Potential Dietary Impact

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NLOSS

Session Covers…

- Role of the Dietitian
- Pre-operative Weight loss
- Post-operative Eating Guidelines
- Eating Behaviour
- Long-Term Success
- Managing Weight Gains

Role of the Dietitian in MDT

- Assess patients:
  - Anthropometrics
  - Weight History
  - Past Wt loss Attempts
  - Medical, social and drug history
  - Current Lifestyle – inc. diet and exercise
  - Psychological aspects eg. Bingeing, comfort eating
  - Pt's expectations, goals, motivation and ability to work with procedures
- Patient Education – Group or 1:1 Setting
- Contribute to MDT meetings
- Staff Training in house and externally
- Research and Audit

Role of the Dietitian in MDT

- Pre-operative lifestyle changes and support
- Pre-operative liver shrinkage and support
- Post-operative education – phased diet
- 3 monthly follow up long term:
  - Nutritional assessments and supplements
  - Eating Behaviour
  - Symptoms eg. regurgitation, dumping, appetite, co-morbidities
  - Physical Activity
  - Routine Bloods
- Regular telephone and email Contact
- *'Prevent nutritional deficiencies and maximise nutritional intake for improved tolerance whilst preserving the desired rate of weight loss'.*

The 1st Battle

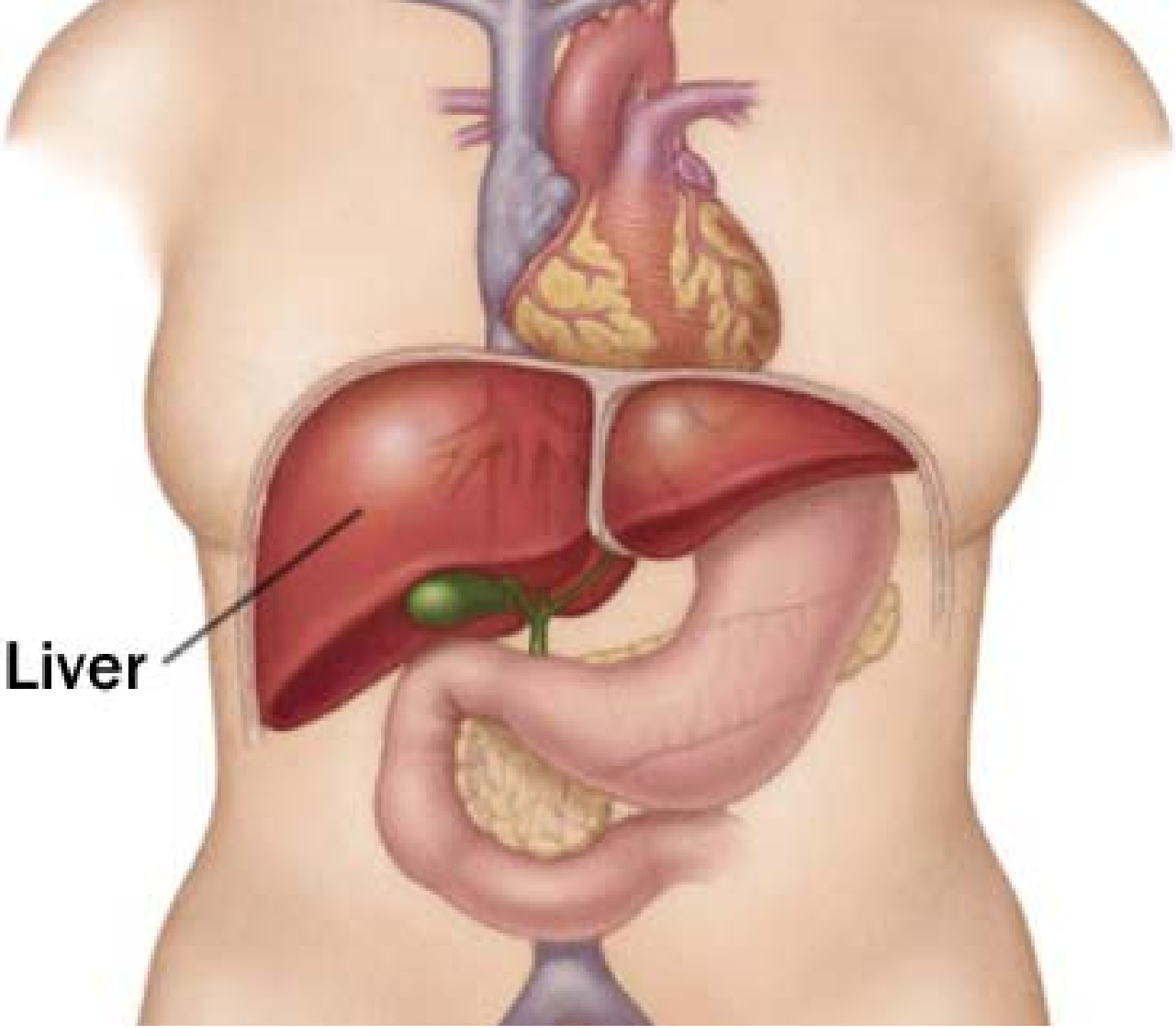
- Patients come with weird and wonderful notions about surgery, lifestyle and how life will be.
- We, as health professionals, have a responsibility to ensure they well informed with realistic expectations.

The Lingo….

- Body Mass Index
  - = w / h^2
- Ideal Body Weight
  - = h^2 x 25
- Excess Body Weight
  - = Actual weight - IBW

Main Aims of Dietetic Assessment

- Establish whether meets NICE criteria
- Establish which surgery dietary habits most suited
- Assess current diet for nutritional adequacy
- Behaviour change tactics to improve eating behaviour – contributes to long-term success
- Advise on necessity of pre-operative supplementation eg. 25-0H cholecalciferol


Liver

Pre-Operative Liver Shrinkage Diet

- Lack of National Consensus on method – currently under review at Sheffield
- Purpose to reduce liver size.
- NLOSS use food based 1000kcal low fat, low CHO diet for 4 weeks.
- Liquid option available – currently based on slim fast – meets 1000kcal.
- Other centres use soup and yoghurt diet, milk diet, VLCD's with meal replacements, 500-600 deficit diet etc.
- Variable time length from 1-4weeks
- Typical weight loss seen at NLOSS - 6kg

Eg. of Day's diet on NLOSS POLISH

Breakfast	3 tbs cereal Strawberries x 7 1/3 pint milk
Snack	1 apple
Lunch	Grilled Chicken Breast (200g) with large mixed salad and 2 tsp low calorie mayonnaise/ dressing
Snack	1 slice of melon or handful of grapes
Supper	Bolognaise sauce (4 tablespoons) and pasta shapes (6 tablespoons) Served with grated cheese (1 tablespoon) and a small side salad.

Post-Operative Dietary Guidelines

Stage	Texture	Duration
Stage 1	Liquids	2 weeks
Stage 2	Soft/moist	2 weeks
Stage 3	Normal	Week 5 onwards

Optimum Nutrition Long Term

- Meet protein Requirements
- Texture
- Keeping Calories Low
- High quality, nutrient dense foods

Controlling Portions

- 1st month – 2/3 tablespoons
- 3rd month – 90g or ¼ cup
- 6th month – 120-150g or ½ cup
- 18-24th month – 240-300g or 1-1.25 cups

- Energy
  - Usually ~400kcal first 4 weeks post-op.
  - Increases to 800-1000kcal by end of 3rd month

Protein

- **Adequate Protein intake encouraged post-operatively:**
  - Improved Healing
  - Maintain adequate visceral protein stores and decrease loss of lean body mass
  - Increased Satiety
- **Issues in achieving:**
  - Small Gastric pouch capacity – intolerance to meat and early satiety
  - Textures
  - Decreased availability of pepsin, rennin and hydrochloric acid inhibits optimal protein digestion with subsequent intolerances.

Protein

- Protein malnutrition, particularly the hypoalbuminemic form, is of greatest concern following highly malabsorptive procedures.
- **Recommendations:**
  - Betsy Lehman Center Weight loss Surgery Expert Panel
  - 1-1.5g/kg Ideal Body Weight Daily (ie. BMI – 25) – approx 90g / day
- Aim for high biological value proteins such as meat, egg and dairy to ensure all essential amino acids for wound healing

How to get 60g Protein in your diet

- *Breakfast*
  - 2 eggs (scrambled) 16g
- *Lunch*
  - 50g Sardine in Tomato Sauce 9g
- *Mid-Afternoon*
  - Muller light yoghurt 8g
- *Evening Meal*
  - 100g Chicken Breast fillet 21.8g
- *Bed Time*
  - 250ml Hot Skimmed Milk 8.4g

- **Total** **63.2g**

Carbohydrates

- To be slowly introduced after surgery
- Protein takes precedent. Must meet protein requirements before increasing CHO.
- Need to educate on reading labels to help patients avoid large amounts of sugar.
- Patients should choose foods with 7g or less of sugar per 100kcal serving.

Dumping Syndrome

- Behaviour-induced syndrome that follows bariatric procedures where pyloric sphincter bypassed and pouch small.

- Results from rapid and increased stretching of the intestine from an undigested food bolus entering new gastric outlet (no longer regulated by pyloric sphincter)

- Early Dumping (10-20 mins):
  - Response to combined effect of gut peptides (cholecystikinin) and rapid delivery of hypertonic gastric contents, luminal water increases due to osmolarity.
  - Abdominal bloating, cramping, flatulence, diarrhoea

- Late Dumping (1-3hours):
  - Reactive or alimentary hypoglycaemia

Managing Dumping Syndrome

- Eat slowly and avoid fluids pre- and post-meals
- Avoid high calorie or carbonated liquids
- Reduce CHO intake to 40-50g per meal
- Eat protein source at meal first
- Lie down after CHO meal
- Try guar gum or Pectin (up to 15g per meal)
- Octreotide via sub-cut injection has been shown to be effective.

Fat

- No more than 25% of total kcal from fat
  - Help to promote better weight loss and maintenance
- Ensure consumption of adequate EFA's (can be deficient in highly malabsorptive procedures)
- Encourage small amounts (~10grams) at each meal to assist gallbladder emptying and minimising risk of cholelithiasis.

Hydration

- Many Patients struggle to meet fluid requirements
- Some find NAS squash easier than water
- Encourage sipping throughout day (behaviour)
- **Calculating Adjusted Body Weight (ABW)**
  - Excess Body Weight (EBW) = Actual wt – IBW
  - ABW = IBW + 0.4 (EBW)

Estimating Fluid Reqs in OPD

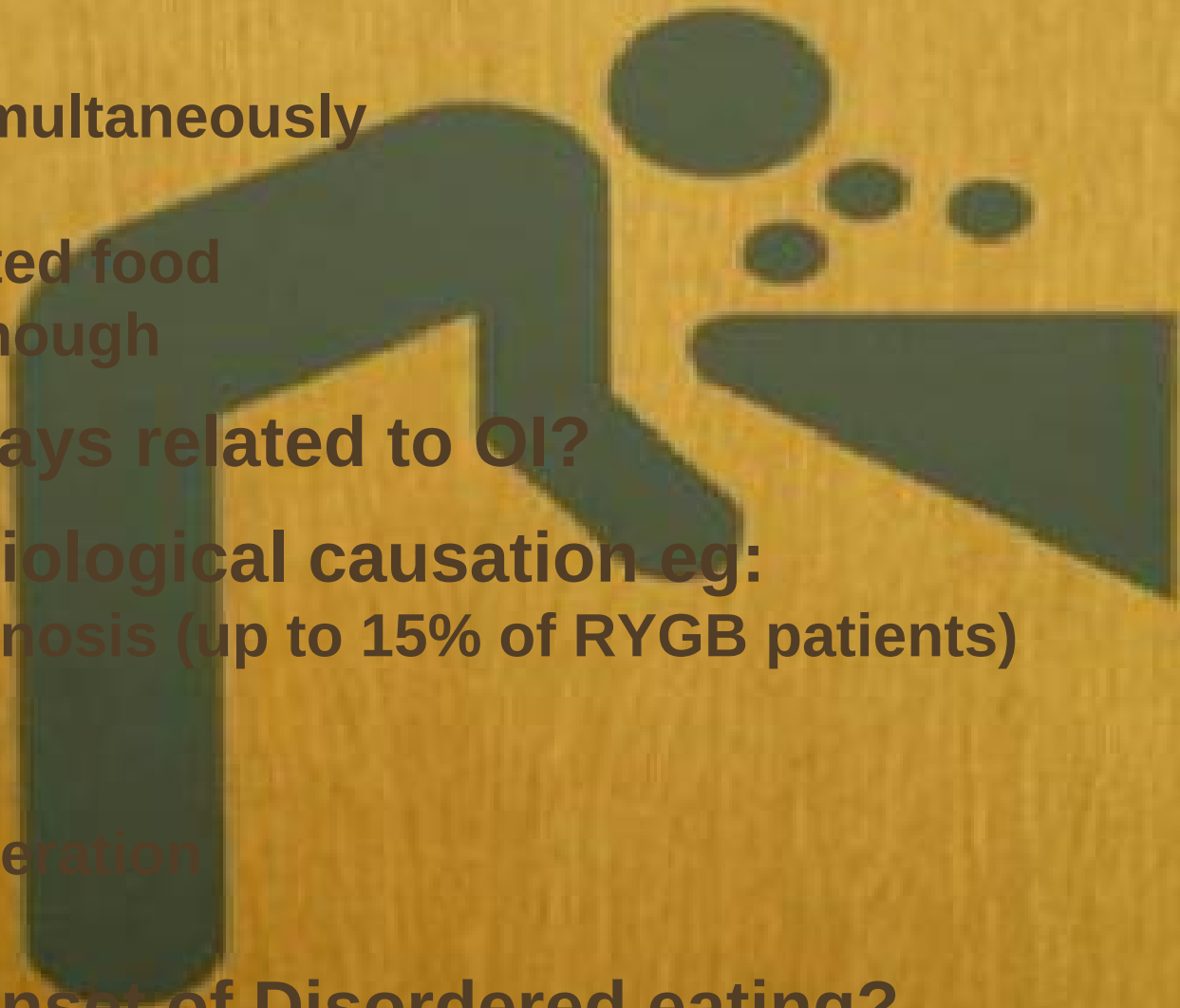
- **Based On Energy Expenditure**
  - 1ml/kcal estimated energy expenditure
- **Based On Age**
  - 30-40ml/kg ABW: 18-64 years of age
  - 30ml/kg ABW: 55-65 years of age
- **Based on ABW**
  - 1st 10kg 100ml/kg
  - 2nd 10kg 50ml/kg
  - Each additional Kg 20ml/kg (≤50yrs)
  - or 15ml/kg (>50yrs)

Eating Behaviour

- 1 cup of food (maximum) at each sitting
- Small frequent meals with nutrient dense foods to avoid nutrient deficiencies
- Eat slowly – 10 mins per oz of food
- Chew food thoroughly (until liquefied) before swallowing
- Separate drinks from meals – 30 minute gap
- Texture
- Adapted plates / cutlery
- Avoid carbonated drinks

Vomiting

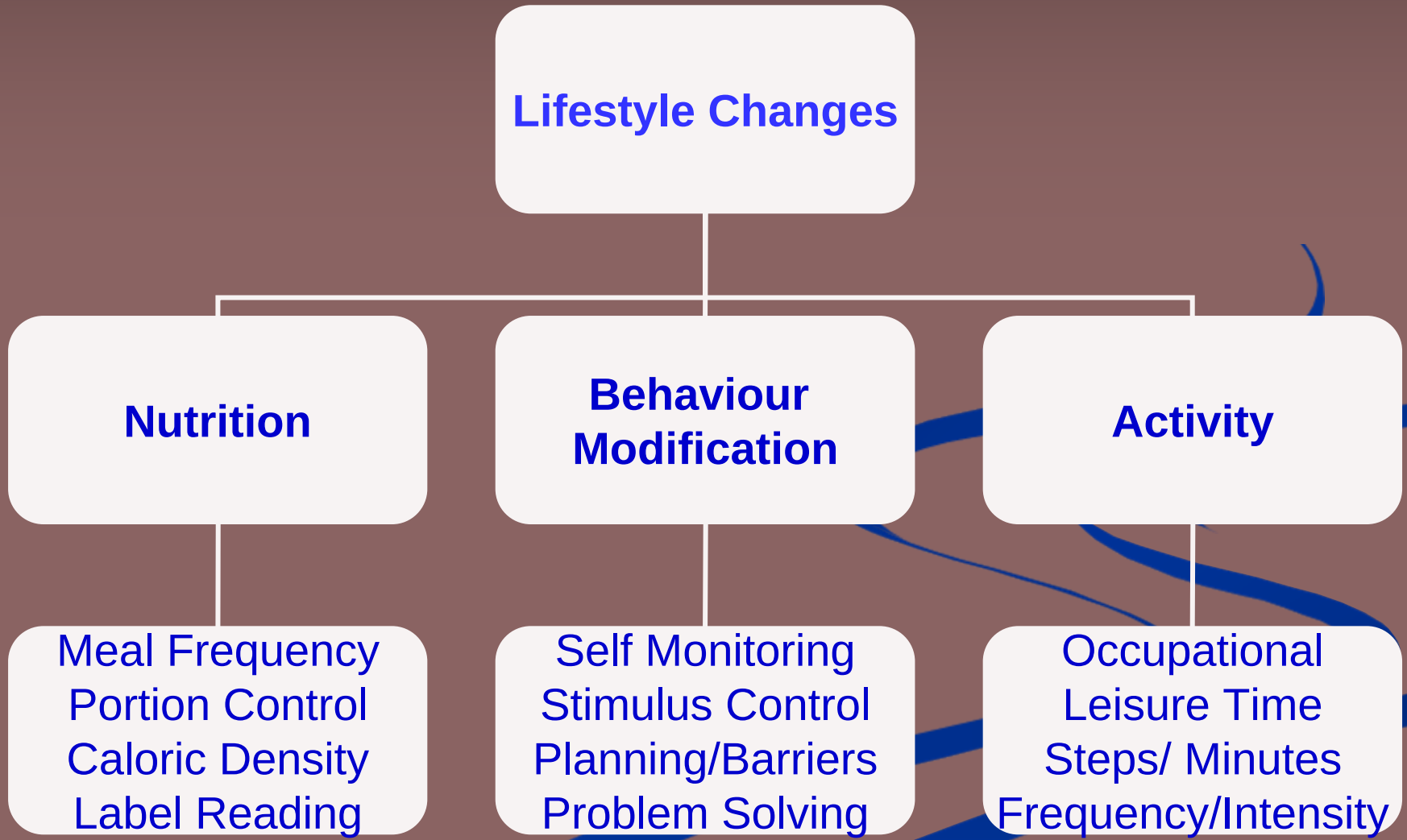
- Did the patient
  - Eat too fast
  - Eat and drink simultaneously
  - Eat too much
  - Eat a non-tolerated food
  - Not chew well enough
- Frequency – always related to OI?
- Investigate physiological causation eg:
  - Anastomatic Stenosis (up to 15% of RYGB patients)
  - Oedema
  - Gastritis
  - Anastomatic Ulceration
- Post-operative onset of Disordered eating?.



- **Common Issues:**
  - Postoperative disordered eating due to induced vomiting to relieve discomfort after overeating
  - Consumption of soft, high energy containing foods and liquids such as ice-cream, cream soups, juices, and quavers to avoid discomfort

- **Consequences of Ill-Eating Behaviour:**
  - Nausea
  - Vomiting (outlet obstruction)
  - Abdominal Bloating
  - Gastroesophageal Reflux and Barratts
  - Dumping Syndrome
  - Compromised integrity of staple line
  - Band Erosion
  - Increased pouch volume Capacity / Pouch dilation (oesophageal)

Bariatric Surgery is a 'tool', not a stand alone procedure . Use alongside:



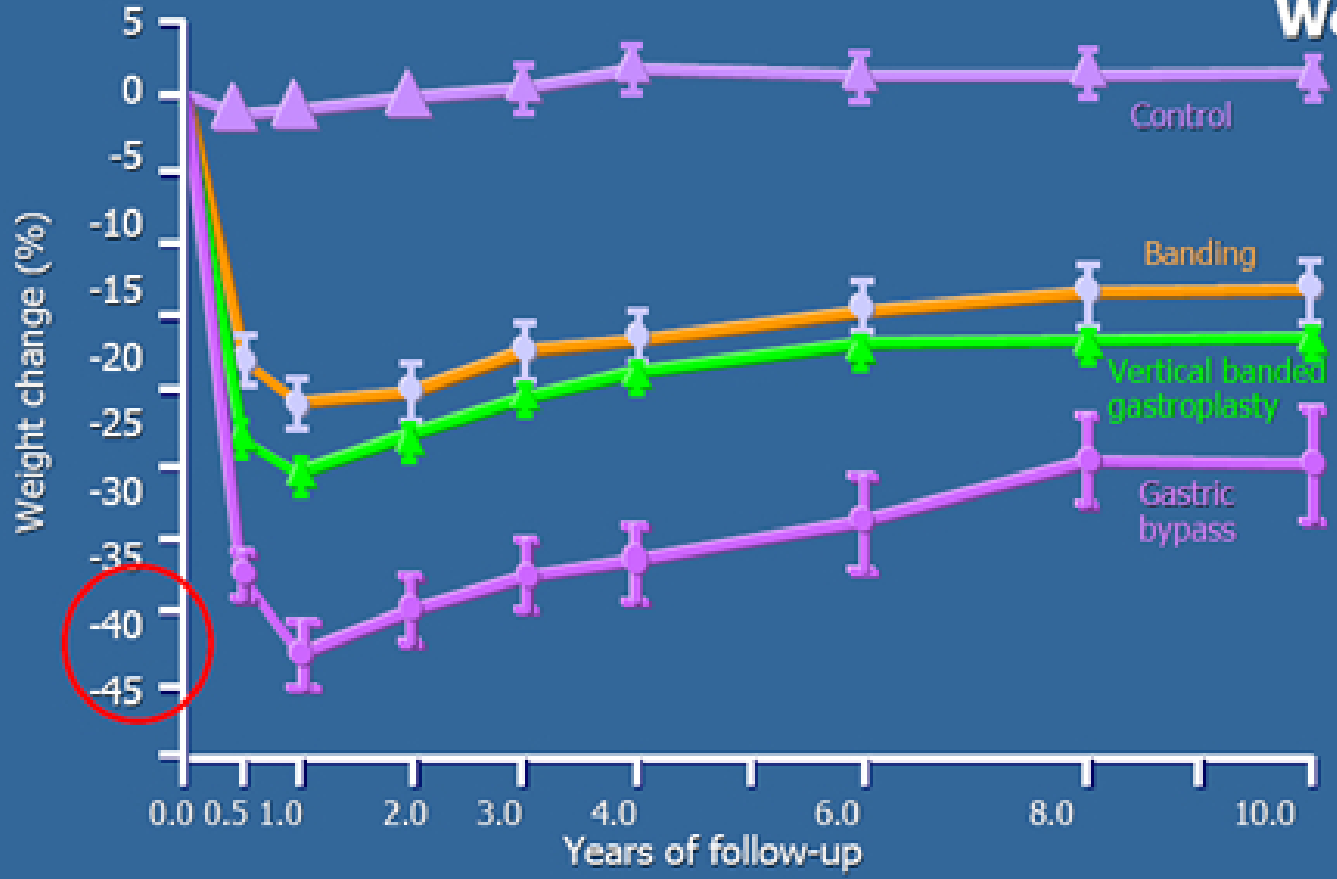

24 HOUR
FITNESS
FITNESS
24 HOUR

Pregnancy After Surgery

- Rapid weight loss can increase fertility by 30-40%.
- The contraceptive pill fails post bypass, meaning other forms of contraception will be required.
- Pregnancy is NOT advised within the **first 18 months** post surgery as it risks both mother and child.
  - Risks associated with obesity
  - Risks associated with poor nutrition
  - Loss of ‘window of opportunity’ for maternal weight loss
- After this time, many patients have successful pregnancies.
- Early informing and close links with antenatal teams are required.

10 year weight loss in the SOS study*

*Not randomized, but draws controls from a large registry



Weight loss at 10 yrs:

Control +1.6%

Banding -13.2%

VBG -16.5%

Bypass -25%

Sjöström, L. et al. N Engl J Med 2004; 351: 2683-2693

Average Weight losses

•RYGB:

Months 1-3	1-2 stone (6-12 kg) / month	<7lb (3.5kg) / wk
Months 4-6	½ -1 stone (3.5-6kg) / month	<3.5lb (2kg) / wk
Months 7-12	4-8 lb (2-4kg) / month	1-2lb (0.5-1kg) / wk

- Slower weight loss expected with LAGB.
- Initially – relying on slow build up to solids.
- May take several months to reach 'sweet point' which induces satiety and reduces hunger.
- Average weight loss with band 1-2 lb / week.

Weight Gain

- Small weight gain expected after initial 2 year period.
- <5% of all bariatric patients attain a “normal” BMI
- Evaluate intake and activity in full
- Evaluate eating behaviour and relapses of comfort / binge eating
- Re-education on macronutrients and eating behaviour
- Check TFT’s.
- Refer for gastrograffin swallow or gastroscopy to evaluate pouch size, integrity and passage of food
- Bariatric Surgery doesn’t ‘solve’ cause of obesity – common for maladaptive eating and exercise habits to recur after initital weight loss.
- Amplifies need for ongoing health-professional support

National Weight Control Registry

- Nutrition
  - low calorie diet
    - reported 1381 kcal/day (closer to 1800 kcal 20 – 30% underestimation)
  - low fat diet
    - reported 24% of calories from fat
  - 78% eat breakfast daily
  - eat 4 to 5 times daily
  - limit restaurant meals to 2 or less per week
  - diet is consistent across time (vacation, holidays, weekend)
- Activity
  - at least 60 minutes daily, walking most common
  - burn 2000 kcal per week

AJCN 2005;82(S):222S-225S
Ann Behav Med 2005;30(3):210-216
http://win.niddk.nih.gov/

Bariatric Surgery may seem extreme but…

- Compared to being obese again, former morbidly obese patients:
  - 100% preferred:
    - deafness,
    - dyslexia,
    - diabetes,
    - heart disease
    - bad acne
  - Leg amputation preferred by 91.5%
  - Blindness preferred by 89.4%
  - 100% preferred to be normal weight than a severely obese multimillionaire

Rand & Macgregor Int J Obes 1991;15:557-579