

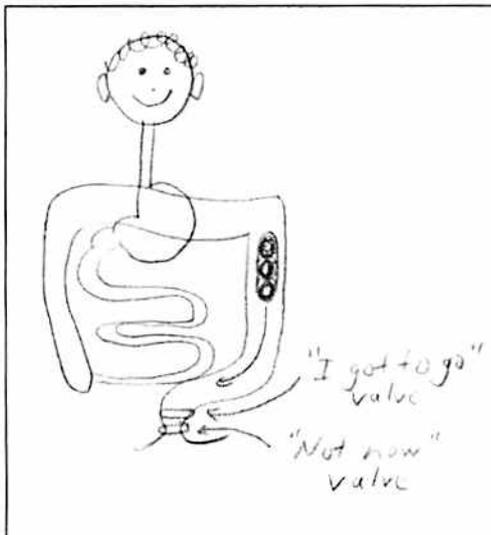
# Constipation in Kids



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*The words used here are simple and very basic words that everyone should understand. They are not meant to offend anyone!!*

## How are we supposed to poop?

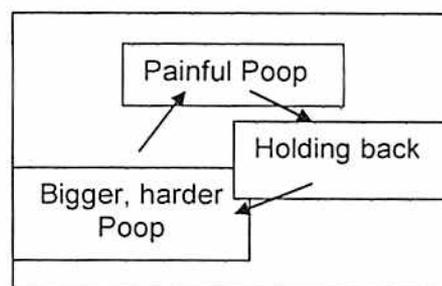


Poop really starts with food! Food goes in you mouth, goes down the esophagus and then is temporarily stored in the stomach. The stomach slowly releases the food into the small intestine where the nutrients are absorbed. What is left over goes into the colon. This is a watery, soupy substance. The right half of the colon absorbs the excess water leaving harder material - stool or poop in the left part of the colon.

As the poop is formed, I like to think that we first form a "breakfast poop", then a "lunch poop", and then a "supper poop" which gather in the upper part of the left side of the colon - the descending colon and sigmoid colon. These poops join together to form what I call a "poop train". The poop train waits until it is big enough to leave this area. When it is big enough (usually after a meal), the "poop train" moves from the descending colon and moves into the rectum, the part of the colon just inside one's bum. Here the poop meets the first of two valves. The first valve is the "I got to go" valve which, when it opens, lets our bodies know that we have to have a poop. This valve opens automatically, allowing the poop to meet the second valve - the "Not now, I'm in the kitchen" valve. The "Not now" valve is a voluntary valve that allows us to hold the poop in until we sit on the toilet. The normal situation is that when the "I got to go" valve opens up and tells us we "need to go!", we go to the bathroom, sit on the toilet and relax the "Not now" valve - allowing the poop to come out. We help it come out by using by tightening our abdominal muscles to push the poop out of our bums. All the valves then close until another poop train comes. The "Not now" valve is very important since it gives us the choice of when and where to have a bowel movement. In the normal situation, most of the time the rectum is empty except for those few minutes a day when the poop train comes down.

## What is constipation?

Constipation occurs in children when there is a buildup of poop in the lower bowel near the bum. Instead of the poop trains coming down into the rectum, and then quickly leaving, a poop train comes down and doesn't leave. Another poop train comes down and rams into the back of the first one. Then another and then another! All of

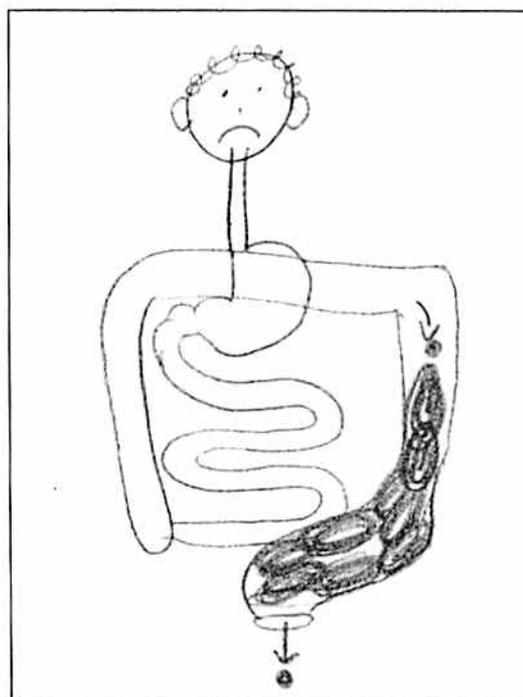


these poops trains stretch the strong muscles surrounding the rectum. As they get stretched, it becomes more and more difficult to push the poop out because the muscles are both stretched and weakened. The child must strain a great deal and may sit on the toilet and not be able to go. The child will frequently pass huge poops - adult size or bigger - "pop-can sized poops"! Passing these large poops is often painful since the anus (the bum-hole) is only so big, and it can tear when these large, dry poops coming out - causing a lot of pain and often bleeding. This pain results in the child never wanting to have another poop again, so they hold back, trying to avoid the pain. This results in even larger poops, more difficulty passing them and more pain - a vicious circle.

## What are the symptoms of constipation?

The obvious symptom of constipation is when a child does not have a bowel movement for a long time - as much as 14 days or longer. When the child does poop, the poops are hard, and very large.

Perhaps a more common symptom is constant oozing of stool into the underwear. This is called soiling or encopresis. What is happening here is as follows. The poop trains are all backed up and the colon cannot hold anymore. Along comes another piece of poop (I like to call it a "boxcar"). This "boxcar" pushes the top of the large poop so that a "boxcar" (a small amount of poop) is then pushed out the bottom into the underwear. Boxcars come all through the day so soiling occurs almost constantly. A clue to this being the cause is when the child has a very large stool the soiling disappears for a day or two - until the colon becomes packed again. The other thing that is important to point out is that the colon is so full that the "I got to go"



valve is always open so the child does not have the feeling they need to go. What started as perhaps a logical or psychological problem now is a physical problem and must be treated as a physical problem. Fortunately, it is totally fixable.

A less common symptom of constipation may be abdominal pain. Abdominal pain, as opposed to bum pain, is surprisingly uncommon and mild. The abdominal pain felt by constipated children is often a dull pain below the belly button or in the left lower abdomen occurring before a bowel movement or before an attempt to have a poop.

### **When and why do kids typically get constipated?**

The two typical times kids get constipated are at the time of introduction of solids - around 6 months of age - and also around toilet training. The cause at 6 months of age is likely due to the infant getting a little dehydrated, since instead of just being fed liquids is now having less liquid and more solids. Dehydration causes the colon to absorb as much water from the poop as possible, making it hard and painful to pass.

Constipation that begins at toilet training occurs simply because toilet training is about holding back - the child holds back the poop too well! The child holds back a stool long enough for another poop train to come down, stretching the bowel.

In either case, the child passes a hard stool. This stool is painful and the child quite logically learns not to allow another painful stool to occur again. This holding back results in bigger stools, which are painful, which cause more holding back.

Other times a child becomes constipated due to a change in toilet facilities - like a new house, a trip to somewhere with strange bathroom facilities or going to school. Rarely, a child will just become constipated.

### **What tests should be done in a child with constipation?**

This is an easy one - NONE!! Greater than 98% of constipated kids have had a hard or painful poop, and they decide "never to poop again". The best test is to treat the child and only consider tests if the treatment doesn't work. All tests will be normal in this situation and the tests aren't very nice for kids.

Perhaps the best test is to ask when the constipation started. If the child had normal stools in the first week of life, that tells us that all the parts are there and "wired" appropriately. Another reassuring thing, in the older child, is the presence of bladder control when there is no stool control. The muscles and nerves that control the bladder and the bum are closely linked. It would be very unusual to have a physical reason for a stool problem without a bladder problem

occurring at the same time.

Parents often wonder if there is a blockage. The main symptom of a blockage is severe abdominal pain. If the child has passed a large, wide stool in the past, then this in itself tells us that there is no blockage. On the other hand, if the stools are always very narrow, a narrowing might be a possibility. Finally and rarely, when the child seems to get constipated for no reason at all, I often recommend getting a blood test to check for a low thyroid hormone, since constipation can be the first sign of this very treatable condition.

Very rarely, in those who are constipated from day 1 of life, there may be a problem with the nerves in their bowel. This is called Hirschsprung's Disease. It is usually diagnosed at birth or in the few days thereafter, but rarely later in life. Still, in 5000 cases of otherwise normal children seen in Dr. Howard's practice, fewer than 10 cases are related to anything other than painful poops and holding back. Only 1 had Hirschsprung's Disease.

### **What about the special needs child?**

Constipation is extremely common in special needs children for a variety of reasons.

There may be problems with low muscle tone. The low tone can affect the colon making it not as strong at pushing the stools out. Low tone often affects how hard the child can push with their abdominal muscles.

High tone can also be a problem since it can affect the muscles of the anus - too much tone of the "not now" valve can stop the stool from coming out. With spasticity, it is also difficult to coordinate a good abdominal push. Being in a supportive wheelchair can also cause difficulties. It is very hard often to "fart" against the soft, constricting surface of the chair - causing the muscles of the rectum to distend. Also, the ability to communicate to go to the toilet is often not as good as in the able-bodied child.

Another cause for constipation in the higher needs child is a side effect of certain drugs like pain control medicines, diuretics and anti-depressants. Many drugs do cause constipation. Stopping them is not always an option but fortunately there is good treatment for the constipation whether is caused by medications or not.

### **What laxatives are "safe laxatives"?**

Fiber can be considered "safe" although it can cause some bloating and cramping if taken excessively. Beyond that the next safest group is the osmotic laxatives. These laxatives go in your mouth and come out in your stool relatively unchanged. They include PEG3350 (the medicine in PEGlyte, Restorolax, SeaLax, Lax-a-Day),

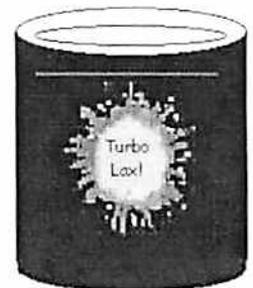
magnesium salts (e.g. milk of magnesia) and lactulose. PEG3350 is a large molecule intended to be too large to be absorbed. It stays in the gut and prevents some water from being absorbed. Magnesium is absorbed (it is an essential mineral) but most of it ends up in the stool - again preventing some water from being absorbed. Magnesium must not be used if there is any question of kidney problems. Lactulose is a bit different. It goes through the bowel to the colon where it is fermented by the bowel bacteria to form gas and smaller osmotic particles which prevents some water from being absorbed. Lactulose, although tasting nice, can cause a lot of gas and can cause acid stools. It is less predictable than the other medications.

### What are bad treatments for constipation?

There are certain treatments that are best not to use in constipated children. An **enema** is a fluid that is forced up the rectum to wash out poop. Enemas are very painful, traumatic and may stretch the bowel further, or push the poop further up the bowel. Rarely, enemas can cause severe medical problems because they change the fluids and salts in the body. **Suppositories** are less traumatic for the child than enemas, but are still very unpleasant. They are tapered tablets, which are inserted into the anus to cause a bowel movement. Glycerin suppositories are meant to lubricate the anus for an easier bowel movement, but rarely work if the constipation is bad. Stimulant suppositories carry a drug that causes the bowel to contract. This can be very painful if the poop is hard.

**Mineral Oil (Lansoyl)** lubricates the bowel so that the poops slip out more easily. The problem with it is that the oil may cover the sampling nerves which I call "fart nerves". These are nerves that differentiate the difference between a liquid poop, a solid poop and a fart. The child may think they have to fart, but really end up soiling themselves. Mineral oil should not be used in neurologically impaired children because during vomiting, the oil can enter the lungs causing a very severe pneumonia.

**Stimulant laxatives (Senna, Bisacodyl, rhubarb extracts, Ex-lax)** are the laxatives people can develop a dependency on. They work by making the bowel contract. This can be quite painful if the poop is hard and difficult to pass. As time continues, in order to maintain effectiveness, the dosage must often be increased. Even though most of these are natural laxatives, they are the ones that children will become dependent on.



## Some more details on the good treatments for constipation?

PEG3350 (Restorolax, Lax-a-day, Sea-Lax, etc) is what is called an osmotic laxative. An osmotic laxative is a substance that the body cannot absorb. It goes in one's mouth and all of it comes out in the stool. It just keeps water in the stool. The more PEG3350 taken, the more water is kept in the poop. If properly prepared, it is flavorless and can be mixed in with any drink. However, there are many preparations on the market that are combined with salts. These salts give a bitter taste. It is important to just get the PEG3350 without the salts.



The best way to take PEG is to mix it in with a drink the child likes. Milk or chocolate milk are great things to put it in. About 1 tablespoon per 4 ounces is easily disguised! It should not be put in hot liquids or cooked. Juice is an OK thing to put it in but it often requires a lot of mixing. Decanting the drink is often a good idea to make sure there is no undissolved liquid in the bottom of the glass.

**Milk of Magnesia** is partially absorbed by the body, and what is left is an osmotic laxative. It is very convenient particularly if the child can take pills. Another trick to take it is to break up peppermint flavoured pills and put them in chocolate ice-cream - making a chocolate peppermint ice cream. It should **not** be taken by those with kidney disease.

**Pico-Salax, Picodan** are basically the same and are used as bowel cleanouts in preparation for medical procedures. They have magnesium salts, as well as a small amount of a stimulant laxative. They are safe if used occasionally and in the right dose. They are like giving an enema above the stool.

**Inulin, Ground flax and Psyllium** are soluble fibers which can be baked into cookies or added to the child's diet in several ways. They help to regulate the consistency of the poop. They absorb water. These fibers can be used both for diarrhea and constipation. In diarrhea, they absorb water from the stool to make the poops firmer. In constipation, they absorb water from the body to make the poops softer. They are often used with Milk of Magnesia or PEG3350 to prevent the poops from varying from constipation to diarrhea and back again.

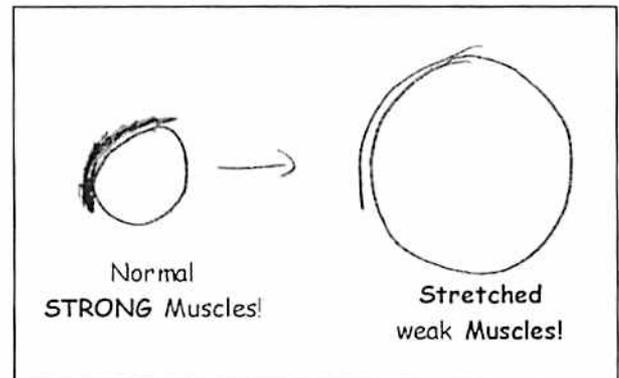
## What's the recipe for success?

**The plan:** 1) Get rid of the pain, 2) get rid of the stretch, 3) Get rid of the medicines!!



**Phase 1:** This is the "clean out" phase. The child needs to be cleaned out. The most common way is to take a take a vigorous laxative. I tend to use one or two doses of PicoSalax or Picodan. Picosalax and picodan are an osmotic laxative that causes diarrhea usually within 6 hours. It causes a big wave of water to go through the bowel. I prescribe a dose based on how bad the constipation is and how big the child is. It is repeated if the big pile of stool is not passed. The cleanout usually takes a single day. It can also be repeated, especially if the child has become constipated again.

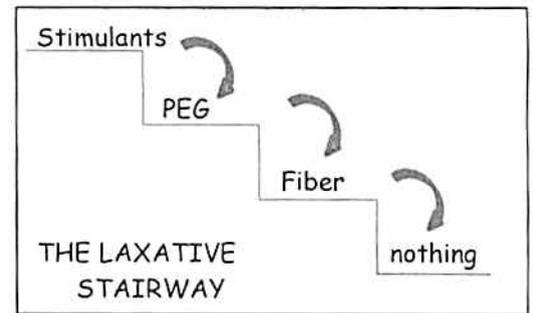
**Phase 2:** The next step is to get rid of the stretch in the colon and re-strengthen the muscle. This is achieved by continuing a daily dosage of PEG. An average dose would be a tablespoon for a child up to 2 years of age, 2 tablespoons for a child from 2 - 6 years of age, and 3 tablespoons for a child of 6 - 12, and 4 tablespoons thereafter. However, the dose must be tapered to the child, so that the child has 1 - 2 soft or loose poops a day - not too runny but not quite as firm as a normal stool. If the child goes between diarrhea and constipation it is important to add soluble fibre in the form of a psyllium cookie or a commercial preparation such as Benefibre. PEG adds water and soluble fibre adds consistency! A rule of thumb is that this phase lasts about 1 month per year of constipation. Though it is tempting to stop the PEG, it is not a good idea since the constipation is likely to recur immediately.



**Phase 3:** Once the stretch has been reduced, the muscles surrounding the colon begin to rebuild. When the child has gone regularly for approximately 1 month/year-of-constipation without strain, the child can start to ease off the medicines. Inulin (Benefibre®) or Psyllium is added at this point usually in a dose of 1 or 2 tablespoons depending on the age. The PEG or Milk of magnesia is then reduced by about 20% per month.

I always say that the treatment of constipation is like coming down some stairs. On the landing, there is no treatment. The first step up is soluble fibre. The second step up is PEG or milk of magnesia. The third step up are the stimulant

laxatives. One can only easily come down one stair at a time. The risk of relapse is high when one tries to "jump down" two stairs. Therefore if one is being treated with stimulant laxatives, then one must transition to PEG or Milk of magnesia. After being on PEG or milk of magnesia, then one can transition to soluble fibre. After being on soluble fibre for some time, then one can slowly transition off to no treatment.



## Frequently asked questions:

**My child is constantly pooping himself - What is happening?**



This is an extremely common problem with constipation. In this case, two things are happening. The first problem is that the rectum is so full that the "I got to go" valve is always open. The child may feel the poop coming out, but has no warning that the poop is **going to come out**. The second problem is that of a problem called "boxcars". If one looks back at the picture of constipation, the poop trains are backed up all the way until the poop is packaged together. Each time a poop "boxcar" is added to the top of the pile of poop, an equal amount gets pushed out from the bottom of the pile. This causes a constant ooze of thick poop from the child's bottom. In this situation, the child really has no control of the situation. To fix it, the "pile of poop" has to be cleaned out so that normal sensation can return.

### How much PEG should be used?

The quantity of PEG needed depends on the age and weight of the child. Generally for a child aged 6 months to 2 years, 1 tablespoon/day is prescribed. For a child 2 to 6 years old, 2 tablespoons are recommended. Children aged 6 to 10 may require 3 tablespoons, and for a child over 11 years, 4 tablespoons may be needed. Each tablespoon of PEG should be mixed with at least 4 ounces of liquid. The most important thing to remember is that every child is different. The amount suggested may be too little or too much. The ideal amount of PEG is the amount that which leads a child to have 1-2 soft poops each day. The poop should come out in one piece and break into pieces when it is in the toilet. If the child is in diapers, then the poop should create a wedge in the diaper with no round form nor actual liquid.

**The PEG (or Milk of Magnesia) result in either no poops or diarrhea? I can't find the right dose? What should I do?**

This is a problem of not enough fiber. Fiber, particularly soluble fibers, absorb water. Benefibre® or psyllium are probably the best fibers to use. These absorb water in the poop to prevent diarrhea, and from the patient to prevent constipation. Adding 1 to 2 tbsps of Benefibre® or psyllium per day will fix this problem!

**How successful is this treatment plan?**

There is an 80% first time success rate with this plan. The other 20% of cases include children with a lack of motivation to fix the problem. In this case, it is suggested that the child work with a psychologist to help fix the problem. The expectation is that once all phases are complete, the child will return to normal.

**Will younger siblings become constipated as well?**

There is a slight tendency for younger siblings to become constipated as well. This is due probably more to environmental influences but there seem to be constipated families!



**How can I get my child to take PEG?**

Flavourless PEG is readily available at all pharmacies. Be careful not to buy the PEG3350 solution used for cleaning out people for colonoscopy. PEG can be mixed in with white or chocolate milk and won't be tasted. Spacing out the consumption of PEG throughout the day may make it easier for the child to consume the recommended amount.

**My child won't take psyllium. What can I do?**

One trick is to become inventive about cooking with psyllium. Psyllium can be made into good tasting cookies. A number of recipes can be found on my website - [kidstummies.com](http://kidstummies.com). Be careful the child only takes the recommended amount since eating too much will cause bloating.

The other trick with psyllium is to not overwhelm the child with it. Gradually introducing it is a good idea - increasing the dose very gradually over a two week period. Infiltration of the total dose of psyllium into the child's diet over a whole day may make the process easier rather than putting the whole dose in one meal. It can be added to any mushy food. The best thing is to take out the required amount of psyllium in the morning and then infiltrate it throughout the day in mushy or liquid foods (eg mashed potatoes, soup, yogurt). The psyllium should be mixed into the food and then one should wait until the initial sandy consistency has disappeared as the psyllium absorbs water from the food.

If the above doesn't work Benefibre® should be used since it is relatively

tasteless and can be hidden in food quite well. Usually a higher dose is needed as compared to psyllium but the dose should be adjusted to have consistent poops.

### **My child has ADD, ADHD. Will they still succeed with the treatment plan?**

The treatment for children with ADD and ADHD is the same and has been very successful. However, it generally takes longer because of the child's inattention to the importance of pooping. The best thing to do is to set realistic goals of recovery and to stick with the treatment plan.

### **My child is now passing one or two soft poops a day in his/her pants. What is wrong?**



As long as the child is not constantly oozing poops into their pants, the physical problem of constipation has been fixed. It is now a problem of getting the child toilet trained again. During this time a reward system works best, with stress placed on success and not punishment. The reward system is very simple. It consists of 5 different levels designed to instill the habit of pooping on the toilet. An example of this system is the star system. The child receives a small star for sitting on the toilet for 5 minutes or until they poop (the best time to put them on the toilet is about 5 minutes after a meal which is when most children poop). A slightly larger star would be given if the child poops in the toilet. A larger star would reward a clean day, then a bigger one for a clean week, and finally for a clean month. The child can always work towards the next level.

### **What foods cause constipation?**

Though high calorie, low fiber foods like milk and cheese may constipate a child more, milk is a very important source of vitamins and calcium and should not be cut out of a child's diet. If the majority of a child's daily caloric intake is taken up by low fiber foods then a change in the child's diet should be made.



### **Is PEG natural?**

PEG is not a natural product. On the other hand, most of the natural laxatives tend to be more harmful since they tend to be habit forming and cause dependency.

### **What are the benefits of psyllium and inulin?**

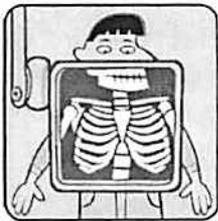
Other than reducing constipation, inulin and psyllium helps to reduce cholesterol, may prevent colon cancer, and helps in the therapy of diabetes.

**The constipation is gone, but it hurts my child to poop. What could be wrong?**

The child may have a tear in their anus and every time, poop passes the tear, it hurts. This is called a fissure. The best things to do are to make sure the poops are nice and soft and to "wash not wipe". After a bowel movement, wash your child's bottom instead of using toilet paper. Toilet paper can further irritate the tear by pushing the poop into the crevices of the anus. If your child is experiencing pain during or after bowel movements, consult your doctor to treat it.

**My child isn't gaining weight. What is wrong?**

Constipation may contribute to poor weight gain. The body works like a conveyor belt. When the belt is loaded, a message is sent to the brain to prevent more from coming in. The child may not feel like eating and won't gain weight. Once the treatment plan has been followed through, the child will most likely return to his/her normal appetite.



**Is an X-ray helpful in the diagnosis of constipation?**

X-rays are generally not helpful because they cannot assess the consistency of the poop. Often poop will appear on an X-ray, even if it is liquid. Lots of poop does not necessarily mean constipation.