

# Dyssynergic Defecation: Questions and Answers About a Common Cause of Chronic Constipation

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**Editor's note:** *Constipation affects nearly everyone at some point in their lives. Constipation that occurs now and then may result from many factors such as dietary changes, some medicines, or inactivity or travel and will generally respond to simple lifestyle measures. But constipation that is long-lasting or keeps coming back (chronic) may require more effort to diagnose and treat. When that happens, a trip to the doctor is in order to find out the cause and develop a treatment plan. Over the last decade there have been significant advances in the understanding of the causes of constipation, the tests to diagnose this problem, and its treatment.*

## Introduction

There is no single definition of constipation. A person may experience one or more problems such as infrequent bowel movements, hard and difficult to pass stool, incomplete bowel movements, or straining to have a bowel movement. A number of factors can cause chronic constipation. Among the most common is a condition called dyssynergic defecation. An estimated one-quarter to one-half of chronic constipation is caused by this condition.

## What is Dyssynergic Defecation?

Dyssynergic defecation is a condition in which there is a problem with the way certain nerves and muscles function in the pelvic floor. The pelvic floor is a group of muscles located at the lower part of the abdomen, between the hip bones, that supports pelvic organs such as the rectum, uterus and urinary bladder (Figure 1). One of its most important functions is to help make possible our ability to have orderly bowel movements. Working together, nerves and muscles help maintain continence until we decide to have a bowel movement. The pelvic floor muscles together with anal opening muscles must all relax in a coordinated way in order to have a normal bowel movement. Failure of this to happen can lead to problems of constipation.

## When do Persons Develop Dyssynergic Defecation?

In a survey we conducted of 100 patients with the condition, we found that in nearly one-third (31%) the problem began in childhood. About an equal number (29%) appeared to have developed the problem after a particular event, such as pregnancy or an injury. In the remaining 4 out of 10 persons (40%), we could identify no cause that may have brought on the condition. Over half of the individuals that developed the condition in adulthood reported frequent or intermittent passage of hard stools. It may be that too much straining to expel hard stools over time is a factor that may lead to dyssynergic defecation.

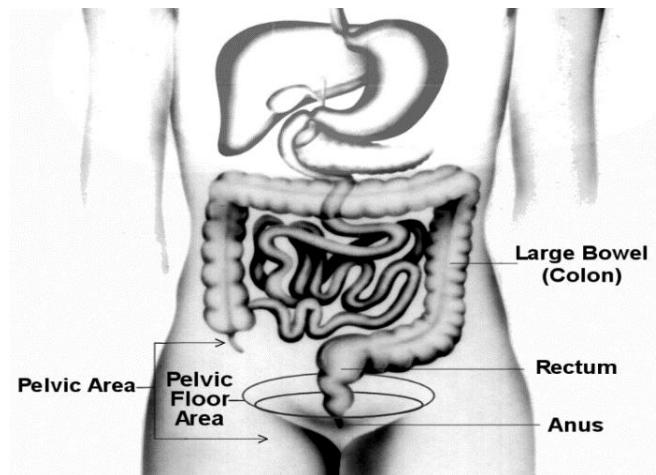


Figure 1

## Why do People Develop Dyssynergic Defecation?

It is not clear what causes dyssynergic defecation. Muscles in the abdomen, rectum, anus, and pelvic floor must all work together in order to facilitate defecation. We have observed that most patients with dyssynergic defecation exhibit an inability to coordinate these muscles. Most often this problem of coordination consists either of impaired rectal contraction or tightening rather than relaxing (paradoxical contraction) the anal muscles during defecation, or not enough relaxation of the anal muscles. This lack of coordination (dyssynergia) of the muscles that are involved in defecation is primarily responsible for this condition. In addition, at least one-half (50–60%) of patients with

dyssynergic defecation also show evidence of a decrease in sensation in the rectum, i.e., their ability to perceive the arrival of stool in the rectum.

### **What are the Symptoms of Dyssynergic Defecation?**

Patients with dyssynergic defecation have a variety of bowel symptoms. As with many conditions involving the bowel, individuals may hesitate to speak plainly about these symptoms. Some may feel embarrassed to even mention bowel or stool-related matters. Others may simply not know how to describe their symptom experiences, or know what to discuss.

It is important for individuals to keep in mind that anything out of the ordinary, rather than being a source of embarrassment, is often the very reason for the visit to their doctor. It is necessary to speak plainly to the doctor so he or she can most effectively diagnose and treat the problem. It is not unusual, for example, for a person with long-term constipation to find it necessary to use their finger to move stool out of the anus (doctors call this disimpacting stool with digital maneuvers). Another common example is for women to use their fingers to press on their vagina to move stool (doctors call this vaginal splinting). In other words, these are medical signs that are meaningful to a physician. Individuals need to feel at ease talking to their doctor.

Patients and doctors both benefit from establishing a relationship of comfort and trust. Open communication is essential. It may be easier to write down the troublesome signs and symptoms before the doctor visit. The use of a symptom questionnaire or stool diary is a helpful way to communicate and identify the exact nature of a bowel problem.

A number of studies have found that the following are common symptoms or signs associated with dyssynergic defecation, with two-thirds or more of individuals reporting:

- Excessive straining
- A feeling of incomplete evacuation
- The passage of hard stools
- A stool frequency of less than 3 bowel movements per week
- The use of digital maneuvers (fingers) to help have a bowel movement

Backache, heartburn, and anorectal surgery have been noted as more likely in patients with pelvic floor dysfunction. However, symptoms alone are usually not enough to predict dyssynergic defecation.

### **How is Dyssynergic Defecation Diagnosed?**

**General Issues** – The doctor will begin with a history as well as an examination of the abdomen and the area around the anus and rectum. He or she will want to rule out other conditions that can cause constipation, such as disease, injury, or inflammation. Many conditions, like an anal

fissure, hemorrhoid, stricture, spasm, or tenderness can be diagnosed by examination in the doctor's office. If the doctor suspects dyssynergic defecation, he or she may suggest one or more tests before making a definitive diagnosis.

Conditions may also co-exist with dyssynergic defecation. Examples of common tests to identify other conditions include blood tests, sigmoidoscopy (examination of the inside of the sigmoid colon and rectum using a thin, flexible, lighted tube), and colonic transit time tests. A colonic transit time test is a simple way to study how quickly stool matter moves through the colon. Capsules containing small markers are swallowed and x-rays taken over several days. Transit time is measured based on the progress of the markers, which eventually pass out of the body. Slow or delayed transit time leads to infrequent bowel movements, straining, and hard stools. But dyssynergic defecation can make stool passage much more difficult regardless of whether stool transit in the colon is normal or delayed.

**Digital Rectal Examination** – The physical and digital examination of the anal and rectal area is not only important, but is often most helpful in making a diagnosis. The physical inspection will reveal visible abnormalities to the skin and tissue. In the digital exam, the doctor will carefully insert a lubricated, gloved finger into the anus. This again is helpful to reveal possible abnormalities, including lack of sensation in the rectum. During the digital exam, the patient is asked to bear down as if having a bowel movement. This exam provides clues to the doctor, as to whether or not a patient has dyssynergic defecation.

Digital rectal examination is a good screening tool for identifying dyssynergia. Despite this, not all doctors have sufficient knowledge of this useful clinical tool. This is an area of clinical medicine where improved training is needed.

If dyssynergic defecation is suspected after the physical examination, the doctor will likely order one or more tests to confirm the suspicion. These tests can measure different functions in the colon and rectum, and identify abnormal patterns.

**Anorectal manometry** is a test that measures strength or weakness of the anal muscles as well as sensation and reflex activity in the rectum. The test is performed with the patient lying down comfortably and by placing a flexible, pencil-thick plastic probe into the rectum. It is generally well tolerated and takes about an hour. It is an essential test for a diagnosis of dyssynergic defecation.

A **balloon expulsion** test examines pelvic floor relaxation and opening of the anal canal. A stool-like device is placed in the rectum and, in private, the person expels it to learn how easy or difficult it is to pass a bowel movement. If unable to expel it in a timely manner, normally within one minute, dyssynergic defecation should be suspected.

However, this test is most useful to rule out dyssynergia, but less useful to identify the condition.

**Defecography** uses a special x-ray machine to record moving images of a semi-solid paste (barium) as it passes through the rectum. This imitates passing a soft stool and provides useful information about anatomic and functional changes. However, many people are uncomfortable performing this test.

Manometry along with physical examination remains the preferred method of assessment. Multiple criteria must be met to diagnose dyssynergic defecation – in terms both of symptoms and of physical function. They include the Rome criteria for functional constipation (Table 1) *plus* evidence of dyssynergia (Table 2).

### How is Dyssynergic Defecation Treated?

Dyssynergic defecation is effectively treated with education and neuromuscular training (biofeedback). The doctor will begin by reviewing past strategies, which may have been used by the patient in trying to treat their constipation. The future treatment plan will depend on what underlying factors may now be contributing to the chronic constipation.

**Standard Treatment** – Different remedies may have been tried, with little success, to relieve symptoms prior to being diagnosed with dyssynergic defecation. Coexisting issues that are present in addition to the dyssynergic defecation still need to be addressed to move forward with successful treatment. For example, a review of all medicines and supplements being taken is important to identify any that may be constipating. There is little evidence that changes in diet and exercise will improve chronic constipation. However, a balanced diet, adequate fiber (20 to 30 grams per day), and regular exercise promote good health in general.

When and how often to attempt bowel movements are important issues. Whenever possible, one should always respond to the urge to have a bowel movement, rather than hold it back. The body has internal mechanisms that naturally stimulate the bowel after waking and after meals. One can take advantage of this by attempting bowel movements, at least twice a day, about 30 minutes after meals. When attempting a bowel movement, it is important *not* to strain too long (no more than 5 minutes) nor push too much (no more than about one-half effort). Digital or manual maneuvers to empty stool from the rectum should be stopped. Bowel re-training involves sitting on the toilet for 15 to 20 minutes at the same time each day so the body can get into the habit of having regular bowel movements.

A doctor may recommend laxatives in order to help change stool consistency or movement through the bowel. Several types of laxatives are available. Bulk forming laxatives

(fiber supplements), along with stool softeners and osmotic laxatives such as magnesium compounds or polyethylene glycol (Miralax, Gylcolax), change stool consistency. Stimulant laxatives cause rhythmic muscle contractions in the bowel to propel stool. All are available without prescription, but for chronic constipation should be taken under a doctor's guidance. Another compound, lubiprostone (Amitiza®), is a prescription drug for the treatment of chronic constipation in adults.

**Table 1**

### Rome III Diagnostic Criteria\* for Functional Constipation

1. Must include 2 or more of the following:
  - a. Straining during at least 25% of defecations
  - b. Lumpy or hard stools in at least 25% of defecations
  - c. Sensation of incomplete evacuation for at least 25% of defecations
  - d. Sensation of anorectal obstruction/blockage for at least 25% of defecations
  - e. Manual maneuvers to facilitate at least 25% of defecations (e.g., digital evacuation, support of the pelvic floor)
  - f. Fewer than 3 defecations per week
2. Loose stools are rarely present without the use of laxatives
3. Insufficient criteria for irritable bowel syndrome

\*Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis.

**Table 2**

### Evidence of Dyssynergia\*

1. Must demonstrate dyssynergic or obstructive pattern of defecation\*\* with anorectal manometry, imaging, or electromyography recordings, and
2. One or more of the following criteria during repeated attempts to defecate
  - a. Inability to expel an artificial stool (50 ml water-filled balloon) within one minute
  - b. Prolonged colonic transit time (retention of more than 5 markers) on a plain abdominal x-ray taken 120 hours after ingestion of one Sitzmark® capsule containing 24 markers
  - c. Inability to evacuate or equal to or greater than 50% retention of barium during defecography

\*Dyssynergia must be demonstrated during repeated attempts to defecate.

\*\*Paradoxical increase in anal sphincter pressure (anal contraction); or less than 20% relaxation of the resting anal sphincter pressure; or inadequate propulsive forces.

**Specific Treatment** – When muscles under voluntary control in the pelvic floor fail to relax in the way needed for a normal pattern of defecation, their function is best improved through various learning procedures. Neuromuscular training using biofeedback techniques has been shown to be beneficial. Symptom improvement has been reported in more than two-thirds of patients.

The goal of neuromuscular training using biofeedback techniques is to restore a normal pattern of defecation. Neuromuscular training or biofeedback therapy is an instrument-based learning process. In biofeedback, special sensors and a computer are used to painlessly monitor muscle and sensory responses. Bowel training additionally may involve special devices used to practice having a bowel movement. Working with a knowledgeable therapist, the patient learns to change abnormal responses to more normal patterns. In patients with dyssynergic defecation, there are usually two goals of neuromuscular training:

1. To correct the abnormal coordination (dyssynergia) of the abdominal, rectal, and anal sphincter muscles in order to achieve a normal pattern and complete evacuation
2. To improve rectal sensory perception if rectal sensation is impaired

The patient will undergo repeated sessions of biofeedback therapy training. During training, the individual will learn several things:

- How the muscles of the pelvic floor work during defecation
- How to use abdominal muscles and diaphragmatic breathing to improve push effort
- How to relax the pelvic floor during a bowel movement
- How to be more aware of the sensation of rectal fullness or desire to defecate

The number and length of neuromuscular training sessions varies depending on individual needs. Typically at our clinic, each training session takes one hour. On average, 4 to 6 training sessions, performed once every two weeks, are required. After completion of neuromuscular training, we have found that periodic reinforcements at six weeks, three months, six months, and twelve months may provide additional benefit, and also improve the long-term outcome.

There are several means and methods available to perform biofeedback therapy for pelvic floor dyssynergia. Effective therapy requires a specially trained therapist working closely with a willing patient and a multi-disciplinary approach. The therapy has no adverse effects. However, effective biofeedback therapy to treat dyssynergic defecation is only offered in a few centers. This lack of availability is in part due to lack of insurance payment for this simple, yet effective therapy. Hopefully, through public awareness and

education of insurance payors this treatment program can become more widely available.

### **How effective is Biofeedback Therapy?**

In the last few years, several randomized controlled trials of adults with dyssynergic defecation have been reported. While they differ significantly in the ways in which they were conducted, the studies all concluded that biofeedback therapy is superior to controlled treatment approaches such as diet, exercise, laxatives, and several other methods.

In order to treat the large number of constipated patients in the community, development of a home based, self-training program will be essential. While studies underway show feasibility and promise, this has yet to be developed.

### **Summary**

Dyssynergic defecation is common and affects up to one-half of patients with chronic constipation. It is due to an inability to coordinate the abdominal and pelvic floor muscles to evacuate stools. It is possible to diagnose this problem through a history, examination, and specialized tests of anorectal function. Randomized controlled trials have now shown that biofeedback therapy is effective and superior to other treatment approaches. The symptom improvement is due to a change in underlying function of the muscles and nerves involved with defecation. Wider availability of biofeedback therapy could result in significant improvement of symptoms for patients with this disorder.

### **Reference**

Rao, SC. Dyssynergic defecation and biofeedback therapy. *Gastroenterol Clin North Am* 2008; 37:569-586.

[For more information about biofeedback refer to IFFGD Fact Sheet No. 112, *Biofeedback & Bowel Disorders: Teaching Yourself to Live without the Problem*.]

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