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Medical Nutrition Therapy in Obesity Management: Adult Clinical Cases

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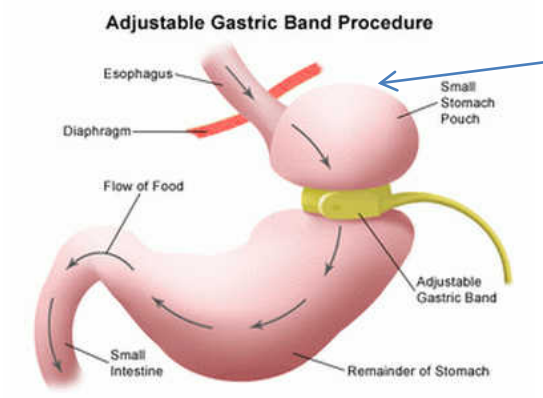
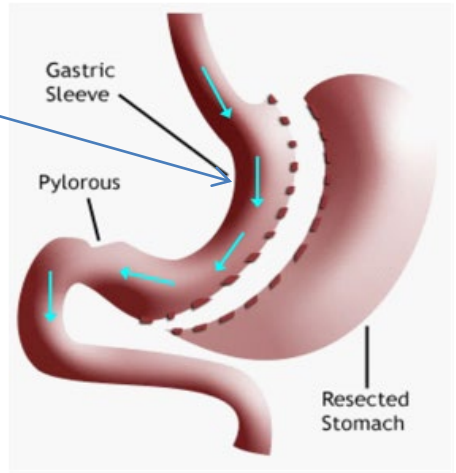
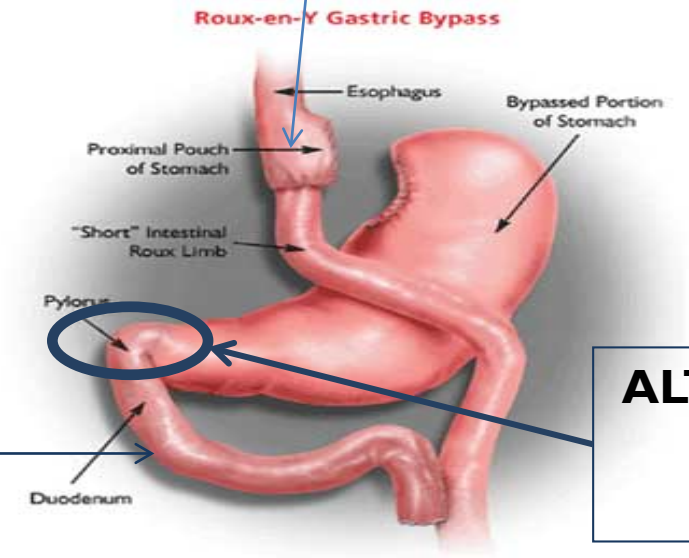
Clinical case studies: Surgical

Nutritional Management following Bariatric Surgery

RESTRICTION
15 – 200ml capacity
Macronutrient intake







MALABSORPTION
Micronutrient intake

ALTERED FOOD TRANSIT
Dumping syndrome
Hypoglycaemia

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Goals of Nutritional Management following Bariatric Surgery

- Immediate post-op:
  - Adequate protein, energy + fluid
  - Progression of food consistency (fluids → solids)
  - Micronutrient supplementation
  - Manage / prevent complications: vomiting, constipation, dumping syndrome
- Longer term:
  - Healthy, nutritionally adequate, enjoyable way of eating
  - Long term obesity management + maintenance of lean tissue
  - Monitor for nutritional deficiencies / ensure supplementation
  - Manage / prevent complications: dumping, hypoglycaemia, re-gain

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Bariatric surgery: key nutritional guidance

- Progress through consistencies slowly post op
- Eat & drink slowly
  - Avoid fluids before eating
- Small, regular meals (5-6/d)
- 60g protein / d [or 80-120 after DS]
- Avoid excess sugar & fat
- Micronutrient supplementation

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O'Kane (2020) Obesity Reviews; Mechanick (2019) Endocrine Practice

Recommended standard supplementation

Nutrient	Preparation	Dose
General multivitamin /mineral	Complete / A-Z oral tablet including 5000-10000 Vit A, 15mg Vit E, 90-120ug Vit K, 50-100mg B1, 18mg Fe, Se, 15mg Zn, 2mg Cu, 400-800ug folic acid	2 / day
Calcium	Oral – usually carbonate available	1200-1500mg / d
Vitamin D	Oral	2000-4000 IU D3 / day
Iron	Oral	200-mg ferrous sulphate, 210-mg ferrous fumarate or 300-mg ferrous gluconate (40-60mg elemental iron) / day
Vitamin B12	IM injection	1000ug / 1- 3 months
Ca / Fe 2 hours apart; Ca carbonate with food		

O'Kane (2020) Obesity Reviews; Shiau (2020) Canadian Adult Obesity Clinical Practice Guidelines: Selection and pre-op workup ; Parrott(2017) Surgery for Obesity and Related Diseases

Clinical cases – post bariatric surgery

- 2 cases
  - 6 years post REYGB - lost to follow up
  - 9 months post SG

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BSx Case 1: Background / Ask

- Joyce, 44 year old woman
  - Primary school teacher
  - 3 children: 4, 16 and 18 years
- REYGB 6 years ago
  - Uncomplicated
- Hasn't attended follow-up in 4 years
  - Missed appt, Covid
- C/O: fatigue, low energy

"I'm just worn out all the time. I feel exhausted and feel like I'm just getting through the week to get to the weekend and sleep!"

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BSx Case 1: Assessment 1

- Anthropometry
  - Weight: 79kg; BMI: 30 kg/m^2
  - Pre-op: 140 kg (43% WL)
- Obesity Staging
  - MHx: PCOS
  - EOSS Stage 1
- Sleep
  - "Ok", ~8 hours
- Activity
  - Very little outside work
- Medications / supplements
  - Metformin 500mg / day
  - 1 x general multivitamin / day
  - Calcium "sometimes"
  - Last B12 ~ 6 / 12 ago

- Typical Day
  - 8am: Coffee + cereal bar
  - 11am: Coffee
  - 1pm: Crackers + fruit
  - 4pm: Banana
  - 7pm: Fish + potato + vegetables / Chicken + rice + vegetables

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BSx Case 1: Assessment 2

- "Tell me more about what's happened?"
  - "I felt great after surgery – I lost so much weight"
  - "I don't have any great interest in food – I grab what I can"
  - "Those iron tablets made me feel sick and I felt so well I didn't think I needed them"
  - "During Covid I started to feel tired but I'm so busy at work and with the kids I just thought it would get better once I got a break"

- Anthropometry / Function
  - Hand grip: 18kg
  - 5 time sit to stand: 17 seconds
- Biochemistry:
  - Albumin: 29 g/L
  - Vitamin B12: 406 ng/L
  - Folate: 15.2 ng/ml
  - Ferritin: 15 ng/ml
  - Hb: 11.9 g/dL
  - Transferrin saturation: 16.8%
- GI symptoms
  - Occasional nausea

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BSx Case 1: Assessment summary

- 44 year old woman
  - Menstruating, 4 years postpartum
- 6 years post REYGB
- Inadequate protein intake (~25g / day) with indicators of protein energy malnutrition
- Iron deficiency anaemia

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BSx Case 1: Advise and agree

- Increase protein intake
  - Coffee → Latte on high protein milk
  - Yoghurt mid-morning
  - Crackers + fruit → Cheese + crackers + fruit
- Treat iron deficiency
  - 150-200 mg Fe / day
  - Consider alternate day dosing if GI symptoms get worse
  - Separate from calcium, antacids, tea, coffee, milk
- Prevent further deficiency
  - Increase iron intake: minced red meat 2 times / week, swap cheese for ham 2 days / week
  - Fe: 45-60mg/d
- Maximise nutritional supplementation
  - Multivitamin twice daily, Ca/D3, B12

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BSx Case 1: Assist

- Reminders to take nutritional supplements
- Recipes for experimenting with other high protein foods e.g. lentils, shellfish
- GP / Endocrinology / Gynae review re: need for metformin
- Refer to Physiotherapy for advice on resistance activity
- Repeat haematinics 3/12
- Follow up dietetic review 3/12
  - Keep food diary prior to review

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BSx Case 2: Background / Ask

- Siobhan, 27 year old woman
  - Works in retail
- Sleeve Gastrectomy 9/12 ago
  - Surgery uncomplicated
- Readmitted 4/52 post-op vomiting + dehydration
  - Rehydration + thiamine 100mg tds
  - Dietetic review – agreed plan to step back dietary progression
- Clinic12/52 post-op constipation
  - Advised to increase fibre + laxative
- C/O: diarrhoea, episodes of 'weakness'

"I can't eat anything on that list – they all make me sick!"

"I only go to the toilet every 4 or 5 days and it really hurts"

"I feel awful. I'm sorry I ever had the surgery. It's just one thing after the next"

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BSx Case 2: Assessment

- Anthropometry
  - Weight: 145kg; BMI: 52 kg/m^2
  - Pre-op: 165 kg (13% WL)
- Obesity Staging
  - MHx: Depression, IGT, lymphodema, back pain
  - EOSS Stage 3
- Sleep
  - "Not great", ~5 hours, difficult to go to sleep
- Activity
  - Walking most days
- Medications / supplements
  - 2 x general multivitamin / day
  - Iron 'most days'
  - Ca / D3
  - B12 with GP 1/12 ago

- Typical Day
  - 9am: Cornflakes + high protein milk
  - 12pm: Ham sandwich + handful baked crisps + juice
  - 4pm: +/- Yoghurt + a biscuit
  - 7pm: Home cooked chips + chicken / Chicken curry + rice / Chicken Kiev + vegetables + juice
  - 10pm: Crackers + cheese / popcorn

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BSx Case 2: Assessment 2

- "Tell me more about the weakness?"
  - "They just come on me"
  - "I don't feel well and then I sit down and have a drink or eat something and it just gets worse and worse"
  - "Then I get that awful diarrhoea"

- 24 hour ABPM
  - 142/74 mmHg
- GI symptoms
  - Diarrhoea soon after eating / drinking
  - Accompanied by nausea and bloating
- Biochemistry:
  - HbA1c: 41 mmol/mol (5.8%)
  - Glucometer readings: 3.8 – 9.2 mmol/L

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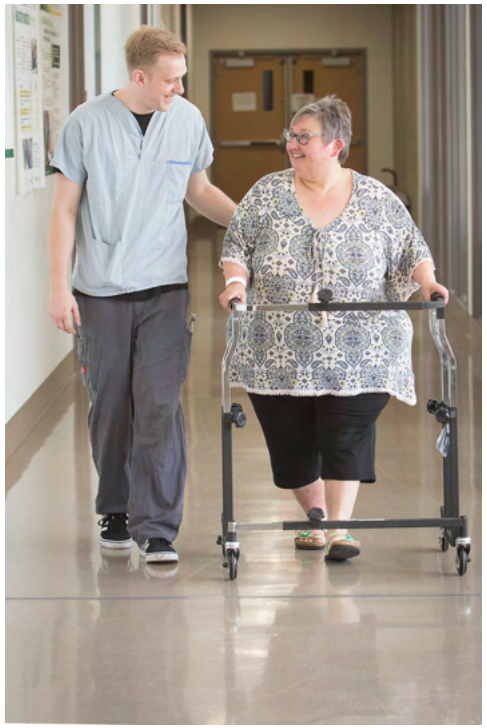
BSx Case 1: Assessment summary

- 27 year old woman
- 9 months post SG
- Diarrhoea related to higher fat foods / inadequate fibre or early dumping syndrome related to higher GI foods?
- Struggling with post op adjustment?



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BSx Case 2: Advise and agree

- Stabilise eating & sleep pattern
  - 9am, 11am, 2pm, 4pm, 7pm, 9pm
  - 8.30 up + 11.30 bed
- Reduce fat
  - Switch crisps → popcorn
  - Chicken Kiev → grilled chicken
  - Jar curry sauce → powder
- Reduce GI / increase fibre
  - Cornflakes → oat cereal
  - Juice → water with cordial
- Advised re: alcohol
  - Low risk alcohol guidelines & effects of bariatric surgery
- Seek peer support
  - ICPO + "Living with Bariatric Surgery: Managing your Mind and your Weight"

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BSx Case 2: Assist

- Reminders for meal / snack times
- Recipes for experimenting with cooking to increase variety at evening meal
- Psychology review re: coping with adjustment and alcohol
- Medical review: low(ish) rate of weight loss
- Flyer for ICPO meeting
- Follow up dietetic review 2 /12
  - Keep food diary prior to review

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Clinical case studies: Medical

Clinical cases

- 2 levels of complexity
  - Community setting, EOSS Stage 1, Hypertension
  - Obesity clinic, EOSS Stage 3-4, Complex Type 2 diabetes + Night Eating + impaired mobility

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Background

- Helen, Public Health Nurse
- John, 59 year old electrician
- Blood pressure check: 152/92 mmHg

"It's possible that high blood pressure reading, weight and diet might all be linked. Would it be OK if we looked at that together?"

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Assessment

- Anthropometry
  - Weight: 122kg
  - BMI: 44 kg/m^2
  - Waist circumference: 102cm
- Obesity Staging
  - EOSS Stage 2
- Weight history
  - Weight gain 30's and 40's
- Sleep
  - "Ok", ~6 hours
- Activity
  - Walks some evenings with wife

- Typical Day
  - 7am: +/- slice of toast
  - 11am: +/- coffee / biscuit
  - 3pm: Sandwich: ham / cheese. Banana
  - 6pm: Meat + potatoes + vegetables / Spaghetti Bolognaise / Fish or chicken + chips / Lasagne
  - 10pm: +/- beer + snacks

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Interventions?

- Regulate sleep
  - Chrononutrition
  - ? OSA screen
- Salt
  - Ham / cheese / snacks
- Alcohol
- DASH style eating pattern
  - Fruit, vegetables, low fat dairy
- Physical activity
- Weight change
  - SBP: 2-5%
  - DBP: 5-10%

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Evaluation and follow up

- 1/12:
  - Having breakfast – Weetabix + milk, reduced alcohol to weekends only, some more fruit…
  - BP 146/89 mmHg
  - Weight unchanged
- 3/12:
  - Maintaining dietary changes
  - Walking in the mornings
  - BP 138/86 mmHg
  - Weight unchanged
- Accept BP at his best weight or escalate obesity treatment?

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Medical Case 2: Background / Ask

- William, 54 year old man
  - Lives with mum in 80's
  - Unemployed
- GP referral
  - Housebound
  - Type 2 diabetes
  - Lymphodema
- Long history of high body weight since childhood
  - Dietitian, physiotherapy
  - Commercial

"Look I'm going to do it this time. I'll do whatever you ask. I just want to get better. What ever diet, what ever exercise - I'll do it!"

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Medical case 2: Initial assessment

- Anthropometry
  - Weight: 235kg; BMI: 71 kg/m^2
  - 5 time sit to stand: unable to complete
- Biochemistry
  - HbA1c: 87 mmol/mol
  - Vitamin D: 11 nmol/L
  - Folate: < 2 ng/ml
- Sleep
  - On chair in living room, 3-4 hours at a time
  - OSA screen positive

- Medications / supplements:
  - Stopped metformin & Liraglutide as intolerant
  - Coversyl, Calcichew D3 forte OD, Effexor
- Obesity Staging
  - MHx: Depression, Type 2 diabetes, severe lymphodema, impaired mobility, SOB ($Sp0_2$ 91%), ? OSA
  - EOSS Stage 3/4

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Medical Case 2: Initial assessment

- Psychology
  - Impact of weight on quality of life: 32 = low on all domains
  - Positive for night eating syndrome on NEQ
  - Active clinical depression
  - Unrealistic expectations of obesity treatment

- Dietetics
  - Struggled to prepare food
  - Lots of 'tea and toast' with his mum, irregular pattern
  - Largest meal in evening + eating during the night
  - Some references to sugar sweetened beverages and coffee for energy
  - Food insecurity at home?
  - Requirements:
    - 2200 kcals, 80-100g protein
    - Type 2 diabetes

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Assessment summary

- 54 year old man
- Obesity EOSS Stage 3/4 with complex drivers
- Poor physical and mental health
- Challenging social circumstances

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Agreed plan

- Agreed a nutrition plan ~ 2200kcals + 90g protein
  - 3 meals + 3 snacks
  - Protein + fibre @ meals
  - Pre-prepared meals, breakfast cereals, veggie soups, yoghurt, milk
- Rollator for mobility + seated resistance exercises
- Compression treatment for lymphodema
- Sleep study + CPAP + sleep hygiene
- Regular psychology – CBT
- Folic acid, Vitamin D + multivitamin
- Re-start Liraglutide
- Self-monitoring records

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First 6 months…

- Generally attending appointments
- Reported nutrition plan, CPAP, sleep and medications going well
  - Night eating resolved?
- Using rollator
- Reported mood improved
- Weight +/- 10kg
- Lymphodema treatment – struggled
- Bariatric surgery assessment
  - HbA1c: 87 nmol/mol
  - $Sp0_2$: 92%
  - Vitamin D: 15 nmol/L

"It's going ok – depends on how my mother is doing"

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6/52 Inpatient rehab programme

- Low calorie Total Diet Replacement: 1,000 kcals, ~80g protein
  - Bowel management
- Walking with rollator: ~2000 steps / day
- Resistance exercises daily
- Psychology – mood / preparing for BSx / longer term

- Lymphodema treatment
- CPAP - struggling
- Liraglutide – tolerated

- Weight: 223kg → 205kg
- Blood glucose: 5 -10 mmol/L

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6/52 post discharge

- Food re-introduction
  - Partial meal replacement
  - Add 1 meal every 1-2 weeks from agreed list ~ 400kcal options
  - 1000 → 1200 → 1500 → 1800 kcals; 70-90g protein
- Weekly dietetic telephone support
  - Troubleshoot
  - Bowels, appetite, blood glucose
- 2 weekly face to face
  - Medical, physiotherapy, psychology
  - Maintaining health behaviours / habits

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12/52 post discharge

- Reporting regular meal pattern
  - Weetabix, sandwich, ready-meals, bananas, yoghurts, milk
  - Occasional use of meal replacement product
  - Sleeping – no night eating
- Mobile at home with rollator (~2000 steps/d)
- Report taking medications

- Bariatric surgery assessment
  - HbA1c: 61 nmol/mol
  - $Sp0_2$: 95%
  - Weight: 198kg (BMI 60 kg/m^2)

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Longer term

- Sleeve gastrectomy ~ 6 months after discharge
  - High level of support with post op nutrition recommendations

- 37 months post surgery
  - Reporting stable food intake ~ 1800kcals, 65g protein
    - Occasionally uses meal replacement
  - Rollator use occasional
  - Mood good
  - Weight: 156kg (21% WL)
  - Off CPAP
  - Type 2 diabetes – improved
    - HbA1c ~50 mmol/mol on Liraglutide

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