smoking affect my surgery and post-op time? YES**

The purpose of bariatric surgery is to help improve your health, life expectancy and quality of life. Smoking is the single most detrimental activity that you can do to affect your health and it’s the biggest cause of death and illness in the UK. One in two smokers will die from smoking-related diseases such as cancers, heart attacks and strokes.

Smoking increases your risks of complications during and after surgery. It will increase your risks of chest infections, blood colts, wound healing, and premature death. We strongly advise you to stop smoking before surgery. We understand that this can be very difficult and you will need support. There are many support organisations available that are able to point you in the right direction, and we are happy to work with you. You will not be considered for surgery if you continue to smoke and have not been involved in any stop smoking interventions.

Smoke Free Bristol: 0117 922 2255

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**Useful Websites for Further Reading**

**North Bristol NHS Trust website**

http://www.nbt.nhs.uk/our-services/a-z-services/bariatric-surgery

**British Obesity Surgery Patient Organisation (BOSPA)**

http://www.bospa.org/

**British Obesity and Metabolic Surgery Society (BOMSS)**

http://www.bomss.org.uk/

**Weight Loss Surgery Information:**

http://www.wlsinfo.org.uk/

**Weight Concern:**

http://www.weightconcern.com/

**National Obesity Forum:**

http://nationalobesityforum.org.uk

**NHS Obesity Decision Aid**

http://sdm.rightcare.nhs.uk/pda/obesity/

**Risks of Surgery**

As with every surgery, there are risks associated with bariatric surgery. These risks will differ for each individual and your personal risk will be discussed and calculated during your outpatient appointment. Overall bariatric surgery is considered a very safe procedure. It’s important to remember that in most cases the benefits of surgery outweigh the risks.

Detailed below are the key risks of complications and mortality (death) of bariatric surgery.

**Cardiovascular Complications**

These include:

****Myocardial Infarction (Heart Attack)

****Stroke

****Dysrhythmia (Irregular heartbeats)

****Pulmonary Embolus (blood clot in the lung)

****Deep-Vein Thrombosis

****Cardiac Arrest

**Surgical Complications**

Complications Related to Gastric Banding:

**** Slippage

**** Perforation

**** Infection

**** Bleeding

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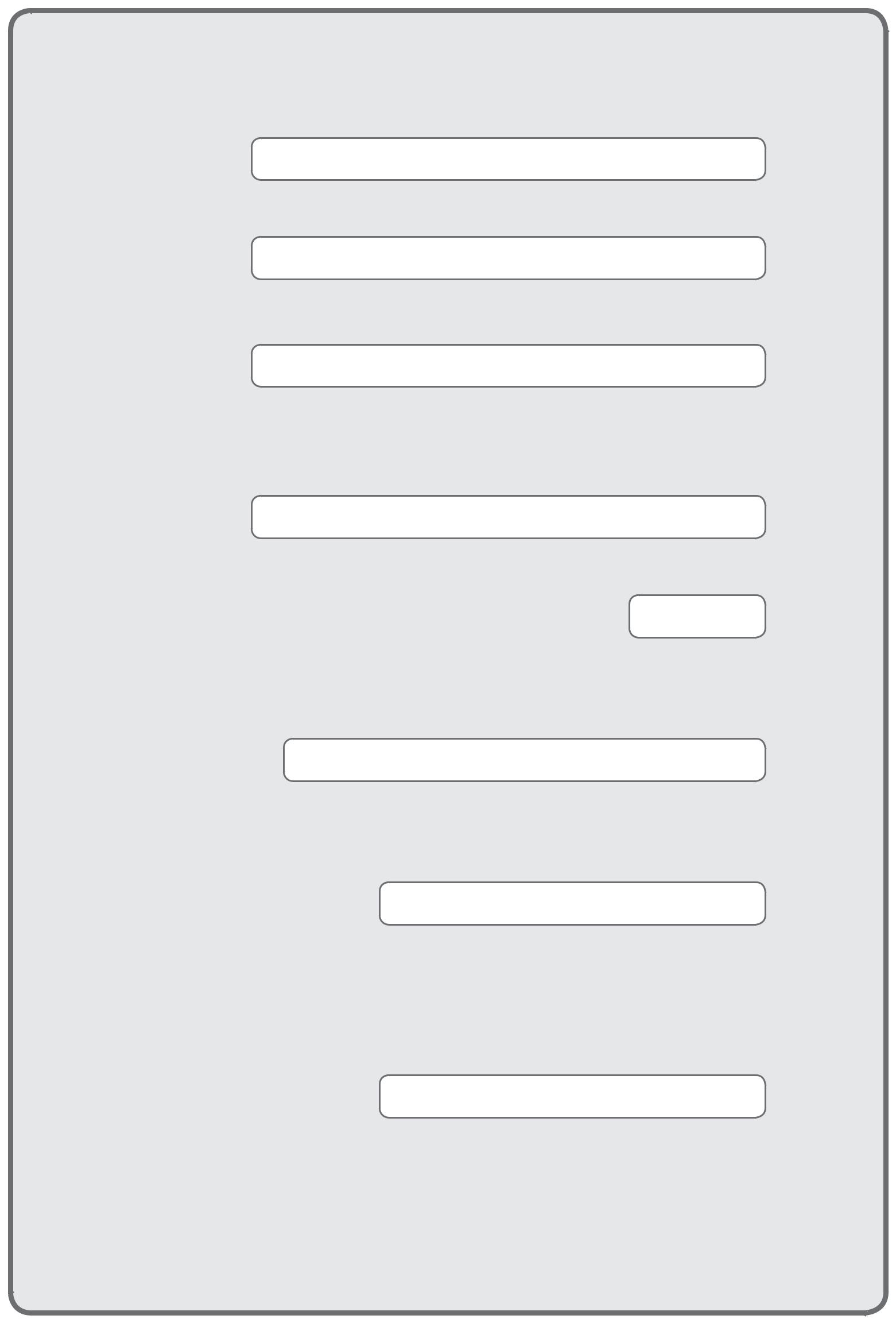
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cardiovascular** | **Other** | **30-day** | **Mortality Risk** |
|  | **Complication** | **Complication** | **Complication** |
|  |  |
| **Gastric Band** | 0.1% | 0.7% | 0.8% | ~0.1%- Global |
| data |
|  |  |  |  |
|  |  |  |  | 0.07%- UK data |
| **Gastric Bypass** | 0.4% | 3.1% | 3.1% | ~0.2%- Global |
|  |  |  |  | data |
| **Sleeve** |  |  |  | 0.15%- UK data |
| 0.3% | 3.5% | 1.4% | ~0.4%- Global |
| **Gastrectomy** |
|  |  |  | data\* |
|  |  |  |  |

Revisional surgery will hold greater risk then primary procedures

Some patients may be at greater risk than stated above. This will depend on preoperative risk scores \*Significantly lower numbers of Sleeve Gastrectomy procedures researched Chang (2014) & NBSR (2014)

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Weight Documentation

**Date:**

**Height:**

**BMI:**

**Assessment Weight:**

**Ideal Weight :  Excess Weight:**

**Weight after 50% EWL:**

**Preoperative Assessment Weight:**

**Date: **

**Day of Surgery Weight:**

**Date: **

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|  |  |  |
| --- | --- | --- |
| **Total Weight** | **Weight Loss** | **Comments** |
| (kg) | (kg) |
|  |

**Pre Assessment**

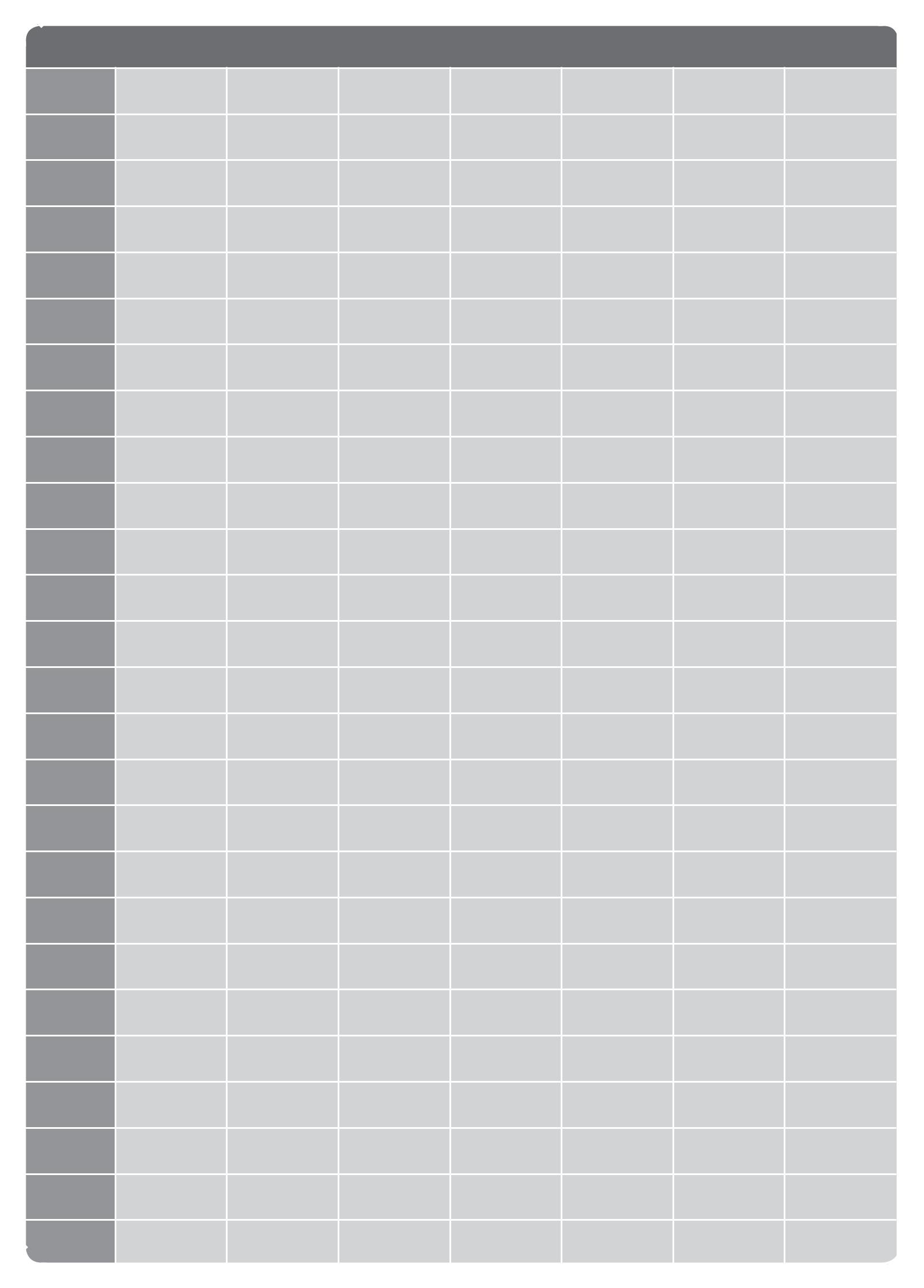
**Pre Surgery**

1. **Week**
2. **Month**
3. **Month**
4. **Month**
5. **Month**
6. **Month**
7. **Month**
8. **Month**

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**Weight Progress Chart**

****

**Dates**

**310**

**300**

**290**

**280**

**270**

**260**

**250**

**240**

**230**

**220**

**210**

**200**

**190**

**180**

**170**

**160**

**150**

**140**

**130**

**120**

**110**

**100**

**90**

**80**

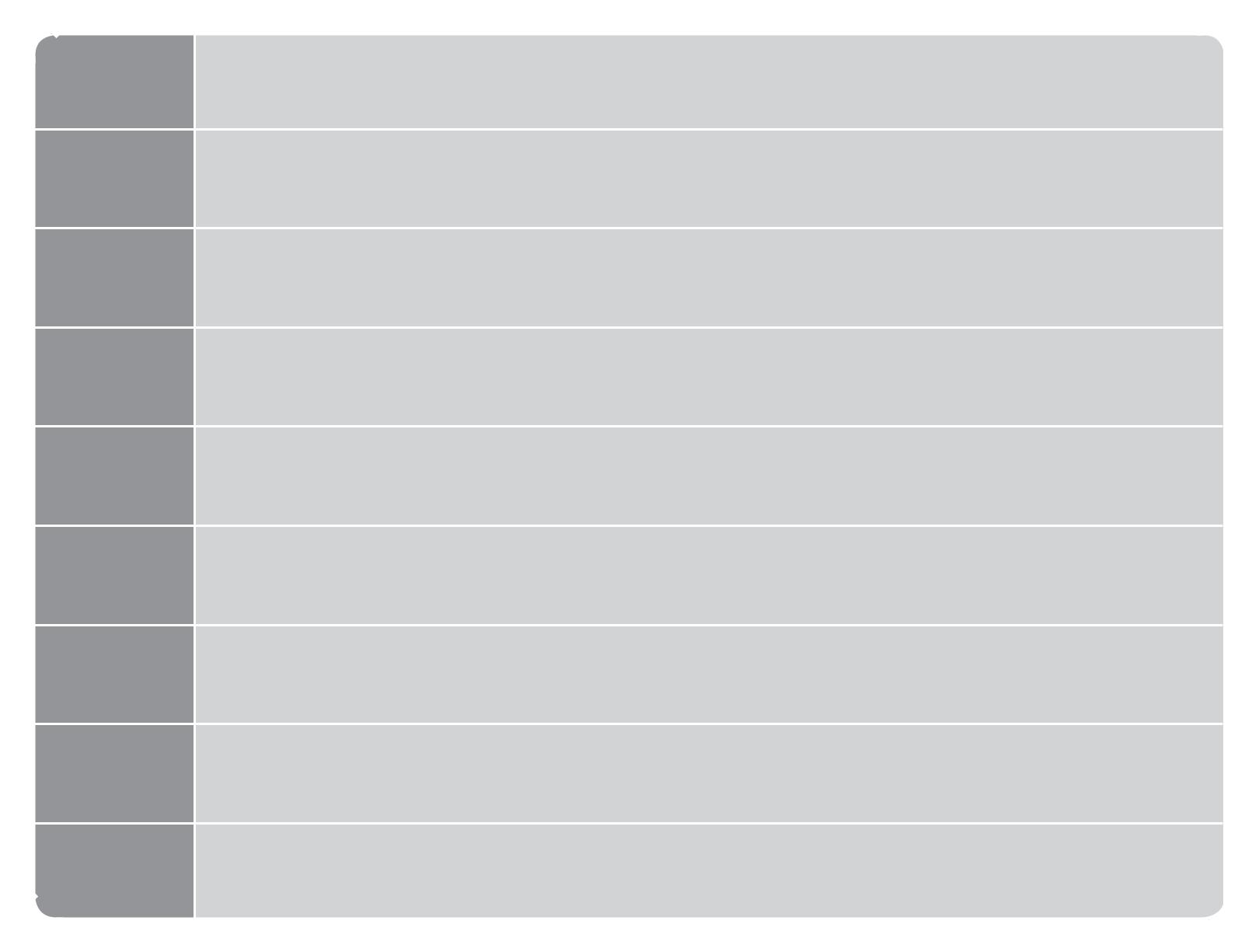
**70**

**60**

1. North Bristol Centre for Weight Loss, Metabolic and Bariatric Surgery



**Questions to ask at my next visit**

****

**6/52**

**3/12**

**6/12**

**9/12**

**12/12**

**15/12**

**18/12**

**21/12**

**24/12**

**Contact Information**

This diet will be discussed with you in more detail during your pre-operative assessment. Prior to this appointment please consider which approach you would like to adopt.

**If you have any questions please don’t hesitate to contact us:**

|  |  |  |
| --- | --- | --- |
| Dafydd Wilson-Evans | Bariatric Practitioner | 0117 414 0855 |
| Alexandra Rossiter | Bariatric Specialist Nurse | 07803203463 |
| Jeanette Lamb | Bariatric Dietitian |  |

North Bristol Centre for Weight Loss, Metabolic and Bariatric Surgery 33





**How to contact us:**

**Coordinators**

**01174140855**

**01174140854**

**Urgent enquiries for Bariatric Practitioner 07889647629**

**Clinical Nurse Specialist in Bariatric surgery 07803203463**

**www.nbt.nhs.uk**

If you or the individual you are caring for need support reading this leaflet please ask a member of staff for advice.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Seen by** | **Date** | **Weight** | **BMI** | **Outcome/comments:** |
| Physician |  |  |  |  |
| Surgeon |  |  |  |  |
| Practitioner |  |  |  |  |
| Dietitian |  |  |  |  |
| Psychologist |  |  |  |  |

**Appendix 5: MDT proforma**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | <Patient: Name> | **D.O.B** | <Patient: Date of Birth> |
| **Hospital number** | <Patient: Hospital Number> | **Referral Source** |  |
| **Surgery Proposed** |  | | |

|  |  |
| --- | --- |
| **PMHx + Bloods** |  |
| Seen by any other professionals |  |
| Other comments/concerns |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Operation** | **I/P – if so why** | **Fast-track - MSS** | **Day-Case** |
| Sleeve |  |  |  |
| Bypass |  |  |  |
| Band |  |  |  |
| Balloon |  |  |  |

Patient discussed again:

**Appendix 6: NBT Additional Consent Form**

**WEIGHT LOSS SURGERY PATIENT ID LABEL**

**ADDITIONAL CONSENT FORM**

*This additional consent form is intended to ensure that you fully understand the risks and long term implications of weight loss surgery. Please do not sign this form until you are happy that everything has been clearly explained.*

*Please read this form in detail and bring it with you when you come in to hospital for your surgery and sign it with your surgeon.*

**BEFORE SURGERY**

There are different forms of weight loss surgery - gastric banding, sleeve gastrectomy and gastric bypass as well as other surgical and non-surgical options. Each has risks and benefits. If these have not been adequately explained, ask your surgeon to discuss them further before signing this form.

Read and understood

………………………………

Weight loss surgery is not a magic wand. You still need to work hard to lose weight, changing what you eat, as well as how much - otherwise you will lose little weight or re-gain it later. You must eat less and you must eat differently.

Read and understood

…………………………………..

This surgery may not restore you to full health. Normal-weight people can still have diabetes, heart attacks, arthritis and other weight-related diseases.

Read and understood

…………………………………..

The pre-operative evaluation will not determine if you will succeed or fail with weight loss surgery. Success is mainly up to you. Psychological factors can also influence weight loss. If you suffer (or have suffered) from a mental illness such as depression, bi-polar disorder, anorexia/bulimia or have suicidal thoughts please inform us before surgery. Addictive habits can be transferred from food to other problems so if you take illegal drugs or have an alcohol problem please consider this and discuss with us.

Read and understood

……………………………………….

**YOUR OPERATION**

Any form of surgery can have complications. With gastric banding surgery the risk of early complications is rare (less than 1 in 1000) but includes bleeding, infection, and perforation of oesophagus or stomach. There is also an extremely rare risk of death. However the life span of a gastric band is unknown and approximately one third of patients need a further operation due to the band slipping, eroding or the band simply not working for the patient. This re – operation carries greater risks than the original surgery due to scar tissue.

Read and understood

………………………………….

As with any implanted device a number of things can happen to the gastric band. Known complications include, but are not limited to, infection, flipping of the port, breaking of the tube, or any device failure. The gastric band may erode into your stomach, or it may slip down the stomach. Replacing or removing the band or another form of re-operation may be necessary.

Read and understood

…………………………………

The gastric band may need an adjustment or fill to help your weight loss. The smaller the fill, the less likely the risk of complications. You should try to lose weight with as little inflation of the band as possible. The gastric band can occasionally lose, or gain fluid over time. In this situation, further adjustments may be required.

Read and understood

…………………………………………..

With sleeve gastrectomy surgery, a large part of the stomach is removed using a stapling device. There is a small risk of a bleed or leak from the staple line which can require conversion to an open operation, re-operation with a delayed discharge and can take months to heal. The risk of death is 1 in 500 and long term risks include narrowing or twisting of the stomach tube, acid reflux and ulcers.

Read and understood

………………………………….

In gastric bypass surgery, different segments of the stomach and intestine are divided, re-routed and stitched or stapled together. The risk of death from surgery is 1 in 500 and complications include anastomotic leak, bleeding or internal injury which can require conversion to open operation, re-operation and a prolonged hospital stay. Longer-term complications include internal hernias, adhesions and stomach ulcers.

Read and understood

………………………………….

Weight loss surgery is also associated with more general complications such as pneumonia, heart attack, blood clots and wound hernias. Again, these complications are unusual and all possible steps are taken to avoid them.

In approximately 10% of cases some form of surgery in the future may be required due to the various complications of weight loss surgery.

Read and understood

………………………………….

Occasionally, keyhole surgery may not be possible, and may be abandoned or alternatively changed to open surgery. This is more likely if the pre-operative diet is not followed. If your planned operation is not possible, your surgeon may be able to perform a different weight loss operation instead. Please ensure you tell your surgeon if you do not want an alternative operation.

Read and understood

…………………………………..

**AFTER SURGERY**

Weight loss surgery does not work by making you FULL with less. It allows you to feel SATISFIED with less. You must not eat until you are full as this leads to dilation of the pouch or sleeve, dilation of the oesophagus, vomiting and weight re-gain. Changing your eating habits is required if you are to lose weight and also reduce the risk of long-term complications.

Read and understood

……………………………………………..

There are certain foods that you may not be able to eat because they will become stuck in the band and can cause the band to dislodge and slip. This may mean you will have to have the fluid in the band removed, if not the band itself. You may also have eating restrictions with gastric bypass and sleeve gastrectomy. Please follow the team’s recommendations to reduce unnecessary complications.

Read and understood

……………………………………………

After any form of weight loss surgery you should take the recommended multivitamin and minerals daily for THE REST OF YOUR LIFE. You may also need vitamin injections. There is a risk of long-term nutritional deficiencies with weight loss surgery – more so with the sleeve gastrectomy and gastric bypass than the band. Although unusual if you eat well and take your supplements and injections as required, cases of kidney stones, kidney failure, low bone density, protein deficiency and other problems can rarely occur. You must take responsibility for ensuring you have annual blood tests to check for any of these problems.

Read and understood

………………………………………..

A complete inability to eat or an on-going problem with vomiting is a dangerous situation. Do not let a problem like this go on for more than a day before seeking medical attention. You may need your band deflated, or rarely removed. If this is not treated urgently it can cause serious complications and rarely death. It is best to contact the surgeon who operated on you for advice, if possible – even if you are admitted to a hospital elsewhere. On-going vomiting after sleeve gastrectomy or gastric bypass also requires urgent attention – please contact your local doctor or the weight loss surgery team.

Read and understood

……………………………….

If you have any problems with following weight loss surgery you MUST let us know. Failing to tell us about problems will not make them disappear – they will get worse and increase the risk of serious complications. If problems are identified early we can treat them more easily.

Read and understood

……………………………………………

Significant weight loss may result in unsightly loose skin. Surgical correction is possible but may not be funded in the NHS. **You will be made aware of the cosmetic effects of weight loss surgery and advised that the CCGs do not routinely fund plastic surgery for excess skin**.

Read and understood

…………………………………….

Fertility in both men and women may increase with weight loss. It is important that you use appropriate contraception and are not planning pregnancy soon. We advise you not to get pregnant in the first year after surgery and until your weight is stable. Please tell us if you do get pregnant so we can give you the necessary extra help.

Read and understood

……………………………………….

It is vitally important to ensuring your well-being, as well as maintaining our high quality service, that we are able to follow your progress and monitor your weight loss (or, rarely, weight gain or other problems). By signing below you agree to attend all outpatient visits and respond to any requests from us for information regarding your progress. Any information will obviously remain confidential.

Read and understood

…………………………………………..

It is a national requirement that we collect and publish anonymised outcome data following weight-loss surgery. With your permission, we would also like to include results of your surgery in any statistics for research publications or presentations. Your personal details would not be disclosed. If you choose not to participate in research of this kind your treatment will not be affected.

I am happy for my results to be published / presented without revealing my personal details

………………………………………………

**We are able to follow up patients regularly only for the first two years after surgery. Following this the follow up will be with your GP. You will need to be active in this as it is vital you have regular check-ups. We are happy to see you back here at North Bristol if you have problems as an emergency at any time, although for longer term follow up further funding will be required**

**…………………………………………………………..**

**I AM HAPPY THAT I UNDERSTAND ALL OF THE PREVIOUS POINTS. I HAVE NO UNANSWERED QUESTIONS OR CONCERNS AND WISH TO PROCEED WITH SURGERY. HOWEVER, I AM FREE TO CHANGE MY MIND AT ANY TIME, EVEN AFTER SIGNING THIS FORM AND WILL LET MY SURGEON KNOW IF I NO LONGER WISH TO GO AHEAD.**

**Signature………………………. Print name …………………………**

Date ……………………..

Appendix 7: Post-operative Care Pathways

**NBT POST-OPERATIVE CARE PATHWAY AFTER LAPAROSCOPIC GASTRIC BYPASS OR SLEEVE GASTRECTOMY**

**EXPECTED LENGTH OF STAY: 24 hrs**

**EXPECTED OPIATE REQUIREMENT IN FIRST 24 HOURS: Paracetamol and codeine.**

**FROM THEATRE TO WARD (FIRST 12 HOURS OVERNIGHT)**

* Hourly observations of Pulse, Respiratory Rate,4 hourly BP measurement
* Surgical review on evening of surgery
* Sequential compression devices (SCDs or Flowtrons) used in theatre should continue in recovery
* Mobilise to chair after 4 hours
* Should be up walking on the evening of surgery
* CPAP to be used as normal if Obstructive Sleep Apnoea
* On-call team to be informed if NEWS>5
* Encourage deep respiration - increase analgesia if discomfort prevents this

**ORAL PROTOCOL**

* Encourage gradual increase of fluid volume to 200ml/hour.
* Free fluids only- encourage a glass of milk.
* All patients to be seen by Bariatric Specialist Nurse before discharge

**DRUGS** (chart to be completed in PAC with Pharmacist and checked in theatre)

* LMWH Clexane 40mg od (40mg bd if weight >140kg). First dose in surgery, unless stated in operation note.
* Prophylactic antibiotics on induction only. No routine post-op antibiotics
* Lansoprazole Fastabs 30mg s/l od. To start on evening of surgery 18.00
* Regular analgesia with IV/PO paracetamol, crushed codeine and prn oramorph – but encourage mobility first
* Nausea control important. Prn antiemetics as required
* **Restart all essential regular medications** (crushed, sublingual or liquid formssee later for diabetic drugs)
* **No tablets to be swallowed whole**
* If **Diabetic do not** give normal insulin. Patient should have metformin even though only tolerating free fluids. Metformin will be reduced to 500 mgs BD unless otherwise stated.

**Bariatric patients can be difficult to assess and clinical examination not always reliable.**

* Major immediate concern post-op is of anastomotic or staple line leak or bleed
* Contact senior help at any time if high pulse or respiratory rate, fever or worsening abdominal pain or NEWS >5
* Contrast imaging or CT scanning not always reliable in detecting leak
* Low threshold for repeat laparoscopy
* Mr Hewes, Mr Osborne, Mr Hopkins and Mr Pournaras are happy to be contacted at any time if concerns (numbers through switchboard). Alternatively contact the Bariatric Practitioner/Specialist Nurse for advice.

**DAY 1**

* Step down observations to standard care
* 4 hourly observations
* Encourage deep breathing exercises
* TED stockings to be kept on. Should be removed at least daily to check skin
* Surgical review in morning. Start oral protocol (below)
* Check wounds
* Active mobilisation: to walk up and down the ward/corridor
* Aim for discharge before 07:30am

**DISCHARGE AND TTO CHECKLIST**

* Paracetamol soluble 1g qds/prn
* Codeine 30-60mg qds/prn (crushed)
* Lansoprazole Fastabs 30mg s/l od. GP to continue for 3 months total
* Clexane to continue for 14 days post discharge
* Prochlorperazine 3mg buccal qds
* **Iron:** Ferrous Fumarate liquid (140mg in 5mLs) 10mLs once daily
* **Calcium:** Cacit D3, 2 sachets per day – split dose morning and evening.
* **Multivitamin** and mineral twice per day, chewable (OTC, not supplied)
* Any current medication in non-tablet or crushable form for 6 weeks post discharge. Needs pill cutter (liaise with pharmacy)
* Bariatric clinic follow up for 6 weeks
* Keep TEDs on for 2 weeks. They will need an extra set.
* Patients are unable to go home with TEDs unless able to get them on and off
* Can bath and shower normally
* No heavy lifting for 1 month
* Ensure that the DVT booklet is read and understood

**NBT POST-OPERATIVE CARE PATHWAY AFTER LAPAROSCOPIC GASTRIC BANDING**

**EXPECTED LENGTH OF STAY: DAY CASE**

**ORAL PROTOCOL:**

* Encourage sips of water in recovery. When tolerating 200ml/hour then stop IV fluids (unless stated advised otherwise by surgical team).

**DISCHARGE AND TTO CHECKLIST**

* LMWH Clexane 40mg od (40mg bd if weight >100kg). First dose before or at surgery, Clexane to continue for 14 days post discharge
* Paracetamol soluble 1g qds/prn
* Codeine 30-60mg qds/prn (crushed)
* Lansoprazole Fastabs 30mg s/l od. GP to continue for 3 months total
* Ondansetron 4mg buccal tds
* **If Diabetic** on insulin or sulphonylureas, (Glucogel 1 po and glucagon 1mg IM/SC prn)
* Restart all essential regular medications (see later for diabetic drugs)
* No tablets to be swallowed whole (crushed, sublingual or liquid forms).
* Needs pill cutter (liaise with pharmacy)
* Pharmacy review in pre-admission clinic (issues with some meds post-op e.g. aspirin, diuretics, antipsychotics and antiepileptics)
* Patient seen by Practitioner
  + Guidance on fluid volumes
  + Has written dietary instructions
  + Has supplementation guidelines
* Keep TEDs for 6 weeks. Needs spare pair.

**GENERAL DISCHARGE INFORMATION**

* Can bath and shower normally
* Encourage walking and deep breathing
* TEDs to be worn for 6 weeks post discharge
* Bariatric practitioner clinic follow up for 6 weeks in place before discharge
* Oral Protocol (when surgical team agreed) for next 48 hours
  + Tea and coffee
  + Fruit and herbal teas
  + Skimmed or semi-skimmed milk
  + Sugar-free squash / Diluted fruit juice
  + Bovril/oxo type drinks (ensure no bits or lumps)
  + Avoid any liquids with bits or lumps and avoid any fizzy drinks.

**DIABETES MANAGEMENT**

* Every diabetic patient will be seen by the diabetic team in pre-admission clinic. They will be given a personalised plan for their diabetic treatment in the pre, peri and post-operative period. This will be included in the notes and a copy given to the patient.
* Any concerns regarding the diabetic management of a particular patient should be directed to the bariatric surgery practitioner.

**NBT POST-OPERATIVE CARE PATHWAY AFTER INTRAGASTRIC BALLOON PLACEMENT**

**EXPECTED LENGTH OF STAY: DAY CASE**

**ORAL PROTOCOL:**

* Encourage sips of water in recovery. When tolerating 200ml/hour then stop IV fluids (unless stated advised otherwise by surgical team).

**DISCHARGE AND TTO CHECKLIST**

* Lansoprazole Fastabs 30mg s/l od. GP to continue for 6 months
* Domperidone 10mg tds. Not recommended long-term
* **If Diabetic** on insulin or sulphonylureas, (Glucogel 1 po and glucagon 1mg IM/SC prn)
* Restart all essential regular medications (see later for diabetic drugs)
* Pharmacy review in pre-admission clinic
* Patient to see Bariatric Practitioner before discharge
* Keep TEDs on for 2 weeks minimum. They should be removed at least daily to check skin. They will need to be given an extra set
* Patients are unable to go home with TEDs unless able to get them on and off

**GENERAL DISCHARGE INFORMATION**

* Should walk with assistance evening of surgery
* Bariatric surgery practitioner to contact patient by phone 1 day and 1 week post-surgery
* Dietitian to see patient as outpatient in 4 weeks
* Oral Protocol (when surgical team agreed) for next 48 hours
  + Tea and coffee
  + Fruit and herbal teas
  + Skimmed or semi-skimmed milk
  + Sugar-free squash / Diluted fruit juice
  + Avoid all fizzy drinks

**DIABETES MANAGEMENT**

* Every diabetic patient will be seen by the diabetic team in pre-admission clinic. They will be given a personalised plan for their diabetic treatment in the pre, peri and post-operative period.
* Any concerns regarding the diabetic management of a particular patient should be directed to the bariatric surgery practitioner on 07889647629.

**Appendix 8: Phone Consultation Proforma**

**1 week phone FU Date phone call:** <Document: Date>

***Patient label*** <Patient: Name> **Patient Phone no:** <Patient: Home

**Date operation: Consultant Operation:   
General health and wellbeing**

|  |  |
| --- | --- |
| Feeling well back to yourself and no concerns |  |
| Not feeling quite right and things have changed |  |
| Feeling awful |  |

**Wound Health**

|  |  |
| --- | --- |
| Clean and dressings removed |  |
| Dressing remain insitu and not healing |  |
| Wound looks mucky and having nurse input |  |

**Pain Control**

|  |  |
| --- | --- |
| Not taking any pain medications |  |
| Remain on normal pain medications and still needing some for abdominal pain |  |
| Taking regularly and still in pain |  |

**Mobility**

|  |  |
| --- | --- |
| Back to baseline mobility |  |
| Struggling to mobilise |  |
| Cant mobilise currently |  |

**Nutrition Considerations**

|  |  |
| --- | --- |
| Tolerating at least 1L-2L of fluid a day with ease. Eating a good variety of food |  |
| Struggling with fluids/food. Painful |  |
| Can’t tolerate fluids/food |  |

**Swallow**

|  |  |
| --- | --- |
| No concerns expressed |  |
| Some slight restriction |  |
| Cant swallow |  |

**Bowels**

|  |  |
| --- | --- |
| Bowels opening no concern- normal consistency |  |
| Struggling with bowel motions |  |
| Bowels not open since surgery |  |

**Diabetes Control**

|  |  |
| --- | --- |
| Diabetic well controlled and continues on Metformin BD |  |
| Diabetic control poor |  |
| Diabetic control unmanageable and feeling awful |  |

**Medications**

|  |  |
| --- | --- |
| Taking all supplements and medications |  |
| Struggling with medications and not taking all |  |
| Not tolerating meds as protocol |  |

Patient has our contact details and will have an Appointment 4/52 post-op. A Dietitian review will happen 12/52

**Name of Practitioner holding phone call:**

**Appendix 9: BOMSS GP Guidance**

|  |  |  |
| --- | --- | --- |
| **Vitamin and Mineral recommendation** | **Examples** | |
| Multivitamin and Mineral supplement | 2 x Sanatogen A-Z complete or  2 x Superdrug A-Z multivitamins or  2 x Tesco Complete Multivitamins and minerals or  2 x Lloydspharmacy A-Z multivitamins and minerals  (You will need to purchase these supplements. If you unable to purchase this supplement your GP will need to prescribe you with Forceval tablet once daily) | |
| Iron | 45-60mg Daily | 210mg Ferrous Fumarate tablet once daily  (prescribed by GP) |
| 100mg daily for menstruating woman | 210mg Ferrous Fumarate tablet twice daily  (Prescribed by GP) |
| Calcium and Vitamin D | Cacit D3 sachet taken twice daily (taken at least 4 hours apart from Iron supplement). (Prescribed by GP). You need additional Vitamin D if you are deficient. | |
| Vitamin B12 | Intramuscular injections of 1mg vitamin B12 every 3 months for the first year. After 1 year this will depend on vitamin B12 blood tests. | |

In some cases these medications may need to be altered or changed e.g. in pregnancy.

**Blood tests required following sleeve gastrectomy or gastric bypass surgery:**

|  |  |  |
| --- | --- | --- |
| **Blood Test** | **How Often you should have them checked** | |
| Under 12 months since your surgery | Over 12 months since your surgery |
| U + E  LFT  FBC  Ferritin  Folate  Calcium  Vitamin D  PTH | 3 and 6 months | 12 months and then annually |
| Vitamin B12  (No need to monitor if on B12 intramuscular injections) | 6 months | Annually |
| Copper  (Only following bypass surgery) |  | Annually |
| Zinc  (Only following bypass surgery) |  | Annually |

Additional blood tests may be required depending on other health issues (e.g. cholesterol or diabetes tests).

**Appendix 10: Pregnancy Care Pathway**

**Developing a care pathway for post-operative bariatric patients in pregnancy.**

*Background*

Weight loss surgery can be considered in two categories: restrictive and malabsorptive. We currently perform laparoscopic gastric bands, gastric sleeves, and gastric bypasses. With the prevalence of obesity continuing to rise it can be anticipated that the demand for weight loss surgery will share the same trajectory[[1]](#footnote-1).

In North Bristol NHS Trust in a twelve month period we performed 145 bariatric procedures for weight loss, of which 47 patients were female and aged between 19 and 55 years. Our figures also demonstrate that a significant number of these patients are women of child-bearing age. Given the rise in fertility following weight loss, due to increase in libido and hormonal influences, we recognise the importance of giving these women suitable advice and follow up post-operatively.

Within the Trust we currently we advise patients to avoid pregnancy until two years have elapsed after their weight loss surgery. This is based on the knowledge that following weight loss surgery there is usually a period of rapid weight loss lasting up to 18 months before a patient’s weight reaches a steady state[[2]](#footnote-2). During this time we offer regular follow up with the dietician to evaluate the nutritional status of the patient. Interestingly, evidence is lacking when considering whether or not falling pregnant during this period of accelerated weight loss affects foetal outcomes, and although in general it is felt that pregnancy following bariatric surgery is safe, there remains uncertainty regarding a suitable time delay between weight loss surgery and conception [[3]](#footnote-3) [[4]](#footnote-4). It is also recognised that there is a multifactorial increase in fertility following weight loss surgery, and in fact there is a call for more evidence regarding the possibility of offering weight loss surgery as treatment for infertility in obese patients[[5]](#footnote-5).

Further, there is a lack of consensus within the literature on how to best manage post-operative patients during their pregnancy.

Given the increase in fertility following weight loss surgery leading to both planned and unplanned pregnancy, the growing numbers of women undergoing weight loss surgery and the current lack of consensus within the literature on how best to advise and manage these patients, we feel it is important to establish robust links between obstetrics, gynaecology and bariatric surgery in order to provide our patients with the best possible care as research into this specific area is ongoing.

*Methods*

We reviewed and formalised our follow up procedure for patients. We were already offering patients routine follow up with a Dietician for twelve months post-operation. At this juncture patients would either be offered an open appointment, which they would contact our bariatric coordinator to arrange, or they would continue with follow up with the dietician, surgeon or nurse specialist as determined by the MDT.

We consulted with our colleagues in the obstetrics and gynaecology department to create a joint pathway with a shared point of contact for patients. We were already offering pregnant patients dietetic follow up, but bariatric and obstetric follow up was uncoupled.

With the new pathway we will have a shared point of contact with our bariatric coordinator for patients, bariatrics and obstetrics, who will facilitate the provision of more cohesive care for our patients. The role of our bariatric co-ordinator, Pauline Clifford, will expand to include becoming a link between the bariatric and obstetric departments, informing the obstetricians of any patients who contact bariatrics with news of their pregnancy; she will also be the point of contact for the obstetric department when they have a new post-operative bariatric patient. This new pathway is illustrated in the diagram below.

1. Health Survey for England 2010, Public Health England [↑](#footnote-ref-1)
2. Wax JR, Cartin A, Wolff R, Lepich S, Pinette MG, Blackstone J. Pregnancy following gastric bypass for morbid obesity: effect of surgery-to-conception interval on maternal and neonatal outcomes. *Obes Surg*. 2008;18;1517-21. [↑](#footnote-ref-2)
3. Sheiner E, Kent W, Yogev Y. Bariatric Surgery: Impact on Pregnancy Outcomes. *Curr Diab Rep*. 2013;13:19-26. [↑](#footnote-ref-3)
4. It’s the same reference as 1. [↑](#footnote-ref-4)
5. Maggard MA, Yermilov I, Li Z, Maglione M, Newberry S, Suttorp M, *et al*. Pregnancy and fertility following bariatric sugery: a systematic review. *JAMA* 2008;300:2286-96. [↑](#footnote-ref-5)