

Scholarly Reflective Journal

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N454 Caring Science II

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Required Listening or Reading Texts: Perlmutter, D. (2015). [Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life](#). Amazon or Audible. Total Length: 9 hrs. 5 minutes

PART ONE: Weeks 1 - 6

Week 1

Reflections – Read/Listen: **Introduction: Bug Alert**

Writing Prompt: Reflect on the premise of this book. Think about how the information and approach to this content would apply to learning in general and nursing science; in particular.

Describe what stood out to you in the chapter (always cite ideas of the author):

The premise of this book Brain Maker is to have an intense sense of the importance of brain health concerning what we eat and the microbiomes in our gut. Perlmutter (2015), suggests that brain disorders: mood and anxiety disorders, depression, Alzheimer, and multiple sclerosis, autism is connected to gut microbiome health. Perlmutter (2015) emphasized that our internal ecology, the various microorganisms, especially the bacteria within our digestive system, has everything to do with our general wellness and mental health. Intestinal flora has a lot to do with inflammation and how we combat it (Perlmutter, 2015).

According to the introduction, the author recommended rejuvenating the gut and re-establishing healthy microbiomes by eating specific foods. "...prebiotics, probiotics, fermented foods, low-carb foods, gluten-free foods, and healthy fats" (Perlmutter, p. 13, 2015).

Examine what stood out to you and answer the writing prompts. Cite the author and include at least one supporting/opposing view (APA 7 in-text citation):

Although I know the importance of diet in maintaining a healthy life, I was surprised to read the extent the author suggests the gut microbiome and how it impacts health (multiple systems) in the book. How research acknowledges the importance of microbiomes and that it became a focus of the National Institutes of Health (NIH) launching the Human Microbiome Project in 2008 (Perlmutter, 2015). The information I got from this chapter is enriching and empowering for me as a nurse because there is power in knowledge. My new knowledge would allow me to provide quality care for patients with health conditions. The current information will allow me to individualize nursing care for my patients and provide more education to them on the importance of what they eat and how it can affect their overall health and well-being. I can guide them on their food choices and how they can change their diet and foods that promote a healthy gut microbiome.

Reflecting on my nursing practice as an infusion center nurse, I have encountered many patients with digestive disorders like Ulcerative Colitis and Crohn's that experience depression. As a nurse, understanding the relationship between the gut microbiome and these patients' conditions is vital for me to provide holistic care to them.

Articulate Learning. Answer the remaining questions from the writing prompt. Write at least one professional SMART goal using the content of the chapter:

My professional SMART goal is, for the next six weeks, to educate my patients with autoimmune conditions on dietary modification, like eating more plant-based foods, increasing fiber intake, and cutting down on sugar and processed foods like canned and frozen foods. I will evaluate the progress of the SMART goal every eight weeks when they come for their infusion appointment by assessing their pain level and health condition to measure the progress. The

patients require less medication for their condition, better pain control, and are more comfortable and have less discomfort on assessment.

Week 2

Reflections – Read/Listen: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Gut Check**

Writing Prompt Reflection: Take the Gut Check and write about your results. Your writing is strictly confidential for the faculty only. Does this survey offer any insight into current or past health issues? Be descriptive with examples.

Describe the gut check survey. Who designed it, why did they design it, and for whom is it used? Is it validated? What else stood out to you in the chapter (always cite ideas that are not yours)

The gut microbiome plays a vital role in maintaining human health. Many factors shape the human microbiome, but external factors like diet and medications like antibiotics also play a role. The gut mucosal surfaces are adaptable and can tolerate enormous populations of microorganisms, producing a rapid and effective immune response to infections (Sanders et al., 2021). Other factors that can shape gut microbiome are the birth delivery method, genetics, and infant feeding (Perlmutter, 2015).

The gut check survey gathers information and determines one's level of risk factors. The check survey helps to understand the life experiences from birth and the effect on the gut. However, the accuracy of the survey in determining the risk factors is not validated by the

author. The other way of testing the gut's microbiome is with the gut testing kits and there are different brands available over the counter, stool test kit easy to use with instruction. The test kits are suitable for measuring the gut microbiome's diversity and composition. These gut testing are not accurate in determining the gut microbiome's health. The microbial testing kits still need to be improved to state the difference between healthy and unhealthy microbiomes and the risk factors. The author recommended getting advice from a trained medical professional to understand the test results (Perlmutter, 2015). Microbiome testing provides limited diagnostic and prognostic information, with different testing techniques focusing on taxonomy (Team, 2023).

Examine the implications of your results. Do you agree or disagree with the implications? Include at least one supporting/opposing view (APA 7 in-text citation)

The gut-check questions are fascinating. I was eager to take the survey because I had a few questions and wanted to learn about my gut microbiome and the risk of developing chronic diseases. Although I had colonoscopy a few years ago that was negative, I have never done a gut-check survey before. According to Perlmutter, the brain and gut are bidirectional (2015). Whenever my mom receives any unwelcome news, the first thing is that she will immediately have an upset stomach and will have to go to the restroom. My gut survey result is interesting because I have more Nays than Yeses, which is very surprising. I am still determining if this suits me because the author has yet to discuss the survey details. According to Perlmutter, "The more yeses you have, the higher your risk might be for having a sick or dysfunctional microbiome that could be impacting your mental health" (2015, p. 16).

Articulate Learning: Based on the reading and the results of the survey, write one personal SMART goal and one professional SMART goal.

Based on the result of my survey, my risk factor is low, but I am glad I took the test since I have a family history of Dementia on my father's side, so it was scary taking the survey. To maintain my low-risk factors result, the personal SMART goal would be to continue to eat daily plant-based foods, food high in fiber, and cut down on sugar and processed food. In addition, to help me with my goal, I will increase my physical activity daily, walking 30–45 minutes during lunchtime and after work starting next week. In addition, to measure my goal, I will do a gut microbiome health test once a year to measure the healthy and unhealthy microbiomes in my gut. Regular gut tests will help me ensure that I maintain low-risk factors.

My professional SMART goal is to educate my patients on the importance of gut checks and how to do regular gut checks—educating them on microbiome tests conducted via a stool sample to evaluate their gut health and monitor their progress for the next three months. Furthermore, the main goal is to have every patient do a gut check at least twice yearly to keep their risk factor low and maintain a healthy gut.

Week 3

Reflections – Read/Listen: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Part 1: Welcome Aboard**

Writing prompt reflection: What is your current understanding of the role of your microbiome in regulating your overall health? Does this new information validate or challenge your current understanding of the link between chronic conditions such as diabetes, autoimmune disorders, depression, and neurological conditions and diet? Be descriptive in your examples.

Describe

My understanding of the role of the gut microbiome in regulating our overall health is extensive. Scientific findings have linked the gut microbiome with the fate of human health. The gut microbiome comprises mainly bacteria, “alongside yeasts, viruses, protozoans, and eukaryotic parasites that also serve important healthful roles” (Perlmutter, 2015, p. 24). Gut bacteria are critical players in the gut because they collaborate with our physiology and neurology systems. The ecosystem in the digestive tract commands the whole-body systems and is considered an organ like the heart and lungs (Perlmutter, 2015).

The intestinal flora helps break down food and absorption of nutrients. It regulates the immune system, protects the body against pathogens, and detoxifies, produces, and releases enzymes for digestion. The intestinal flora affects the hormonal and endocrine systems, assists with sleep, and controls stress and inflammatory pathways. The beneficial bacteria are risk factors for brain disorders, mental illnesses, cancer, and other conditions like asthma, food allergies, diabetes, obesity, and autoimmune diseases because they influence all organs and systems (Perlmutter, 2015). Bacteria are either permanent residents or transient. The permanent bacteria form lasting colonies while the transient bacteria pass through the digestive tract but have essential effects and impact on the health, producing substances critical to the health of the permanent bacteria and the body. Gut bacteria help with inflammation and response to the digestive tract and the immune system (Perlmutter, 2015).

Examine

I understand that gut health is overall health and well-being. Everything we eat helps or harms us. The gut microbiome is essential to all organs and systems. The impairment of the digestive tract can lead to symptoms like heartburn, gas bloating, and headache, which makes us start self-medication and get prescription medication when self-medication is not helpful. There

is an increased disruption of the gut bacteria diversity balance and permeability. Because of this, the gut becomes weaker, and we develop chronic conditions like diabetes, inflammation, and other conditions.

A few years ago, my mom was diagnosed with type 2 diabetes and started on medication and a fingerstick. The new diagnosis bothered her, and I educated her on changing her diet and weight control. She was ready for the change and started paying more attention to what she ate. Eventually brought down her A1c, and her doctor had to take her off the medication. Since then, she has checked her fingerstick regularly, and she has eaten more plant-based foods, a high-fiber diet, and avoided refined sugar and grain, fried food, and saturated fatty foods. My mom's story confirmed that our diet has much to do with our health.

Our healthy lifestyle and clean environment with no challenges for the immune system are related to chronic health conditions. Furthermore, the Western diet, low in plant fiber and high in fats and simple sugars, contributed to the human development of these chronic conditions. The low quantity of fiber in this diet reduces the support of a diverse gut microbiome and the health benefits. A high prevalence of Alzheimer's has been noted in countries with a high degree of sanitation and urban areas than in countries with the least sanitation (Perlmutter, 2015, p. 40).

Articulate Learning:

Education and awareness of these findings are the key. As a nurse, I am responsible for educating and making my patients aware of my new knowledge. Because I work in the infusion center and have daily encounters with patients with autoimmune conditions like Graves' disease, multiple sclerosis, myasthenia gravis, Lupus and Rheumatoid arthritis. I have been educating

them on their dietary choices and making them aware of their gut microbiome. I have researched and found patient information I share with them on the gut microbiome and their disease conditions. Educating patients that despite their upbringing, there is still time to make changes and that the body is adaptable, so they can change their health by changing their diet and lifestyle. To increase food, high Omega 3 has anti-inflammatory actions and may help to relieve depression. They can change, heal, and nourish a healthy microbiome through their eating, environment, and lifestyle. Avoid exposure to substances that can change the bacteria composition of the gut microbiome, like gluten, chlorine, and antibiotics, and avoid stress (Perlmutter, 2015).

Week 4

Reflections – Read/Listen: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Chapter 2: Belly & Brain on Fire**

Writing prompt: How does the information on the science of inflammation validate or challenge your understanding of chronic conditions? What role does your microbiome play in mitigating the inflammatory processes? What role does a leaky gut play in the inflammatory cascade? Give examples:

Describe

Inflammation is not only a disease process but is essential in the healing process, and when it persists for too long in the body it causes illnesses. Chronic inflammation-related Diseases are obesity, diabetes, malignancy, autoimmune disease, depression, autism, asthma, arthritis, coronary artery disease, multiple sclerosis, and Parkinson's and Alzheimer's disease (Perlmutter, 2015, p. 47). The author further discussed inflammation as a fundamental process in

the development of Alzheimer's. Biochemicals called inflammatory markers like cytokines are elevated in Alzheimer's patients and could be used to predict cognitive decline and Dementia. Tumor necrosis factor-alpha (TNF-a), a cytokine, has an essential role and is elevated in "inflammatory conditions like psoriasis, rheumatoid arthritis, cardiovascular disease, Crohn's disease, and asthma" (Perlmutter, 2015, p. 48). The author stated that specific genes could also increase inflammation and raise the risk of developing diseases like cancer rooted in inflammation. Furthermore, elevated blood sugar levels are toxic to the body and can stir up inflammation (Perlmutter, 2015). The intestinal mucosa has a critical role in inflammation. It can adapt and tolerate many microorganisms and toxins, preserve nutrients, and raise an effective immune response to pathogenic infection. The microbiota maintains symbiosis with the gut environment and forms a mutual relationship with the host. The guts provide a nutrient-rich habitat for the microbiota, while the microbiota stimulate the host's immune system, aid digestion, and provide metabolites. The diversity of microbiota and beneficial bacteria in a healthy gut helps maintain gut homeostasis and protect intestinal immune responses at the mucosal surface, limiting excessive mucosal inflammation (Sanders et al., 2021).

A leaky gut is an imbalance of gut bacteria that allows various proteins in the gut to escape from the gut wall and challenge the immune system, causing an immune response leading to inflammation. Certain medications, pathogenic bacteria, stress, environmental toxins, elevated blood sugar, and gluten increase the gut's permeability. It is commonly seen in patients with intestinal inflammation (Perlmutter, 2015).

Examine

My understanding of the science of inflammation and chronic conditions is engaging and has given me a better knowledge of why some patients can develop leaky guts after

chemotherapy. Chemotherapy is implicated in the gut's permeability, activating the mucosal immune response, and causing diarrhea and constipation. Most patients receive post-hydration during chemotherapy three times a week and sometimes daily to prevent dehydration. We also educate them on the importance of hydration at home.

Alterations in the gut microbiota contribute to the development of diabetes and increase the growth of AGEs (Advanced glycation end products), increasing the risk of Alzheimer's. The gut's bacterial imbalances cause a lack of essential byproducts needed to maintain healthy cells in the digestive system. Disordered gut bacteria imbalance is related to diabetes and brain function. Some people with genes that increase inflammation are at risk of developing diseases rooted in inflammation (Perlmutter, 2015).

Articulate Learning

A properly functioning digestive tract is essential for good health. Therefore, we should explore foods that can help us maintain a healthy gut and prevent or treat leaky gut. When there is a leaky gut, intestinal permeability causes poor food digestion and other health conditions. Focusing on the gut's health and other lifestyle changes like avoiding smoking and stress, indulging in exercise and getting enough sleep should help us have healthy life and longevity. I have been struggling with constipation for a long time and was admitted once for partial intestinal obstruction. I have always attributed my condition to hormonal imbalance but with my new knowledge of the inflammatory process, chronic conditions, and the impact of a leaky gut on health. I am beginning to make more dietary changes and am already experiencing some changes since I have learned that dietary changes can reverse leaky gut and mucosal damage. As new knowledge, I would use it to help my patients undergoing similar conditions.

Week 5

Reflections – Listen/Read: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Chapter 3: Is Your Belly Depressed?**

Writing Prompt: What is your current understanding of the causes of depression and mood disorders? How does the concept of self-care fit with this (new) information regarding your microbiome? How might sleep patterns be determined by your microbiome? Be descriptive in your examples:

Describe

According to the author, gut bacteria impact mental health because of their "direct effects on the intestinal barrier and neurotransmitter production" (Perlmutter, 2015, p. 74). The author further described the gut microbes having control in the production of inflammatory chemicals that are a factor in mental health and the ability to absorb nutrients like omega-3 and vitamins for mental health. Toxic chemicals in the gut affect mood and brain function, called auto-intoxication. Elevated inflammatory markers increase the risk of developing depression; the higher the level, the worse the depression. The author emphasized that pro-inflammatory cytokines and lipopolysaccharide (LPS) may induce depressive symptoms. LPS increases the production of inflammatory chemicals, "makes the gut more permeable and can cross the blood-brain barrier allowing pro-inflammatory chemicals to bombard the brain" (Perlmutter, 2015, p. 79). Studies found increased inflammatory cytokines and the development of major depression using interferon to treat hepatitis C. Elevated blood sugar level is another risk factor for depression.

Sleep disorders can affect our quality of life and alter normal body physiological activities, leading to metabolic disorders and the risk of diabetes, hypertension, obesity,

depression, heart attack, and stroke (Neroni et al., 2021). Circadian rhythms and sleep disturbances are interconnected, and cortisol (stress hormone) is connected to our circadian rhythm. According to Perlmutter (2015), cytokines like interleukins and TNF-a are essential for inducing sleep, and gut bacteria stimulate the production of these chemicals together with cortisol levels. Furthermore, the disruption of gut bacteria affects sleep and circadian rhythms. A balanced gut bacteria can help with insomnia (Perlmutter, 2015).

Examine

Understanding the causes of depression and mood disorders is now different. The risk of mood disorders is higher in people with autoimmune diseases and infections. I have new knowledge of the elevated blood sugar level as a factor in depression—the importance of decreasing the inflammatory markers in treating depression and mood disorders. The reason antidepressants are not always effective is that they are not addressing the problem's primary source. I have always known that exercise can help improve depression and obesity, and diabetes could be a risk factor for depression. Encouraging physical activities, avoiding a sedentary lifestyle, a high-sugar diet, and insufficient omega-3 is essential for everyone.

The Western diet, high in bad fat, carbs, and low fiber, standard in developed countries like the United States, is one of the causes of the increase in the prevalence of conditions like depression and Alzheimer's (Perlmutter, 2015). Taking self-care steps that promote the overall health of the digestive system is the best way to restore a leaky gut. Self-care measures to restore the gut bacteria balance are essential. Including probiotics in diet, getting enough sleep, including dietary fiber, regular exercise, avoiding smoking, eating less sugar, avoiding stress, and unnecessary intake of antibiotics is helpful (How to Keep Gut Healthy - Self-care Tips for Gut Health, 2022).

Articulate Learning

Antidepressants are ineffective because they do not get to the problem's source. Regular monitoring of the C-reactive protein is an excellent marker to monitor the condition and is highly recommended. Controlling sugar intake and maintaining an average blood sugar level is advisable. In my practice, I have seen many patients with diabetes, obesity, and other chronic conditions with depression. Because of the link between depression and inflammation. Studies on the use of immune-altering medications to treat depression are being explored (Perlmutter, 2015). Encouraging a Mediterranean diet high in healthy anti-inflammatory fats and protein is critical for self-care.

Since reading this book and doing more literature, I have been having more discussions with my patients on the gut microbiome and its effects on chronic diseases—a discussion with a particular patient with Rheumatoid arthritis. I am educating her on exercising regularly as much as she can tolerate, reducing sugar in her tea, and starting low-carb intake. Since then, she has stopped using sugar in her tea and has reduced her carb intake. According to the patient, this has helped her a lot because she has stopped taking her Norco and now only takes Tylenol as needed for pain. She has also lost some weight and is feeling much better than before. Reducing sugar has helped her condition, and she plans to inform her doctor to reduce the frequency of her infusion. I was pleased to hear this and that she is following my advice and is feeling better.

Week 6

Reflections – Listen/Read: Brain Maker: The Power of Gut Microbes to Heal and Protect Your

Brain for Life. **Chapter 4: Your Intestinal Flora & Obesity**

Writing Prompt: What role does inflammation play in the development of obesity and diabetes? How can the microbiome influence appetite and predispose a person toward obesity? Be descriptive in your examples.

Describe

According to Perlmutter (2015), most scientific studies on obesity and diabetes were tested on mice. The author said that obesity studies are now looking into the gut bacteria composition other than access to food intake. The gut bacteria diversity has been attributed to obesity. The most prominent bacteria are Firmicutes and Bacteroidetes, which comprise 90% of the gut's population. The ratio of these two bacteria determines the level of inflammation and is related to conditions like diabetes, obesity, coronary artery disease, and inflammation. "A higher ratio of Firmicutes to Bacteroidetes is strongly associated with more inflammation and obesity" (Perlmutter, 2015, pp. 98-99).

Furthermore, diets high in carbs and low in proteins can raise the F/B ratio supporting the Firmicutes populations. Firmicutes increase calorie absorption, and "Bacteroidetes break down bulky plant starches and fibers into shorter fatty acid molecules, the body can use for energy" (Perlmutter, 2015, p. 99). So, the medical field uses the F/B ratio as an obesity biomarker. Research has confirmed that the Western world guts are dominated by Firmicutes and more Bacteroidetes in the African guts. The Firmicutes bacteria regulate human metabolic genes and are abundant in overweight humans. They help the body retain calories, increase the harvested and stored energy, and immune systems. The imbalanced composition of the gut microbial can lead to inflammatory diseases linked to obesity. Elevated levels of Firmicutes change the genetic expression paving "the way for obesity, diabetes, cardiovascular diseases, and inflammation" (Perlmutter, 2015, p. 100).

The author further states that there is a connection between the type of microbes in the gut and obesity. Obese humans have 20% more Firmicutes and 90% fewer Bacteroidetes than normal-weight humans. Bacteria diversity is lacking in obesity and diabetes. A small number of Firmicutes has less chance of diabetes, and a small number of Bacteroidetes increases gut permeability and risk of immune disorder, inflammation, depression, and Alzheimer's later in life. (Perlmutter, 2015).

A high fructose diet in the American diet increases obesity by feeding pathogenic gut bacteria, which disrupts the gut's microbial balance. It does not stimulate insulin production as glucose. The liver processes it, and there is less production of Leptin, a hormone that suppresses appetite (Perlmutter, 2015).

The role of inflammation in the development of diabetes and obesity is enormous. Obesity is linked to "increased production of pro-inflammatory chemicals/cytokines" (Perlmutter, 2015, p. 102). These cytokines are fat-generated and act like organs producing hormones and inflammatory substances dumped into the liver, and the liver responds with inflammation-producing reactions and hormone-disrupting substances. These cytokines are at elevated levels in all inflammatory conditions. Fat cells store extra calories and are involved in human physiology. Excess fats are stored around visceral organs, and metabolism suffers. These visceral fats activate inflammatory pathways and molecules, interfering with the body's normal hormonal dynamics. These visceral fats lead to inflammation through biological changes but are inflamed (Perlmutter, 2015).

The gut microbes influence our appetite and can predispose a person toward obesity and are essential in the body's energy dynamic and affect the calories in and out equation. The quality of diet, quality, and diversity of gut bacteria are linked to the risk of developing obesity. Gut

bacteria control blood sugar control, weight, and risk for diseases. According to Perlmutter (2015), the microbe *Helicobacter pylori* regulates and controls hunger by affecting ghrelin levels, the hormones that regulate appetite. Studies have shown that the microbe *H. pylori* is missing in an obese person, and with the unnecessary use of antibiotics, the Western diet, and hygienic living conditions, the *H. pylori* gut bacteria are lesser. Overuse of antibiotics has partly worsened the obesity epidemic in children and changed their gut microbe's balance (Perlmutter, 2015).

Examine

My new and improved knowledge of the microbiome's relationship with obesity and diabetes will help me provide and offer my patients more practical and comprehensive guidelines on managing diabetes and obesity. I have increased my understanding and knowledge that other than food consumption and a sedentary lifestyle; obesity is more related to sick and dysfunctional intestinal bugs. Guts bacteria help digestion, are critical in metabolism and respond to hormones that control the appetite. (Perlmutter, 2015). My nurse assessment includes calculating body mass index and measuring blood sugar.

Humans need more butyric, acetic acid, and less propionic acid, the harmful bacteria. Obesity and diabetes are inflammatory diseases; excess body fat increases inflammation and is crucial to diabetes. The control of blood sugar levels is essential in the prevention of inflammation. Blood sugar levels reflect the balance of gut bacteria.

Certain gut bacteria help the body to control blood sugar levels. The new knowledge that the gut microbiome determines the success of gastric bypass surgery, not the stomach size, is some knowledge I can share with my patients. Eating healthy food that favors the growth of different bacteria is essential even after gastric bypass. (Perlmutter, 2015).

Moreover, that exercise promotes microbiome diversity and is not just about weight loss and calorie burn. When we exercise, the gut bacteria are influenced, and the bacteria colonies are favored to prevent weight gain. Exercise lowers the F/B ratio. A baby not exposed to rich, diverse beneficial bacteria early in life is at higher risk of obesity and diabetes later in life. Moderate to vigorous exercises like running can help increase bacteria's gut diversity.

The high fructose in the Western diet has been attributed to the obesity epidemic in America and the changes in the gut microbiome, with little diversity and many bacteria that feed fat cells. Fructose feeds pathogenic gut bacteria, disrupts the gut's healthy microbial balance, and does not stimulate insulin production as glucose does. The liver metabolizes fructose and produces less appetite-suppressing hormone Leptin (Perlmutter, 2015). The Western fructose diet is high in saturated fats and sugar, which promotes weight gain and insulin resistance: processed food, refined grains, high-sugar drinks, and fried food.

Articulate Learning:

I can relate my new and increased knowledge to my patient population with diabetes and obesity and my personal life, which I am already doing. I am cautious with my food choices. I encourage my household and patients to follow them since studies have shown we can improve the bacteria ratio by eating more fiber and probiotics like yogurt, cheese, and pickles. Inform them that improving the quality and diversity of the gut bacteria is possible and can reduce their risk of developing obesity and diabetes. I am helping my patients understand the importance of having a controlled blood sugar level and education on food choices to help build a diverse gut population. I have stopped blaming obese humans for their predicament and am more prepared and am using my new and improved knowledge to help this population thrive. I now educate them on how they can transform their gut health by understanding the power of diet to control

gut bacteria composition and weight. Patients are advised to eat healthy fats, sugar, fiber, and vitamins B, and D. Food like vegetables, nuts, fruits, whole-grain foods, and proteins like beans and fish are advisable for obese and diabetic patients.

I am educating patients on unnecessary antibiotic use, the Western diet full of processed food, fried food, high-sugar drinks, refined grains, and hygienic living conditions. I am advising them to use antibiotics only, when necessary, in children and adults. My new insight to these patients is giving power back to their hands to be in control of their metabolism and inflammatory pathway and nourishing their microbiome through their new diet choices. I am letting them understand that gut microbiome turnaround is possible through diet modification. A quality diet and diverse gut bacteria can change weight gain and diabetes. The power of diet in controlling the composition of our gut bacteria to control weight should be discussed, and encourage food high in healthy fat and sugar, fiber, and vitamins B and D. Food like vegetables, nuts, fruits, whole-grain foods and proteins like beans and fish are advisable for obese and diabetic patients.

PART TWO: Weeks 7 - 13

Week 7

Reflections – Listen/Read: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Part 2: Punched in the Gut. Chapter 6**

Writing prompt: What role do fructose and gluten play in the inflammatory cascade? What role does gliadin play in the formation of a leaky gut? Be descriptive in your examples.

Describe

The Western diet is rich in Fructose and fat. Fructose is a natural sugar found in fruits, but the Fructose in the Western diet is high in sugar, made from corn starch, and added to sodas and candies. Natural Fructose has a low glycemic index "unlike table sugar or high-fructose corn syrup" (Perlmutter, 2015, p. 145). According to studies, there is a long-term effect on the body from eating massive quantities of unnatural Fructose, and it is linked to "impaired glucose tolerance, insulin resistance, high blood fats, and hypertension" (Perlmutter, 2015, p. 145). A high synthetic fructose diet burdens the liver and leads to uric acid linked to HTN, gout, and kidney stones. Moreover, Fructose does not trigger the creation of Leptin and insulin needed to regulate metabolism, causing the immune system to become inflamed, producing more reactive molecules like inflammation-related cytokines (Perlmutter, 2015).

The protein gluten found in wheat, barley, and rye is linked to dementia, headaches, depression, and anxiety. Perlmutter (2015) states that gluten sensitivity increases the production of inflammatory cytokines and refers to it as a "silent germ." The effects of gluten on the body could be gradual, with unexplained headaches leading to depression or dementia. Gliadins and glutenin are the two main protein groups of gluten, and a reaction to either of these groups of proteins can lead to inflammation. Because of gluten's sticky feature, it interferes with food breakdown and absorption, causing an immune response that can affect the gut lining, damaging

it, which is a leaky gut—Perlmutter (2015) further states that exposure to gliadin protein increases gut permeability. The lipopolysaccharide then can get through the tight junction to the bloodstream, increasing systemic inflammation and irritating the immune system (Perlmutter, 2015).

Examine

It is interesting to know that sugar affects our gut bacteria according to studies of artificial sweeteners which are hard for humans to digest. A study on mice with fake sugars like saccharin, sucralose, or aspartame confirmed that there is "a shift in the composition of the gut bacteria upon exposure to the artificial sweeteners" (Perlmutter, 2015, p. 147) and some bacteria becoming abundant and some diminishing. Studies on humans are ongoing and have shown that gut bacteria are different in humans that consume artificial sweeteners and those that do not. Moreover, it shows that it affects weight gain, higher fasting blood sugar, and adverse effects on health (Perlmutter, 2015).

It is incredible to have this new knowledge about gluten. I am shocked by this new knowledge because Perlmutter mentioned that many people have undetected reactions to gluten. Also, how gluten lurks in foods like ice cream, healthy wheat-free, and skin products; anyone can suffer problems from gluten even when they tested negative and can digest it. According to Perlmutter (2015), some people might not have gastrointestinal symptoms like abdominal pain, nausea, diarrhea, and constipation from gluten, but it has a silent effect on their nervous system. The author further states that most humans have a degree of sensitivity to gluten without knowing it (Perlmutter, 2015).

Articulate Learning

With this new knowledge, I have a better knowledge of the implication of gluten and fructose diets on overall health. The new knowledge will help me to advocate for my patients and my family to eat gluten-free food and more natural Fructose by educating them on this new knowledge. I will educate them on gluten-free and natural fructose diets, which might be challenging to do on their own because of the gluten hidden in most food and the high synthetic Fructose in the Western diet. I recommend consulting a dietitian for food selection guidance to assist them with the suggestion. My goal for my patients is to slow down the progression of their medical condition and improve their quality of life. I am also educating them on the importance of compliance with the dietary regimen.

Week 8

Reflections – Listen/Read: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Chapter 7: Bust a Gut**

Writing Prompt: What common environmental elements can exacerbate the inflammatory process? What is antibiotic stewardship, and what role do nurses play in this critical issue? What role do antibiotics play in the food supply? Describe at least three issues with genetically modified foods. Be descriptive in your examples.

Describe

The use of antibiotics in the agricultural sector is contributing to the resistance. Studies have shown sudden changes in the livestock's microbiomes when given antibiotics. Antibiotic use in agriculture and farming may be partly responsible for childhood obesity. Despite all efforts to reduce the use of antibiotics in agriculture and farming, it has not been fruitful. The changes in

the gut microbiome are caused by antibiotics in cattle and humans. The number of Firmicutes in the gut is higher than Bacteroidetes after the use of antibiotics because antibiotics "wipe out certain strains leaving others to flourish" (Perlmutter, 2015, p. 159). Antibiotics "alter the gut bacteria and microbes' role in immunity, detoxification, and inflammation" (Perlmutter, 2015, p. 163). The author further stated that although more studies are needed, a study in 2004 concluded that there is an increased risk of terminal breast cancer and antibiotic use in women. Conditions like "ADHD, asthma, being overweight, and diabetes have been associated with antibiotics increasing the risk of dementia, depression, suicide, and anxiety" (Perlmutter, 2015, p. 163). All these conditions are linked to inflammation and gut microbiota. In children, the use of antibiotics disrupts gut bacteria. It increases their chances of developing health conditions like asthma, obesity, and dementia later in life, according to a study in 2010 (Perlmutter, 2015).

The environmental factors Perlmutter (2015) discussed that exacerbate the inflammatory process include NSAIDS, which has been shown to reduce the risk of Alzheimer's and Parkinson's disease. However, recent studies have shown that it alters the intestinal barrier and predisposes humans to become susceptible to gluten. Another element is environmental chemicals. This includes industrial chemicals, pesticides, cosmetic ingredients, food additives, and pharmaceutical drugs. All these are suspected of interfering with humans' hormonal systems (Perlmutter, 2015).

Examine

I have some knowledge about antibiotic use in agriculture and farming, but not to this extent. This reading broadened my knowledge of this issue, and I am glad I had the chance to read it. One thing that amazes me is that drug companies sold 30 million pounds of antibiotics for livestock, the largest amount ever and 80 percent of antibiotics sales in 2011 in the United

States (Perlmutter, 2015, p. 160). The effects of these antibiotics given to this livestock are evident in our meats, poultry, and dairy products. They have lingering effects on humans because they are endocrine disrupters. Humans' continuous exposure to antibiotics in food confuses the sex hormones in the body and interferes with our metabolism, fueling obesity (Perlmutter, 2015).

I find it remarkably interesting to learn about the use of antibiotics before dental procedures for older patients with a history of total hip or knee replacements. My mom happened to have a total left knee replacement, and she is required to take prophylactic antibiotics before any dental visit. The dental clinic will not touch her unless she takes it. I do not know if all this information is getting to the right people. However, after learning this, I will discuss it with her dentist and hear their view.

The effect of BPA on humans and how it is in everything from plastic containers to electronic devices despite the findings. I have seen many plastics having no BPA on their labels, which is encouraging because of the toxic effects of the chemical. I am in support of Perlmutter (2015), stating that "it is better to err on the side of caution" (p. 170) and lower our chance of exposure to all these chemicals, although their effects on the gut's microbiome are not known for now. Avoiding chlorine and pesticides is advisable to Perlmutter (2015). This may not work because of the daily need for these chemicals.

Another element Perlmutter (2015) discussed, although the health implication on humans still needs more research, is genetically modified organisms (GMO) foods (Perlmutter, 2015).

Articulate Learning

The use of antibiotics in agriculture and farming should be discouraged to reduce the antibiotic resistance problem. Nurses' role in antibiotic stewardship is to help the provider obtain

culture (wound, blood, and urine) on time before antibiotics start. Also, to monitor culture results and report to the provider as soon as it is available. As antibiotic stewardship, I promote appropriate prescription and use of antibiotic therapy. Thereby protecting patients from harm from the unnecessary use of antibiotics to prevent antibiotic resistance. Educating patients on the difference between viral and bacterial infection and antibiotic treatment is appropriate, especially for parents requesting antibiotic therapy when their children have common colds and ear infections. I know I did that too when my children were little and sick; although I knew antibiotics were not the cure, I would still ask the provider to prescribe one. I know better now and am looking for my grandchildren on things like this. It sounds terrible as a nurse, but nobody wants their child to be sick and miserable. All we care for is an instant cure. In situations where antibiotic therapy is needed, education on using probiotics during antibiotics must be discussed and encouraged.

Week 9

Reflections – Listen/Read: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. **Part 3: Brain Maker Rehab: Chapter 8: Feeding Your Microbiome**

Writing prompt: What new information have you acquired about how to care for and feed your microbiome? What three things might you change immediately, and what might take time to change and why? Be descriptive in your examples.

Describe

The chronic conditions linked to the brain that humans suffer from are due to the human diet shift from a low-carb, high-fiber, and fat diet to a low-fat, fiber, and high-carb diet (Perlmutter, 2015). Fat is the preferred fuel for human metabolism, not carbohydrates. "The

evolution of the human diet, from natural food sources to ultra-processed foodstuffs, has led to drastic changes in the gut microbiota, which has negatively impacted immune signaling in both the intestines and the brain, contributing to widespread chronic disease in the developed world" (Olmo et al., 2021, p.11). The modern diet fuels unhealthy gut bacteria, increases gut permeability, damages the mitochondria, compromises the immune system, and causes widespread brain inflammation (Perlmutter, 2015).

The six keys to sustaining a healthy microbiome and improving the "body's chemistry from the gut to the brain" (Perlmutter, 2015, p. 201) are foods rich in probiotics and fermented foods. Probiotics provide probiotic bacteria in diet and are available in capsules in the market. Fermented foods have existed for 7,000 years in Persia and for 6,000 years by the Chinese. Some fermented foods are kimchi, a Korean dish made from cabbage or cucumber; sauerkraut, made from fermented cabbage; Kefir, a fermented dairy like yogurt; and yogurt, from fermented milk. Others are kombucha fermented black tea and tempeh, which can be eaten as a substitute for meat and is loved by vegetarians. Pickles, pickled fruits and vegetables, meat, fish, and eggs. Cultured condiments like mayonnaise, mustard, horseradish, and salsa (Perlmutter, 2015). Lactic acid fermentation is the type of fermentation that makes food rich in beneficial bacteria. It converts the sugar in food into lactic acid, multiplying gut bacteria. *Lactobacillus acidophilus* bacteria are introduced into sugar-containing foods to jumpstart the process of fermentation in food like yogurt. Probiotics bacteria help the body maintain the gut's integrity lining, balance the body's pH, are natural antibiotics, antivirals, and antifungals, regulate immunity and control inflammation, suppress growth and invasion of pathogenic bacteria, metabolize their sources of fuel from your diet and increases the availability of Vitamin A, C, K, and B complex (Perlmutter, 2015).

The second is low-carb and high-quality fat. The modern diet is more grains and carbs, most of which are microbiome-damaging gluten and negatively affect the brain later in life. This diet spikes blood sugar and makes the microbiome sicker. Recommended low-carb and high-quality fat foods include lettuce, avocado, fermented foods, extra virgin olive oil, whole eggs, herbs, seasoning, and condiments. Furthermore, eating carrots, cow's milk, legumes, non-gluten grains, sweeteners, and whole sweet fruits in moderation (Perlmutter, 2015).

Third, enjoy wine, tea, coffee, and chocolate in moderation because they support gut bacteria health. These are plant-derived beverages and a reliable source of polyphenols, a potent antioxidant. Studies on polyphenols to diet have significantly reduced oxidative stress markers and reduced the risk for neurological ailments (Perlmutter, 2015). Prominent levels of flavonoids in cocoa and chocolate improve "Insulin sensitivity and blood pressure, less free radical damage and heightened cognitive function" (Perlmutter, 2015, p. 193). According to Ullah et al. (2020), flavonoids in a daily diet are highly recommended to stay healthy and to reduce the risk of several life-threatening diseases, such as diabetes mellitus and cancer, as well as lowering the risk of stroke and heart attack.

Fourth is to choose foods rich in prebiotics, which are fiber rich. They are non-digestible, metabolized by gut bacteria, and have health benefits. "Prebiotics are ingredients the gut bacteria love to eat to fuel their growth and activity and can easily be ingested through certain foods" (Perlmutter, 2015, p. 194). A minimum intake of 12 grams of prebiotics is recommended by Perlmutter (2015) from foods, a supplement, or combinations. Good gut bacteria use prebiotic foods to fuel their metabolism and produce short-chain fatty acids. These short-chain fatty acids regulate sodium and water absorption to enhance the absorption of minerals and calcium. They lower the pH in the gut for the growth of pathogenic bacteria and enhance the immune system to

make us healthy (Perlmutter, 2015). Prebiotics have always been part of humans' diets and are seen in raw foods like chicory root, Jerusalem artichoke, garlic, cooked onions, leeks, jicama or Mexican yam, raw asparagus, and dandelion greens (Perlmutter, 2015). Furthermore, health benefits, like reducing febrile illness, reducing inflammation in inflammatory bowel diseases, lowering the risk of cardiovascular diseases, promoting satiety, and reducing glycation, have been documented by science (Perlmutter, 2015).

The Fifth is to drink filtered water and avoid tap water high in chlorine. The following tips to help reduce exposure to environmental chemicals are to shop at farmers' markets, use less canned food because of the BPA-laden coat of cans, use glass containers to microwave and not plastics, use no plastic containers or wraps made from PVC to store foods, avoid bottled water, use HEPA air filters at home and vacuums with HEPA filters. Read labels on household goods and make sure they have genuine USDA organic seals. Finally, have plants in the house for natural detoxification.

The sixth and final is intermittent fasting every season because of the body's ability to convert fat into the fuel during starvation. The fat molecule ketone (beta-hydroxybutyrate or beta-HBA) found in coconut is essential for the brain and, according to research, can "improve antioxidant function, increase the number of mitochondria, and stimulate the growth of new brain cells" (Perlmutter, 2015, p. 198). Calorie restriction has been known to slow aging, prolong life, and reduce age-related chronic health conditions. It also increases insulin sensitivity, reduces oxidative stress, triggers the genes for stress, resists disease and puts the body into fat-burning mode. Intermittent fasting is the same as calorie restriction. However, fasting is known to change the gut bacteria, enriching strains of bacteria linked to increased lifespan and reducing strains that negatively impact lifespan, according to studies (Perlmutter, 2015). Seventy-two hours of

seasonal fasting in March, June, September, and December after checking with your provider is recommended by Perlmutter (2015).

Examine

According to Perlmutter (2015), a new dietary protocol can rehabilitate a dysfunctional microbiome in six days. The six essential steps are eating probiotics, prebiotics, a low-carb, and high-fat diet, drinking wine, black coffee, tea, and chocolate, drinking filtered water, and intermittent fasting. It amazes me how cholesterol in the bloodstream is essential for optimal brain functioning, and coronary heart diseases contrary to common knowledge about cholesterol in the bloodstream. Perlmutter (2015) stated that in 2005, a study confirmed that people with high cholesterol levels have better cognitive tests than people with lower levels, a link between cholesterol and the brain—coronary heart diseases linked to inflammation, not high cholesterol (Perlmutter, 2015). The most shocking new knowledge from this reading is also about low-density lipoprotein (LDL), the known "lousy cholesterol" to be good or bad but a transporter of cholesterol from the blood to the brain's neurons. Eating more meat, protein, and fewer carbs is always better. However, a high-fat, low-carb diet with "2/3 vegetables and 3-4 ounces of protein using meat and animal products as side dishes and fats from the ingredients used to cook the vegetables and protein is recommended by Perlmutter (2015). He further stated that the best result is obtained when focusing on what is eaten and guidelines rather than portion control.

Perlmutter (2015) mentioned polyphenols in black and green tea that increase bifidobacterial and stabilize gut permeability and flavonoids in cocoa plants.

Learning about the importance of prebiotics protecting against colon cancer, its effect on the absorption of minerals, and its inflammatory effect is vital. It is wonderful to learn that

prebiotics prevent obesity and spur weight loss because of the satiety effect and help to lower insulin resistance (Perlmutter, 2015).

Exciting knowledge about water filters, replacing them as recommended, and releasing chemicals back into the water when the recommendation is not followed.

I am surprised by the number of environmental chemicals we are exposed to daily. Avoiding air deodorizers and plug-in room fresheners is new to me. Avoiding Teflon-coated wares and non-stick pans is the best cookware and is promoted for use all the time.

Articulate Learning

Rehabilitating the gut microbiome is different for everyone and depends on the state of the person's microbiome, and one can follow the new dietary protocol. It is good to get probiotics food from whole natural sources that are bioavailable. Organic is a better choice, and to make the dishes at home, be mindful and check labels for added sugars, colorings, and preservatives. We can prevent all these preventable non-communicable diseases if we change our diet. Although I do not have diabetes and my BMI (Body Mass Index) is slightly above average, neither do I know how healthy my gut microbiome is, but I have a family history of dementia on my father's family side. I look forward to changing my diet to rejuvenate my gut microbiome, shed some weight, and have a healthy brain. I am willing to step forward and try 60% fat, 30% protein, and 10% carb. I can educate and encourage my patients struggling with diabetes and obesity on this diet regime because of the results confirmed by the research. I must avoid non-GMO, gluten-free foods and always choose organic foods, antibiotic-free grass-fed beef, and poultry; wild-cut fish is the best. I love drinking black and green tea and can drink it black, but my problem with coffee is that I love my creamer, and according to Perlmutter (2015), it should be used sparingly.

Drinking my coffee black might take me some time, and I am not even sure if I can do it, but I will try. Perlmutter (2015) recommended drinking red wine because of resveratrol, the natural polyphenol in it, and it affects the gut microbiome and the aging process, heart health, and blood flow to the brain. I am unsure if I can do red wine daily, but not occasionally. I would instead get my resveratrol polyphenol from another source.

Prebiotics in my diet are easy because I already use some foods but can add more because I do not have enough daily intake per Perlmutter's recommendation.

I never considered having a water filter in my shower, but I can start considering this. I know that the city always sends reports for the city water annually, but I never pay attention to them because it is too lengthy and full of jargon that I am not ready to look up to or understand.

I do not have a household water filter but a water filter in my refrigerator. I do not check the label to see if it filters chlorine; I must do this from now on and ensure I replace it according to the manufacturer's recommendations. I sometimes buy from farmers' markets but opt not to most of the time because they are more expensive than the store. However, from reading this, I am reconsidering where I do my grocery shopping. My daughter and I were discussing which grocery stores are more careful in the type of food they carry in their store. Having this knowledge is helping me to decide where to shop for grocery items.

Week 10

Reflections – Listen/Read: Brain Maker: The Power of Gut Microbes to Heal and Protect Your Brain for Life. Chapter 9: Go Pro

Writing Prompt: What supplements do you take currently? Based on the information in the book, announcements, and class, which supplements might you add to your daily routine

(include why for each choice)? Describe at least two challenges to adopting this new regimen. Be descriptive in your examples.

Describe

According to Perlmutter (2015), there are thousands of varied species of gut bacteria, and a core group has been identified and studied aggressively. The five-core probiotics that best support brain health are *Lactobacillus plantarum*, *acidophilus*, *brevis*, and *Bifidobacterium lactis* and *longum*, and they all provide different benefits. However, according to the Office of Dietary Supplements - Probiotics, the seven core "most often used in probiotic products are *Lactobacillus*, *Bifidobacterium*, *Saccharomyces*, *Streptococcus*, *Enterococcus*, *Escherichia*, and *Bacillus*" (2022).

Perlmutter (2015) emphasized that these five-core probiotics, *Lactobacillus plantarum*, *acidophilus*, *brevis*, and *Bifidobacterium lactis* and *longum*, support the brain by "fortifying the intestinal lining and reducing gut permeability, reduce LPS, the inflammatory molecule that can be dangerous if it reaches the bloodstream, increasing BDNF, the brain's growth hormone and finally sustaining an overall balance to crowd out any potentially rogue bacterial colonies" (p. 207). More beneficial organisms will be identified later with more research—prebiotic supplements available or combined with probiotics. According to the Office of Dietary Supplements – Probiotics, these combined supplements are called "Synbiotics" (2022). Eating 12 Grams twice daily of prebiotic foods with probiotics and taking probiotics with filtered water maximizes the effect because chlorine can destroy the probiotic bacteria (Perlmutter, 2015). Probiotics are beneficial bacteria and keep the body healthy, while prebiotics promote the growth of these healthy bacteria.

The other five supplements Perlmutter (2015) recommended to be added to the diet for the gut's healthy and balanced microbial community are Docosahexaenoic acid (DHA), turmeric, coconut oil, alpha-lipoic acid, and vitamin D.

Examine

I am shocked to learn about the increased risk of Tourette syndrome in children with allergies. Furthermore, allergies are linked to gut bacteria imbalance and the risk of a leaky gut. The high strep throat antibiotics level is higher in children with Tourette syndrome (Perlmutter, 2015). More research is focusing on why the strep bacterium has long-term side effects on patients with Tourette's, which shows a glitch in their immune system to the organism (Perlmutter, 2015). I have never treated a patient with Tourette's before, but I know an old neighbor whose son has this condition. I always feel sorry for the family because the child did not have this condition until he was a teenager. Our children grew up together and went to the same schools. I am learning about probiotic enema and used to treat Tourette's for the first time. To do the enema, you need privacy and lubricant. Dissolve 3-6 capsules or 1/8 teaspoon of powdered probiotic in lukewarm filtered water. Pour into the enema bag, lay flat on your side, lubricate the nozzle tip, and insert into the rectum. Open the clamp on the bag high up to allow the mixture to flow into the rectum and hold the enema for about 30 minutes. The procedure can be repeated thrice weekly for four to six weeks. I understand it is not for everyone with Tourette's because each case differs.

Although Perlmutter (2015) recommended oral probiotics, there has been a remarkable success with mixed cultures of live microorganisms of the core group as an enema. Probiotics enema is the most potent therapeutic intervention and recommends experimenting with other combinations but starting with the core five because of their scientific findings. Using adequate

prebiotics with probiotics will allow the organisms to flourish and stay in the gut. When antibiotics must be taken, take probiotics with lactobacillus Levis "on the half time" of the antibiotics. A discussion with the provider is sometimes necessary to ensure the specific antibiotic for the pathogen is prescribed instead of a broad-spectrum one (Perlmutter, 2015). The FDA regulating probiotics will be helpful for the consumer in making the right choice.

Docosahexaenoic acid (DHA) protects the brain and is richly found in breast milk, making breastfeeding the most important for neurologic health. It is also added to baby formula and other food products. A daily dose of 1,000 mg in combination with eicosatetraenoic (EPA) derived from fish oil or algae is perfect (Perlmutter, 2015).

Turmeric is a seasoning with anti-inflammatory and oxidant properties. It can enhance the new growth of brain cells and rival the antidepressant effects of Prozac. It also improves glucose metabolism, which is good for maintaining gut bacteria healthy balance. A daily supplement of 500 mg is recommended (Perlmutter, 2015).

Coconut oil reduces inflammation, is a super fuel for the brain, and is known to prevent and treat neurodegenerative diseases. Perlmutter (2015) recommended drinking one to two teaspoons daily or using them to prepare meals; it is heat stable and better than canola oil for cooking (Perlmutter, 2015).

Alpha-lipoic acid is needed for energy production—a powerful antioxidant for the brain that can cross the blood-brain barrier. The body usually produces enough needed, but because of our modern diet and lifestyle, we must supplement with about 300 mg daily (Perlmutter, 2015).

Vitamin D is a hormone and not a vitamin produced in the skin from exposure to sunlight. Like other people, I only attribute it to strong bones and calcium levels, but it has far

more effect on the body and brain. It "protects neurons from the damaging effects of free radicals and reduces Inflammation" (Perlmutter, 2015, p. 215) through the regulation of the gut bacteria. A dose of 5,000 IU daily is recommended by Perlmutter (2015) to check the blood level to check for other medical conditions and make sure you take enough to have an average level.

I am interested in whether synthetic bacteria are available in the drug market to treat chronic inflammatory conditions. Although I have heard about this new drug from my daughter and a television commercial, Ozempic, for diabetes and weight loss, I am unsure if this is what we need now. It is a weekly injection for adults with type 2 diabetes to manage their blood sugar and is off label for weight loss.

An essential piece of information was that probiotics must be consumed alive to have health benefits, and they can die during their shelf life. Consumers must check the "label for the number of CFU at the end of the product's shelf life, not at the time of manufacture" (Office of Dietary Supplements - Probiotics, 2022).

Articulate Learning

The reading has taught me more about the right supplements and why they are essential. I take multivitamins, Vitamin D3, fish oil, and calcium with Vitamin D supplements daily. I cannot say precisely why I take the fish oil, besides my dad insisting on having one. Fish oil is an excellent omega-3 fatty acid source, which is good for the heart, eyes, cell reproduction, and brain. They are also great for the optimal functioning of the immune and endocrine systems. I have never looked into probiotics or what is available in the market, but I know a few people who take them. Moreover, they do not know if they should take it with filtered water and prebiotics for optimal functioning.

Although I do not have any medical condition described by Perlmutter (2015) for administering probiotic enema to boost gut bacteria, I am willing to try it after checking with my provider. I have chronic constipation and take daily stool softeners because I almost had intestinal obstruction about two years ago. Taking this enema will help my body eliminate harmful gut bacteria and increase the number of beneficial bacteria in my gut. It will help in the optimal functioning of my digestive and immune systems. Furthermore, it may help my chronic constipation promote weight loss, which I look forward to.

Moreover, according to the Office of Dietary Supplements – Probiotics (2022), the health professional's expert bodies have no recommendations for or against using probiotics by healthy people. If I must take oral probiotics, I must use filtered water to maximize the effect and take prebiotics. This is profound knowledge because I always hear people talking about taking probiotics, but I have heard them talk about prebiotics. Unsure that people know about this and to take it with filtered water. I will have to find a store with a natural supplement section near me to shop for high-quality probiotics and prebiotics that are marked hypoallergenic and contain all five-core of the probiotics organisms and ready to ask the store rep for help, but this could be a challenge. Although I am willing to do the probiotic enema therapy after checking with my provider, I am unsure how much I can tolerate it and the challenges I might encounter. I have given enemas to patients before, and I know how difficult it is to hold them for 30 minutes per the recommendation by Perlmutter (2015).

Although I grew up with coconut oil, we only use it on hair, and because of the smell, I never liked it. I used vegetable oil for cooking before, but now I use canola oil. However, with all this latest information, I will start using olive oil since it is the healthiest. I have always known this but do not buy it because it is costly. Olive oil is healthier and more nutritious. It has

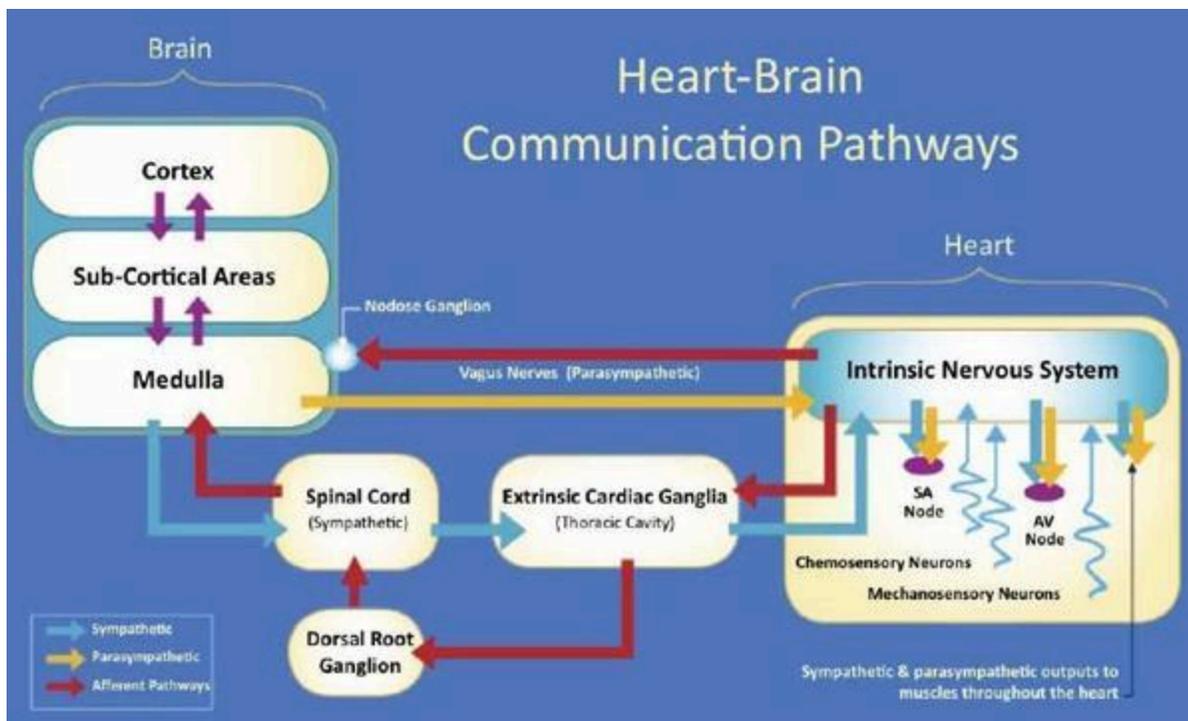
more polyunsaturated (good) fat and less saturated (bad) fat, unlike Coconut oil, which has more saturated fat than unsaturated fat. Avocado oil is another healthy oil I might use for cooking if olive oil is too expensive for me.

In my clinic, we infuse Reclast and Zometa on many patients with osteoporosis. I educated most of them on using calcium with vitamin D. However, I just learned that it has far more health benefits with this new knowledge, and now I can educate them better.

Week 11 No reflection

Week 12

Analyze the flow diagram. In 100 words or less, describe the flow of the diagram as if you were describing it to other RNs during a shift huddle.



The neural communication pathways between the heart and brain are a fascinating and complex grid that involves bidirectional signals between the two organs. This interconnection emphasized the importance of the cardiovascular and nervous systems in human health and well-being.

The autonomic nervous system consists of two branches: the sympathetic and parasympathetic nervous systems. The vagus nerve (parasympathetic) is an afferent that conveys impulses toward the brain from the heart. The neural communication pathways between the heart and brain generate (HRV) Heart Rate variability.

Writing prompt: Reflect on the information presented in this journal's readings. How might you utilize this information for yourself, your family, and your nursing praxis? How has the information in the book validated or challenged your current understanding of chronic conditions and what it means to be "healthy"? **This section is 250-500 words in length.** There will be points deducted if you go outside of the minimum/maximum word count. This section is the distillation of all the entries in this journal.

Describe

The book uncovered the influential role of gut bacteria in determining the brain's health. It validated the debilitating brain disorders in children like autism, ADHD, and dementia in adults is on the rise especially because of the modern western diet. The medical revolution and astonishing new research reveals the relationship between the health of the brain and the state of the gut microbiome and emphasizes the importance of the gut in one's overall health.

In *Brain Maker*, Perlmutter (2015) described the development of the microbiome from birth and how it evolves based on lifestyle choices and how we become sick. The gut bacteria imbalance leads to multiple chronic conditions. Perlmutter (2015) also discussed nurturing gut health through a few easy strategies that can alter the brain's destiny, with simple dietary recommendations and an efficient six-step program to improve gut ecology. The book is opening the door to unprecedented brain health potential.

Examine

Most of the information from the book is new to me, but some validated my knowledge of chronic health conditions and how to be healthy. I agree with the information I received from the book, although some of it is surprising. The book is fascinating to read and full of current

information. Since I have been reading and learning from it, I am anxious to learn what changes I could make to my diet to help improve my gut microbiome. Although I do not have any health condition, I can do better.

Articulate Learning

I will utilize the information from this book for myself, my family, and nursing praxis by planning and gradually practicing some of the suggestions in the book. I have noted many things from the book and plan to start making gradual changes. Regarding the diet, it seems challenging to follow, but I will try, and I have already started making changes. For example, I have started eating some of the food suggested in the book, except for kimchi and kombucha. I still need to know if I will be able to do it. I started drinking my coffee black without creamer, which I never thought I could do. I also downloaded this app (BobbyApproved) on my phone. The app is about buying and eating food that is good for your gut. So now, before I buy anything, I scan the barcode to check if it is approved. Also, I looked up grocery stores near me that carry more organic food, and I have started going there for groceries and shopping at farmer's markets. I am sharing all these and educating my family and patients. I am encouraging them to take a second look at their diet for their medical conditions. Most patients I shared this with were very receptive and gave me positive feedback. I will continue to educate my patients on the new knowledge I gained from the book. I will discuss this information with my family and encourage them to start practicing as much as possible.

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