

# The Bottom Line

Vaughan Endoscopy Clinic (VEC) is a **state of the art** out-of-hospital endoscopy clinic providing **Screening colonoscopy and endoscopy** for the work up of mild gastrointestinal disorders. It is staffed by gastroenterologists.

In addition to the endoscopic services, they will provide all the necessary **GI follow-up** and make all the appropriate referrals required due to findings at the endoscopy.

The Medical Director has been an active participant at the CPSO in the development of **standards for out-of-hospital clinics**, all of which VEC adheres to.

#### Gastroenterologists:

**Dr. William Appell**  
**Dr. David Ford**  
**Dr. Michael Gould**  
**Dr. Susan Greenbloom**  
**Dr. David Kreaden**  
**Dr. Eric Leong**  
**Dr. Michael Ostro**  
**Dr. Ted Ptak**  
**Dr. Jonathon Springer**  
**Dr. Rajiv Sethi**  
**Dr. Stephen Sinclair**

*In addition to high quality and convenient access to endoscopy, the Doctors at VEC will provide you with supplemental practical GI advice through this periodic newsletter. This article on IBD is written by Dr. David Ford (a gastroenterologist from Etobicoke General Hospital).*

## Lactose Intolerance

At least 70% of the world's population has some degree of lactose intolerance (LI). Thus it is actually abnormal to be able to fully digest milk sugars as an adult. A dominant mutation on chromosome 2 allows adults of Northern European descent to be lactose tolerant.

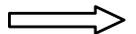
### Background

Lactose is a sugar found only in mammalian milk. The disaccharide bond must be broken down to allow absorption across the small bowel. If sufficient lactase enzyme is not expressed on the small bowel brush boarder then the milk sugar passes undigested into the large bowel where it is rapidly metabolized by bacteria by a fermentation process. This results in production of gas and an osmotic load causes typical symptoms such as gas, bloating, cramps and diarrhea. The most common is flatus. One or all of these symptoms follow from a meal high in lactose, typically 20 minutes to 2 hours later.

There is huge variability as to the quantity of milk sugars that lactose intolerant people can consume before symptoms arise. It is not an all or nothing condition. All humans are born with the ability to digest their mother's breast milk. After weaning, children may gradually lose the expression of the lactase enzyme. Susceptible humans by 4 years of age are lactose intolerant. However, they can take up to 20 years to become symptomatic. Less than 15% of Northern Europeans are lactose intolerant versus more than 90% in some Asian countries.

### Differential Diagnosis

There are rare, temporary, secondary causes of lactose intolerance. They include anything that can destroy the small bowel villi. (e.g. some chemotherapy or other drugs, some infectious agents, small bowel bacterial overgrowth, and importantly Celiac Disease). You can rule out Celiac Disease with a serology test (anti TtG) if you feel it is warranted (cost is approximately \$80). Most Caucasian adults over the age of 30 who complain of chronic "LI symptoms" have irritable bowel syndrome in my practice. They should be tested for Celiac Disease.



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Milk allergy is an immune response to milk *proteins* and should be considered in some children. Other sugars can also be difficult to digest, for example fructose which is a common additive and in fruit drinks where this sugar is found naturally. Children often consume large volumes of apple juice and then suffer after they come down from their sugar “high”. Rarely patients are consuming significant amounts of other non-digestible sugar sweeteners such as sorbitol or mannitol. Lactulose can produce the same side effects.

### **Diagnosis**

Unfortunately there is no readily available, accurate, and inexpensive test for Lactose Intolerance. I rarely send my patients for any formal testing. Your options include challenging your patients with a high lactose load, while otherwise fasting, then 1) having their breath hydrogen measured (test is available at some teaching hospitals) or 2) obtaining serial measurements of blood glucose levels at your local lab (can be daunting to children and is not a very specific test) or 3) you can rely on their symptoms over the next 2-3 hours of a continued fast. This is the easiest but is not “blinded” so many of my IBS patients report symptoms because they feel going into the test that they are LI. The best option is to have a family member “blindly” supply either 2 cups of milk or 2 cups of lactose-free milk in the morning (while fasting) as a challenge and see what symptoms appear, if any. This requires minimum of 2 days of repeat testing, ideally 4-6 days. This method also allows the person to find out how much of a lactose load they can tolerate (i.e. they may be fine with a cup of milk but not more). This is the real essence of managing LI. The vast majority of lactose intolerant people can tolerate moderate amounts of lactose.

### **Managing Lactose Intolerance**

I have no problem with people fully avoiding dairy products if they wish. However, the added vitamin A and D and natural calcium and B12 do need to be replaced in other ways through diet or supplements. Purchasing lactose reduced milk can be expensive over a lifetime but does allow one to get the nutrients in milk, especially for children. One can purchase lactase enzyme supplements but that again can be expensive. The enzymes are taken with the meal containing lactose (not on an empty stomach as acid denatures the enzyme). Milk has the highest level of lactose and, since it is in liquid form, it rapidly passes through the GI tract if taken on empty stomach and in large volumes. Patients should try small amounts of milk with food instead. Hard, long aged cheeses contain very little lactose. Other cheeses have variable amounts, so a double cheese pizza may be too much lactose for some. Yogurts are traditionally lower in lactose as the fermentation process involves bacteria that produce the lactase enzyme. Some modern “yogurts or yogurt drinks” contain added milk solids which contain lactose. Ice cream has lots of lactose so should be consumed in moderation. Lactose is hidden in many processed foods but usually at relatively low levels. Labels may state whey, milk solids, modified milk ingredients etc. It is added for texture, flavour, and its adhesive qualities. Low fat dairy foods often have higher lactose levels due to the addition of milk solids. Kosher products labeled *pareve* are free of milk. A “D” indicates it may contain dairy. Plant-based “milks” from soy, rice or nuts are a great option. As well, many dairy/lactose reduced products are available at the grocery store.

## **The bottom line is:**

The vast majority of lactose intolerant people can tolerate moderate amounts of lactose. There are many lactose reduced options available to purchase and dietary choices like yogurts and aged cheeses may be endured. For patients affected more significantly, carrying a few lactase enzyme tabs with them will give them more freedom and choice at a restaurant. However, many people claim to be lactose intolerant and avoid dairy products completely when a simple “blinded challenge” at home could prove otherwise.

*This newsletter will be posted on our website ([www.vaughanendoscopy.com](http://www.vaughanendoscopy.com)) thus your patients are able to download a copy for reference. Other GI topics of interest will be published periodically.*