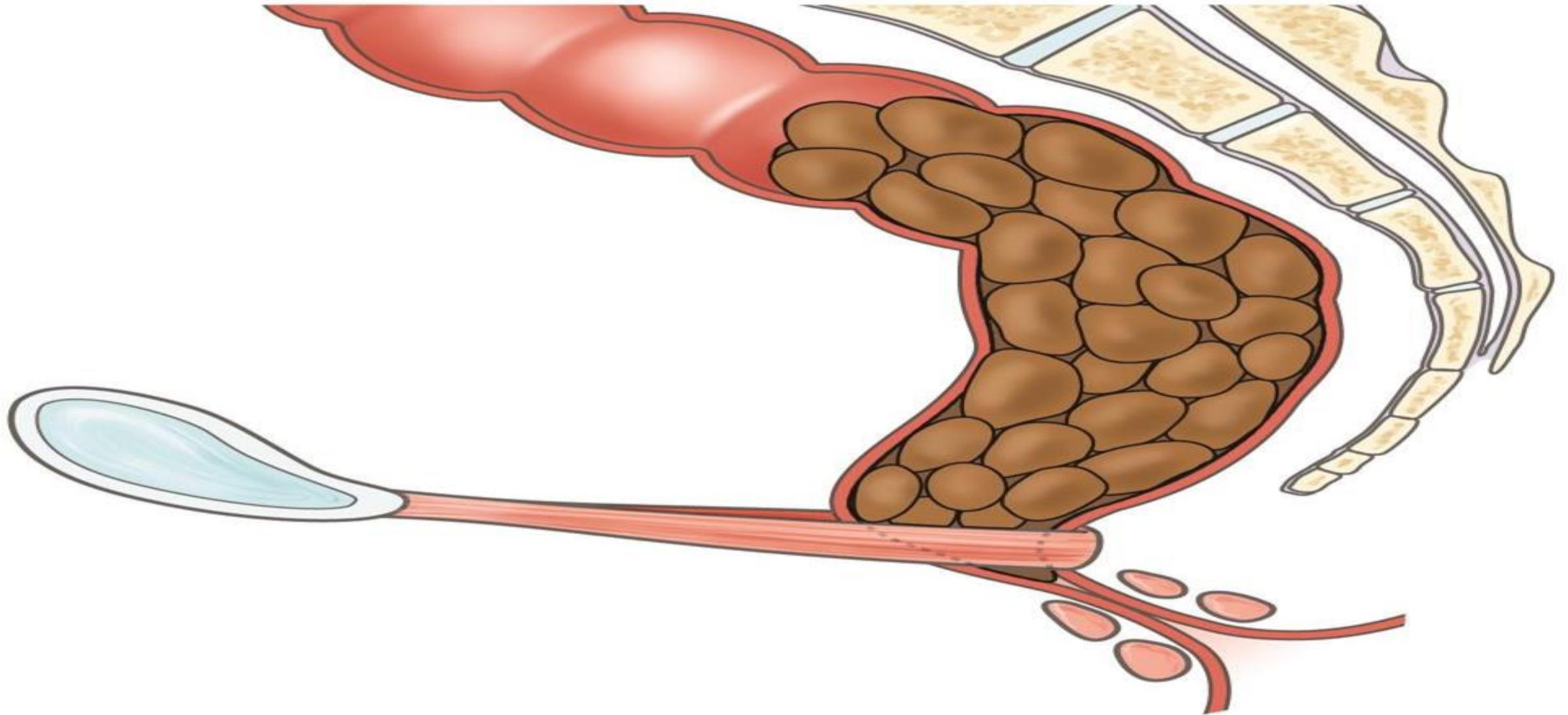


LAXATIVES

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Constipation



WHAT IS CONSTIPATION?

- ✘ Constipation is generally defined as infrequent and/or unsatisfactory defecation fewer than 3 times per week.
- ✘ Patients may define constipation as passing hard stools or straining, incomplete or painful defecation.
- ✘ **Constipation is a symptom, NOT a disease.**
- ✘ Constipation has many causes and may be a sign of undiagnosed disease.



LAXATIVE

- Majority of people do not need laxatives.
- Intermittent constipation is best prevented with:
 - a high fiber diet
 - adequate fluid intake
 - regular exercise
 - the heeding of nature's call
- Patients not responding to dietary changes or fiber supplements should undergo medical evaluation prior to the initiation of long-term laxative treatment.



DEFINITIONS:

Laxatives

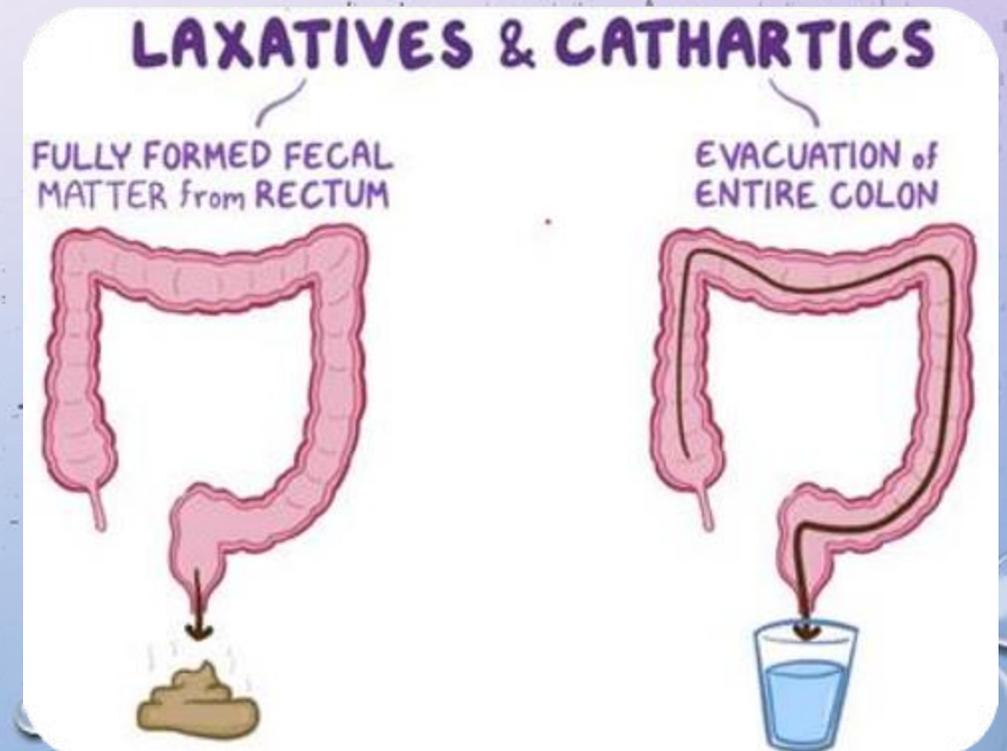
- ❑ Promote defecation of well-formed stool

Purgatives

- ❑ Promote defecation of semi-solid stool

Cathartics

- ❑ Promote defecation of watery stool



MECHANISM OF ACTION

**Bulk
laxatives**

**Osmotic
laxatives**

**Stimulant
laxatives**

**stool softener or
Lubricant purgatives**

Increase the volume of non-absorbable solid residue → stimulation of peristalsis & softening the feces

Increase the water content

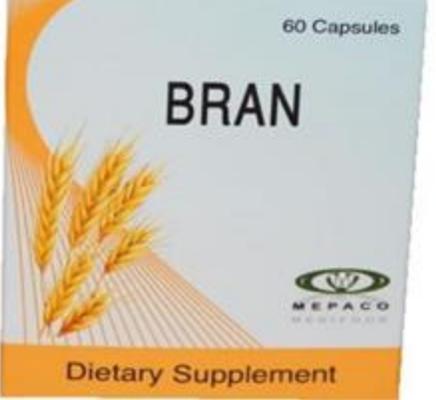
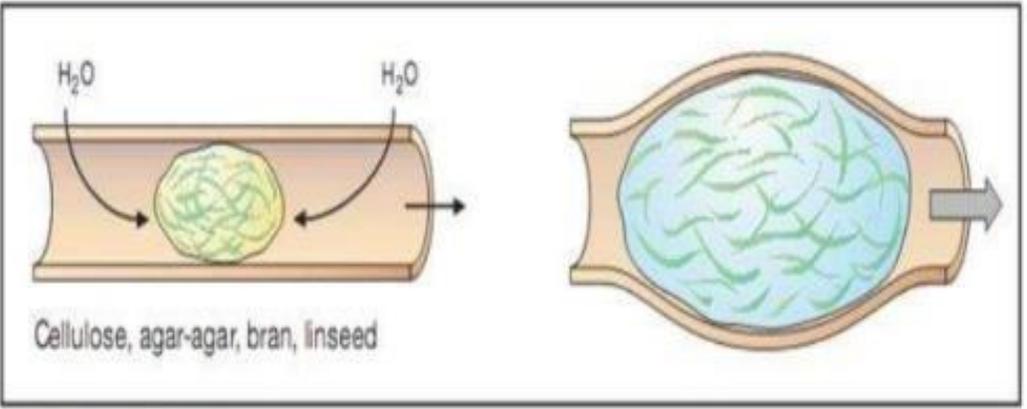
Increase motility and secretion

Alter consistency of the feces

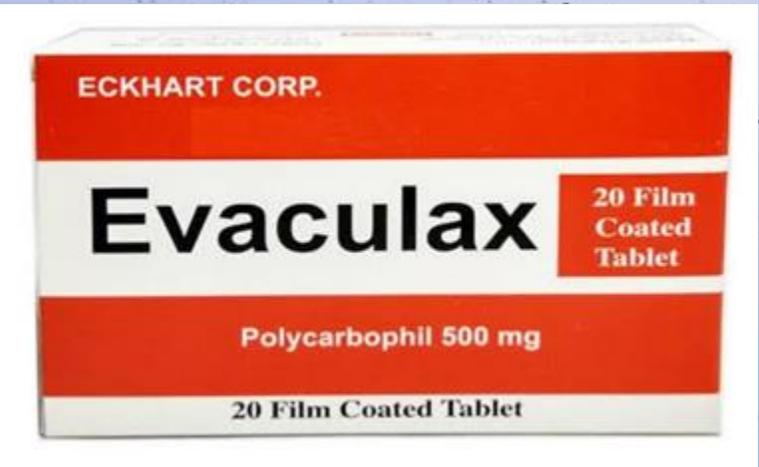
(1) BULK LAXATIVES:

- ❖ Indigestible, hydrophilic colloids that absorb water, forming a bulky, emollient gel that distends the colon & promotes peristalsis.
- ❖ E.g: **Psyllium, Methylcellulose, polycarbophil, Bran, Methylcellulose and Lactulose**

Mechanism of action



examples



(2) OSMOTIC LAXATIVES:

A

- *Saline purgatives*

B

- *Sorbitol & Lactulose*

C

- *Balanced polyethylene glycol (PEG)*

A. Saline purgatives

1. Magnesium oxide (milk of magnesia): it should not be used for prolonged periods in patients with **renal insufficiency** due to risk of hypermagnesemia.
2. Potassium sodium tartrate Magnesium citrate or sulphate.
3. Sodium phosphate.

Act on small intestine. Act **after 2-3 hrs.**

❖ Taken **before breakfast on an empty stomach** in isotonic solution.

❖ High doses of osmotically active agents produce prompt bowel evacuation (purgation) within **1-3 hours.**



❖ *Uses:*

1. Treatment of acute constipation or the prevention of chronic constipation.
2. Empty the bowel prior to surgical & radiological procedures.
3. Eliminate parasites

B. Sorbitol & Lactulose (fructose + galactose):

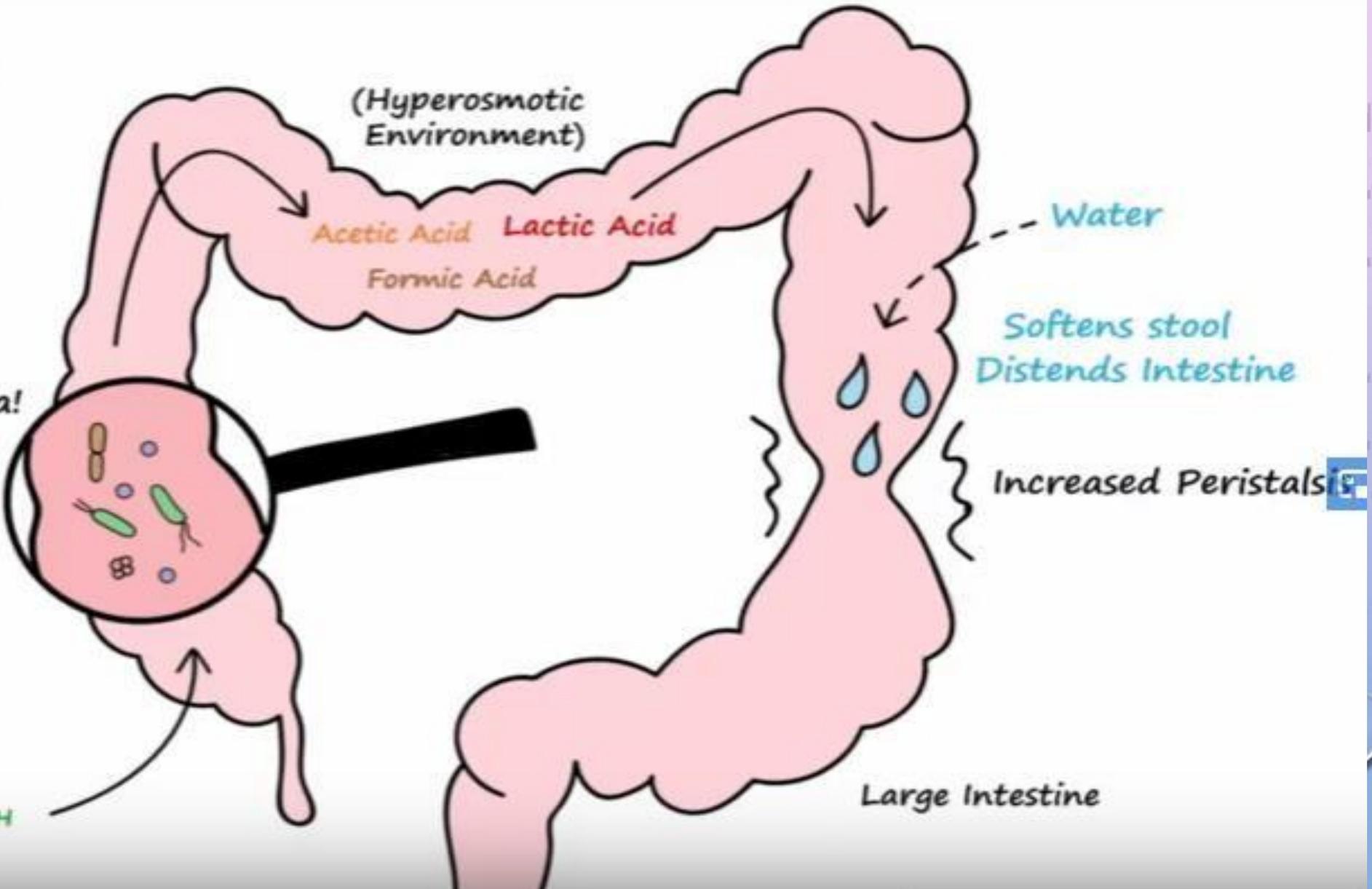
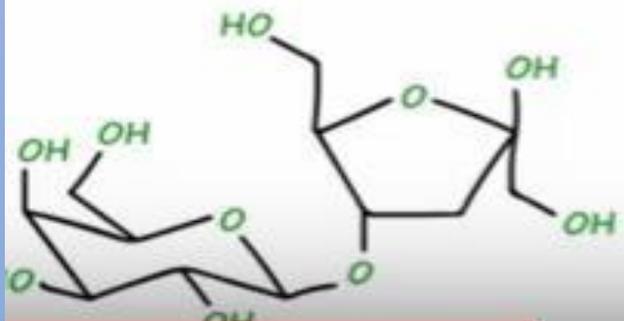
- ❖ Non-absorbable sugars.
- ❖ Metabolized by **colonic bacteria** → lactate + other organic acids {osmotic effect and propulsive activity}.
- ❖ *Side effects:*
 1. Intravascular volume depletion.
 2. Electrolyte fluctuations
 3. Cramps or flatus.

N.B. They should not be used in patients who are frail, elderly, have renal insufficiency, or have significant cardiac disease.

Action of Lactulose

Broken down by Colonic Bacteria!

Lactulose



C. Balanced polyethylene glycol (PEG):

- ❖ Contains an inert, non-absorbable, osmotically active sugar (PEG) with sodium sulfate, sodium chloride, sodium bicarbonate & potassium chloride.
- ❖ **Safe for all patients**

Uses:

- 1) Lavage solution prior to G.I.T. Endoscope (ingested rapidly 4 L over 2-4 hrs.”).
- 2) Treatment or prevention of chronic constipation (smaller doses mixed with water or juices “17g/8 oz” and ingested daily).

(3)STIMULANT LAXATIVES:

- **A. Diphenylmethane derivatives**
- **B. Anthraquinone (emodin cathartics)**
- **C- castor oil**

A-Diphenylmethane derivatives: Bisacodyl

- ❖ Act on **colon**
- ❖ **act** within 30-60 minutes if given rectally.
- ❖ **Pink or red urine.**
- ❖ **Minimal systemic absorption** and appears to be **safe** for **acute & long term use.**



B. Anthraquinone (emodin cathartics): Senna, cascara.

Glycosides → emodin + sugar.

In **colon**: bacteria → emodin → **stimulate myenteric plexus**

→ ↑ colonic motility.

Act within 6-12 hrs if given orally & within 2 hrs if given rectally.

Side effects:

Colicky pain.

Abnormal color of urine.

Excreted in milk.

Brown pigmentation of the colon (**melanosis coli**).



C- castor oil:

In small intestine: lipase → ricinoleic acid (strong irritant) → ↑ intestinal motility.

Side effects:

Colic.

Dehydration.

Uterine contraction.

Dose: 15-60 ml on empty stomach.

* Now seldom used.

(4) STOOL SOFTENERS (LUBRICANT PURGATIVES):

A. Paraffin oil

B. Dioctyl sodium sulfosuccinate (docusate)

C. Glycerin suppository

A.Paraffin oil:



- ❖ Acts on **colon**.
- ❖ Lubricates fecal material, retarding water absorption from the stool.
- ❖ It is not palatable (mixed with juices).

Side effects:

1. Aspiration can result in a severe lipid pneumonitis.
2. Interferes with the absorption of **fat-soluble vitamins** as well as ca & phosphate (long-term use).
3. Absorbed (**paraffinomas**).
4. Leak through anal sphincter → **pruritis anus**.
5. Prolonged use → **anal polypi**.
6. Delays healing of wound after anorectal operations.



Paraffinomas of the breast (fibrotic reaction>>sclerosing

B. Dioctyl sodium sulfosuccinate (docusate):

- ❖ An ionic surface active agent (**surfactant agents**).
- ❖ Softens stool material, permitting water & lipid to penetrate.

C. Glycerin suppository.



Uses of laxatives:

1- constipation:

A. fiber-rich diet, exercise, fluid, reassurance, Treatment of causes (non-pharmacological).

B. bulk forming agents.

C. in refractory cases → stimulant laxatives (lowest effective dose & for short periods).

2-To avoid straining during defecation (elderly, cardiac, hernia).

3-Before operation & radiological examination of G.I.T.

- 4 Before and after surgery.
- 5 Treatment of oral poison (saline).
- 6 Before & after anti-helminthics (saline).



THANK YOU