1 Laxatives

A laxative is an agent that facilitates evacuation of the bowel.

Actions:

- Bulk laxatives such as bran, methylcellulose and ispaghula husk, stretch and stimulate the gastrointestinal tract.
- Osmotic laxatives (such as lactulose, magnesium sulphate (Epsom salts), macrogols, magnesium hydroxide mixture, phosphate enemas and sodium citrate enema) draw water into the gastrointestinal tract, thereby increasing the bulk of residue in the colon.
- Faecal softeners, such as liquid paraffin (not recommended), docusate sodium, mineral oils and arachis oil enema.
- Stimulant laxatives or purgatives are generally reserved for ‘rescue therapy’. They irritate the gastrointestinal tract and include: senna, figs, rhubarb, castor oil (not recommended), bisacodyl, glycerol, dantron (carcinogenic in rodents, therefore use limited to terminal illness), docusate sodium and sodium picosulfate.

Indications:

- On initiation of opioid therapy when administration of opioids is expected to last more than five to seven days. Laxative therapy should not be delayed, as opioids predispose to gastrointestinal spasm and obstruction. In palliative care, stimulant laxatives are usually combined with faecal softeners or lactulose.
- If straining would exacerbate another condition, for example angina, anal fissure and haemorrhoids. Faecal softeners or bran or another bulk laxative are first choice (Courtenay & Butler 2000).
- Bowel investigations.
- Gastrointestinal disease, for example irritable bowel syndrome, diverticular disease and colostomy (bran or another bulk laxative is first choice).
- Colonic constipation*, when:
  1. Serious pathology has been excluded, including gastrointestinal obstruction, cancers of the gastrointestinal tract, hypothyroidism, potassium deficiency.
  2. Drugs causing constipation have been reviewed or eliminated, as far as possible, for example, iron tablets, sedatives, non-prescription ‘cold cures’, opioids (including codeine in non-prescription cough medicines and analgesics), salbutamol, beta blockers, calcium channel blockers, some NSAIDs (not aspirin), some anti-emetics, most antipsychotics, some anti-depressants, aluminium-containing antacids, amphetamines (including ecstasy), cocaine, long-term laxatives, drugs causing dehydration, including diuretics and alcohol.
  3. Physiological measures have failed, for example: drinking one or two glasses of water with each meal, encouraging exercise, ensuring privacy, encouraging toileting immediately after meals, particularly breakfast, including more than 20g of dietary fibre/day in the diet. For example, each fruit and vegetable portion contains 2–4g of...
dietary fibre. Beans and other legumes contain up to 8g fibre/serving. Bran cereal gives about 10g fibre/helping. Recommend five portions (15 ounces/375g) of fruit or vegetables daily.

- Management of faecal incontinence, due to dementia, decreased storage capacity or overflow, may involve controlled defecation twice weekly (Wald 2007).
- Failure to pass faeces within three days of childbirth (single dose).
- Lactulose is prescribed in advanced liver disease to minimise the associated central nervous system disturbances (known as hepatic encephalopathy). Doses are usually higher than those prescribed for constipation.

* Colonic constipation may be defined as a delay in the passage of food residue due to the accumulation of hard, dry stool, associated with painful defecation, abdominal distension and a palpable mass. The frequency of bowel evacuation varies with the individual: once every three days is a minimum.

**Administration:** Administer with a full glass of water or other liquid, particularly bulk laxatives (Food and Drug Administration 2007). See Box 1.1. For patients who have not previously taken laxatives, use the lowest possible dose.

---

**Box 1.1 Oral administration of medications**

- Practitioners avoid touching medicines, if possible (Railton 2007).
- Gloves are worn when handling drugs which could be absorbed through the skin (e.g. creams, transdermal patches, anti-cancer drugs, nitrates) or cause irritation and contact dermatitis (e.g. chlorpromazine) (Smith et al. 2008).
- Medicines should be swallowed with a full glass of water.
- The patient should sit upright, and remain upright for 30 minutes (McKenry & Salerno 2003).
- Liquid formulations are usually absorbed more rapidly than solids.
- Older adults may find liquids difficult to swallow, and prefer to take orodispersible preparations with soft food, such as puddings.
- **Crushing tablets** usually hastens absorption and damages any coatings; this may cause adverse effects. If a tablet is crushed or a capsule is opened, fine particles may be released into the air (see antibacterials, cytotoxics).
- The effect of food on drug absorption should be checked (Schmidt & Dalhoff 2002, Jordan et al. 2003). A consistent relation to meals is usually advised. Food may:
  ❖ prevent drug-induced nausea,
  ❖ reduce the rate of drug absorption (see table 15.2).
- Modified release tablets should not be broken, crushed or chewed.


Separate administration from other drugs and food by 1–2 hours, if possible. If the patient finds the sweet taste of lactulose unduly unpleasant, administration with fruit juice may make it more palatable. Magnesium hydroxide mixture is stored outside a refrigerator.
Bulk laxatives should not be administered before retiring. They should also never be administered into enteral feeding tubes because they expand on contact with moisture and block the tubes.

If the patient has faecal impaction, avoid oral laxatives, as overflow diarrhoea, with faecal incontinence, may occur. Suppositories or enemas may be prescribed.

**Rectal administration** is best avoided for patients with haemorrhoids or anal fissure. Glycerol suppositories should not be handled because they dissolve at body temperature. See Box 1.2.

### Box 1.2 Rectal administration of medications

**Check:**
- Risk of infection, particularly patients with impaired immunity.
- Risk of bleeding, particularly patients prescribed anticoagulants.
- Signs of irritation, particularly with repeated use of carbamazepine, NSAIDs.
- Insertion is above the anal sphincter. This can be identified by asking the client to ‘bear down’. The suppository should be inserted some 1.5 inches above this.
- Patient remains lying for 15 minutes. Reassess after 15 minutes.
- Signs and symptoms of both over- and under-dosing. Absorption is unpredictable, due to:
  - Presence/ absence of faeces.
  - Uncertain positioning of suppository.

Avoid rectal administration if patient has:
- recent prostate, rectal or colon surgery.
- high risk of infection or bleeding.
- cardiac dysrhythmias (irregularities) or recent heart attack. Heart rate may fall.
- undiagnosed abdominal pain. Increased peristalsis could worsen any obstruction or rupture an inflamed appendix.


The delay between laxative administration and bowel movement varies with preparation (Table 1.1). Laxatives acting in 6–12 hours are best taken before going to bed. If the first dose is given in the daytime, the patient may experience faecal incontinence at night. However, short-acting magnesium compounds are best administered in the morning.

### Table 1.1 Usual timing of laxative action

<table>
<thead>
<tr>
<th>1–3 Days</th>
<th>6–12 Hours</th>
<th>1–4 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulking agents</td>
<td>Senna</td>
<td>Magnesium sulphate</td>
</tr>
<tr>
<td>Lactulose</td>
<td>Bisacodyl</td>
<td>Phosphate or sodium enemas</td>
</tr>
<tr>
<td>Docusate sodium</td>
<td>Sodium picosulfate</td>
<td>Castor oil</td>
</tr>
<tr>
<td></td>
<td>Codanthramer</td>
<td>Bisacodyl suppository</td>
</tr>
</tbody>
</table>

Note: These timings relate to adults. Some laxatives, for example senna, act more rapidly in children.
LAXATIVES

Drugs which take one to three days to work should be used for prevention and not on an ‘as required’ or ‘rescue’ basis.

Adverse effects: implications for practice

Stimulation of defecation may cause diarrhoea. Excessive loss of water and electrolytes may ensue. In dehydrated, debilitated patients, bulk laxatives may swell on ingestion and obstruct the gastrointestinal tract.

<table>
<thead>
<tr>
<th>Potential Problem</th>
<th>Suggestions for Prevention and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flatulence and diarrhoea or nausea</td>
<td>Stop laxative/reduce dose. Consider the possibility that lactulose has been administered to a patient with ‘lactose intolerance’ (glossary).</td>
</tr>
<tr>
<td>Loss of appetite/feeling full</td>
<td>Monitor food intake in older people (mainly bulk laxatives).</td>
</tr>
<tr>
<td>Abdominal cramps/colic, due to excessive gastrointestinal contractions</td>
<td>Consider the possibility of gastrointestinal obstruction. Discuss, with prescriber, reducing dose or discontinuing.</td>
</tr>
<tr>
<td>Dehydration (particularly osmotic laxatives). This may be due to diarrhoea. Gastrointestinal obstruction</td>
<td>Take with full glass of water. Monitor fluid balance if patient is debilitated. On a normal diet about 5 glasses/cups of liquid should be drunk (see diuretics).</td>
</tr>
<tr>
<td>Choking</td>
<td>Avoid bulk laxatives before retiring.</td>
</tr>
<tr>
<td>Electrolyte disturbance, associated with laxative abuse</td>
<td>Limit use to one to two weeks. If this is not possible, monitor potassium concentration in venous blood samples. Particularly if: ◆ Other drugs lowering potassium and magnesium are administered – for example, diuretics. ◆ Other drugs increase the risks of cardiac arrhythmias/dysrhythmias – for example, antipsychotics and antidepressants. ◆ There is a history of laxative abuse or eating disorders. It is not appropriate to monitor venous blood samples in some circumstances, such as palliative care. Ask patients to report cramps, weakness or dizziness (symptoms of hypokalaemia). Encourage foods rich in potassium, such as raisins, meat, bananas and oranges.</td>
</tr>
<tr>
<td>Loss of minerals and protein</td>
<td>Bulk laxatives may reduce absorption of iron, calcium and zinc. If use is prolonged, monitor full blood count. Encourage a balanced diet.</td>
</tr>
<tr>
<td>Fluid retention due to sodium content</td>
<td>Avoid laxatives with high sodium content. For example, each 13.8gram sachet of Movicol® contains macrogol, and some 200mg sodium, and up to 8 can be taken in a day to treat faecal impaction (ABPI 2007). (Recommended maximum daily sodium intake is 2.4grams (RCP/BHS 2006).) Particular care for patients with heart failure or hypertension.</td>
</tr>
</tbody>
</table>
Absorption of magnesium | Avoid magnesium salts in debilitated patients, and those with liver or kidney failure. This can cause cardiac dysrhythmias.

Laxative dependence and atonic colon | If possible, restrict use to one to two weeks. Continued use may damage the colonic reflexes. Advise patients that, following complete evacuation, further bowel movements may not occur for up to two days.

Urine discolouration | Warn patients that this harmless reaction may occur with senna and other stimulant laxatives.

Rectal irritation | Discontinue, if advised by prescriber. (Bisacodyl suppositories)

Aggravation of haemorrhoids or anal fissures | Review laxative use. Avoid rectal administration, particularly docusate preparations.

Throat irritation | Avoid liquid formulations, such as liquid docusate.

Therapeutic failure | Monitor output and girth, to detect obstruction as early as possible. Check fluid balance. Be prepared to administer suppositories or enemas, as advised. Review diet to ensure that foods promoting constipation are minimised e.g. hard boiled eggs, rice, high-sugar foods, processed cheese.

Cautions and contra-indications:
- Avoid prolonged use, particularly stimulant laxatives, if possible.
- Pregnancy: stimulant laxatives are best avoided. Castor oil has been known to stimulate uterine contractions. Manufacturers of Dulcolax® advise to avoid during pregnancy. Manufacturers of Senokot® advise use of syrup preparations only. Bulk laxatives are regarded as safe. Use of laxatives is best restricted to single doses (Courtenay and Butler 2000).
- Breastfeeding: senna is excreted into breastmilk (Pasricha 2006), but is not known to be harmful (BNF 2007).
- Older adults: reduce initial dose. For example, 7.5mg senna may be more than sufficient in the laxative-naïve patient.

Laxatives are not advised for patients with certain conditions:
- Obstruction of the gastrointestinal tract (a particular risk if opioids have been initiated).
- Atonic, flacid colon.
- Eating disorders (predispose to laxative abuse).
- Debility: dehydration will be worsened. Impaction in the oesophagus is possible if bran or figs are given without adequate water to older, dehydrated patients.
Avoid dantron if faecal incontinence is possible, as prolonged contact of dantron with the skin causes irritation or excoriation.

Check product information for patients with:

- **Diabetes** – some bulk laxatives, such as Normacol®, contain carbohydrate, such as sucrose or maltodextrin, and lactulose contains galactose, which may raise blood sugar (Aronson 2006, McKenry & Salerno 2003). Ensure blood glucose concentrations are monitored regularly.
- Galactosaemia - lactulose worsens this rare condition.
- Phenylketonuria – some preparations, such as Fybogel® and Ispagel Orange®, contain aspartame, which worsens this rare condition.
- Patients with **colostomies or ileostomies** may lose considerable volumes of fluid if administered osmotic laxatives, such as magnesium citrate.
- Patients with **swallowing difficulties** are at increased risk of choking or oesophageal obstruction if prescribed bulk laxatives (Food and Drug Administration 2007).

**Interactions (summary):**

- Loss of other drugs due to diarrhoea.
- Bulk laxatives impair absorption of some drugs and minerals.
- Increased risk of potassium depletion with co-administration of: beta₂ agonists, diuretics, digoxin, corticosteroids, liquorice.
- Increased risk of dehydration.
- Co-administration of enteric coated stimulant laxatives with antacids or proton-pump inhibitors may cause stomach cramps.