

IN THE hospital it is not uncommon to see doctor's orders for *C. diff* testing in patient charts. *C. diff* is an abbreviation for *Clostridium difficile*. If *C. diff* + is charted it means the patient has *Clostridium difficile* infection (CDI). *C. diff* is a bacterium that can cause symptoms ranging from diarrhea to life-threatening inflammation of the colon. It is more commonly seen after antibiotic use and in the elderly. In your intestines, *C. diff* produces a toxin that causes diarrhea and colitis. "Each year, more than a half million people get sick from *C. difficile*, and in recent years, *C. difficile* infections have become more frequent, severe and difficult to treat."¹ It is difficult to treat as it is spore forming and has a protective shell. In addition to this, *C. diff* has been labeled the most urgent of all superbug infections due to its developed resistance to antibiotic therapy. Most

of us have *C. diff* in our colon in a healthy balance with other bacteria. It can be held in check for life without ever causing illness. The problem arises when *C. diff* overpopulates.

A woman had recurring CDI after being treated for bacterial vaginosis with antibiotics and being exposed to a family member who had CDI. She struggled with diarrhea and abdominal pain. Standard treatment did not help. Her infection and side effects grew worse. She was given stronger, more expensive antibiotics with the same result. This woman had a perplexing case of CDI to say the least. It was at this point that the doctors suggested fecal microbiota transplantation (FMT). If you took a lucky guess at what this might entail, you probably guessed correctly. FMT is the process of transplanting the feces of a healthy donor into the colon of the patient to restore a disrupted

microbiome. The feces is screened and then mixed with sterile saline, strained, and inserted through an

enema, colonoscopy, or other similar procedure. Fecal transplants are not new phenomena. In fact, the first known documentation of FMT is from the 4th century in China. They called it yellow soup. As a therapy for CDI, "Cure rates of > 90% are being consistently reported from multiple centers."²

In the case of this young woman, a healthy but overweight donor was used. While the treatment successfully cured her of her CDI, the patient unintentionally began gaining weight rapidly. Sixteen months later she had gained 34 pounds and continued gaining three years post FMT. Previous to the FMT she had always been of normal weight. After being populated with new microbes, she became obese. Was the treatment to blame for the weight gain? Perhaps her lifestyle rapidly changed post treatment? Or maybe now that she could absorb food and no longer had abdominal pain she was making up for lost time? Reportedly, it was in spite of going on a diet and exercise program that she gained the weight.

Yes, there could be several factors that could have contributed to the woman's new weight predicament. The researchers acknowledged this in their discussion of her case. Nevertheless, could the fact that the donated feces came from an overweight donor be one of the factors? The practitioners apparently think so. As a result of this experience they confirmed that, "it is now our policy to use non-obese donors for FMT. . . . This case serves as a note



of caution when considering the use of non-ideal donors for FMT, and we recommend selecting non-overweight donors for FMT.”³

The concept that the microbial composition of the gut influences one’s weight is gaining popularity. With the nation’s obesity epidemic at an all-time high, our nation is in need of answers, direction, and successful therapy options.

MICE INOCULATED WITH THE MICROBES FROM THE OBESE COUNTERPARTS RAPIDLY GAINED WEIGHT.

Classically, regulation of body weight is thought of in terms of energy balance. Weight gain is the result of energy imbalance while weight maintenance occurs when energy in versus energy out are equal. The energy aspect of this theory is commonly communicated in terms of calories. The bottom line of this “*calories ingested versus calories expended*” theory is that it is the amount of food, rather than the kind of food consumed, that determines weight gain. The logical mode for losing weight, therefore, would entail burning more calories than what is ingested. This is the accepted, evidence-based, weight-loss strategy.

While this theory is valid and must be taken into consideration when seeking to lose weight, could there be more to the obesity epidemic than excess calories? Let’s look at a few more fecal transplants that occurred in a laboratory, to provide more evidence.

Dr. Jeffrey Gordon of the Washington University School of

Medicine compared twins in which one twin was obese and the other lean. A distinct difference in the composition of gut microbial communities was found between the twins. It is true that an individual’s microbial composition is as unique to each individual as a fingerprint. In other words, we all have varying percentages of various strains, impacted by how we live, where we live, how we were born, where we have travelled, what we eat, who are our parents, etc. This is what makes this study interesting. Twins birthed at the same time, in the same way, living in the same home with similar exposures,

provide an opportunity to narrow the scope of factors causing the distinct differences that were observed between the lean twin and the obese twin.

Using this insight as a platform to build upon, the research team found four sets of twins in which one was obese and the other was lean. Taking gut microbial samples from each twin, they then introduced the samples into germ-free mice. The mice lived in the same environment and were subjected to the same stimuli. They were fed the same diet, low in saturated fat and high in fruits and vegetables. Interestingly, the mice that had been inoculated with the microbes from slim twins remained slim. However, mice inoculated with the microbes from the obese counterparts rapidly gained weight.⁴

Obesity is not thought of as a perplexing condition. The remedy of eating less and exercising more is straightforward. The staggering reality, however, is that like CDI, obesity is difficult to treat. Both conditions have

proven themselves resistant to cure. The remedies for either may not be as self-evident as has been traditionally thought. The research presented here does not provide any absolutes but it does reveal an aspect of perhaps a bigger picture. These conditions are not unconquerable. Neither is whatever you may be dealing with in your life. The promise is, “Our heavenly Father has a thousand ways to provide for us of which we know nothing. Those who accept the one principle of making the service of God supreme, will find perplexities vanish and a plain path before their feet.”⁵

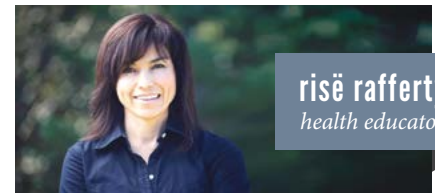
¹ “C. Difficile infection,” Mayo Clinic, 7/6/2013, <http://www.mayoclinic.org/diseases-conditions/c-difficile/basics/definition/con-20029664>.

² Faith Rohike, Neil Stollman, “Fecal microbiota transplantation in relapsing *Clostridium difficile* infection,” *Therapeutic Advances in Gastroenterology*, 2012 Nov; 5(6): 403–420, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3491681/>.

³ Neha Alang, Colleen R. Kelly, “Weight Gain After Fecal Microbiota Transplantation,” *Oxford Journals Open Forum Infectious Diseases*, vol. 2, Issue 1, 2/1/15, <http://ofid.oxfordjournals.org/content/2/1/ofv004.full>.

⁴ Katherine Wendelsdorf, Ph.D, “Gut Microbes and Diet Interact to Affect Obesity,” *National Institutes of Health*, 9/16/13, <http://www.nih.gov/researchmatters/september2013/09162013obesity.htm>.

⁵ Ellen G. White, *Ministry of Healing*, p. 481.



Risë has been writing on various health subjects for over 20 years. She has inspired many through her research and down-to-earth writing and speaking style. She believes that healthy living is intimately tied to happiness and wholeness.