

Enhanced Primary Care Pathway: CONSTIPATION

1. Focused summary of constipation relevant to primary care

Definition. Chronic constipation is a functional bowel disorder defined as **abnormal colonic transit** (fewer than 3 bowel movements per week that are mostly hard or lumpy i.e. Bristol stool scale type 1-2) and/or **defecatory dysfunction** (difficult stool passage i.e. straining, sensation of incomplete evacuation/obstruction/blockage, digital evacuation/support of the perineum). Pain or bloating may be present in patients with constipation, but it is not a dominant symptom; patients with **constipation-predominant irritable bowel syndrome (IBS-C)** have abdominal discomfort or bloating as a major symptom, accompanied by constipation. There is significant overlap between chronic constipation and IBS-C in terms of clinical presentation and treatment. For additional advice about IBS-C, please refer to the Enhanced Primary Care Pathway for IBS <http://www.specialistlink.ca/pages/referral-pathways.cfm>.

Pathophysiology. Constipation may be due to a **primary functional disorder** of colonic motility (slow transit) and/or dyssynergic defecation (incoordination of rectal propulsion and anal sphincter relaxation). In the primary care setting, constipation is very often caused or compounded by **secondary effects** of medications or their underlying diseases.

Mechanical or structural causes of constipation (e.g. mass or stricture) are relatively rare in practice and can usually be discerned by clinical red flags or physical findings on abdominal and anorectal exam. There is no increase in prevalence of colorectal cancer in patients with constipation and, therefore, **constipation is generally not an indication for diagnostic colonoscopy**; however, colorectal cancer screening should be undertaken in patients with constipation according to age and family history.

Constipation in older adults is a special category, which can be particularly challenging to assess and treat. Secondary causes are most often at play in the elderly due to multiple medical conditions and medications that predispose to constipation, limited physical activity, less control or attention to diet and fluid intake, and failure to maintain a bowel regimen or recognize the call to stool.

Evaluation. Routine laboratory testing is generally not recommended in patients with chronic constipation. Instead, a thorough and detailed history, medication review, and physical examination is of paramount importance and may then guide use of selected laboratory tests such as CBC, glucose, creatinine, calcium, and TSH to assess for anemia as a red flag or common contributory metabolic disturbances. There is no literature to support routine use of plain abdominal x-ray, radiopaque marker transit study, barium enema, or defecography for assessment of constipation in primary care. An abdominal radiograph may be useful in some elderly patients with episodic diarrhea and fecal incontinence to evaluate the possibility of severe constipation with overflow in order to avoid erroneous prescription of antidiarrheals. Anorectal manometry, barostat, and balloon expulsion studies are reserved for patients with suspected for anorectal dyssynergy under evaluation by a Gastroenterologist.

Overview of management. A complete and thorough medical assessment, patient reassurance and education, dietary changes, and increased physical activity and fluid intake along with bulk-forming laxatives provide significant and prompt benefit in most patients. Polyethylene glycol and stimulant laxatives are used in those who fail to respond to initial conservative approaches. Addition of linaclotide or prucalopride should be considered for those with refractory constipation or for episodic use. Gastroenterology referral is appropriate if failed response to the above foundational treatments, presence of red flags, or strong suspicion of dyssynergic defecation at initial assessment.

2. Checklist to guide your in-clinic review of this patient with constipation

- At least two symptoms of constipation: fewer than 3 bowel movements per week, stool form that is mostly hard or lumpy (Bristol 1-2), difficult stool passage leading to straining, incomplete evacuation, sensation of obstruction, or requirement for digital evacuation
- Absence of red flags: sudden or progressive change in bowel habit, blood in stool, iron deficiency anemia, unintended weight loss, family history of colorectal cancer in a first degree relative
- Full review of prescribed (Netcare) and over-the-counter medications that may cause constipation and timing with its onset or worsening; assess dietary fibre/fluid intake and physical activity
- Detailed abdominal and anorectal examination
- Assess for clinical and physical features of anorectal dyssynergy

3. References and links to additional resources for patients

Canadian Digestive Health Foundation **Understanding Constipation**

http://www.cdhf.ca/bank/document_en/5understanding-constipation-.pdf - zoom=100

UpToDate® – *Beyond the Basics* Patient Information about **Constipation in Adults** (freely accessible)

http://www.uptodate.com/contents/constipation-in-adults-beyond-the-basics?source=search_result&search=constipation&selectedTitle=4%7E150

UpToDate® – *Beyond the Basics* Patient Information about **High Fibre Diet** (freely accessible)

http://www.uptodate.com/contents/high-fiber-diet-beyond-the-basics?source=see_link

"Fibre 101" [https://www.pdx.edu/sites/www.pdx.edu.shac/files/Fiber 101.pdf](https://www.pdx.edu/sites/www.pdx.edu.shac/files/Fiber%20101.pdf)

4. Clinical flow diagram with expanded detail

This AHS Calgary Zone pathway incorporates the most current evidence-based clinical guidelines for diagnosis and management of constipation from both Gastroenterology and Primary Care literature:

Drossman DA and Hasler WL. Rome IV—Functional GI disorders: Disorders of gut-brain interaction

Gastroenterology 2016;150:1257-61

[http://www.gastrojournal.org/issue/S0016-5085\(15\)X0019-9](http://www.gastrojournal.org/issue/S0016-5085(15)X0019-9)

Wald A. Constipation: Advances in diagnosis and treatment.

JAMA 2016;315:185-191

<http://jama.jamanetwork.com/article.aspx?articleid=2481010>

Schuster BG, Kosar L, Kamrul R. Constipation in older adults: A stepwise approach to keeping things moving.

Canadian Family Physician 2015;61:152-158

Full article <http://www.cfp.ca/content/61/2/152.full.pdf+html>

CFPlus Additional Info http://www.cfp.ca/content/suppl/2015/02/10/61.2.152.DC1/Constipation_in_older_adults.pdf

Bharucha AE, Dorn SD, Lembo A, Pressman A. American Gastroenterological Association position statement on constipation. Gastroenterology. 2013;144:211-7.

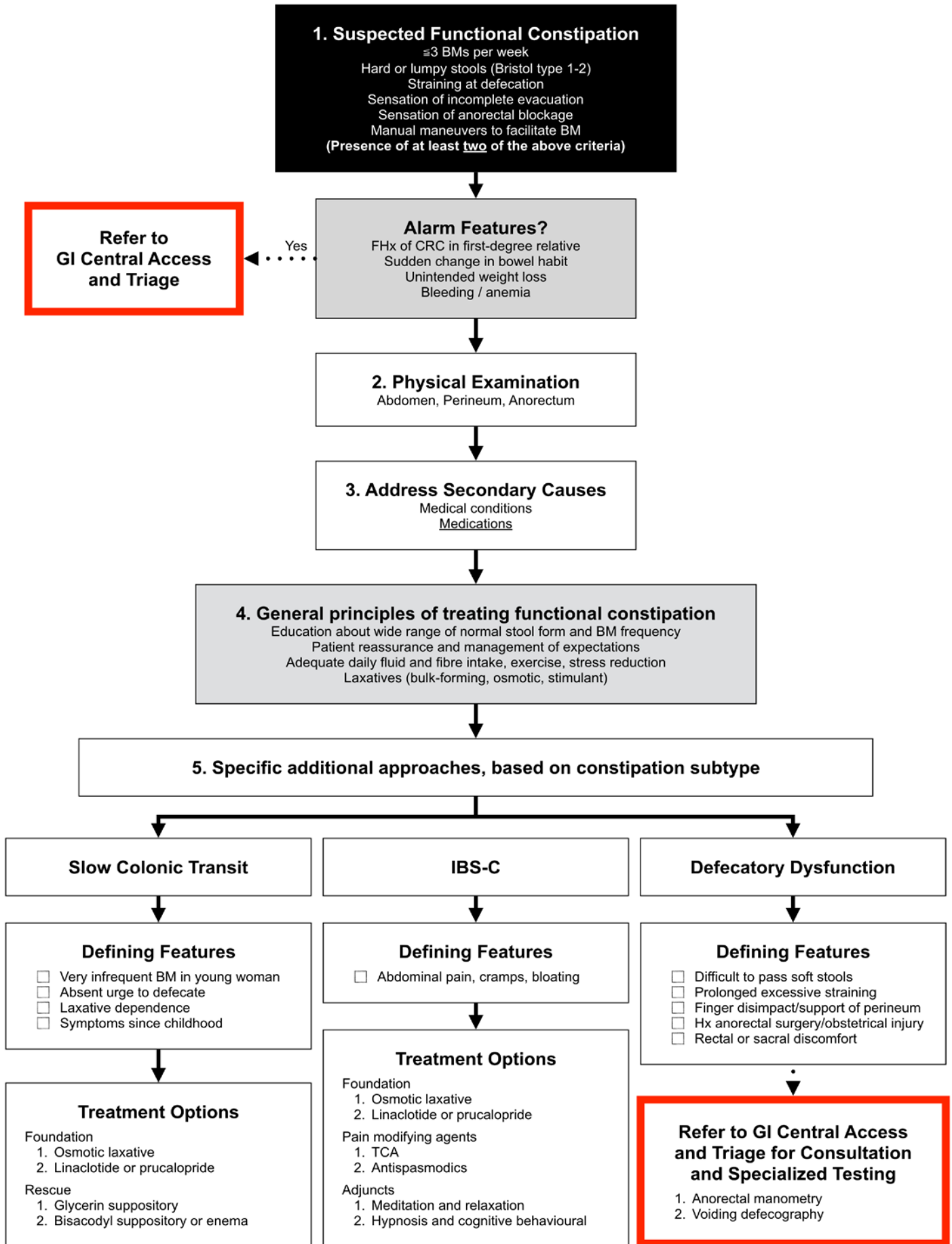
[http://www.gastrojournal.org/article/S0016-5085\(12\)01545-4/pdf](http://www.gastrojournal.org/article/S0016-5085(12)01545-4/pdf)

Jamshed N, Lee ZE, Olden KW. Diagnostic approach to chronic constipation in adults.

American Family Physician 2011;84:299-306.

<http://www.aafp.org/afp/2011/0801/p299.html>






The following is a best-practice clinical pathway for management of constipation in the primary care medical home, which includes a flow diagram and expanded explanation of treatment options:



Flow Diagram: CONSTIPATION Diagnosis and Management - Expanded Detail

- 1. A presumptive diagnosis of functional constipation** can be made based on Rome IV criteria (2016). In order to apply these criteria, it is essential to collect a detailed history of stool frequency and form (see Bristol Stool Scale on page 6) and features of defecatory dysfunction. It is well recognized that patients who meet these criteria for diagnosis of functional constipation commonly will also meet criteria for IBS-C and therefore additional approaches should be considered if significant abdominal bloating or discomfort co-exist with constipation (see Enhanced Primary Care Pathway for IBS-C <http://www.specialistlink.ca/pages/referral-pathways.cfm>). Important additional history includes: (1) duration and progression of symptoms (problem since childhood or more recent onset and worsening), (2) precipitating events (changes in diet, fluid intake, physical activity, medications introduced around symptom onset), (3) laxatives tried already (most products are accessible over-the-counter, noting type, duration, and combination of agents helps discern undertreated from treatment resistant cases), (4) alarm features.
- 2. Focused physical examination** provides information about mass or structural lesions and clues about dysfunctional defecation, which would require specialist consultation. **Abdomen:** noting distention, focal discomfort, palpable mass, inguinal lymphadenopathy. **Inspection of perineum:** noting skin conditions, anal wink reflex and sensory deficits, strain maneuvers to assess degree of perineal descent and elicit hemorrhoidal or rectal prolapse, seepage; apply traction to examine the anal canal for presence and location of fissure which usually evokes sharp localized pain. **Digital anorectal examination:** noting stricture, high resting anal sphincter tone and voluntary squeeze pressure, mass or irregularity of anal canal and distal rectum on circumferential finger sweep, and presence and form of stool or blood. A rectocele is prolapse of the anterior rectal wall into the vagina and is associated with obstructive defecation. When the patient bears down during DRE, the anal sphincter and puborectalis sling (felt posteriorly) should relax and the perineum should descend. During DRE, high resting anal sphincter tone or, on bear down manoeuvre, paradoxical contraction of the puborectalis and failure of the perineum to descend are clues to anorectal dyssynergy.
- 3. Consider secondary causes of constipation.** For Primary Care physicians, it is important to do a thorough review of medications. Netcare is a valuable tool to identify medications that could contribute to constipation. Choosing *Medication Profile > All > Summary Report* in Netcare will generate a chronological list which provides focus on medications associated with time of onset of constipation. There are many medical conditions and their drug treatments that are associated with constipation and recognition of this may allow disease-specific intervention (e.g. hypothyroidism, diabetes). See page 6 for further details.
- 4. General approach to treating functional constipation.** There is a wide range of what is considered normal bowel function in adults. **Education, reassurance, management of expectations:** some patients believe they must have a bowel movement every day in order to be healthy. Reminding patients that a bowel movement every 2-3 days is considered within normal limits and some variability of stool form is expected and normal. It is often helpful to show patients the Bristol Stool Scale to better quantify stool form and, in many patients, reveals normal or ideal stool form much of the time. Patients gain reassurance and hope in knowing that bowel function usually improves with very simple interventions, that the medical literature consistently shows that most patients with constipation do not require extensive initial investigation, and that colonoscopy almost never reveals relevant abnormalities. **Fibre, fluid, physical activity:** There is a dose-response relationship between fibre and fluid intake and stool output, and it is important to quantify at initial visit, as patients with constipation whose fibre and fluid intakes are inadequate are most likely to benefit from this intervention. Most Canadians consume only 10-20g of fibre per day, which is far less than the recommended 30g/d target. It is challenging for most patients to achieve this amount of daily fibre intake due to palatability, adverse effects (intestinal gas and cramps), and lack of knowledge about what 30g/d of fibre looks like in practical terms. Although there is very little evidence of clinical effect, increased exercise may have favorable effects on intestinal fluid handling and motility and seems sensible in terms of overall patient well-being. Patient adherence to these principles of therapy for constipation tends to be poor and needs frequent monitoring, reinforcement, and enablement by Primary Care physicians. **Laxatives:** Bulk-forming agents are natural or synthetic polysaccharides that bind fluid in the gut to increase stool volume and mass. Osmotic agents are poorly absorbed sugars that draw water into the bowel to loosen stool. Stimulant laxatives increase secretory and propulsive activity in the intestine. Surfactants soften stool by breaking surface tension on formed stool allowing water to penetrate.
- 5. Specific additional approaches.** Failure to improve after the above general approaches are exhausted is diagnostically useful, suggesting specific additional or dominant mechanisms underlying constipation in a particular patient. This may bolster clinical impression of **IBS-C** or **defecatory dysfunction**, or may indicate a subtype of constipation known as “**slow transit**” which guides next steps in helping these patients.

The Bristol Stool Scale: An index of colonic transit time

CONSTIPATION		
Type 1		Separate hard lumps, like nuts, (hard to pass)
Type 2		Sausage-shaped but lumpy
IDEAL		
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
POSSIBLY DIARRHEA		
Type 5		Soft blobs with clear-cut edges (easy to pass)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Water, no solid pieces, entirely liquid

Lewis SJ, Heaton KW. Stool form scale as a useful guide to intestinal transit time. *Scand J Gastroenterol.* 1997;32:920-4. Figure adapted from Canadian Digestive Health Foundation

Important secondary causes of constipation to consider

Medications	Medical Conditions
<i>Common</i>	<i>Common</i>
Iron and calcium supplements	Cerebrovascular disease
Antihypertensives	Cognitive impairment
Antidepressants	Renal dysfunction
Antacids	Diabetes mellitus
NSAIDs	Hypothyroidism
Opioids	Depression
<i>Less common</i>	<i>Less common</i>
Antiparkinsonian agents	Hypomagnesemia and hypokalemia
Bile acid sequestrants	Hypercalcemia and hypocalcemia
Bisphosphonates	Hyperparathyroidism
Anticonvulsants	Anorexia nervosa
Antispasmodics	Autonomic neuropathy
Antihistamine	Muscular dystrophies
Antipsychotics	Parkinson disease
Antiemetics	Multiple sclerosis

General Principles	
Dietary Fibre	<p>Counsel patients to target of 30g/d of fibre per day from various food sources. Fibre is categorized by <u>solubility in water</u> and <u>fermentability</u> by intestinal bacteria. There is limited evidence to guide choice of best dietary fibre for management of constipation. Insoluble fibre mechanically stimulates the GI mucosa thus promoting secretion and peristalsis. Soluble fibre increases stool bulk by osmotic and gel-forming effects and by selectively increasing bacterial biomass, which probably has additional beneficial effects on gut function. However, some forms of soluble fibre also contain highly fermentable substrates that lead to gas production, pain, and bloating. Nonetheless, it is worthwhile making a general recommendation to patients simultaneously increase dietary fibre and fluid intake in a graded manner, building in some expectation that some foods may cause bloating, pain, or flatulence. Prunes contain insoluble fibre as well as sorbitol and fructans and have been shown to be effective in management of constipation through both bulk-forming and osmotic effects at a dose of 12 medium-sized prunes per day. Provide patient handout: "Fibre 101"</p>
Fluid Intake	Consumption of 1.5-2.0L of fluid per day significantly enhances the effectiveness of fibre.
Physical Activity	Moderate to vigorous exercise for 20-60 minutes 3-5x per week , as per general health guidelines. Although exercise speeds up intestinal transit, there is no evidence to inform specific recommendations of frequency, duration, or intensity of exercise in management of constipation. It is reasonable to talk to patients about possible beneficial effects of exercise on GI function and the well-established benefits to overall physical health and well-being.
Self-Management	Alberta Healthy Living Program (ahs.ca/info/cdmcalgaryzone.asp)
Bulk-Forming Agents	
Psyllium	<p>Metamucil® 1 tablespoon OD-TID (\$5-10/mo.) Intermediate soluble and fermentable fibre which has good laxative effect but some risk of bloating and flatus. Start with low dose and titrate to effect.</p>
Methylcellulose	<p>Citrucel® 2 caplets OD-QID (\$10-40/mo.) Good laxative effect, onset of action 12-72h. Insoluble, non-fermentable fibre producing less bloating and flatulence.</p>
Calcium Polycarbophil	<p>Prodiem® 2 caplets OD-QID (\$5-20/mo.) Good laxative effect, onset of action 12-72h. Less risk of flatulence and bloating compared with other bulk-forming agents.</p>
Inulin	<p>Benefibre® 1-2 teaspoon OD-TID (\$10-20/mo.) Mild laxative effect, onset of action 24-48h. Non-absorbed fermentable sugar may cause bloating, pain, or flatulence.</p>
Osmotic Laxatives	
Polyethylene glycol	<p>PEG3350 (Lax-A-Day® RestoraLAX® PEGalax® Relaxa®) 17-34g/d (\$25-50/mo.) Start with 17g at night dissolved in 250mL of water, juice, or soda; titrate up to effect or maximum of 34g/d. Onset of action 48-96h. Studies suggest superior to lactulose.</p>
Lactulose	<p>Lactulose 15-30mL OD to TID (\$10-20/mo.) Onset of action 24-48h. Non-absorbed fermentable sugar, which may cause bloating, pain, or flatulence.</p>
Stimulant Laxatives	
Bisacodyl	<p>Bisacodyl (Dulcolax®) 5-10mg PO QHS (\$0.20-0.40/dose) Bisacodyl (Dulcolax® The Magic Bullet®) 10mg suppository PRN max. 30mg/d (\$1.00/dose)</p>
Sennosides	Sennosides 8.6mg tab (Senokot®) 2-4 tab OD-BID max. 4 tab BID (\$0.40-0.80/dose)
Prokinetics	
Linaclootide	Constella® 145µg/d, 30 minutes before breakfast (\$100/mo.)
Prucalopride	Resotran® 2mg/d, 4 week trial (\$120/mo.)



Fiber 101

reference: <https://www.pdx.edu/sites/www.pdx.edu.shac/files/Fiber%20101.pdf>

Your diet may be lacking an important nutrient for your health: *dietary fiber*. There are several reasons to increase your fiber intake. Fiber does the following:

1. reduces blood cholesterol
2. lowers risk of heart disease
3. encourages proper bowel function by reducing constipation
4. causes early satiety to reduce caloric intake

Your goal: Eat 20-30 g fiber each day.

How can you accomplish this?

1. Eat 3-5 servings of vegetables each day.

Some examples:		
Vegetables	Serving size	Total fiber (grams)
Peas	1 cup	8.8
Artichoke, cooked	1 medium	6.5
Brussels sprouts	1 cup	6.4
Turnip greens, boiled	1 cup	5.0
Potato, baked with skin	1 medium	4.4
Corn	1 cup	4.2
Mixed vegetables, frozen	1/2 cup	4.0
Popcorn, air-popped	3 cups	3.6
Broccoli, tops cooked	1-2 cup	3.0
Tomato paste	1/4 cup	3.0
Carrot	1 medium	2.0

2. Eat 2-4 servings of fruit each day.

Some examples:		
Fruits	Serving size	Total fiber (grams)
Pear	1 medium	5.1
Figs, dried	2 medium	3.7
Blueberries	1 cup	3.5
Apple, with skin	1 medium	3.3
Strawberries	1 cup	3.3
Peaches, dried	3 halves	3.2
Orange	1 medium	3.1
Apricots, dried	10 halves	2.6
Raisins	1.5-ounce box	1.6

3. Work up to 3 servings of whole grain each day.

<u>Eat these...</u>	<u>Instead of these...</u>
Whole grains	Refined grains
<ul style="list-style-type: none"> * Barley * Brown rice * Buckwheat * Bulgur (cracked wheat) * Millet * Oatmeal * Popcorn * Whole-wheat bread, pasta or crackers * Wild rice 	<ul style="list-style-type: none"> * Corn flakes * Couscous * Enriched macaroni or spaghetti * Grits * Pretzels * White bread (refined) * White rice

<u>Some examples:</u>		
Grains, cereal & pasta	Serving size	Total fiber (grams)
Spaghetti, whole-wheat	1 cup	6.3
Bran flakes	3/4 cup	5.1
Whole wheat pita bread	1	4.7
Whole wheat English muffin	1	4.4
Oatmeal	1 cup	4.0
Bread, rye	1 slice	1.9
Bread, whole-wheat	1 slice	1.9
Bread, mixed-grain	1 slice	1.7
Bread, cracked-wheat	1 slice	1.4

Eat dried beans/peas and nuts/seeds 2-3 times each week.

<u>Some examples:</u>		
Legumes, nuts & seeds	Serving size	Total fiber (grams)
Lentils	1 cup	15.6
Black beans	1 cup	15.0
Lima beans	1 cup	13.2
Baked beans, canned	1 cup	10.4
Almonds	24 nuts	3.3
Pistachio nuts	47 nuts	2.9
Peanuts	28 nuts	2.3
Cashews	18 nuts	0.9

As you add fiber to your diet, do so gradually. Your body needs to get used to the change. Make sure to drink plenty of water as your increasing your fiber intake. You'll need at least 8 glasses of water each day.

If you notice gas, diarrhea, and bloating, you're probably adding too much fiber too fast. Try to add only a few grams of fiber (<5g) at a time until you reach the goal of 20-30 grams.

Some practical ways to add fiber to your diet:

1. Start your day with a bowl of whole grain cereal with fresh fruit on top
2. Take some nuts and dried fruit to snack on in class
3. When buying grain products (i.e. bread, crackers, etc), make sure the first ingredient has the word "whole" to ensure it is a whole grain product.
4. For more ideas on how to incorporate more fruits, vegetables, whole grains, and beans/legumes/ nuts to your diet, visit mypyramid.gov.

IMPORTANT INFORMATION REGARDING YOUR RECENT REFERRAL

To ensure that your referral is triaged appropriately, please review this quality referral checklist as you create the referral. Free pocket sized copies of this checklist are available through Quality Referral Evolution (QuRE) at www.ahs.ca/QuRE.

PATIENT INFORMATION

Name, DOB, PHN, Address, Phone, Alternate contact, Translator required

PRIMARY CARE PROVIDER INFORMATION

Name, Phone, Fax, cc/Indicate if different from family physician

REFERRING PHYSICIAN INFORMATION

Name, Phone, Fax

TIPS

REASON FOR REFERRAL

Diagnosis, management and/or treatment
Procedure issue / care transfer

Assist with patient communication by indicating patient's preferred method of contact and if they will be unavailable (holiday, etc)

PATIENT'S CURRENT STATUS

Stable, worsening or urgent/emergent
Understanding of situation
Key symptoms and findings
Symptom onset / duration
Red flags

Don't forget that the referring physician isn't always the family physician. Keep everyone in the loop with a cc.

Make sure to express clear expectations for the consult and, when possible, outline a specific question.

FINDINGS AND/OR INVESTIGATIONS

(RELEVANT RESULTS ATTACHED)

What has been done & is available
What has been ordered & is pending

Current status is must-know clinical information that has direct impact on triage of the referral.

CURRENT & PAST MANAGEMENT

(LIST WITH OUTCOMES)

None
Unsuccessful / successful treatment(s)
Previous or concurrent consultations for this issue

Ensure you have listed all ordered tests so the receiving consultant does not unknowingly order the same tests again.

COMORBIDITIES

Medical history
Pertinent concurrent medical problems
Current & recent medications (name, dosage, PRN basis)
Allergies
Warnings & challenges

Provide information on what has been tried previously and why a consult is required.

A complete medical history can help the consultant determine the complexity and urgency of the referral.