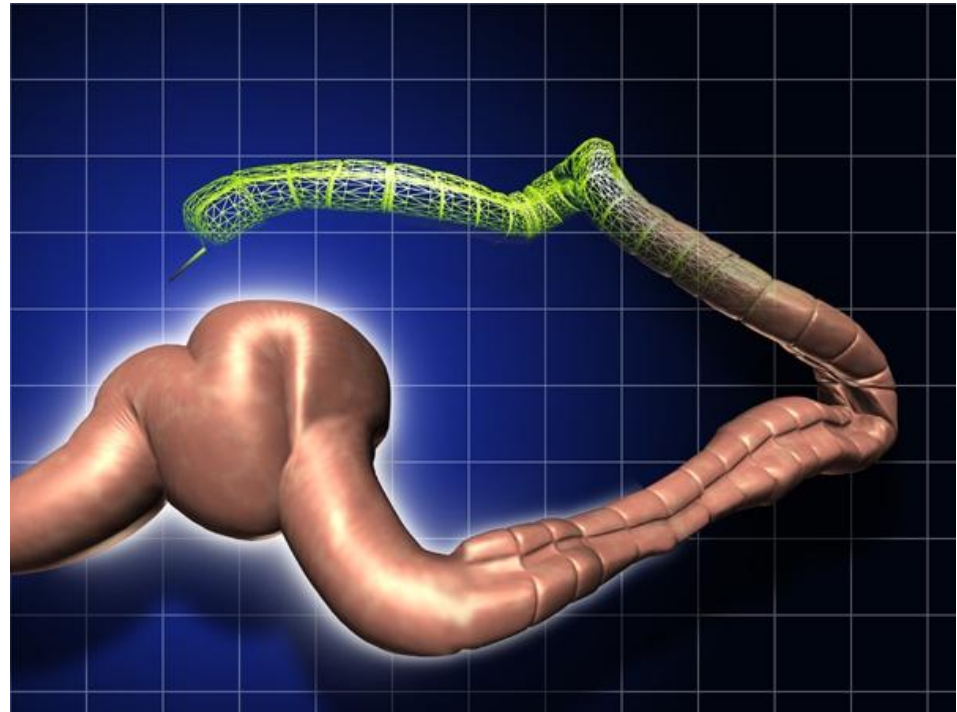


# Constipation - Do's \* Don'ts



*Marion E Leggo APD, AN*

Dietitian-Nutritionist






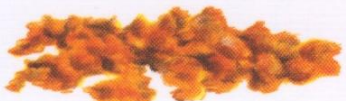

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# Megacolon



- A wider and much longer than normal colon.

# Bristol Stool Form Scale

<i>Type 1</i>		Separate hard lumps, like nuts (hard to pass)
<i>Type 2</i>		Sausage-shaped but lumpy
<i>Type 3</i>		Like a sausage but with cracks on its surface
<i>Type 4</i>		Like a sausage or snake, smooth and soft
<i>Type 5</i>		Soft blobs with clear-cut edges (passed easily)
<i>Type 6</i>		Fluffy pieces with ragged edges, a mushy stool
<i>Type 7</i>		Watery, no solid pieces ENTIRELY LIQUID

# Definition of Constipation

Faeces are harder or drier than usual and are more difficult to pass.

- **Acute:-** recent and sudden onset, occurring without a change of routine. *Requires urgent medical investigation* and may reflect underlying disease such as hypothyroidism, cancer or neurological disease.
- **Simple:-** short-term constipation related to changes in normal patterns of daily living in diet, medication or routine or stress induced.
- **Chronic Constipation:-** Long history of constipation since childhood, or gradual onset. Bowel frequency usually every 2 to 3 days. Underlying physiological cause or chronic poor dietary practices.
- **Severe/Faecal Impaction:-** Long history of infrequent bowel movements (once every 2 to 3 weeks). Underlying bowel pathology exists e.g.. Hirschsprung's disease or Megacolon. *Both high quantities of fibre and stimulants containing anthraquinone are contraindicated in these patients (e.g.. Senna, cascara, frangula).*

# 1.5 to 2.5 Litres Fluid per day



# Eat 2 Fruit & 5 Veg each day



# Enjoy Wholemeal Breads & Cereals daily (4+) & legumes regularly (3 x per week)



# Enjoy Nuts regularly – 1 Tbl/day



# Faecal Bulk:

75% water, 25% Dry Matter

Dry matter = undigested residues, bacteria & debris of bacterial cells

- Western diet, stool wt =  $\frac{1}{2}$  cup per day
- Vegetarian diet, stool wt = 1 cup per day
- Rural Africans, stool wt = 2 cups or more per day
  
- Western diet, GIT transit =  $1-1 \frac{1}{2}$  days
- V low fibre diets, GIT transit =  $2 \frac{1}{2}$  days
- Rural Africans, GIT transit =  $\frac{1}{2}$  day

# “Diagnostic Criteria”

(CELS Project Team, 2005)



## Rome II criteria for functional constipation

*In the preceding 12 months, the person will have had, for at least 12 weeks (which do not need to be consecutive), two or more of the following symptoms:*

- Straining  $> \frac{1}{4}$  of defecations,
- Lumpy or hard stools  $> \frac{1}{4}$  of defecations,
- Sensation of incomplete evacuation  $> \frac{1}{4}$  of defecations
- Sensation of anorectal obstruction or blockage  $> \frac{1}{4}$  of defecations
- Manual manoeuvres to facilitate  $> \frac{1}{4}$  of defecations (e.g.. Digital evacuation, support of the pelvic floor)
- $< 3$  defecations per week.

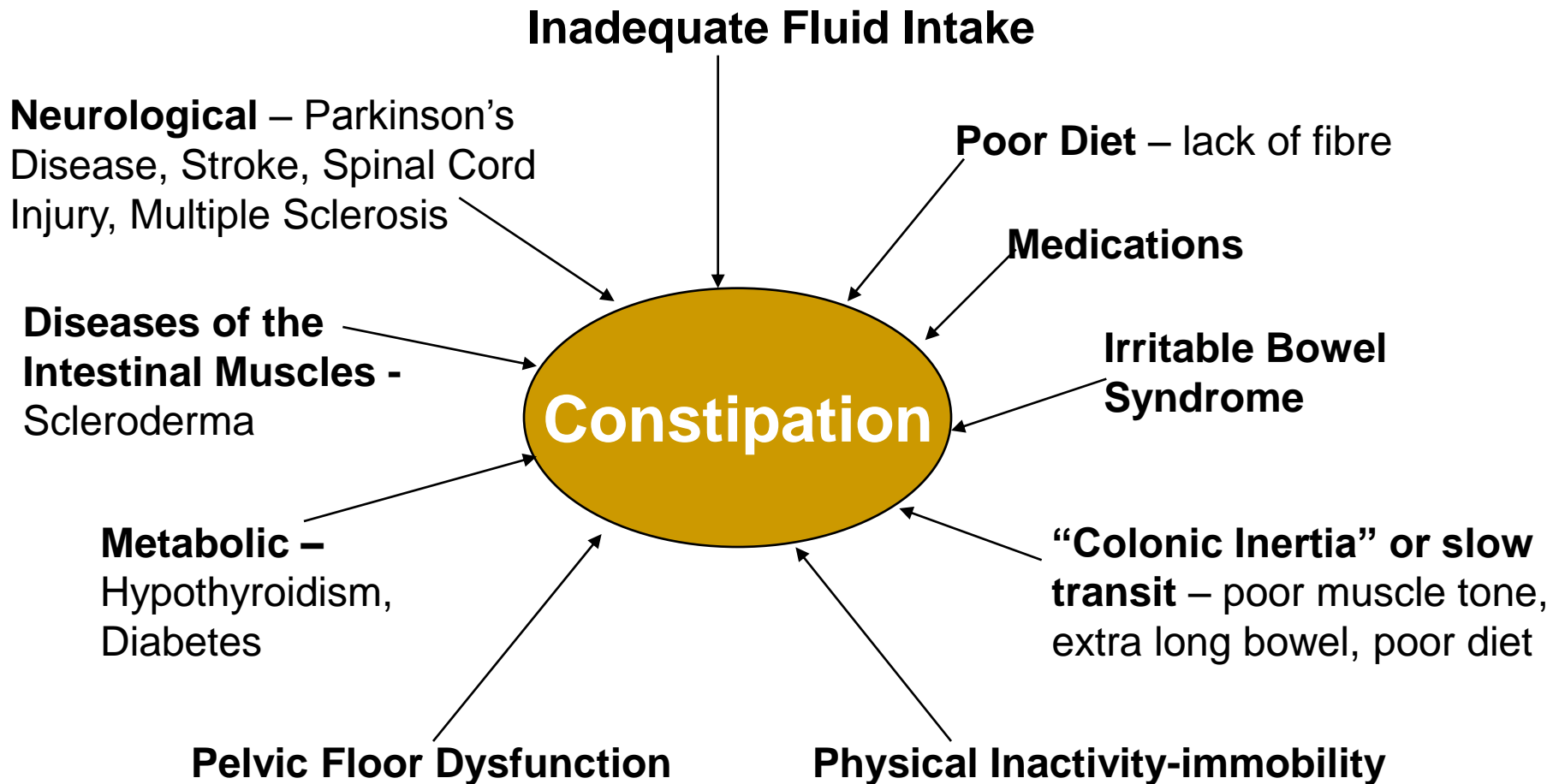
# Risk Factors for Constipation

(CELS Project Team, 2005)

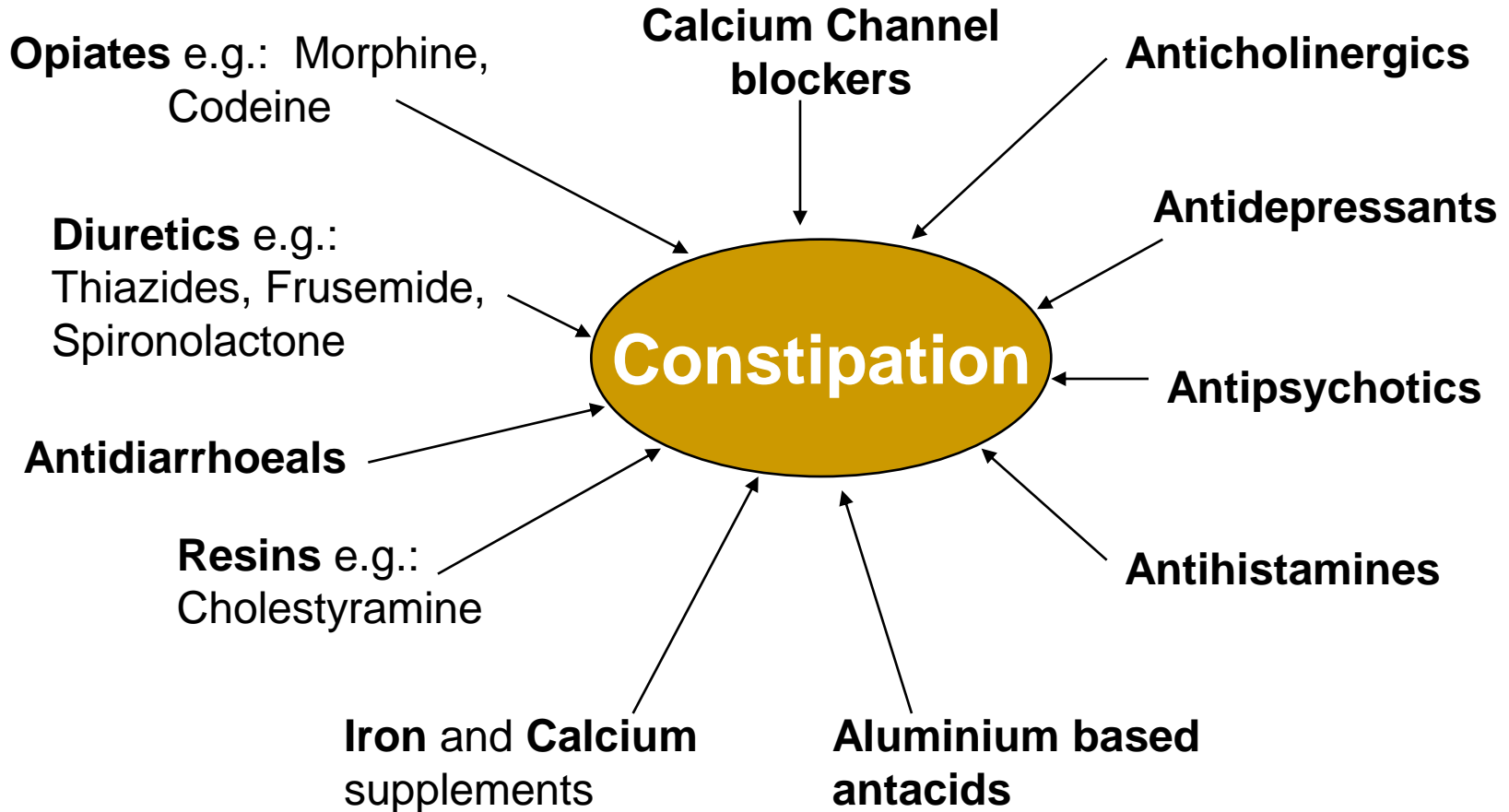


- **Increasing age,**
- Low calorie intake, (**low fibre intake**)
- **Chronic Disease,**
- **Physical inactivity,**
- **Medications** (e.g.. Opiates/Opioids)
- Female gender,
- Depression,
- Low income,
- Low educational level,
- Physical abuse &
- Sexual abuse.

# Benign Causes of Constipation



# Drugs & Constipation



# Recommendations for Adults-

1. Fluid Intake should be established at **1500ml/24 hours before** any changes to the diet or laxative regimen occur,
2. Accompany **all** increases in fibre with increases in (alcohol free) fluids (**1.5 – 2.5 L/day**),
3. Daily dietary fibre intake should be **25-30 g/day**,
4. The strategy to increase dietary fibre should be both **gradual and long term**,
5. The fibre should be obtained from a **variety of food types** following the “*Australian Guide to Healthy Eating*” for daily recommended servings,
6. **Prebiotics** and **Probiotics** may be beneficial.
7. **Regular** and moderate sized **meals**.

# Recommendation 1:

- 30ml/kg body wt or 1500ml Fluid/24 hrs
- Constipation is an indicator that people may be dehydrated. Dehydration should be addressed before increasing fibre or using laxatives.
- People with Urinary Incontinence (UI) will often deliberately restrict their fluid intake\*.
- People with Dysphagia often have a low fluid intake.
- \*Any fluid restriction to manage UI should be compensated for within the 24 hr period.

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## Recommendation 2:- Accompany all increases in fibre with increases in (alcohol free) fluids (e.g. 1.5 – 2.5 L/day)

- Fluid intake should be a minimum of 1500ml/day and increased as required as fibre intake is increased,
- Clients should be encouraged to take sips of fluid throughout the day,
- Water is great, but fluids in meals and various drinks except for alcohol can be counted.\*
- \* Caffeinated drinks are ok but should not be the sole source of fluid intake for the day

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**Recommendation 3:-** Daily dietary fibre intake should be **25-30 g/day**,

Total Fibre =

- Structural and storage polysaccharides and lignin in plants that are **not digested** in the human stomach and small intestine.
- **Incompletely fermented** or insoluble fibres together with **slowly fermented** or soluble forms of fibre that have a beneficial physiological effect in humans (i.e.. promote normal laxation, lower cholesterol, lower GI/BSL's).

# Evidence : what do the experts recommend?

## Fluids

1.5 – 2.5 L/day with additional fluids for those who are physically active and in hot environments	British Dietetic Association, 2006
RDI 30 mL/kg body weight/day	JBI, 2005
1 mL fluid/Kcal consumed/day	JBI, 2005
100 mL/kg for first 10 kg 50 mL/kg for next 10 kg 15 mL/kg for the remainder of weight (total for the day)	JBI, 2005

## Fibre

25-30g/day Level 4 Evidence	■NHMRC 2006: Nutrient Reference Values, <b><i>(no upper limit set, self-limiting due to bulk)</i></b>
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## Recommendation 4:- The strategy to increase dietary fibre should be both **gradual and long term,**

- A sudden increase in fibre is likely to result in abdominal bloating and cramping, flatulence and diarrhoea,
- It may take up to 2 to 4 weeks for the dietary changes to alleviate the constipation.

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## Recommendation 5:-

The fibre should be obtained from a **variety of food types** following the “*Australian Guide to Healthy Eating*” for daily recommended servings,

- Lignin & cellulose (e.g.. *whole wheat, wheat bran and vegetable fibres, \*psyllium*) provide **bulk** from their **undigested components and water holding capacity**,
- Pectins, gums and resistant starch (e.g.. *fruits, legumes, oat bran and cold potato, & also \*psyllium*) provide **bulk** through the processes of **fermentation** increasing **bacterial cell mass**.
- *\*Many foods such as oat, oat brans, psyllium husk and flax seed are rich in both insoluble and soluble fiber.*

# Fermentable vs. Bulk forming Fibre



Pectins in Fruits,  
Hemicelluloses in  
vegetables,  
Gums & mucilages in  
legumes, nuts, seeds,  
oats & fruits, & psyllium

Lignin:- wheat bran, All  
bran, Weet-bix,  
Wholemeal bread,  
Wholemeal Pasta  
Cellulose:- vegetable  
fibres, psyllium

# Fibre



Wholemeal/multigrain bread, av. 2 slices (60g)	4g (3-6)
Fruit, average, 1 piece	2g
Vegetable, average, ½ cup	2g (1-4)
Baked beans, lentils, ½ cup	4g (3-5)
High fibre cereal, 1 serve	5g (4-10)
Psyllium husks, 2 Tbls, 10g	8g
Wheat bran, 2 Tbls, 15g	6.5g
Nuts or Nut butters, 1 Tbls	2g
Rice, brown, 1 cup	4g



# Fibre Supplements or Bulking Agents



- Metamucil, 2 tsp, 11g
- Fybogel, 1 sachet, 4g
- Agiofibre, 5 g
- Benefiber, 2 tsp, 3.5g
- Normafibe
- Normacol Plus
- = 3.4g psyllium fibre
- = 3.5g ispaghula husk
- = 3.36g psyllium fibre
- = 3g wheat dextrin
- sterculia based
- sterculia based + frangula (senna like)

# Laxatives

- **Stool Softeners:-** Coloxyl,
- **\*Osmotic Laxatives:-** Duphalac, Actilax (lactulose) & Sorbilax (sorbitol); Movicol\*
- **Irritant or Stimulant agents:-** encourage muscular activity of the bowel, e.g.. Durolax, Agarol, Nulax and Epsom salts.
- **Enemas and suppositories** - act by distending the rectum and colon and stimulating a reflex evacuation, e.g.. Durolax, Bisalax, Glycerine

\*Movicol works differently to the other osmotic laxatives

# High Fibre meal plan

- Fibre Plus cereal, fresh fruit (pears) & yoghurt
- Lentil & vegetable soup with grated cheese & 2 slices wholemeal bread
- Brown rice, vegetables (3 x 1/2 cup), small piece fish & fresh fruit & custard
- 1 tbls nuts to snack
- High fibre slice/muffin
- 1 fish/meat serve
- 2 fruit serves [4]
- 3 dairy
- 4 bread/cereals [16]
- 5 serves vegetables [10]
- Probiotic yoghurt daily
- 4 to 6 glasses water
- minimize alcohol
- **Total fibre = 30+g  
(4+16+10+2+4)**

**1,2,3,4,5 plan.....**

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# Low Fibre Diet

Tea & Toast (white bread)	1 meat serve
Cup of soup (sachet), & Cheese sandwich (white) & glass of juice	1 fruit (1 = juice) [0] 2 dairy serves 3 bread serves, w [6]
Tea & sweet biscuits	2 vegetable serves [4]
Mashed potato, sausages, with peas	
Chocolate ice-cream	<b>Total fibre = 10 g</b>

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# Moderate Fibre Diet

Weet-bix, glass of juice

Yoghurt

Tea & sweet biscuits

Ham, cheese & tomato  
sandwich, (wholemeal)

1 banana

Spaghetti Bolognese

1.5 meat serves

2 fruits (1 = juice) [2]

2 dairy

4 Bread/cereal serves [12]

2 vegetables [4]

**Total Fibre = 18g**

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## Recommendation 6:

### Eat regular and moderate sized meals

- Promoting good bowel rhythm
  - eating regular, moderate sized meals regulates the hormonal and nerve signals being sent to the large bowel when food is in the stomach, promoting normal gut motility

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## Recommendation 7:-

### Prebiotics & Probiotics may be beneficial

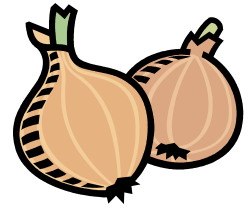
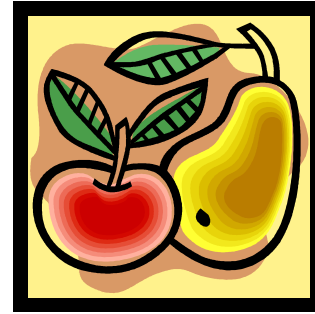
- It is thought that combining **probiotics** with **prebiotics** could have benefits in improving the survival and growth of the health promoting bacteria, thereby increasing the **bacterial cell mass**.
- Increases in **bacterial cell mass** will increase the **bulk of the stool**,
- Larger, softer stools with a **reduced transit time** mean easier and **regular defecation**.

# Probiotics



- acidophilus, bifidus, lactobacillus GG -
- found in yoghurts, yoghurt drinks, powders or capsules -
  - provide sources of “good bacteria”
  - “Protection” & “substrate” required to increase cell mass and thus stool bulk

# Prebiotics- Pears etc



“**Prebiotics**” provide substrate to nurture the growth of “good” bacteria, this leads to –

- Increase in bacterial cell mass; Increases in water; Increases in stool bulk; Softening of stools,
  - e.g. Apples & pears, prunes, onions and artichokes
- 
- “**Resistant starch**” (e.g. rice cooked by the Asian absorption method, and legumes) may provide “protection” in the cellular matrix, allowing “good bacteria” to resist degradation in the upper GIT

# Step 1: Part 1 - Fluid Intake

## Establish fluid intake

Bladder  
Diary/Medical  
&/or Diet History

Fluid intake is  
1.5L/day or more

Yes

## Establish fibre intake

Food Record/  
Diet History.....-  
*go to next slide*

No

↑ Fluid by 250 ml per day as extra sips throughout the day rather than all at once, [*\* If fever present, extra 500 ml/day/degree of fever >38°C*]

*Broth, sports drinks, juices & soft-drinks can stimulate more drinking*

## Caffeine or No Caffeine?

Some people may be very sensitive to caffeine and others may be able to tolerate small amounts.

Along the continuum of very sensitive, to mildly sensitive, to a little sensitive, advise either (1) no caffeine, (2) limit to 100mg caffeine (1 coffee or 2 teas) per day or (3) maximum 100mg caffeine in any 2-3 hour period. In all cases a limit of caffeine after 5 pm to minimize nocturia may be best.

## Ingenuity a must!!!!

Think of ingenious ways to encourage your client to drink more fluid, e.g. *have fluids available when seated for long periods/by the bedside; take fluid along on outings, in carry bag/in car; provide fluids with all meals and snacks.*

# Step 1: Part 2 – Fluid & Fibre Intake

Fluid Intake is 1.5L/day

Is environment extra hot/warm – hot day or central heating?

Yes

↑ Fluid by 250 ml per day as extra sips throughout the day rather than all at once, [*\* If fever present, extra 500 ml/day/degree of fever >38°C*]

No

Establish fibre intake

Food Record/  
Diet History

Is fibre intake from a variety of sources?

No

Make sure fibre is not all derived from wheat bran. Vary it, and focus on soluble forms such as fruit, veg, oats etc.

Yes

Is fibre intake 25g/day or more?

No

↑ Fibre by 3-5g/day every 3 days .....such as an extra piece “juicy” fruit and an extra serve of veg. Then swap over to wholegrains, changing one meal every 3 days. *This process may take up to 2 to 4 weeks!*

Yes

For every 5 g fibre above 25g, ↑ fluid by 250ml/day

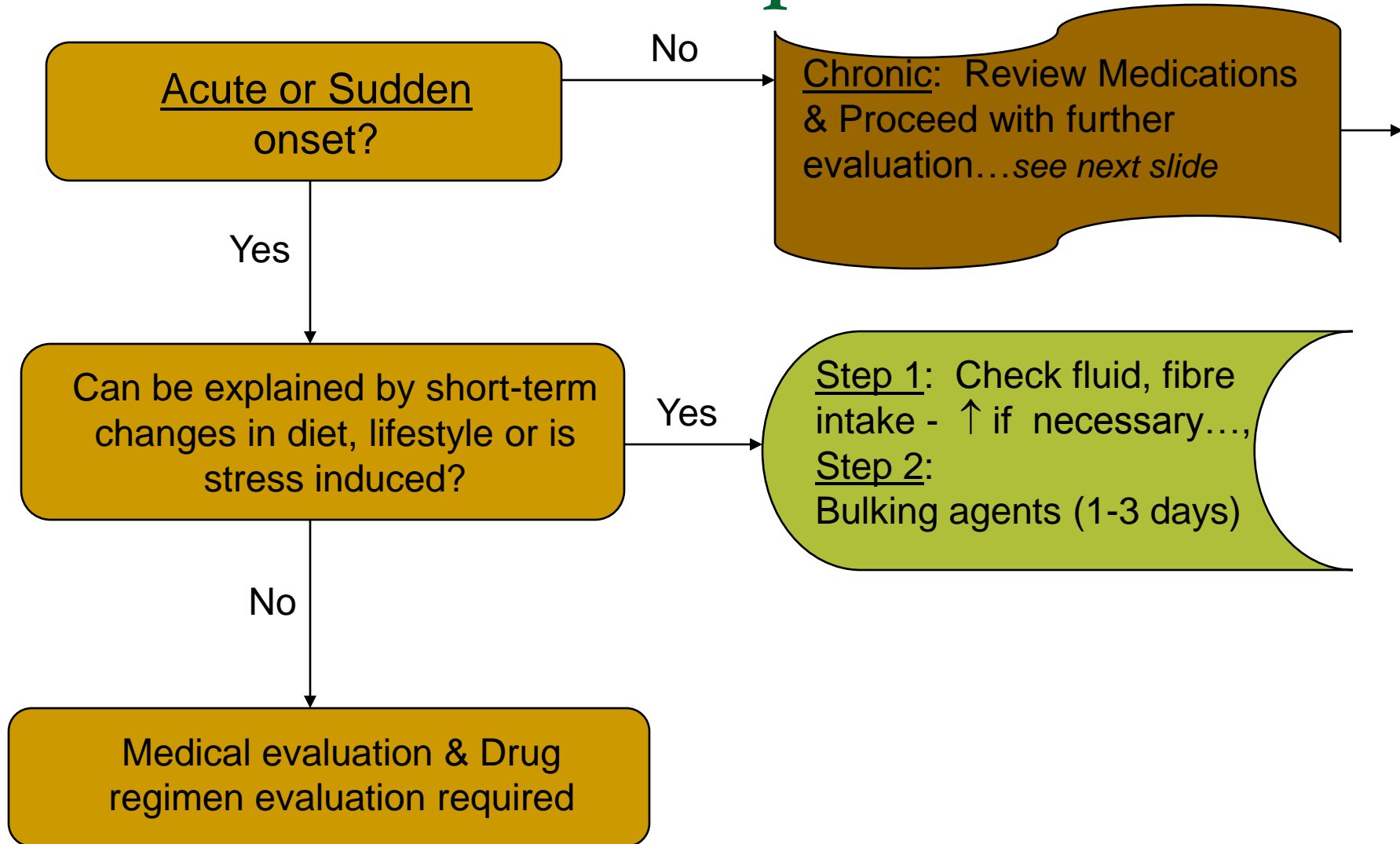
Maintain fibre & fluid at level required for desired bowel frequency & consistency

# “Stepping Out of Constipation”

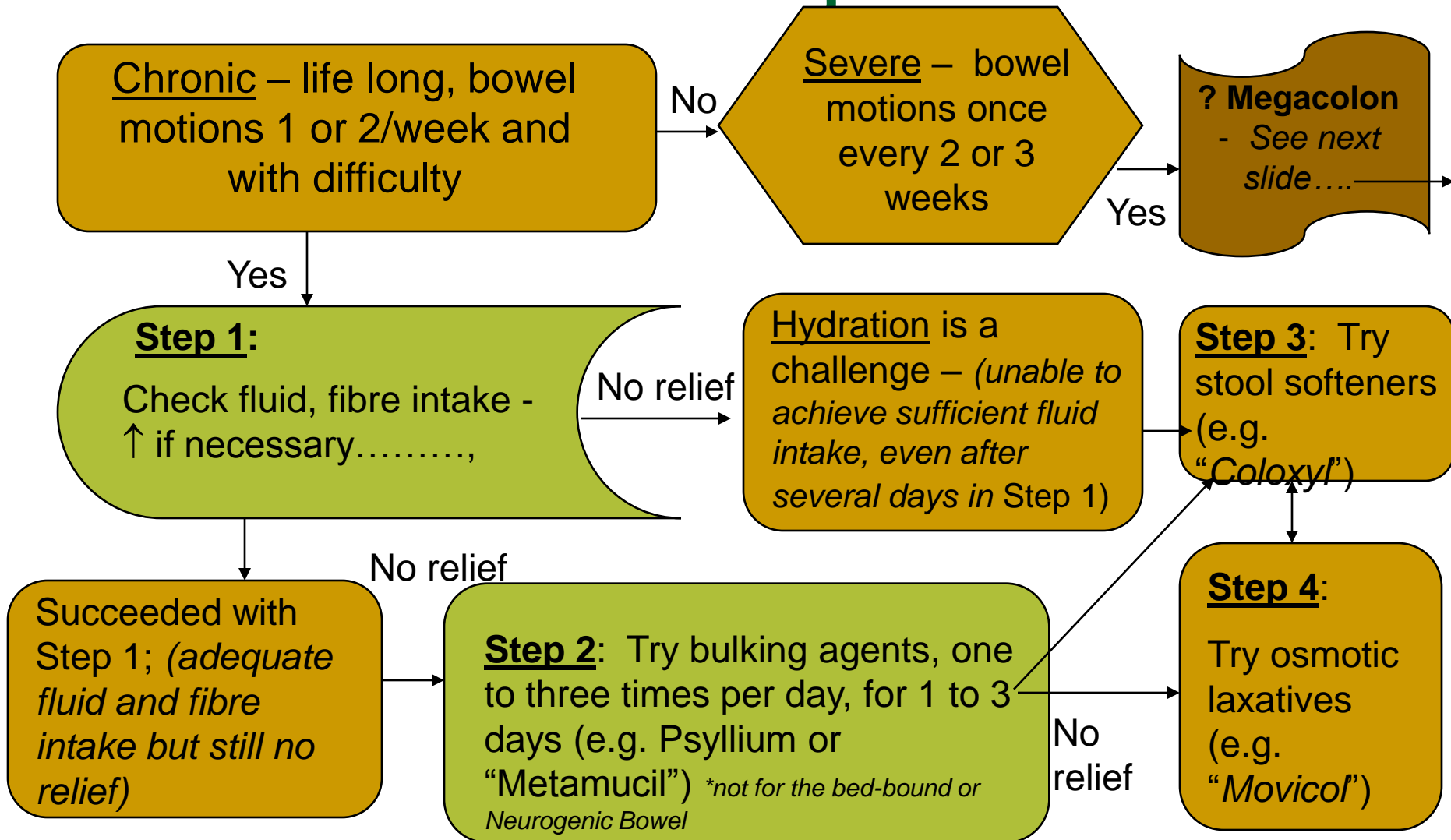
(HACC/MASS CPG's, 2010)

- Step 1.- **Exercise--Fluid Intake--Fibre in Diet**
- Step 2.- **Bulk-Forming Laxatives\*** (*\*not the best when adequate hydration is a challenge, or in the bed bound, or those with a neurogenic bowel*)
- Step 3.- **Stool Softeners**
- Step 4.- **Osmotic Laxatives**
- Step 5.- **Stimulants\*\*\*** (*\*\*\*not with megacolon*)
- Step 6.- **Suppository Enemas**
- Step 7.- **Colonic Lavage**

# Treatment of Constipation – Part 1.



# Treatment of Constipation – Part 2.



# How to Increase Fibre?

~ 1.5--3 g fibre in average fruit, ½ cup veg or ½ cup wholegrain cereal or 1 slice wholegrain bread

❖ *Make changes every 3 days to allow gut to adjust,*

➤ \*Day 1-3: 1 extra fruit & 1 extra vegetable serve

➤ \*Day 4-6:- Swap to wholegrains for Breakfast, e.g. Porridge instead of cornflakes

➤ \*Day 7-9:- 1 extra fruit & 1 extra vegetable serve

➤ \*Day 10-12:- Swap to wholegrains for Lunch, e.g. change from white bread to wholegrain bread



\*Add 250 ml fluid after every step of 3-5g fibre increase above 25g of total fibre per day

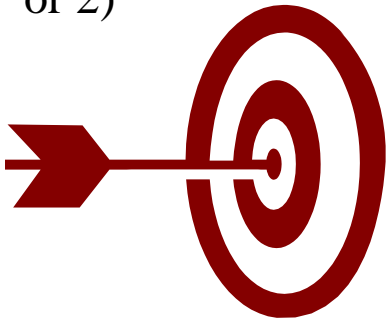
# How to Increase Fibre?

~ 1.5--3 g fibre in average fruit, ½ cup veg or ½ cup wholegrain cereal or 1 slice wholegrain bread

❖ *Make changes every 3 days to allow gut to adjust,*

➤\*Day 13-15: - Swap to wholegrains for Dinner, e.g. change from white rice to brown or from mashed potato to jacket potato

➤\*Day 16-18: Extra vegetable serves (1 or 2)



**Daily Targets: 2 Fruits  
5 Vegetables  
4-6 wholegrains**



\*Add 250 ml fluid after every step of 3-5g fibre increase above 25g of total fibre per day

# Megacolon

- Large quantities of fibre, particularly unprocessed bran are not helpful – leading to an increase in bloating and wind.
- Some sufferers feel better with a reduced fibre diet.
- Anthraquinone-containing laxatives must be **absolutely avoided** in those with megacolon. *E.g. All senna and cascara based preparations, Ford Pills, Peritone, Nu-Lax.* Using large amounts of such products may lead to total colonic paralysis, requiring surgical removal of the colon.

# Stool Impaction

- (1) **Managed first by disimpaction and complete bowel clearance**  
[suppositories, enemas **Step 6**, stool softeners **Step 3**. and Osmotic laxatives **Step 4.**, often in combination]

followed by:-

- (1) a preventative regimen of bowel care

Steps 1-2-3 (?4): →

- **Behaviour therapy** (regularly respond to natural “urge” to pass stool),
- **Nutrition education** to increase dietary fibre (**25-30g/day**) and fluid intake (**1.5 – 2.5L/day**),
- **Physical exercise**,
- **Review Drug Regimen & Bulking Agents**

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# When to refer to the Dietitian?

- When co-morbidities are present, (e.g. frailty or underweight, malnutrition; Parkinson's' disease, diabetes, etc),
  - When compliance is difficult,
  - When strategies to increase dietary fibre and fluid in the diet don't seem to work,
- [It would be better to have the dietitian's expertise to confirm that the appropriate dietary advice has been recommended before commencing Step 2 (bulking agents), or Step 3/4 (pharmaceutical laxatives)],*

# Summary



- Constipation complicates and challenges the function of the bowel.
- A varied and high fibre diet, with
  - plenty of (alcohol free and preferably caffeine free) fluids,
  - introduced gradually, and
  - sustained in the long term, should ease most problems associated with constipation.
- When simple changes to the diet and fluid intake are not tolerated or sufficient to resolve the problem, then bulking agents, natural or synthetic laxatives may be required.
- *Effective treatment of constipation, and prevention of recurrence, requires a multidisciplinary team approach.*

# Questions & Answers?

- Is psyllium an insoluble or soluble fibre?
- *It is mostly a soluble fibre but does have some insoluble properties as well.*
- What is the recommended fibre intake for children?
- 14- 28 g/day (no level set for < 12 mths)\*

1-3 yr olds	14 g/day
4-8 yr olds	18 g/day
Boys: 9-13 yrs & 14-18 yrs	24 g/day 28 g/day
Girls: 9-13 yrs & 14-18 yrs	20 g/day 22 g/day

\*[www.health.qld.gov.au/masters/copyright.asp](http://www.health.qld.gov.au/masters/copyright.asp)

- If you drink 100 ml of coffee do you loose 115ml fluid?
- *Caffeine does have mild diuretic properties but it wouldn't cause this much fluid loss, probably more like 100 ml coffee consumed and 30 ml fluid lost – but this is a guess. I haven't come across a formulae that accurately describes this. Caffeine is a problem as it seems to stimulate the bladder causing urge incontinence.*
- When patients are on a fluid restriction for medical reasons, what is the best laxative to take – Movicol or Metamucil?
- *Bulk forming laxatives like Metamucil or psyllium, should not be taken when inadequate fluids are unable to be consumed. Stool softeners or Movicol (osmotic laxatives) are best in these circumstances.*