How Stress Wreaks Havoc on Your Gut -- And What to Do About It

By Dr. Mercola

All of your feelings create physiological changes, and stress is no exception. While under stress, your heart rate can go up, your blood pressure may rise, and blood is shunted away from your midsection, going to your arms, legs, and head for quick thinking, fighting, or fleeing. This is meant to be a temporary response to help with survival, but when stress becomes chronic, as it is the case for millions of people reading this, it can pull the rug out from beneath your health, wreaking havoc on your gut and digestive health.

How Stress Impacts Your Gut

The stress response causes a number of detrimental events in your gut, including:

- Decreased nutrient absorption
- Decreased oxygenation to your gut
- As much as four times less blood flow to your digestive system, which leads to decreased metabolism
- Decreased enzymatic output in your gut – as much as 20,000-fold!

But that's not all.

In a very real sense you have two brains, one inside your skull and one in your gut. Interestingly, these two organs are actually created out of the same type of tissue.

During fetal development, one part turns into your central nervous system while the other develops into your enteric nervous system.

These two systems are connected via the vagus nerve, the tenth cranial nerve that runs from your brain stem down to your abdomen.

This "brain-gut axis" is what connects your two brains together, and explains why you get butterflies in your stomach when you're nervous, for example.

Likewise, stress results in alterations of your brain-gut connection, which can contribute to or directly cause numerous gastrointestinal disorders, including:

<table>
<thead>
<tr>
<th>Inflammatory bowel disease (IBD)</th>
<th>Irritable bowel syndrome (IBS)</th>
<th>Food antigen-related adverse responses (food allergies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptic ulcer</td>
<td>Gastroesophageal reflux disease (GERD)</td>
<td>Other functional gastrointestinal diseases</td>
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As written in the featured Journal of Physiology and Pharmacology study:

"Stress, which is defined as an acute threat to homeostasis, shows both short- and long-term effects on the functions of the gastrointestinal tract … The major effects of stress on gut physiology include:

1. Alterations in gastrointestinal motility
2. Increase in visceral perception
3. Changes in gastrointestinal secretion

4. Negative effects on regenerative capacity of gastrointestinal mucosa and mucosal blood flow

5. Negative effects on intestinal microflora

Mast cells (MC) are important effectors of brain-gut axis that translate the stress signals into the release of a wide range of neurotransmitters and proinflammatory cytokines, which may profoundly affect the gastrointestinal physiology.

Harvard Reviews How Stress Can Cause Stomach Disorders

Hippocrates once said that "all diseases begin in the gut," and it's also widely known that stress is a trigger that causes multiple chronic disease processes to occur. These two health dogmas are actually intricately intertwined, as stress is detrimental to your gut health, and together stress and a damaged gut can contribute to multiple inflammatory diseases and conditions, such as:

<table>
<thead>
<tr>
<th>Multiple sclerosis</th>
<th>Type 1 diabetes</th>
<th>Rheumatoid arthritis</th>
<th>Osteoarthritis</th>
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<tbody>
<tr>
<td>Lupus</td>
<td>Crohn's disease</td>
<td>Ulcerative colitis</td>
<td>Chronic skin conditions</td>
</tr>
<tr>
<td>Kidney problems</td>
<td>Urinary conditions</td>
<td>Allergic and atopic conditions</td>
<td>Degenerative conditions</td>
</tr>
<tr>
<td>Chronic fatigue syndrome</td>
<td>Fibromyalgia</td>
<td>Myalgic encephalomyelitis (ME)</td>
<td>Inflammatory bowel diseases</td>
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To put it simply, chronic stress (and other negative emotions like anger, anxiety and sadness) can trigger symptoms and full-blown disease in your gut. As Harvard researchers explain:

"Psychology combines with physical factors to cause pain and other bowel symptoms. Psychosocial factors influence the actual physiology of the gut, as well as symptoms. In other words, stress (or depression or other psychological factors) can affect movement and contractions of the GI tract, cause inflammation, or make you more susceptible to infection."

In addition, research suggests that some people with functional GI disorders perceive pain more acutely than other people do because their brains do not properly regulate pain signals from the GI tract. Stress can make the existing pain seem even worse. Interestingly, the connection works both ways, meaning that while stress can cause gut problems, gut problems can also wreak havoc on your emotions. The Harvard researchers continue:

"This connection goes both ways. A troubled intestine can send signals to the brain, just as a troubled brain can send signals to the gut. Therefore, a person's stomach or intestinal distress can be the cause or the product of anxiety, stress, or depression. That's because the brain and the gastrointestinal (GI) system are intimately connected — so intimately that they should be viewed as one system."

Imbalances in Your Gut Can Make You Depressed, Anxious and More

If you're feeling stressed, it's therefore essential to realize that not only could this affect your gut health, it could be caused by your gut health, or more specifically, your lack thereof. Increasingly, scientific evidence shows that nourishing your gut flora with the friendly bacteria with fermented foods or probiotics is extremely important for proper brain function, and that includes psychological well-being and mood control. For instance, the probiotic known as Bifidobacterium longum NCC3001 has been shown to normalize anxiety-like behavior in mice with infectious colitis.

Research published in 2011 also demonstrated that probiotics have a direct effect on brain chemistry under normal conditions — in such a way that can impact your feelings of anxiety or depression. In short, the probiotic Lactobacillus rhamnosus had a marked effect on GABA [an inhibitory neurotransmitter that is significantly involved in regulating many physiological and psychological processes] levels in certain brain regions and lowered the stress-induced hormone corticosterone, resulting in reduced anxiety- and depression-related behavior. The authors concluded:

"Together, these findings highlight the important role of bacteria in the bidirectional communication of the gut-brain axis and suggest that certain organisms may prove to be useful therapeutic adjuncts in stress-related disorders such as anxiety and depression."

Interestingly, neurotransmitters like serotonin are also found in your gut. In fact, the greatest concentration of serotonin, which is involved in mood control, depression and suppressing aggression, is found within your intestines, not your brain!

If You Have These Symptoms, Stress Could be Causing Your Gut Symptoms

http://articles.mercola.com/sites/articles/archive/2012/04/09/chronic-stress-gut-effects.aspx...
The Harvard HealthBeat has compiled a useful list of physical, behavioral and emotional symptoms of stress. We're all exposed to stress virtually every day, but these signs signal that stress may have become overwhelming in your life, and could be increasing your risk of related health problems:

**Physical Symptoms**

<table>
<thead>
<tr>
<th>Stiff or tense muscles, especially in the neck and shoulders</th>
<th>Headaches</th>
<th>Sleep problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shakiness or tremors</td>
<td>Recent loss of interest in sex</td>
<td>Weight loss or gain</td>
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<tr>
<td>Restlessness</td>
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**Behavioral Symptoms**

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<tr>
<th>Procrastination</th>
<th>Grinding teeth</th>
<th>Difficulty completing work assignments</th>
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<tbody>
<tr>
<td>Changes in the amount of alcohol or food you consume</td>
<td>Taking up smoking, or smoking more than usual</td>
<td>Increased desire to be with or withdraw from others</td>
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<tr>
<td>Rumination (frequent talking or brooding about stressful situations)</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Crying</th>
<th>Overwhelming sense of tension or pressure</th>
<th>Trouble relaxing / Nervousness</th>
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<tr>
<td>Quick temper</td>
<td>Depression</td>
<td>Poor concentration</td>
</tr>
<tr>
<td>Trouble remembering things</td>
<td>Loss of sense of humor</td>
<td>Indecisiveness</td>
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</table>

**What Can You do to Reduce Stress and Improve Your Gut Health?**

Plenty, actually.

As far as stress goes, exercise is often very helpful for relief and clearing your mind. Other common stress-reduction tools with a high success rate include prayer, meditation, laughter and yoga, for example. Learning relaxation skills, such as deep breathing and positive visualization, which is the "language" of the subconscious. When you create a visual image of how you'd like to feel, your subconscious will understand and begin to help you by making the needed biochemical and neurological changes.

My favorite overall tool to manage stress is EFT (Emotional Freedom Technique), which is like acupuncture without the needles. It's a handy, free tool for unloading emotional baggage quickly and painlessly, and so easy that even children can learn it. While using these tools to keep your stress levels under control, you can also support your gut health by:

- **Avoiding sugar/fructose:** Eating excess sugar and fructose will distort the ratio of good to bad bacteria in your gut by serving as a fertilizer/fuel for pathogenic bacteria, yeast and fungi that negatively inhibit the beneficial bacteria in your gut.

- **Eating fermented foods:** Traditionally made, unpasteurized fermented foods are a rich source of probiotics. Healthy choices include lassi (an Indian yoghurt drink, traditionally enjoyed before dinner), fermented grass fed organic milk such as kefir, various pickled fermentations of cabbage, turnips, eggplant, cucumbers, onions, squash and carrots, and natto (fermented soy). You can find a list of fermented foods and vegetables that can help heal your gut here.
Caroline Barringer is a Nutritional Therapy Practitioner (NTP), and an expert in the preparation of the foods prescribed in Dr. Natasha Campbell-McBride’s Gut and Psychology Syndrome (GAPS) Nutritional Program.

In addition to the wealth of information shared in the interview above, I highly recommend getting the book Gut and Psychology Syndrome, which provides all the necessary details for the GAPS protocol. We were finally able to convince Dr. Campbell-McBride to print it in the U.S., so I now offer it for sale in my store. It saves you a few dollars, compared to ordering it from the U.K.

- **Probiotic supplement:** If you do not eat fermented foods, taking a high-quality probiotic supplement is definitely recommended. As researchers stated, “… probiotics may profoundly affect the brain-gut interactions (“microbiome-gut-brain axis”) and attenuate the development of stress-induced disorders in both the upper and lower gastrointestinal tract.”

- **Sleeping in complete darkness:** This is necessary for proper production of the hormone melatonin. And research suggests "melatonin, an important mediator of brain gut axis, has been shown to exhibit important protective effects against stress-induced lesions in the gastrointestinal tract.”

References:


Source: Harvard Health Beat March 27, 2012


Related Links:

- Can Inflammation in this Organ be at the Root of Your Depression?
- Can Ingesting ‘Friendly Bugs’ Reduce Your Anxiety?
- Why this Single Organ Powerfully Dictates Whether You're Healthy or Sick