LESSON ASSIGNMENT

LESSON 4 Cathartics.

LESSON ASSIGNMENT Paragraphs 4-1 through 4-10.

LESSON OBJECTIVES After completing this lesson, you should be able to:

4-1. Given a group of statements, select the statement that best defines the term cathartic.

4-2. From a group of statements, select the statement that best describes the cathartic (laxative) habit.

4-3. Given a list of factors, select those factors that can help most people maintain normal bowel habits.

4-4. Given a group of statements, select the statement(s) which best describe(s) precautions associated with the use of cathartics.

4-5. Given a group of statements, select the information statement that should be told to persons taking cathartics.

4-6. Given the name of one of the categories of cathartics (by mechanism of action) and a group of statements, select the statement that best describes the mechanism of action for that cathartic category.

4-7. Given the trade and/or generic name of a cathartic and a list of categories of cathartics (by mechanism of action), select the category for which that particular agent belongs.
4-8. Given the name of one of the five categories of cathartics (by mechanism of action) and a group of statements, select the statement that describes an important dosage consideration, precaution, or patient information associated with that category.

4-9. Given the trade and/or generic name of a cathartic and a group of uses, side effects, cautions and warnings, or patient information statements, select the use(s), side effect(s), caution(s), and warnings or patient information statement(s) associated with the given agent.

4-10. Given the trade or generic name of a cathartic agent and a list of trade and/or generic names, select the corresponding trade or generic name of the given agent.

**SUGGESTION**

After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.
LESSON 4

CATHARTICS

Section I. INTRODUCTION

4-1. OVERVIEW

Cathartics are a group of drugs which cause an evacuation of the bowel (i.e., bowel movement). This group is one of the most abused categories of drugs. Why? The answer is simple, most people believe that something is wrong with them if they don’t have at least one bowel movement a day.

4-2. DEFINITION OF A CATHARTIC

A cathartic is any agent which causes an evacuation of the bowel (i.e., causes a bowel movement). You may have heard the term laxative used instead of cathartic. Not all cathartics have to be purchased in a drug store. Remember, food such as prunes and bran may be categorized as cathartics because of their ability to cause evacuation of the bowels.

4-3. THE CATHARTIC (LAXATIVE) HABIT

The physician seldom has the opportunity to prescribe cathartics, except in the hospital setting, since valid indications for the use of laxatives are limited. More commonly, the physician is faced with the problem of chronic misuse of these agents by his patients. The task the physician faces is a difficult one; the patient must be helped to break the cathartic habit. The cathartic habit is the extensive, chronic misuse of self-prescribed cathartics by a bowel-conscious person. Cathartics are taken by many people because they believe they must have a bowel movement at least once each day.

4-4. THE NORMAL FUNCTIONING OF THE BOWELS

The digestive process, from the intake of food to the elimination of the waste products from that ingestion, may take from one to three days depending on the composition of the food. The number of times a healthy person defecates can vary from once or twice a day to one bowel movement every one or two days. Many persons who don’t know a great deal about bowel habits often take cathartics so they can have daily bowel movements. After a while, this results in an inability of the bowel to be stimulated by normal body function. The person then begins to rely entirely on the ingestion of cathartics for bowel movements. This is known as the cathartic habit. Time and education are required before the person can remove this dependence upon cathartics.
4-5. FACTORS WHICH HELP TO MAINTAIN NORMAL BOWEL HABITS

The following factors, if followed, can help most people maintain normal (whatever that means for each person) bowel habits without the use of cathartics.

a. Exercise. Exercise helps to maintain muscle tone.

b. Proper Diet. Ingesting foods containing high fiber content provides the bulk needed by the digestive system for normal bowel functioning.

c. Fluids. Each person should drink several glasses of water a day (unless this is not allowed by the physician) in order to give the body the water it needs for the proper functioning of all its systems.

d. Routine. Slow down and relax. Establish a time and a place (that is, a routine) where you can relax and have bowel movements.

4-6. PRECAUTIONS ASSOCIATED WITH THE USE OF CATHARTICS

It is important that persons not believe that they should take a cathartic every time they fail to have a daily bowel movement. The precautions below are important in that they provide some basic guidelines dealing with the ingestion of cathartics.

a. Do not take a cathartic within two hours after having taken another drug. Taking a drug with a cathartic will have an effect upon the absorption of that drug, it may result in either more or less of the drug being absorbed.

b. Do not take a cathartic if you do not have a bowel movement for several days.

c. Do not take a cathartic just to take one. Some persons believe it is therapeutic to periodically take a cathartic. This is not true. In fact, too frequently taking a cathartic can result in a patient’s having the “laxative habit.”

d. Do not take a cathartic if you developed a skin rash after having taken it the last time.

e. Do not take a cathartic for more than one week unless your physician has told you otherwise.

f. Do not take a cathartic if you have the following signs --tenderness in the stomach or lower abdominal area, soreness in the abdomen, bloating, vomiting, or nausea.
4-7.  INTRODUCTION

Not all cathartics have the same mechanism of action. In fact, there are several categories of cathartics, each has a particular mechanism of action. These categories are bulk-forming cathartics, lubricant cathartics, stimulant cathartics, emollient cathartics (also known as stool softeners), and hyperosmotic cathartics.

4-8.  IMPORTANT INFORMATION FOR PERSONS TAKING CATHARTICS

Persons who take cathartics should be told of the importance of drinking extra fluids. In fact, a person who is taking a laxative should drink at least six to eight full glasses of fluid (each glass should be equal to 8 fluid ounces, 240 milliliters). This extra fluid helps the cathartic to produce its effects faster. Certain cathartics (for example, those in the bulk-forming category) require fluid in addition to the six to eight glasses of fluid they should be drinking. This additional fluid should be taken when ingesting the cathartic.

4-9.  MECHANISMS OF ACTION OF CATHARTICS

Each category of cathartics has its own particular mechanism of action. The mechanisms of action are important because the physician may select a particular agent because of the specific favorable results obtained as a direct effect of a mechanism of action.

   a. **Bulk-Forming Cathartics.** These cathartics absorb water and provide bulk for the gastrointestinal tract. The increased bulk provides stimulation to the bowels (peristalsis).

   b. **Lubricant Cathartics.** Lubricant cathartics increase the fluid level in the small intestines. They do this by coating the surfaces of the stool and the intestines. This coating results in decreased absorption of water and increase in the volume of water in the intestines. This effect also eases the flow of stool through the intestines by lubrication.

   c. **Stimulant Cathartics.** Stimulant cathartics increase the rate of peristalsis in the intestine by directly acting on the smooth muscle of the intestine.

   d. **Emollient Cathartics.** Emollient cathartics reduce the surface film tension of the stool. This allows for fluids to penetrate the stool and thus to make the stool softer.

   e. **Hyperosmotic Cathartics.** Hyperosmotic cathartics are concentrated solutions of substances which draw water into the intestine. Increased water content of the stool further stimulates peristalsis.
4-10. CATEGORIES AND SPECIFIC EXAMPLES OF CATHARTICS

Many cathartics are on the shelves of military and civilian pharmacies. You can help yourself (and your patients) if you are able to categorize a specific agent into a particular category of agents. Why? Because each category of cathartics has certain general information that pertain to drug interactions, side effects, and patient precautionary statements. Therefore, if you are able to correctly categorize an agent, you should be able to predict side effects and precautionary statements related to that product. The information below provides you with general information pertaining to each category of drugs. Invest some time learning this material. Specific statements pertaining to side effects and precautionary statements will not be repeated when the individual agents are discussed.

a. Bulk-Forming Cathartics. The person taking a bulk-forming cathartics should be told to drink a full glass of fluid (one glass = 8 fluid ounces = 240 milliliters) when ingesting the cathartic. Persons taking bulk-forming cathartics should not expect immediate results. Instead, they should be told that the bulk-forming cathartics take from one to three days to produce their effects. Furthermore, it is generally recommended that the patient taking antibiotics, anticoagulants, digitalis preparations, or salicylates wait at least two hours after they take a dose of these drugs before they ingest the cathartics. This is recommended because the interaction between the drug and the cathartic could result in less of the drug being absorbed. Side effects are rare with the bulk-forming cathartics. However, intestinal impaction has occurred in patients who did not drink enough water while taking the products. The cathartic habit does not occur with bulk-forming laxatives. Consequently, they are sometimes prescribed for extended use.

   (1) Malt soup extract (Maltsupex®). This product is available in tablet, liquid, and powder form. Label these products “Take with a full glass of water.”

   (2) Methylcellulose (Cellothyl®). Methylcellulose is available in tablet, capsule, solution, and powder form. Label these products “Take with a full glass of water.”

   (3) Polycarbophil calcium (Mitrolan®). This product is available in tablet form. The patient should be told to chew or crush the tablets before swallowing them.

   NOTE: This product is sometimes given at 1/2 hour intervals in the treatment of diarrhea.

   (4) Psyllium (Effersyllium®, Serutan®). This product is available in powder form. The powder should be placed in 1/2 glass of water (one full teaspoonful in 1/2 glass of water). When the product is dispensed, tell the patient to keep the container in a dry place and keep it tightly capped.
b. **Lubricant Cathartics.** Lubricant cathartics are usually ingested at bedtime. The patient should not take a lubricant cathartic with meals, since this could interfere with the absorption of food, vitamins, and minerals in the gastrointestinal tract. Furthermore, patients should be warned not to take lubricant cathartics for long periods because of the absorption problems (e.g., reduced absorption of vitamins) associated with their use. Lubricant laxatives usually provide results within 12 hours after ingestion. Lastly, patients taking lubricant cathartics should be cautioned to protect their clothing, since some leakage might occur from the rectum.

| Product: Mineral Oil (Nujol®). The oral dosage of this product, one to three tablespoonsful, is usually given at bedtime. Several strengths of this product are available (emulsion-50%; jell-55%; and plain-100%). |

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c. **Stimulant Cathartics.** Side effects associated with stimulant cathartics include belching, diarrhea, and cramping. Stimulant cathartics should be taken on an empty stomach in order to produce faster effects. Potassium loss, cramping, the laxative habit, and pinkish urine or stools are effects associated with stimulant cathartics.

   1. **Bisacodyl (Dulcolax®).** Bisacodyl is available in tablet form (five milligrams per tablet). The usual dose is two to three tablets. Only one dose of the medication is taken. The tablets should be swallowed whole with a full glass of water (8 fluid ounces = 240 milliliters). The patient taking this product should be warned not to chew or crush the tablet (the contents have a bitter taste). Furthermore, the patient should be cautioned not to take this product within one hour after taking antacids or milk, since these products may cause the enteric coating of the tablet to be prematurely removed in the stomach and result in gastric irritation.

   2. **Cascara (Cas-Evac®).** Cascara is available as the aromatic cascara fluid extract and as cascara tablets. Persons receiving the fluid extract should be told to thoroughly shake the container before taking the dose. Persons taking either product should be told that cascara can discolor the urine.

   3. **Castor oil (Alphamul®, Neoloid®).** Castor oil is available in an emulsified form as well as in an aromatic form. The usual adult dose of this product is from one to four tablespoonsful.

   4. **Danthron (Dorbane®).** This product is available in both tablet and solution form. The solution dosage form contains five percent ethyl alcohol. Persons taking this drug should be warned that their urine may become discolored because of the preparation.
(5) **Dehydrocholic acid (Decholin®).** This product is available in 250 milligram tablets. The usual adult dose of dehydrocholic acid is one tablet three or four times a day. This product is not recommended for patients under 12 years of age.

(6) **Phenolphthalein (Alophen®, Evac-U-Gen®, Ex-Lax®, Feen-A-Mint®).** Phenolphthalein is available in the form of chewing gum, tablets, and chewable tablets. Patients taking the gum should be told to chew the gum well and not to swallow it. Patients receiving this product should be told that phenolphthalein may discolor their urine.

(7) **Senna (Black Draught®, Fletcher’s Castoria®).** Senna is available in a variety of forms. Patients taking this product should be told that it may discolor their urine.

d. **Emollient Cathartics.** Skin rashes, gastric cramping, and irritated throats (with liquid preparations) are sometimes associated with emollient agents. In general, emollients are used to soften hard, dry stools in order to ease defecation. Results are not immediately obtained with emollient cathartics. Instead, it takes approximately one to three days for this type of cathartic to produce results after the first dose is taken. Patients taking emollient cathartics should be cautioned not to take mineral oil or other laxatives since they might be absorbed to a greater degree. Since some emollient products have a rather bitter taste, the patient can take the preparations with milk or fruit juice to mask the unpleasant taste. Emollient cathartics will not produce the cathartic habit, but they will increase absorption through the lipid membrane. Consequently, they are not prescribed for extended periods.

(1) **Docusate calcium (Surfak®).** Docusate calcium is available in 50 and 240 milligram tablets. The usual adult dose of the product is one (240 milligram) tablet a day taken with a full glass of water. Ensure that you tell the patient to drink adequate fluids while taking the medication, since this will enhance the stool softening effect of the medication. Docusate is available in several salts (calcium, potassium, and sodium) and in several dosage forms. Docusate sodium is a product available under the trade name of Colace®.

(2) **Poloxamer 188 (Alxin®, Magcyl®).** This product is available in 240 and 250 milligram capsules. The usual adult dose of Poloxamer 188 is one capsule one to three times a day with a glass of water.
e. **Hyperosmotic Cathartics.** Hyperosmotic cathartics are divided into two categories, lactulose and saline cathartics. Because saline cathartics tend to produce nonabsorbable complexes with tetracyclines, patients taking saline cathartics should be cautioned not to take them within one to three hours after taking tetracycline. Saline cathartics produce rapid results—defecation is achieved within two to eight hours after taking the product. Therefore, the person should not take a saline cathartic late at night or immediately before going to bed. Since some saline cathartics contain sugar and/or sodium, diabetics and persons who must reduce their intake of sodium should check each product for its composition. Saline cathartics should not be given to children six years of age and under.

(1) **Lactulose (Chronulac®).** Lactulose is available in syrup form with 10 grams of lactulose per tablespoonful. The usual adult dose of this product is from one to two tablespoonful a day. This product should be protected from freezing. The prolonged exposure of this product to high temperatures may produce a darkening of the product; however, the darkening does not decrease the therapeutic effectiveness of the active ingredient. When you dispense this product, you should tell the patient that the dose may be combined with water, milk, or fruit juice to improve the taste. Lactulose produces results in one to two days.

(2) **Magnesium citrate (citrate of magnesia).** This product is available in the form of an effervescent solution. The usual oral dose of this product is 200 milliliters of the solution. The solution may lose some of its effervescence upon standing, but this does not reduce its therapeutic effectiveness (although it does affect the taste of the product).

(3) **Magnesium sulfate crystals (epsom salts).** This product is supplied in crystal form which is to be dissolved in water before taking. The usual adult dose of the product is 15 grams in a glass of water (8 fluid ounces = 240 milliliters) as one dose. The crystals may be placed in a lemon-lime carbonated beverage in order to improve the taste.

(4) **Sodium phosphate (Fleets Phospho-Soda®).** Sodium phosphate is available in the form of effervescent sodium phosphate powder and sodium phosphate oral solution. The powder should be dissolved in one full glass of water and then ingested (adult dose—10 to 20 grams per glass of water). The usual adult dose of the oral solution is 10 to 40 milliliters (as one dose) mixed in a glass of water (240 milliliters). You should note that sodium phosphate contains large amounts of sodium. This information is important for persons who must restrict their intake of sodium.

Continue with Exercises

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INSTRUCTIONS: The following exercises are to be answered by marking the lettered response that best answers the question or best completes the incomplete statement or by writing the answer in the space provided.

After you have completed all the exercises, turn to “Solutions to Exercises” at the end of the lesson and check your answers.

1. The term cathartic is best defined as an agent that:
   a. Causes an evacuation of the bowel.
   b. Produces emesis.
   c. Causes the bowels to move on a daily basis.
   d. Softens the stool in order to produce a bowel movement with less effort.

2. Which of the following can help people maintain normal bowel habits?
   a. Establishing a time of day when they can relax and have a bowel movement.
   b. Eating foods high in protein and carbohydrates.
   c. Eating food which is soft and not bulky.
   d. All of the above.

3. What precaution(s) is/are associated with the use of cathartics?
   a. Do not take a cathartic if there is tenderness in the stomach or lower abdominal area.
   b. Do not take a cathartic if a skin rash developed immediately after the last dose of the drug was taken.
   c. Do not take a cathartic just for the sake of taking one.
   d. All of the above.
4. Select the statement that best describes the mechanism of action of emollient cathartics.

a. These agents increase the fluid level in the small intestines which helps move the ingested material through the bowels.

b. These agents increase the rate of peristalsis in the intestine by directly acting on the smooth muscle of the intestine.

c. These agents reduce the surface film tension of the stool allowing fluids to penetrate the stool and make the stool softer.

d. These agents absorb water and provide bulk for the gastrointestinal tract.

5. Phenolphthalein (Alophen®) is classified as a(n) __________ cathartic.

a. Lubricant.

b. Emollient.

c. Bulk-forming.

d. Stimulant.

6. Mineral oil (Nujol®) is classified as a(n) __________ cathartic.

a. Emollient.

b. Lubricant.

c. Stimulant.

d. Bulk-forming.
7. A patient taking a lubricant cathartic should be told:
   a. To take the product on an empty stomach in order to obtain faster results.
   b. Not to take this type of cathartic for a long period because this cathartic can decrease the absorption of vitamins from the gastrointestinal tract.
   c. That this type of agent usually requires two to three days to produce a bowel movement.
   d. Take the product with an emollient cathartic in order to produce faster results.

8. Patients taking senna (Black Draught®) should be told:
   a. The drug may discolor their urine.
   b. They should not take the product for a long period because it can interfere with vitamin absorption in the gastrointestinal tract.
   c. They should protect their clothing since some leakage of the product may occur from the rectum.
   d. They should not expect the product to produce bowel movements until three to four days after they initially take the product.

9. Select the special labeling information which should be included on the label when you dispense methylcellulose (Cellothyl®) tablets.
   a. "Chew tablets thoroughly before swallowing."
   b. "Warning: This product may cause your urine to become pinkish."
   c. "Protect this product from light since light may cause discoloration."
   d. "Take with a full glass of water."
10. Patients taking polycarbophil calcium tablets should be told to:

   a. Avoid chewing or crushing the tablets because of their bitter taste.

   b. Chew or crush the tablets before taking them.

   c. Expect their urine to be pinkish or red in color because of the medication.

   d. They should take the medication with milk or fruit juice to mask the medication’s unpleasant taste.

SPECIAL INSTRUCTIONS FOR EXERCISES 11 THROUGH 14. In exercises 11 through 14, match the trade name in Column B with its corresponding generic name in Column A.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
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</thead>
<tbody>
<tr>
<td>11. __ Bisacodyl</td>
<td>a. Dulcolax®</td>
</tr>
<tr>
<td>12. __ Lactulose</td>
<td>b. Chronulac®</td>
</tr>
<tr>
<td>13. __ Psyllium</td>
<td>c. Ex-Lax®</td>
</tr>
<tr>
<td>14. __ Phenolphthalein</td>
<td>d. Serutan®</td>
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</tbody>
</table>

Check Your Answers on Next Page
SOLUTIONS TO EXERCISES, LESSON 4

1. a (para 4-2)
2. a (para 4-5)
3. d (para 4-6)
4. c (para 4-9d)
5. d (para 4-10c(6))
6. b (para 4-10b)
7. b (para 4-10b)
8. a (para 4-10c(7))
9. d (para 4-10a(2))
10. a (para 4-10a(3))
11. a (para 4-10c(1))
12. b (para 4-10e(1))
13. d (para 4-10a(4))
14. c (para 4-10c(6))

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