CONSTIPATION: A PARENT'S GUIDE

Children's HOSPITAL • ST. LOUIS
BJC HealthCare

Washington University in St. Louis
Physicians

Twenty Questions About Constipation:

Answers to Guide Parents and Professionals

Constipation is the abnormally delayed or infrequent passage of hard stools. Most children, and many adults, too, become constipated from time to time. Often, the duration is short; occasionally it persists for months, even years. Although constipation can be uncomfortable, may create worry, and sometimes seem serious, fortunately it does not have long-term, troubling effects in most healthy children.

This Booklet is designed to help you deal with childhood constipation by answering several questions and outlining management instructions for you to follow. Questions answered are:

1. What are the normal patterns of bowel movements at different ages?
2. What makes up bowel movements and how do they travel?
3. What is constipation?
4. When is constipation most likely to occur?
5. Why does constipation persist in some children?
6. Why would a child hold back stool and what happens then?
7. How can proper toilet training help?
8. Why would stool back up in the colon?
9. Why do some children have soiling accidents?
10. How do we deal with these issues?
11. What can we learn from physical exam results?
12. What is our treatment program for constipation?
13. How is the colon cleaned out?
14. How are stools softened?
15. Why is trying to have bowel movements twice a day so important?
16. What are the expected results of the treatment program?
17. What do we do if the cleansing regimen is not successful?
18. What is the long-term program for children prone to constipation?
19. Does a special diet help resolve constipation?
20. Do certain medicines cause constipation?

1. What are the normal patterns of bowel movements at different ages?

The form and frequency – or pattern – of stools varies depending on the age of the child and the type of feedings received. For instance:

- Breast-fed infants usually have loose to watery stools three to eight times a day for the first several weeks of life. **By one to three months of age, breast-fed babies have soft stools from once a day to once every 7 to 10 days.**
- Formula-fed infants often pass pasty stools one to three times per day.
- One-year-old babies eating table food have pasty to formed stools. Stools may be passed between three times a day to once every two days.
- Toddlers and older children normally pass stool, which varies in color and consistency, anywhere from three times a day to once every three days.

Infants often cry, fuss, turn red, and sweat when passing normal stools or even "gas." The fussiness may last 5 to 15 minutes and most likely represents a behavior pattern, not a disease. When examined in the office, these infants appear normal.

Stool Pattern Chart

AGE	RANGE OF STOOLS PER DAY	AVERAGE NUMBER OF STOOLS PER DAY
Infant Breast-fed Formula-fed	 3 to 8 1 to 3	 4* 2
1 Year	1 to 4	2
2 to 5 years	0 to 3	1
Above 5 years	0 to 3	1

** By one to three months of age, breast-fed babies have soft stools from once a day to once every 7 to 10 days.*

2. What makes up bowel movements and how do they travel?

Bowel movements consist of bacteria, mucus, and undigested food and take the following path.

1. After eating, food usually stays in the stomach for a few hours.
2. After mixing in the stomach, the liquefied food dribbles into the small intestine.
3. As this liquid flows along the small intestine, the food is digested and absorbed. It takes about six to eight hours for food to move through the whole small intestine into the large intestine or colon.
4. The loose watery mixture leaving the small intestine is compacted and dehydrated in the cecum and ascending colon.
5. In the colon, the unabsorbed, leftover food material is dried into a more solid form.
6. The solidified stool then moves into the transverse colon for storage.
7. Once a day or so, the stool moves into the descending colon and rectosigmoid colon, often creating the initial urge to have a bowel movement.
8. Within one to three days, the stool moves slowly through the colon to the rectum, the last part of the colon.

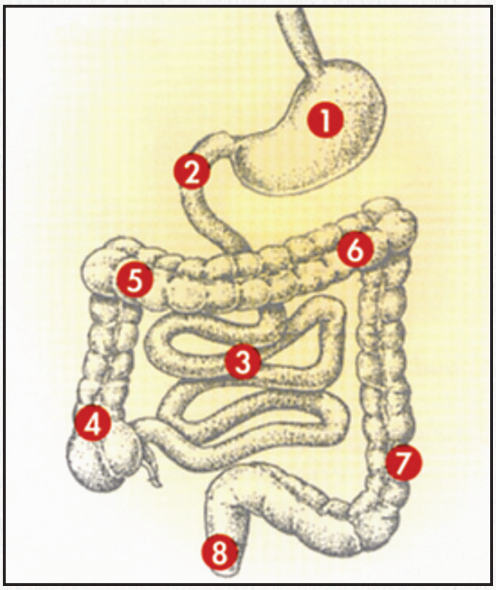


Figure 1

This diagram illustrates the described path.

(Source: National Digestive Diseases Information Clearinghouse)

A complicated sequence of events occurs during the normal passage of bowel movements. This requires the coordination of events inside and outside the body, as illustrated in Figure 2.

A. When stool moves into the rectum, the rectum stretches, creating the urge to have a bowel movement.

B. Nerve signals travel from the rectum all the way to the brain to signal the need to have a bowel movement. The filling of the rectum automatically relaxes one of the two "holding" muscles of the anus, the internal sphincter. This is the time that children feel the need to go.

C. Infants or children then "bear down" to increase pressure inside the belly. With this increase in pressure and with a squeeze of the rectum, they must relax the second "holding" muscle called the external sphincter to allow stool to pass through the anus.

D. At the same time, the anus enlarges to allow large stools to pass.

It takes time and practice for children to understand how their bodies function. They may be frightened to have bowel movements until they understand.

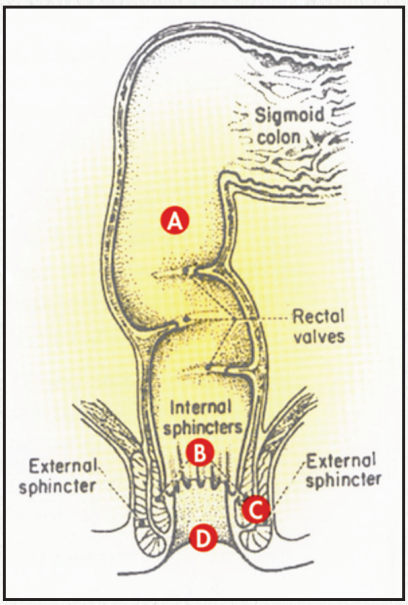


Figure 2

3. What is constipation?

Constipation is the delayed or infrequent passage of hard stools. Constipation means different things to different people. However, it is usually defined by two primary "symptoms."

1. More than three days pass between bowel movements
2. Hard and large stools are passed with pain

Often, both symptoms occur together. Constipation usually occurs because of slow movement of stool through the colon. The stomach and the small intestine work normally.

Parents and doctors can expect to see associated problems when children are constipated. These problems include:

1. Stomachaches
2. Decreased appetite and eating
3. Abdominal fullness
4. Small amounts of blood passed with or just after the stool
5. Smears or leakage of stool into underwear (encopresis or soiling)
6. Repeated urinary infections

Constipation is **not** associated with the following health and learning problems:

1. Headaches
2. Bad breath
3. Learning problems
4. "Back-up" of toxins into the bloodstream
5. Rupture of the colon or intestine
6. Colon cancer

4. When is constipation most likely to occur?

Constipation occurs at some time in almost every child's life. We evaluate and treat approximately 400 new patients with such problems over the course of any given year. Constipation is common during times of change in:

- Routine
- Eating or drinking habits
- Living arrangements, including being away from home for a few days

These changes can alter the pattern of bowel movements. This constipation generally resolves itself in a few days or weeks if the changes are considered minor.

Months or years later, the same problems may recur with no long-lasting effects. For some children, constipation lasts longer and creates more problems.

5. Why does constipation persist in some children?

Constipation may last months or even years in some children for a few reasons. The child may:

1. Have a rare medical problem that affects stooling, including:
   - Low intake of food or fluid
   - Medications (see list on page 15)
   - Abnormal position or size of anus
   - Spinal cord disorder
   - Absent nerve cells in the colon
   - Celiac disease
   - Muscle disease
   - Low thyroid function
2. Hold stool back
3. Have had a hard time with toilet training
4. Have back up of stool in the colon

6. Why would a child hold back stool and what happens then?

When bowel movements have been painful in the past, children often try to "hold back" or delay bowel movements. They are afraid that passing stool will hurt again. When they do pass stools after holding back, the stools are large, hard, and painful. These experiences reinforce their determination to hold their stools. This cycle often is repeated many,many times.

Even after the constipation improves, children's fears and anxiety about possible pain lead them to cry when they feel the urge to pass stools.

When toddlers resist the urge to "go," they often will:

- Turn red
- Stiffen their bodies
- Sweat
- Cry
- Stand in a corner
- Lay on the floor
- Hold onto a table or chair

Often, parents think that their children are trying to push stool out. However, the children are working hard to hold stool in. Some toddlers, however, may pass small amounts of stool or smears from the rectum despite their best efforts to hold it back.

7. How can proper toilet training help?

Teaching toilet training to a child can take a long time because the child must learn a certain series of events to pass stool, including how to:

- Sit on the toilet using correct posture (Figure 3). Support your child's feet with a step stool so they are sitting in a squatting position. This foot support helps the child relax the muscles needed to push stool out of the body and push with the belly muscles.
- Avoid the urge to squeeze with the anal muscles.

Figure 3: Correct Position

How does sitting in the right position help? When standing (Figure 4a), the puborectalis muscle chokes the rectum making it extremely difficult to pass stool. Sitting at a 90 degree angle (Figure 4b) provides some relief, but in the squatting position (Figure 4c), the puborectalis muscle is completely relaxed.

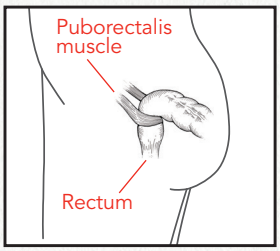


Figure 4a: Standing

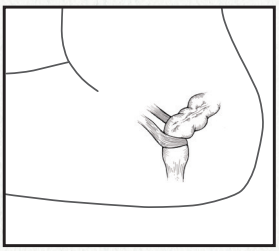


Figure 4b: Sitting

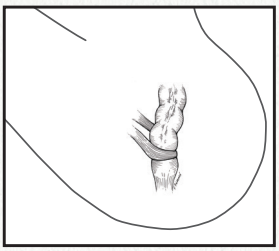


Figure 4c: Squatting

Toilet training is a skill to be learned. Some children learn quickly; others learn more slowly. Sometimes the learning process is interrupted by illness, changes in the family or lack of interest by the child. Eventually, all children without medical problems will learn proper toileting behavior.

8. Why would stool back up in the colon?

In some children, stool moves slowly through the colon or large intestine. Some children start with stool holding and go on to develop longer–lasting problems with slow movements. When they hold back stools, these children start a "chain reaction" (see Figure 5):

A. The rectum fills up with hard stool

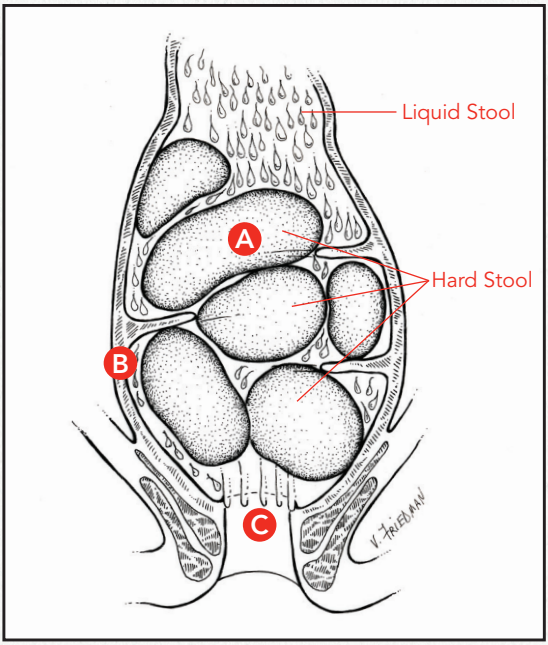
B. The muscle in the rectum stretches, making the muscle weaker

C. The nerves that signal the rectum is full do not work properly. As a result, these children cannot tell when they have to pass stool

Then, the rectum stays filled and stretched, producing back up of stool into the rest of the colon

Some children who do not stool-hold still develop gradual back up of stool in the rectum and colon. This back up stretches the rectum and weakens the muscle that pushes from the rectum. Then, the rectum does not empty out with a bowel movement and stool builds up.

Figure 5



9. Why do some children develop soiling accidents?

Some children with constipation pass stool into their underwear. These soiling accidents can occur one or more times per day and sometimes represent the only passage of stool. Soiling represents overflow of stool from the full rectum. The sphincter or holding muscles relax on their own, allowing stool to leak from the full rectum.

Children cannot control this process when the rectum is overfilled. They do not know when such accidents are going to occur.

Often, soiling (encopresis) is upsetting and frustrating for children and their families. Children may be embarrassed, teased by other children, and disappointed in themselves. Their parents may be angry and frustrated, and often use punishments to try to change this "bad behavior." Soiling can be avoided and will improve with the treatment program outlined below (see also Figure 5).

10. How do we deal with these issues?

The most important tools in finding – and correcting – such medical issues are giving your child's thorough medical history to the doctor and a thorough physical exam.

During this process, we will ask you many questions about your child's:

1. Health
2. Previous surgeries or hospitalizations
3. Medications
4. Family members' medical histories

Then, we will perform a detailed physical exam, often including a digital rectal exam. After this discussion and exam, we will review our findings with you. If we suspect that a problem exists, we may order x-rays or blood tests to gain further insight.

11. What can we learn from physical exams?

We can see:

- If something is causing pain with stools, such as a break in the anal skin (fissure), redness around the anus or an irritated hemorrhoid
- Whether the muscles and nerves controlling stools are working properly
- If stool is present in the rectum and may require treatment with medication or suppositories

12. What is our treatment program for constipation?

During your office visit, we will outline the first three steps of treatment. These steps include:

1. Cleaning the colon with oral medication or suppositories
2. Lubricating the colon and softening the stool to help stool slide along more easily
3. Having your child try to have bowel movements twice a day
4. Use correct posture while sitting on the toilet. (see Figure 3 on page 8).

Table 1. Medications Commonly Used to Treat Constipation

MEDICATION	AVERAGE DOSE	DOSE RANGE	WHEN IT STARTS WORKING
Miralax	Max 17 gm/8 oz liquid per dose	1 to 2 doses per day	4 to 6 hours
Lactulose	1 ml/kg/dose (twice per day)	1 to 3 ml/kg/day	24 to 48 hours
Senna	Varies by age	2.5 to 7.5 ml per day	6 to 12 hours
Bisacodyl	1 suppository	0.5 to 1 suppository	15 to 30 minutes
Glycerin	1 suppository	1 suppository	15 to 30 minutes

Tables 1 and 2 indicate general guidelines for the treatment of constipation and soiling. Specific treatment responses and schedules may vary considerably for each child.

Table 2. Constipation Management in Infants (Age<1 year)
1) Feed standard strength formula without added cereal
2) Offer one-half ounce of prune, pear or apple juice diluted with one-half ounce water twice a day
3) Fruit juice may be increased to 1 ounce twice a day
4) Use Glycerin (ex. Pedialax) once a day for 3 days
5) Lactulose twice a day

13. How is the colon cleaned out?

To clean out the colon area, a child must pass stool. For a constipated child, we can use suppositories or oral medication to help this happen. The exact cleaning regimen instructions are on the last page of this booklet. A second visit may be needed to reexamine the child to be certain that the colon has emptied properly.

Table 3. Medications Commonly Used to Clean Out Colon

MEDICATION	AGE (YEAR)	DOSE
Miralax 1/2 cap/4 oz liquid	1 to 2	4 oz., 1-3x per day
Miralax 1 cap/8 oz liquid	3+	8 oz., 1-3x per day
Lactulose	< 1	1 tablespoon, 1-3x per day
Lactulose	1 to 2	2-3 tablespoons, 1-3x per day
Senna	2+	once a day, 1-2x per day
Bisacodyl	2+	once a day, 1-2x per day

NOTE: Higher doses are sometimes required.

14. How are stools softened?

Soft stool contains more water. Thus, to make stool softer, we increase the amount of water in the child's system. All medications (Lactulose, Miralax, Senna, and Bisacodyl) do this same thing: they pass through the intestinal tract to the colon and produce more water to mix with the stool.

15. Why is trying to have bowel movements twice a day so important?

A constipated child with a full rectum cannot feel the urge to stool. We have to remind them to try. The best time to try is after meals. An internal reflex often signals the colon to empty when the stomach is full. To help them push harder when trying to have a bowel movement, rest the child's feet on a small step stool.

16. What are the expected results of this treatment program?

When successful, the treatment program will:

1. Learn how to pass normal bowel movement on toilet
2. Stop the soiling accidents
3. Soften the stools considerably
4. Reduce pain when passing stool
5. Familiarize the child with normal bodily functions

17. What do we do if the cleansing regimen is not successful or soiling accidents recur?

If the initial cleansing regimen is not successful, we most likely will prescribe more oral medication, or suppositories. If the first doses of medication do not produce soft stools every three days, the dosage may be increased.

Even after some success, stool may build up in the rectum again, and soiling accidents may recur. More than likely, no new problem is present. However, the treatment program may need to be started again.

18. What is the long-term program for children prone to constipation?

By the time our treatment program is started, many children have had constipation for months or even years.

As a result, it sometimes takes weeks or months for the treatment program to improve constipation.

The normal treatment cycle is:

- For 3 to 6 months: Take the lubricant medications and make regular efforts to have bowel movements.
- By 6 months of treatment: Approximately 75 percent of children have made good progress. Stools are more regular and soiling accidents have been resolved or improved.
- Several months later: If constipation or soiling recurs, the same treatment program may need to be started again.
- After medication stops: If the child's bowel movements slow down after medication is stopped, the original medicine can be restarted.

19. Does a special diet or exercise help resolve constipation?

Many experts suggest young children with constipation change their diets to include higher fiber foods or fiber supplements. To get the best results, consider including high fiber foods in your entire family's diet. This will encourage the child who needs the fiber the most to eat it along with regular meals.

Adding fruit juices, and fruit nectars to a child's diet can help resolve constipation issues because the sugars in each are not well-absorbed in the intestine and basically hold water in the stool, making it looser and softer. While some foods help eliminate constipation, no particular foods cause constipation. Limit milk to less than 24 ounces per day.

Table 4 shows you how to increase fiber intake in your family's daily diet.

Table 4. Recommended Daily Dietary Fiber Intake

FIBER INTAKE		AGE 1 TO 3 YEARS		AGE 4 TO 6 YEARS		AGE 7 TO 10	
Food Group	Serving Size	Minimum Recommended Servings	Dietary Fiber Content	Minimum Recommended Servings	Dietary Fiber Content	Minimum Recommended Servings	Dietary Fiber Content
Fruit	1/2-1 small	2	2-4g	2	2-4g	2	2-4g
Vegetable	1/4 cup	2	2g	2.5	2.5g	4	4g
Grains	1 slice bread 1 c. dry cereal	2	4g	4	8g	4	8g
Totals			8-10g		12.5-14.5g		14-16g

Table 5. Fiber Food Table

FOODS	MODERATE FIBER	HIGH FIBER
Bread	Whole-wheat bread, granola bread, wheat bran muffins, whole-grain waffles, popcorn	
Cereal	Bran cereals, shredded wheat, oatmeal, granola, oat bran	100% bran cereal
Vegetables	Beets, broccoli, Brussels sprouts, cabbage, carrots, corn, green beans, green peas, acorn and butternut squash, spinach, potato with skin, avocado	
Fruits	Apples with peel, dates, papayas, mangoes, nectarines, oranges, pears, kiwis, strawberries, applesauce, raspberries, blackberries, raisins	Cooked prunes, dried figs
Meat Substitutes	Peanut butter, nuts	Baked beans, black-eyed peas, garbanzo beans, lima beans, pinto beans, kidney beans, chili with beans, trail mix

20. Do certain medicines cause constipation?

Some medications, can slow down muscle activity in the large intestine or colon, leading to less frequent and harder stools, as outlined in Table 6.

If a child takes one or more of these medications, constipation may be more difficult to treat. Often, the problem being treated with the medicine is more severe and disabling than the constipation. Do not stop or change these medications unless you talk with the prescribing doctor or health professional. Changes can be made in the constipation treatment regimen to overcome the effects of the listed medications.

Table 6. Common Medications that May Lead to Constipation

MEDICATION	COMMON NAME	REASON USED
Imipramine	Tofranil	Bed wetting or depression
Methylphenidate	Ritalin	ADHD
Pain Medications	Codeine, Tylenol #3 Demerol, Morphine, Oxy-Contin	Pain relief
Cough medicines	Various names. May contain codeine.	Cough relief, often "C" in name
Dicyclomine hydrochloride	Bentyl	Colic or abdominal pain
Anti-convulsants	Various names	Seizure control
Anti-cholinergics	Extendryl	Nasal congestion
	Ditropan	Bladder spasms

Management Instructions – Infant (< 1 year to 2 years)

1. Cleansing Regimen

- Start lactulose
  1. Give your child _____ mLs of Lactulose by mouth twice each day for 3 days.
- Suppository Regimen
  1. Give 1 glycerin suppository (liquid or solid) by rectum each day for 3 days.
  2. Expect stool to be passed in 5 to 10 minutes.

2. Maintenance Regimen

- Give your child _____ mLs of Lactulose once or twice per day.
- Give the medication at about the same time each day to establish a regular pattern.
- Expect to have a soft stool at least 1 time per day.
- Continue medication until _____.

Management Instructions – Child (Age 2 - 3 years)

1. Cleansing Regimen

- Start Oral Miralax
  1. Mix 1/2 capful (8.5gms) of Miralax powder in 4 ounces of water, juice or milk.
  2. Have your child drink all of this mixture within 15 minutes, 2-3 times per day for _____ days.
  3. Expect passage of a large amount of stool during the next 24 to 48 hours.

2. If Miralax does not work alone, these may be added

- Suppository Regimen
  1. Give one liquid glycerin suppository by rectum once a day for _____ days.
  2. Expect stool to be passed in 10 to 20 minutes.

  AND/OR
- Senna
  1. Give 1 square of chocolate Ex-lax once a day for _____ days
  2. Expect passage of stool during the next 12 to 24 hours.

  AND/OR
- Biscodyl
  1. Give 1 tab Dulcolax once a day for _____ days.
  2. Expect passage of stool during the next 12 to 24 hours.

3. Maintenance Regimen

- Give the medication at about the same time each day to establish a regular pattern.
- Oral Miralax
  1. Mix one capful (17gms) of Miralax in 8 ounces of water, juice or milk. Drink 4 to 8 ounces once or twice a day.
  2. Have your child drink all of this mixture within 15 minutes.
- Oral Lactulose
  1. Give your child _____ mLs of Lactulose once or twice per day.

Management Instructions – Child (older than 3)

1. Cleansing Regimen

- Oral Miralax
  1. Mix one capful (17 gms) of Miralax in 8 ounces of water, juice or milk.
  2. Have your child drink this mixture within 15 minutes, _____ times per day for _____ days.
  3. Expect passage of large amount of stool during the next 36 to 48 hours.

2. If Miralax does not work alone, these may be added

- Suppository
  1. Give ½ to 1 Dulcolax suppository by rectum each day for _____ days.
  2. Expect stool to be passed in 10 to 20 minutes.

  AND/OR
- Senna
  1. Give 1 to 2 squares of chocolate Ex-Lax orally, once a day for _____ days.
  2. Expect passage of stool during the next 12 to 24 hours.

  AND/OR
- Biscodyl
  1. Give 1 to 2 Dulcolax tabs (5 mg tab) orally, once a day for _____ days.
  2. Expect passage of stool during the next 12 to 24 hours.

3. Maintenance Regimen

- Give medication at about the same time each day to establish a regular pattern
- Oral Miralax
  1. Mix one capful (17 gms) of Miralax in 8 ounces of water, milk or juice _____ times per day.
  2. Have your child drink all of this mixture within 15 minutes.
- Oral Lactulose
  1. Give your child _____ mLs of Lactulose orally, 1 to 2 times per day.

Toileting

- Have your child practice sitting on the toilet for 5 to 10 minutes twice each day.
- Try to have your child use the toilet 30 minutes after meals, since this is the best time to pass a bowel movement.
- Support your child's feet with a step stool to sit in the squatting position while sitting on the toilet. This foot support helps the child relax the muscles needed to push the stool out of the body. See Figure 3 on page 10 for proper posture.

Reduction Regimen (2 years and older)

When your child is able to pass normal bowel movements on a regular schedule, you can begin to reduce the medication.

- Give the full dose of medicine 5 days a week (Monday, Wednesday, Friday, Saturday, Sunday) for 1 to 2 weeks then,
- Give the full dose of medicine 4 days a week (Monday, Wednesday, Friday, Sunday) for 1 to 2 weeks then,
- Give the full dose of medicine 3 days a week (Monday, Wednesday, Friday) 1 to 2 weeks then,
- Give the full dose of medicine 2 days a week (Monday, Thursday) for 1 to 2 weeks then,
- Give the full dose of medicine on Monday for 1 to 2 weeks then discontinue.
- Go back to the previous dosage of medicine if your child produces stools less than 3 times a week.

Restart Regimen (3 years and older)

If your child does not have a bowel movement for three days, follow the instructions below. A return of soiling accidents almost always means that the rectum or lowest part of the colon is full of stool and overflowing. Repeating cycles of clean out and lubrication is sometimes necessary for long-lasting improvement. We can help guide you through these efforts.

- Give one capful (17 gms) of Miralax in 8 ounces of liquid 2 to 3 times each day for 2 to 3 days. Then, continue Miralax daily for _____ days.

  AND/OR

- Give 1/2 to 1 Dulcolax suppository _____ times per day for _____ days.

  AND/OR

- Give 1 to 2 squares of chocolate Ex-Lax 1 to 2 times a day for 1 to 2 days.

  AND/OR

- Give 1 to 2 Dulcolax tabs 1 time a day for 1 to 2 days.

Summary

- Constipation and soiling rarely result from serious disease.
- Treatment of constipation begins by obtaining a careful medical history and completing a physical examination.
- Cleansing of the colon usually minimizes or eliminates soiling accidents and helps the colon to work better.
- Lubrication medication may be needed for several months to promote regular passage of stool.
- Children with constipation must try to pass stools at least twice a day.
- Even though the treatment program works well at the start, the same problems may recur.
- Children may need to restart the program.
- Sit on the toilet in a squatting position.

Resources:

For additional resources, visit **StLouisChildrens.org** or call the St. Louis Children's Hospital Family Resource Center at 314.454.KIDS (5437) and press "5".

For More Information:

If you have further questions or want to make an appointment, please call the St. Louis Children's Hospital Division of Gastroenterology and Nutrition at 314.454.6173.

Notice: The information contained in this brochure is not intended nor implied to be a substitute for professional medical advice. It is provided for educational purposes only. St. Louis Children's Hospital assumes no responsibility for how this information is used.

Always seek the advice of your physician or a qualified health-care provider before starting any new treatment or discontinuing an existing treatment. Talk with your health-care provider about any questions you may have regarding a medical condition. Nothing contained in this brochure is intended to be for medical diagnosis or treatment.

WE ARE READY FOR YOUR CALL

Call St. Louis Children's Hospital at
314.454.KIDS (5437) or **800.678.KIDS**
for help finding a pediatrician or pediatric specialist.

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