Your Next Colonoscopy May Be More Fun Than Golf

By Josh Bloom — October 18, 2016

Although the title of this thing may sound a little crazy, it isn't that crazy. With a little luck, a new bowel prep, which (hopefully) will be approved in 2018, will make your next colonoscopy something like a walk in the park. While carrying toilet paper.

As I wrote last year [1], getting a colonoscopy, which is still wholeheartedly dreaded by many people, isn't the least bit unpleasant. Depending on your definition of "fun," it could even be considered fun (1), because of propofol, the coolest drug ever.

Although some of you may still experience a visceral terror (pun intended) of the procedure — "you're putting that thing where??" — you can rest easy. You don't feel a thing. Five seconds after propofol (aka "milk of amnesia") goes in to your IV, someone could drive a Subaru up there and you wouldn't know the difference. But, one problem remains—the bowel cleanse. It is routinely described as "unpleasant," which likewise depends on your definition of "unpleasant."

If "unpleasant" is too bland a word, by all means visit the site askapatient.com [2], where people rate thousands of drugs based on their personal experiences. They also leave comments. These comments can be rather amusing, as you shall see.

Since we are discussing colonoscopy preps, let's just pick an oft-used abomination called Golytely (2). It may be oft-used, but is not oft-liked—all 4.22 quarts of it. This can be illustrated by reading some of the more colorful quotes that were posted (3):

- Female, 26 years old: "The worse tasting stuff on fu$&@ing earth grrrr everytime I drink a glass it makes me angry."
- M, 62: "To me, the stuff tasted like raw fish rolled in sawdust."
- F, 53: "After the first swallow it came back up just like that scene in the Exorcist."
• F, 20: "Let's just say my car's driver seat is in bad shape at the moment."

Then there's this:

• F, 26: "Trying to clench my butt cheeks tightly together to avoid the fecal river that I knew was waiting to meander out of my anus." (Damn, that's good prose. If she is not a writer, she should be. I'll even suggest the title of her first book: "Poop Fiction.")

Normally, you'd think that she would win hands down.

But, you'd be wrong:

• M, 45: "The manufacturers are horrible human beings."
• "I thought it tasted like a LOBSTER'S URINE would, with the same thickness/filminess."

And then he changed his mind:

• "Then, I thought it tastes like what human skin blended up into a light syrup would taste like."

OK, now the good news. If things go right, your next bowel prep is going to look (and taste) quite different.

This could be your next colonoscopy prep. Photo: CNN

Icky drink, or yummy meal? If the founders of ColonaryConcepts get their way, it will be the latter. The company's website says "[We are] a new company who is an innovative biotech firm focused on technology platforms that promote gastrointestinal health."

I spoke with Dr. Corey A. Siegel, a co-founder of the company, who is also an Associate Professor of Medicine at the Geisel School of Medicine at Dartmouth, and a practicing gastroenterologist. He was frustrated for years by the misery that his patients had to endure just to prepare for a colonoscopy, which prompted him to seek an alternative.

Siegel told me, "We wanted to address the common things we hear from our patients about what they hate most about the current preps including fasting, and the monotony of drinking large volumes of liquid. Therefore, we created a product that delivers the active ingredients in the form of bars and beverages that come in a range of flavors to be taken at carefully timed intervals over the course of the 24 hours prior to their colonoscopy. As our phase 2 study showed, with this
approach we were able to provide a product with excellent efficacy and safety with high levels of patient satisfaction."

Sounds (at the very least) better than kale.

A bit of chemistry explains why the stuff works (4). The chemical that makes all of this possible is a white flaky solid called polyethylene glycol 3350 (PEG 3350). Polyethylene glycol is a long chain of ethylene glycol monomeric units:

The monomer is ethylene glycol—a sweet, toxic liquid, which is often used as antifreeze (5). PEG is not a single chemical; it is a complex mixture that consists of a repeating ethylene glycol subunits (orange ovals). The difference among PEGs is determined by the "n" in the figure above. The letter "n" is universally used in organic chemistry to denote a number. For example, when $n = 2$, we have diethylene glycol—a colorless, sweet toxic oily liquid, which is hygroscopic (absorbs water).

The difference between diethylene glycol and PEGs is that with polymers, $n$ is usually a large number. This is where the 3500 comes from. The numbering system is explained here [4], but I would strongly advise against reading it (6). In simple English, PEG 3500 can be described as a mixture that contains a bunch of slightly different sized polymers where the average "n" is about 3,500. In other words, there are about 3,500 monomers of ethylene glycol chemically bonded together.

This is PEG it works. It is essentially a chemical water sponge. PEG 3500, just like PEG 2, absorbs water (7), but unlike PEG 2, it is essentially non-toxic [5]. Once it reaches the bowel, it draws very large volumes of water into the stool (osmotic affect), softening it. Thus, the laxative effect.

We should all be rooting for this one to make it, especially all of you who have been avoiding colonoscopy, perhaps the most important cancer screen.

Bon appétit.

Notes:
(1) Compared to golf, at least.

(2) There are many different bowel cleansing agents that are used. Some are worse than others, but you won't be finding any of them in a soda vending machine anytime soon.

(3) To be fair, there were also people who found it to be OK. They probably like golf too.

(4) PEG is already used as a laxative and bowel prep. One brand that uses it is Miralax.

(5) Contrary to the name, there is no ethylene glycol in polyethylene glycol

(6) If you decide to read it anyhow, please do not have a noose nearby.

(7) Water has an affinity for oxygen atoms in a molecule. The more, the merrier. PEGs can have more than 10,000 oxygen atoms in a single polymer.

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