Chronic Fatigue and Parkinson's Now Linked to Gut Bacteria

STORY AT-A-GLANCE -

- Your gut microbiome is intimately related to your overall health, including your emotions, energy level, mood, neurological conditions and allergies
- New research has identified how your gut microbiome may impact development of chronic fatigue syndrome and Parkinson's disease, two distinctly different illnesses
- Using strategies to support your mitochondria, produce more energy and support your gut microbiome may reduce your risk of illnesses such as Parkinson's disease and chronic fatigue syndrome

By Dr. Mercola

Hardly a week passes without another revelation of how your gut microbiome is intimately related to your overall health. A complete understanding of how a complex microbial community in your intestinal tract may be related to your emotions, mood, energy and neurological condition — to name just a few — is still out of reach.

However, science does know your gastrointestinal (GI) tract is home to one of the most complex microbial ecosystems on the Earth. Your microbial community is even more complex as it is unique to you, based on your diet, geographical location, chemical exposure, hygiene and other environmental factors.

It is becoming increasingly clear that a negative impact on your gut flora from antibiotics, toxic chemicals, sugars and other toxic food products is a primary risk factor in the rising rates of disease. In fact, a modern lifestyle is depleting your gut microbiome and raising your risk of developing long-term chronic or fatal illnesses.

Chronic Fatigue Changes Your Gut Microbiome

Chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME) usually causes debilitating symptoms. Sufferers may experience unrelenting fatigue, no matter how much rest they get, along with pain and inflammation throughout the body. Without an ability to pinpoint an exact cause, many physicians in the past attributed the condition to a psychological origin, leaving patients without real hope for improvement.

It wasn't until the 1980s that the condition received an official name, and only recently did researchers discover biological markers in microbes through serial sequencing of bacterial RNA that indicate differences between healthy individuals and those with CFS/ME.[1] Researchers from Columbia University undertook the first study to investigate a relationship between irritable bowel syndrome (IBS) and CFS/ME, as up to 90 percent of people with CFS/ME have IBS.[2]

Fifty participants were recruited and matched with 50 healthy control participants. Stool and blood samples were taken from each, looking for bacterial species and immune molecules.[3] The bacterial colonies in people who suffer from CFS/ME were distinctly different from healthy controls.[4]

The levels of different bacteria also changed based on the type and severity of symptoms experienced.[5] The first study to link CFS/ME with IBS, it builds on a previous trial that demonstrated 80 percent with CFS/ME could be diagnosed based on their **gut bacteria**.[6] When the species of gut bacteria were analyzed, the researchers found seven that were strongly associated with CFS/ME:

Faecalibacterium
Roseburia
Dorea
Coprococcus

Clostridium
Ruminococcus
Coprobacillus

According to Medical News Today, when an individual had other species at different levels, it indicated the potential presence of IBS. The top bacteria markers for CFS/ME with IBS were increased levels of unclassified Alisteipes and decreased levels of Faecalibacterium. Patients with CFS/ME and without IBS had increased levels of Bacteroides and decreased Bacteroides vulgatus.[7]

Does Parkinson's Begin in Your Gut Too?

Your gut health is tied to more than energy production at the cellular level and your immune system. Your gut microbiome may also play a significant role in the development of some neurological disorders, including Parkinson's disease. Parkinson's affects nearly a half-million people in the U.S.[8]

It's a neurodegenerative disease that is unique to each individual.[9] According to a new study released in Neurology, **Parkinson's disease may start in the gut** and travel to the brain via the vagus nerve.[10]

Your vagus nerve is the tenth cranial nerve and the longest nerve in your body, extending through the neck and into your abdomen.[11] It has the widest distribution of both sensory and motor fibers. The study participants previously had a resection of their vagus nerve, often performed in people who suffer from ulcers to reduce the amount of acid secretion and the potential for peptic ulcers.[12]

Using the national registry in Sweden, researchers compared nearly 10,000 people who had a vagotomy against the records of over 375,000 who had not undergone the surgery. Although the researchers did not find a difference in the gross number of

people who developed Parkinson's between the groups, after delving further they discovered something different.

People who had a truncal vagotomy, in which the trunk of the nerve is fully resected, as opposed to a selective vagotomy, had a 40 percent lower risk of developing Parkinson's disease. The scientists adjusted for external factors, such as diabetes, arthritis, obstructive pulmonary disease and other health conditions.

Your Vagus Nerve Tied to Disease and Treatment

According to study author and Ph.D. student Bojing Liu of the Karolinska Institutet in Sweden:[13]

> *"These results provide preliminary evidence that Parkinson's disease may start in the gut. Other evidence for this hypothesis is that people with Parkinson's disease often have gastrointestinal problems such as constipation that can start decades before they develop the disease.*
>
> *In addition, other studies have shown that people who will later develop Parkinson's disease have a protein believed to play a key role in Parkinson's disease in their gut. Much more research is needed to test this theory and to help us understand the role this may play in the development of Parkinson's."*

As well as potentially triggering **Parkinson's disease**, it appears that bacteria in your gut, specifically H. pylori, may also affect the absorption of one of the primary drugs used to control muscle fluctuations in patients with Parkinson's disease.[14] Research identified H. pylori as a specific bacteria common to patients with the disease, and which impeded treatment.

Chronic Fatigue and Parkinson's Affect Your Whole Life

Each of these conditions exert extensive effects on your health and your life. CFS/ME is usually a diagnosis of exclusion, or ruling out all other illnesses that may mimic the symptoms of CFS/ME before suggesting CFS/ME may be the issue. Symptoms of the

condition affect your ability to work, maintain your home and interact with family and friends.

In fact, the symptoms can be so overwhelming that many patients find it difficult to function. Beginning with pervasive **chronic fatigue**, you may also experience cognitive issues such as short attention span, trouble finding words and difficulty concentrating. These symptoms may affect your ability to work productively and interact with your family. Intermittent flu-like symptoms and irritable bowel-like symptoms contribute to general feelings of malaise, making each day a challenge.

Parkinson's disease is a neurological condition that usually starts with motor or movement problems, such as uncontrollable tremors in your hand when it is at rest. As the symptoms progress you may notice slowness and stiffness coupled with a soft voice and fewer facial expressions.[15]

Over time, other symptoms become evident as the disease progresses. These may include balance and gait unsteadiness resulting in falls, difficulty swallowing, cognitive loss and thinking/memory/behavior changes. Individuals may also find the benefits from medication wear off more quickly.

Although unrelated, CFS/ME and Parkinson's are both linked to the complex bacterial community residing in your gut, and a key link between the two conditions may be **leaky gut**, resulting from bacteria entering the blood as the intestinal walls become more permeable.

Your diet plays a crucial role here. Research has demonstrated that gluten stimulates a protein in your gut called zonulin, which triggers the opening of these cellular junctures, in essence making your gut permeable enough for food particles and foreign molecules to enter your bloodstream, where they can trigger inflammation and immune reactions, increasing your risk for a variety of autoimmune disorders.

Boosting Energy Production May Help Chronic Fatigue Syndrome

In this interview, I discuss the importance of your mitochondria to your health and how it may impact your symptoms of chronic illnesses like CFS/ME. On February 10, 2015, the Institute of Medicine released a landmark report[16] with diagnostic and treatment recommendations for CFS, including the suggestion to change the name from Chronic Fatigue Syndrome to Systemic Exertion Intolerance Disease (SEID).

That name has not yet been formally adopted by world and federal health agencies, but you may see it more in the future. Researchers continue to struggle to understand the mechanisms that trigger such a wide range of symptoms, but it appears clear that an impaired immune system and/or mitochondrial dysfunction may be involved.

While a number of different infectious organisms have been linked to CFS/ME, definitive evidence that symptoms are caused by a lingering infection is slim. Instead, symptoms may be the result of damage caused by an initial infection.

Supporting energy synthesis and mitochondrial function, in combination with healing your gut microbiome, may help to alleviate some of the symptoms. Treatment for CFS/ME requires a multipronged approach you may read more about in my previous article, "**Energy Boosting Strategies That May Help Chronic Fatigue Syndrome**." Important treatment strategies include:

- Exercising according to your ability, with a focus on increasing the amount of exercise you can handle. Research shows that a combination of aerobic activity and strength training can improve pain and fatigue symptoms. Gentle exercise such as yoga can also be an excellent part of your program, and yoga benefits your mind as well as your body
- Supplement with nutrients important for cellular energy synthesis, such as **ubiquinol**, the reduced form of **CoQ10**; one of the strongest antioxidants known that is produced within your own body, and D-ribose, a core building block of ATP
- Eat foods rich in glutathione precursors, sulfur and selenium to encourage glutathione production. **Glutathione** is one of your body's most important antioxidants and a natural detoxification agent. Also make a conscious effort to avoid toxic exposures

- **Intermittent fasting**, making sure your last meal is taken at least three hours before bedtime. The rationale for avoiding late night eating is directly tied to the way your body produces energy
- Addressing your mental outlook. In addition to talk therapy, I would recommend trying the **Emotional Freedom Techniques** (EFT) to help normalize your bioenergetic circuitry. Emotionally traumatic events can leave "energy blockages" for many years, which then interfere with your overall health, including immune function. There are many different techniques that can be used, but EFT is my favorite, and it's easy to learn and apply

Are You Chronically Tired?

Although one of the primary symptoms of CFS/ME is chronic fatigue, there are other reasons you may feel chronically tired. A YouGov.com poll found two-fifths of Americans feel poorly rested at least four days of the week.[17] A Centers for Disease Control and Prevention (CDC) study found 15 percent of woman and 10 percent of men felt tired or exhausted most days, or every day.[18]

Before jumping to the conclusion you may have a significant health condition, consider you may not be getting enough quality sleep each night. According to the CDC, 33 percent of adults in the U.S. do not get at least seven hours of sleep a night.[19] If you are a woman with children, each child increases your risk of insufficient sleep by 50 percent; but not so for men.[20]

You may be able to reduce your feelings of exhaustion or of being tired by paying close attention to your sleep hygiene. For a long list of tips to improve your sleep quality, see "**Want a Good Night's Sleep? Then Never Do These Things Before Bed.**"

It is important to differentiate between being sleepy or not having the energy to move around during the day. Each of these symptoms may indicate something different. Other health conditions that include feelings of sleepiness, being tired or too exhausted to move or exercise may include:[21,22,23]

CFS/ME

Heart disease

Peripheral vascular disease

Diabetes

Sleep apnea

Anemia

Some cancers

Depression

Anxiety

Thyroid dysfunction

Sedentary lifestyle

Leaky gut

Dehydration

Poor nutrition

Vitamin deficiency

Some medications

Rheumatoid arthritis

Alcohol before bed

Developing a Healthy Gut Microbiome

Understanding and practical modification of your gut microbiome is an important part of the future of medicine. Nearly 15 years ago scientists believed that the Human Genome Project would find information necessary to create gene-based therapies to produce cures for most health conditions.

Many years later, science has learned that genetics are responsible for only 10 percent of all human disease, while the remaining 90 percent are triggered by environmental factors.[24] With further research and study, science is now coming to realize your gut microbiome is actually driving genetic expression, turning genes on and off depending upon which microbes are present in your gut.

You can improve the health of your gut microbiome, and thus may make significant changes to your health, by making small lifestyle changes. For a list of changes you may undertake to optimize your microbiome and reduce your potential for disease, see my article, "**How Your Gut Microbiome Influences Your Mental and Physical Health**."