Nutritional Management of Pancreatic Cancer

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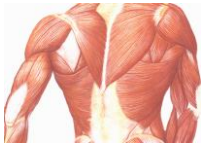
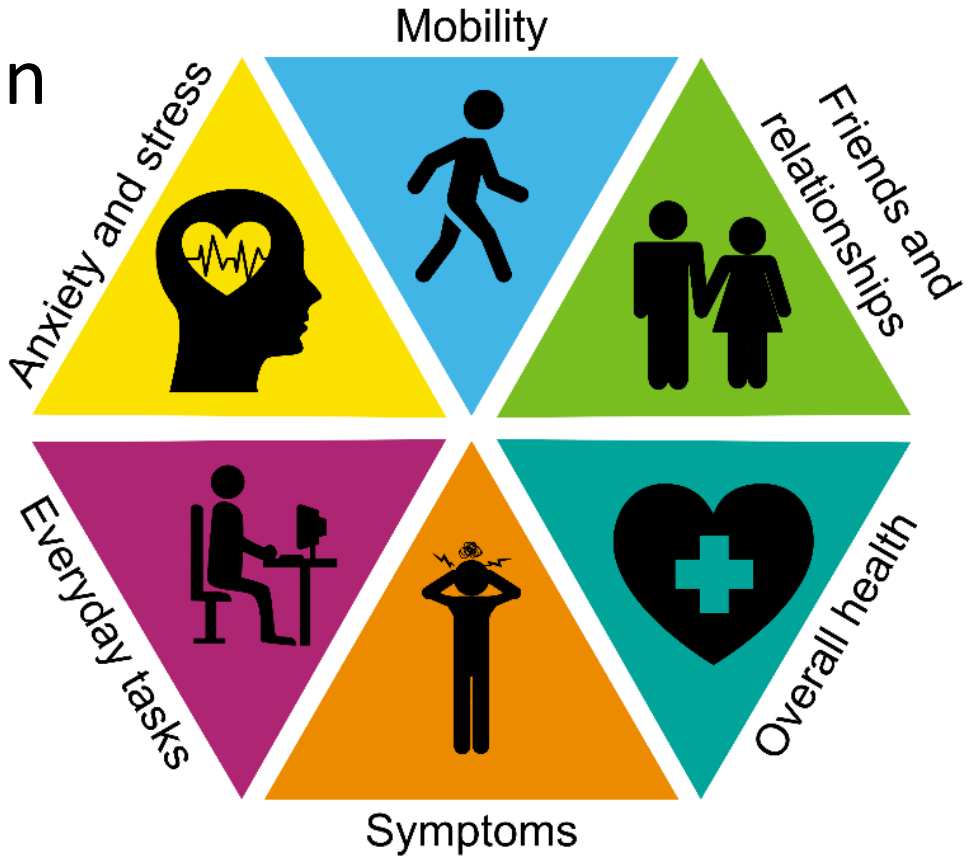
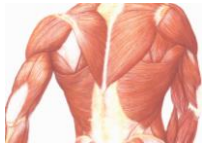


Aims of nutritional management

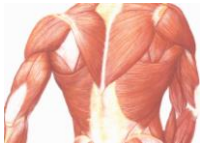
- Muscle preservation
- Quality of life
- Tolerance of treatments
- ↓ Side effects



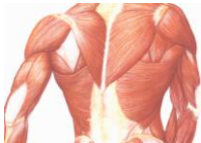


Achieving good nutritional status can be difficult

- Nausea
- Vomiting
- Taste changes
- Decreased appetite
- Early satiety
- Pain
- Bloating
- Diarrhoea
- Constipation
- Psychological impact
- Pancreatic exocrine insufficiency
- Blood glucose levels



Identify barriers to good nutrition and deal with them



Look for resolutions

Nausea

Vomiting

Taste changes

Decreased appetite

Early satiety

Pain

Bloating

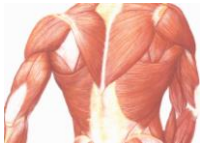
Diarrhoea

Constipation

Psychological impact

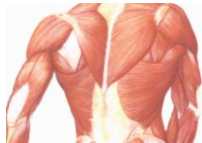
Pancreatic exocrine insufficiency

Blood glucose levels

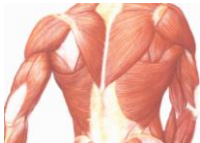


Look for resolutions

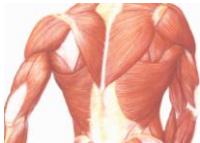
Antiemetics Cold/ dry food	?GOO liquids	Strong flavours Different foods
Timing Activity	Little and often Energy dense	Analgesia Easy to eat foods
?GOO ?PEI ?Fibre	?PEI/ BAM/ SIBO Chemo	Opiods Dehydration
Support Easy preparation	PERT	BGL management



Almost useless without adequate digestion!!



Eating well is great but you also need the nutrition to get from your **gut** into your **body** to **nourish you**



BREAKFAST

1 weetabix, 200mls semi-skimmed milk → full cream milk (+ 40kcals)

1 heaped tsp sugar → 3 heaped tsp sugar (+ 40kcals)

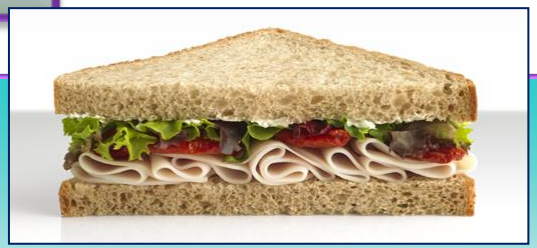
COT, semi-skimmed milk → 200mls orange juice (+ 50kcals)

SNACK

COT, semi-skimmed milk, no sugar

↓

COT, 50mls full fat milk and 1 tsp sugar + Digestive biscuit (+ 125kcals)



LUNCH

2 slices of white bread → 2 slices of granary bread

7g low fat spread → 20g butter (+ 110kcals)

Ham/chicken and salad → corned beef/salami (+ 30kcals)

COT, semi-skimmed milk, sweetner → COT, 50mls full fat milk, 1 tsp sugar (+ 30kcals)

SNACK

Low fat yoghurt → Thick & creamy yoghurt (+50kcal)

EVENING MEAL

Chicken breast, carrots, peas and mashed potatoes → sauté potatoes (+ 50kcal)

Tinned fruit → Ice-cream and tinned fruit (+ 110kcals)

SNACK

200mls highlights Hot Chocolate (with water)

↓

Meretine Hot Chocolate (with full fat milk) (+ 270kcals)

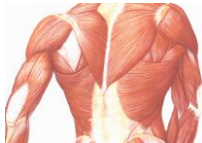
Suggested dietary changes

TOTAL CALORIE ADDITION =

905 KCAL PER DAY!!

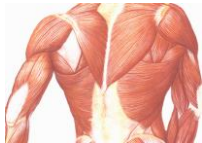
When you need more than food

- Whole range of nutritional supplements
- Usually avoid purely fat based ones e.g. Calogen, Procal, Fresubin 5kcal shot
- Caution using juice style supplements if diabetic e.g. Fortijuce, Fresubin jucy, Ensure jucy
- Peptide options useful
- If EN usually choose a peptide feed and often NJT
- Important to think about whole picture including prognosis and medical plan with EN/ PN

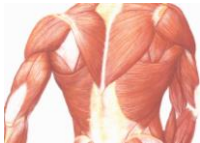
Nutritional management

- Little and often
- Easy to prepare
- Nourishing fluids
- Energy and protein dense foods
- Food fortification
- No fat restrictions
- Advice for taste changes, fatigue, early satiety, nausea….
- Nutritional Supplements or tube feeding where required

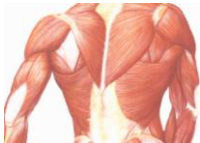
Activity - benefits

- More energy
- Muscle preservation
- Improved mood
- Better tolerance of treatments



Activity - tips

- Little and often
- Reduction of sedentary time
- Choose something you enjoy
- Set realistic goals
- Family not taking over all tasks
- Rest when needed



at least **150** minutes **moderate intensity per week**
increased breathing
able to talk

OR

or a combination of both

at least **75** minutes **vigorous intensity per week**
breathing fast
difficulty talking

to keep muscles, bones and joints strong

Build strength

on at least **2** days a week

Minimise sedentary time

Break up periods of inactivity

For *older adults*, to reduce the chance of frailty and falls

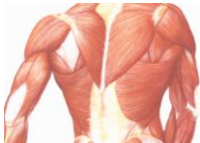
Improve balance

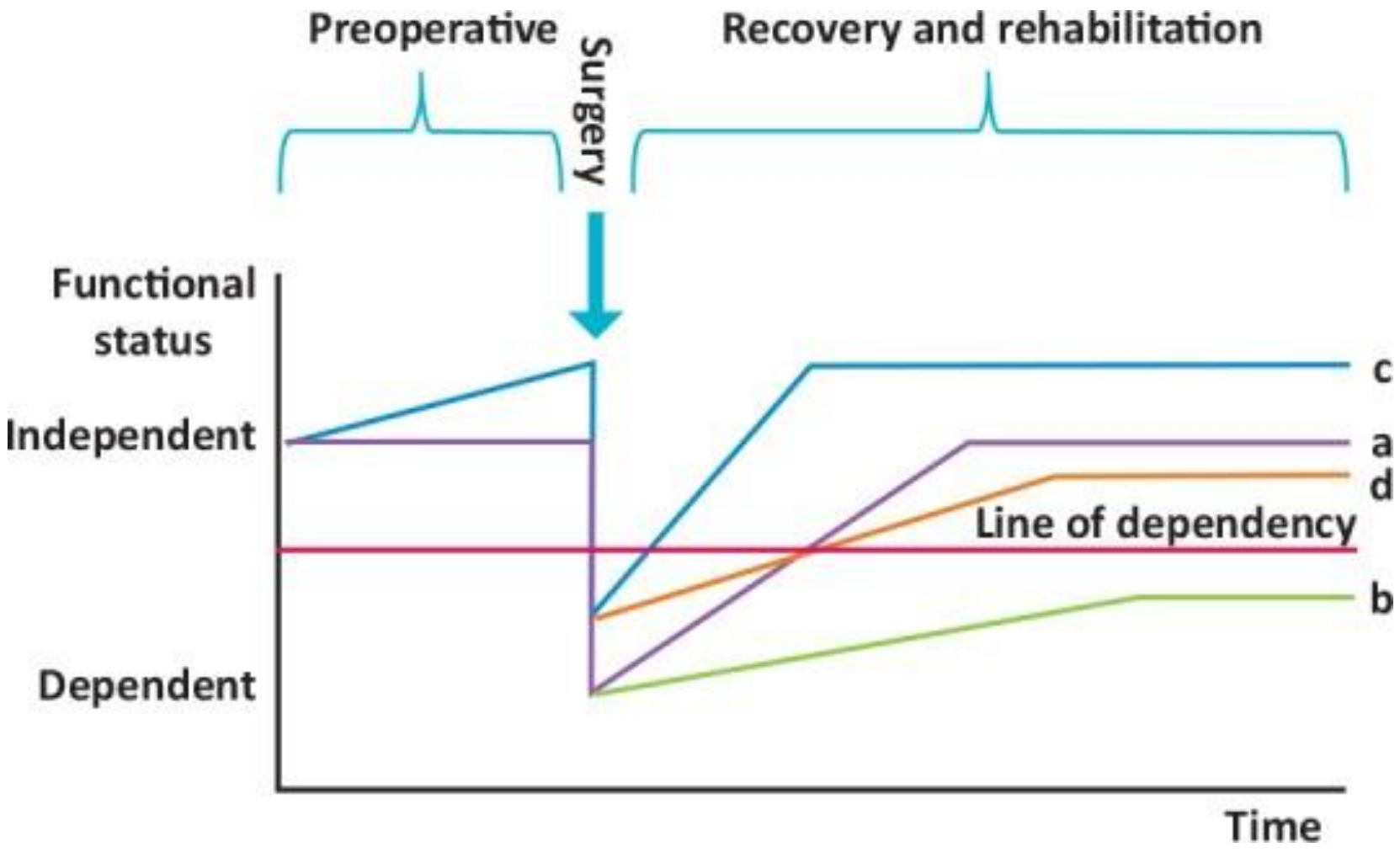
2 days a week

Specific situations

- Prehab
- Post resection
- Gastric outlet obstruction
- Biliary obstruction



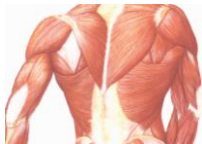




PERIOPERATIVE CARE
Clinical Medicine 2019 Vol 19, No 6: 458–64

Prehabilitation

Authors: James Durrand,[A] Sally J Singh[B] and Gerry Danjoux[C]



Benefits of Prehabilitation

↓ **post-op complications** - mortality and morbidity

↓ **LOS** and re-admissions

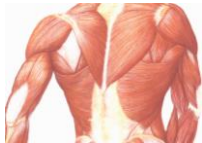
↑ **functional levels** and fitness

↑ **quality of life**

Faster recovery and greater tolerance **adjuvant treatment**

Sustained **behaviour change**

Patient **empowerment**



A prospective study of 150 patients who had a baseline dietetic assessment, prehabilitation and at least one further post-operative review

Baseline assessment

Malnutrition was highly prevalent, with 64.6% experiencing more than 5% and 33.3% experiencing more than 10% weight loss

Nutritional prehabilitation

These patients gained 2% body weight during this period and improved handgrip strength by 8.2%

Improved symptoms

Patient Generated Subjective Global Assessment scores reduced by 5.9 points and Gastrointestinal Symptom Rating Scale by 47.7%

JHND Journal of Human Nutrition and Dietetics

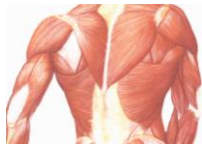
BDA The Association of UK Dietitians

ORIGINAL ARTICLE

From prehab to rehab: Nutritional support for people undergoing pancreatic cancer surgery

Neil Bibby, Azita Rajai, Derek A. O'Reilly

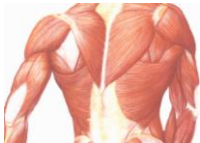
First published: 23 May 2022 | https://doi.org/10.1111/jhn.13040



Post op nutrition

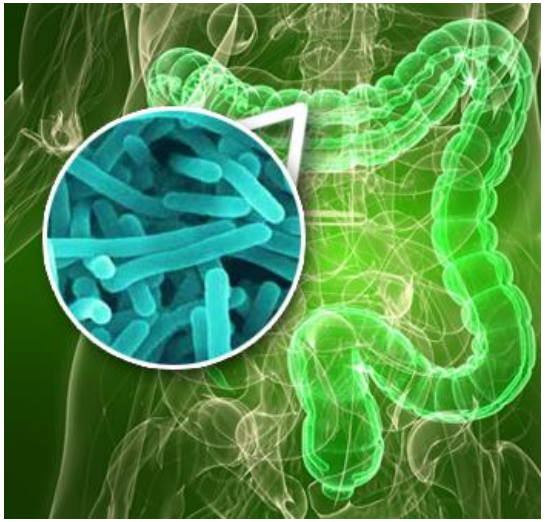
- When?
- Which route?
- With what?





Benefits of early enteral feeding

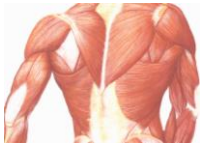
- Preservation of the integrity of gut structure and function
- Preserves intestinal microflora
- Maintenance of an effective local and systemic immunocompetence



- small bowel recovers its ability to absorb nutrients almost immediately following surgery, even in the absence of peristalsis

Wells 1964





Route of enteral feed

- Practice varies across the UK, po, NJ, jejunostomy mostly, Phillips 2009
- No strong evidence as to which is superior

Early oral feeding after pancreatoduodenectomy enhances recovery without increasing morbidity

Arja Gerritsen[1], Roos A. W. Wennink[1], Marc G. H. Besselink[1,2], Hjalmar C. van Santvoort[1], Dorine S. J. Tseng[1], Elles Steenhagen[3], Inne H. M. Borel Rinkes[1] & I. Quintus Molenaar[1]

- EN is recommended over PN post-operatively

ELSEVIER

HPB

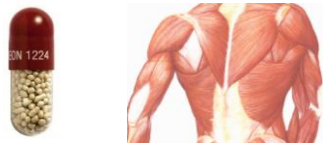
Volume 24, Issue 10, October 2022, Pages 1615-1621

Liu et al 2011, Mazaki T, Ebisawa K 2008

Review article

Early oral feeding after pancreatoduodenectomy: a systematic review and meta-analysis

James M. Halle-Smith [1], Rupaly Pande [1, 2], Sarah Powell-Brett [1, 2], Samir Pathak [3], Sanjay Pandanaboyana [4], Andrew M. Smith [3], Keith J. Roberts [1, 2]



Type of enteral feed

- Immunomodulating additions to feeds
  - added arginine, RNA and omega-3 FAs
  - no sig dif in LOS, wound infection rates, septic complications, non-septic complications

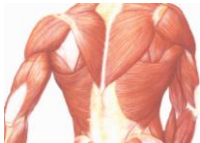
Braga 1998, Di Carlo 1999, Klek *et al* 2008

- ? add pre and probiotics
  - Sig ↓ in infections (12.5% vs 40%) and Abx use

Rayes et al 2007

- Most use peptide feeds as standard

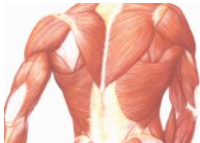




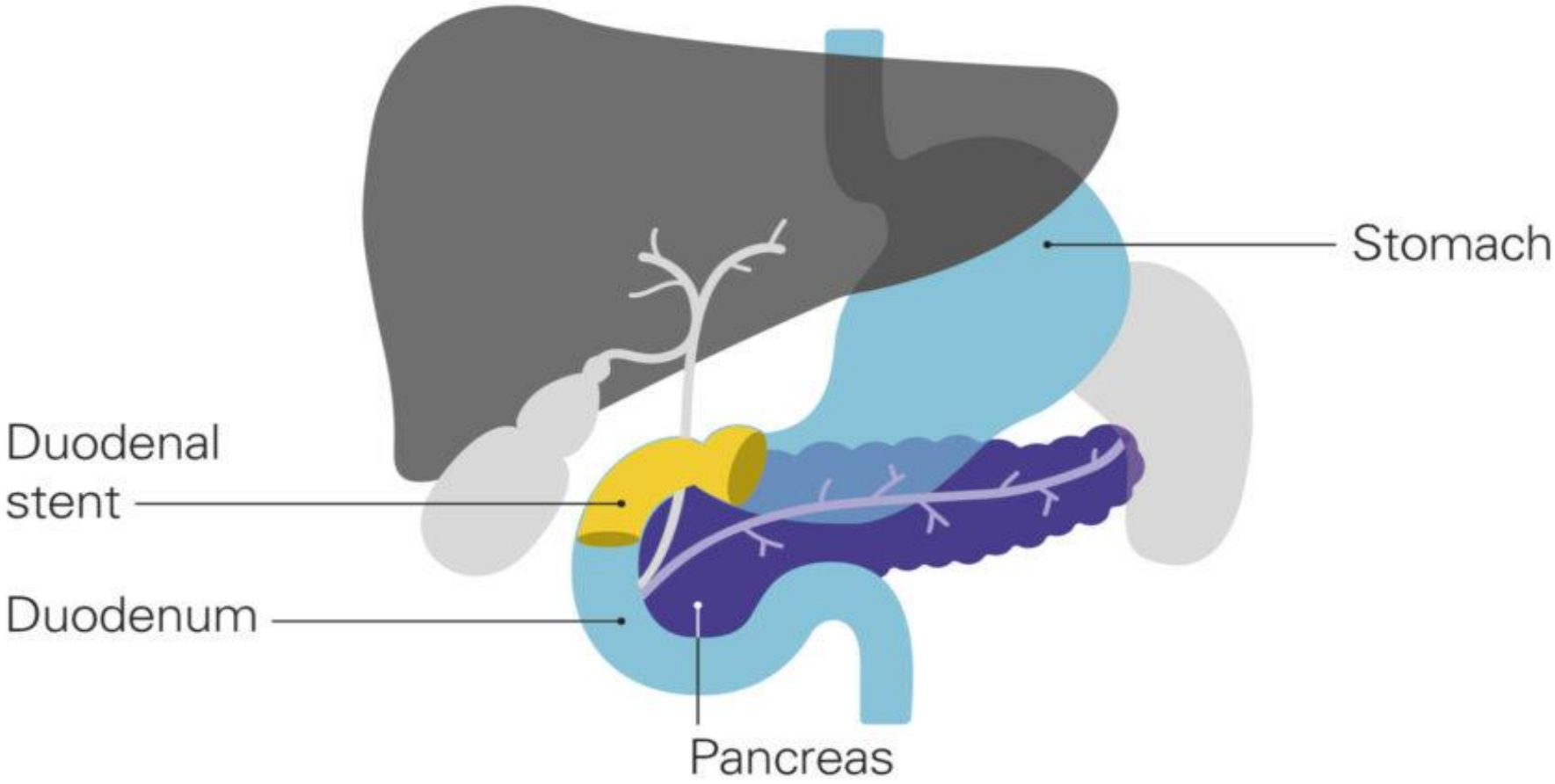
Gastric Outlet Obstruction

- Symptoms:
  - nausea
  - vomiting
  - early satiety
  - abdominal pain
  - weight loss
  - burping

- Treatment:
  - Duodenal stent or gastrojejunostomy
  - May need NJ or PN while waiting
- Aims to relieve symptoms and resumption of oral diet



Duodenal Stent



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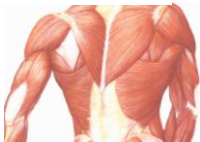
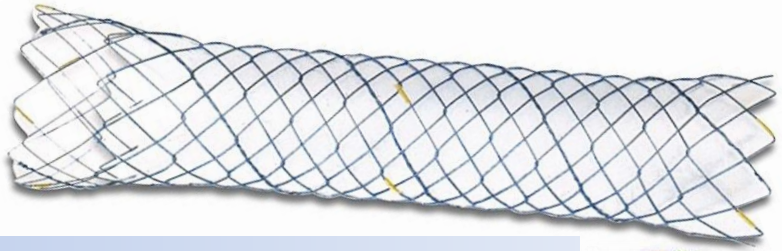
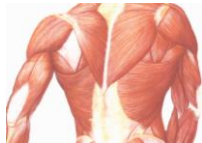


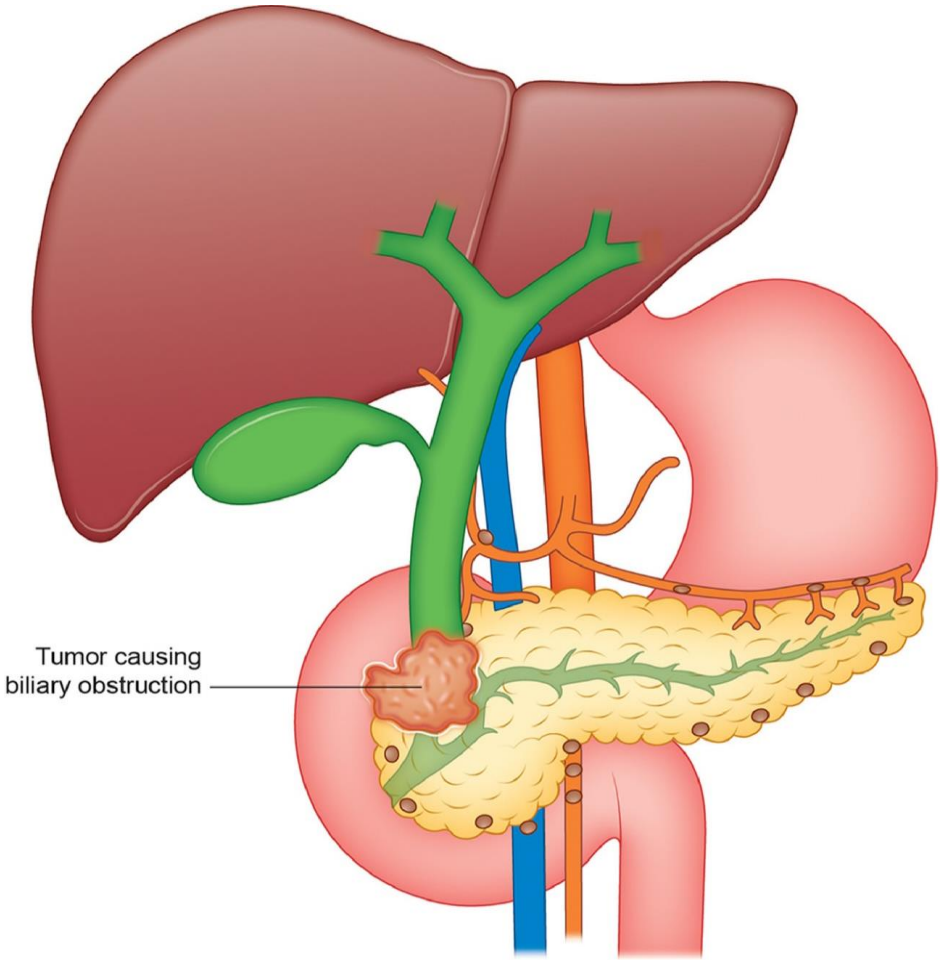
Duodenal Stent

- Variation in dietary tolerance post stent insertion
- Start with liquid diet, progressing to soft, moist foods
- Chew well
- Pro-kinetics may be used once a stent is in situ
- If gastric emptying normalises, people often tolerate a normal diet
- A few may need a liquid/ soft diet long term
- Many avoid foods that are more difficult to digest, such as bread, nuts, seeds, skins and sweetcorn



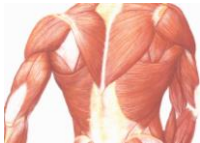


Biliary obstruction



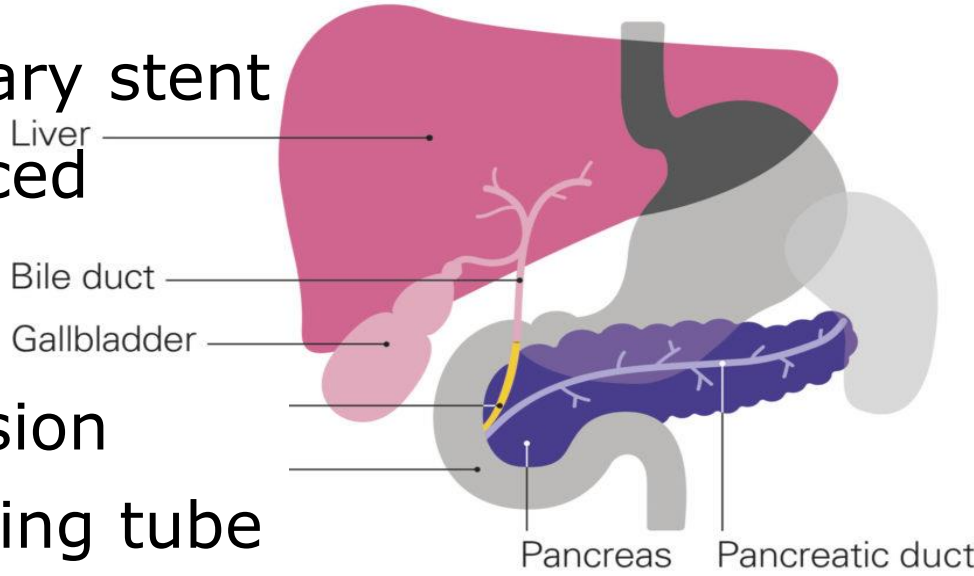
Klose et al, 2021

Bile duct is blocked causing a build up of bile in the body, leading to jaundice



Biliary obstruction

- Can be relieved with a biliary stent
- External drain may be placed initially
- If large bile loses, may be commenced on bile reinfusion
- Can be orally or via a feeding tube
- Allows the bile to reach the gut, replace electrolytes and carry out its role in fat digestion
- Helps improve bowel function, hydration and nutritional status



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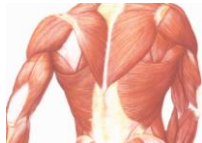
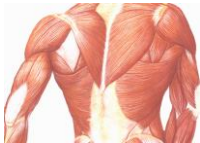


Nutritional Management of Pancreatic Cancer

Guided by improvement of QoL and symptoms, usually focuses on facilitating digestion, absorption and utilisation of that nutrition





Modify what we can

Intake

Digestion

BGL levels

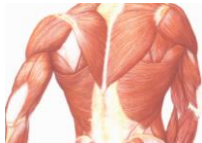
Physical activity

Symptoms

?omega 3

Psychological support

Patient empowerment



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