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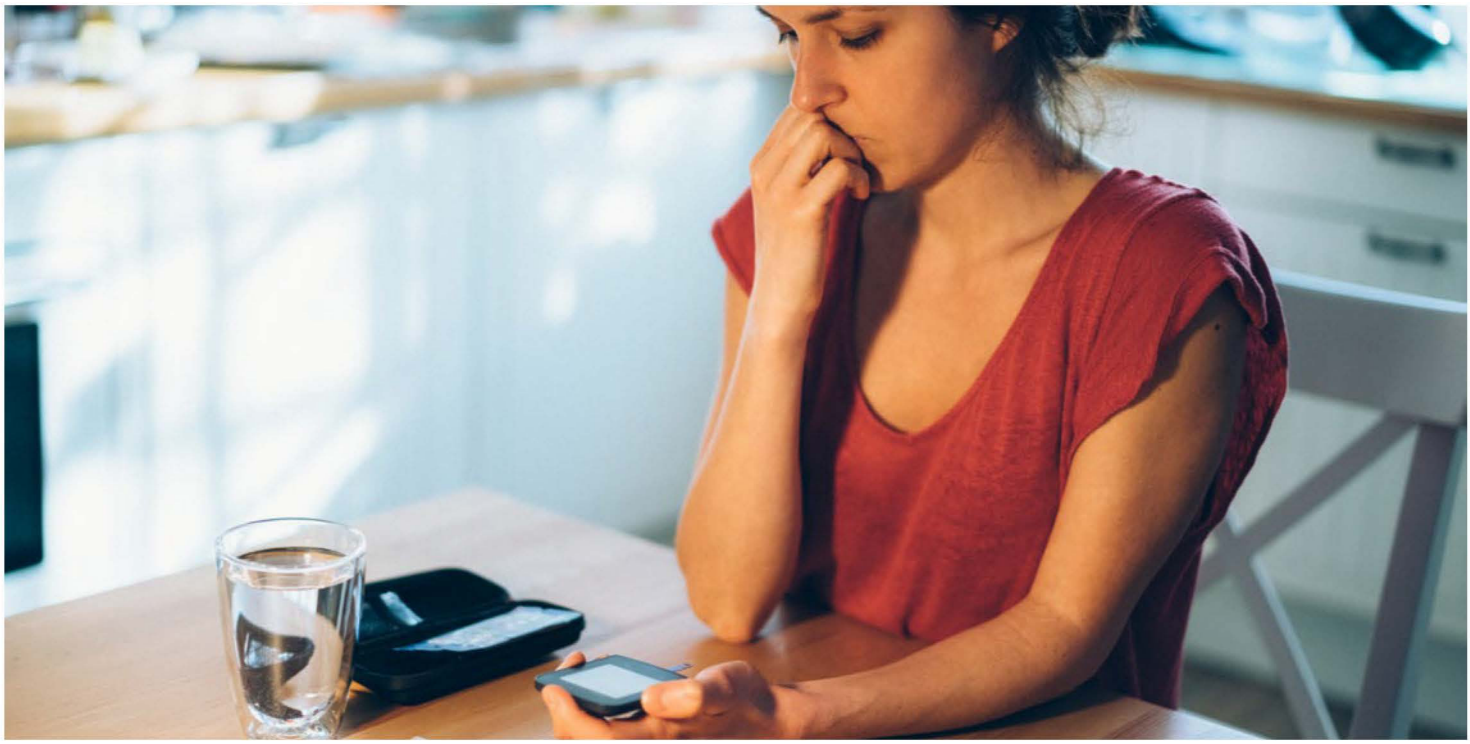

A Look at the Interconnections Between Stress, Diabetes, Nutrition, and Mental Health

Most people know that stress is something to reduce or avoid, but it may be surprising to learn how much it can affect our overall health and well-being. It's especially true for people who are living with metabolic diseases like diabetes. Stress significantly affects our body's ability to stabilize blood sugar levels and reach a manageable state. What's perhaps more problematic is that it's thought that close to 40% of those with diabetes are unaware they have it.[1] When imbalanced and uncontrolled, diabetes can lead to various complications, including cardiovascular disease (stroke and heart disease), kidney problems and nerve damage.

This article will look at the interplay and relationships between stress, nutrition, diabetes, and mental health. With a better understanding of how everything is connected, we can explore some early warning signs that could make you want to determine your diabetic status. From there, we can share some tips to help you think about how stress might affect how your body processes glucose and determine how to reduce stress overall for better health.

How does stress affect blood sugar levels?

When stressed, cortisol and adrenaline are released into our bodies, prompting our pancreas to release stored glucose into our bloodstream. It's a natural response: these hormones raise blood sugar to react to a fight-or-flight situation. This happens in a fraction of a second and starts a complex sequence of events.[2]

When our bodies perceive a threat, this instinctive reaction gives us the quick energy we might need to survive it. At the same time, we need to be able to lower blood sugar levels when we aren't under threat to ensure that all our cells have the necessary energy to function correctly. Insulin is the chemical signal responsible for regulating glucose and determining how we store nutrients in our liver and muscles. It also plays a significant role in how our bodies hold fat molecules. Being in a state of chronic stress can lead our bodies to develop a state of chronic inflammation and is linked to a condition referred to as insulin resistance.

Chronic stress doesn't allow for the natural conditions to have insulin work to clear away elevated levels of stress hormones within our bodies. Over time, cells become less responsive to insulin while it tries try to simply do its job as the natural chemical messenger it is. When that happens, our bodies pay less attention to those signals, and how we absorb and clear glucose in our bloodstream becomes impaired. Since insulin is such an essential energy regulator, improper functioning can affect our overall health in ways we don't realize.

How is nutrition related?

Our bodies operate on a delicate balance of carbohydrates, proteins, and fats, where each nutrition element is critical to our overall well-being. When there are imbalances from having either too much or too little of these nutrients, it can impact our health because our body's priority is to protect the brain. Nutrition is also linked to stress levels and blood sugar regulation. Sometimes, we may use emotional eating or binge eating as coping mechanisms to try and address high stress.

Discovering how much our gastrointestinal system plays a part in our emotional health can be surprising. Researchers have learned that "a big part of our emotions are probably influenced by the nerves in our gut."[3] As part of the digestive process, the microorganisms that live in our gut produce neurotransmitters like serotonin. Serotonin is closely related to mood and emotional well-being. Imbalances can contribute to depression and anxiety, which can affect our overall emotional state. It gives some validity to our "gut feelings" because "95 percent of the body's serotonin is found in the bowels," so it makes sense for us to become more aware of our complex relationship with food.[4]

Some strategies could help develop greater awareness of the interconnectedness of food and how our bodies function under stress:[5]

1. Think about whether you have consciously or unconsciously established rules for when you can eat or what you can eat. If you recognize some, consider when these started and why.
2. Relearn your "natural hunger cues" to help you listen to what your body says about what it needs and when it's full.
3. Slow down and savour your food choices by noticing the flavour, textures, and feelings you experience as you eat.
   - Are you enjoying the food?
   - Are you responding to a craving?
   - Is eating solving the problem you may have started with?
   - Is your hunger going away as you eat?
   - Do you feel happy, guilty, or upset while eating?

When we recognize these thought patterns, we can understand how we behave around food and be more conscious that this act to nourish ourselves is only part of a series of processes activated in our bodies.

Symptoms of stress and diabetes

Since so many are living with undiagnosed diabetes and may be unaware of the relationship between the disease and chronic stress, we thought it might be helpful to share some signs to watch for. Please keep in mind that this information is never intended to replace a diagnosis or treatment plan recommended by a health care professional.

Here are some similarities and differences between Type 1 and Type 2 diabetes:

Note: *We are not covering other related forms of diabetes such as gestational diabetes or pre-diabetes.*

	Type 1 Diabetes	Type 2 Diabetes
Typical onset	• Childhood • Adolescence • Sudden	• Any age • Common in adults • Gradual
What's happening in the body?	• Little to no insulin being produced • Immune system deficiency	• Not enough insulin is being produced • Insulin being produced is not used effectively
Treatment approach	• Requires insulin (dependent on survival)	• Could require insulin • May be managed through lifestyle • Can often be managed through medications
Symptoms Note: The symptoms are the same, but in Type 2, they **may** be milder at first.	• Excessive thirst • Frequent urination • Unexplained weight loss • Blurred vision • Slow wound healing • Frequent infections • Tingling or numbness in hands or feet • Increased hunger • Darkened, velvety patches of skin around the neck, armpits, or other skin folds	• Excessive thirst • Frequent urination • Unexplained weight loss • Blurred vision • Slow wound healing • Frequent infections • Tingling or numbness in hands or feet • Increased hunger • Darkened, velvety patches of skin around the neck, armpits, or other skin folds
Links	• Some genetic predisposition	• Strong genetic link, often in families • Sedentary lifestyle • Imbalanced diet • Being overweight or living with obesity

We often overlook or dismiss symptoms because our lives are hectic, so and stress is so prevalent. Here are some signs of stress and what we tend to attribute them to:

Sign	What you (or someone else) might think it is
Digestive issues	Just… • A stomach ache • Heartburn • A flare-up of an already diagnosed disease (example: IBS, diverticulosis/ diverticulitis) • Indigestion • Irregularity (changes in waste elimination habits)
Sleep problems	Just… • Insomnia • Restlessness • Difficulty falling and staying asleep
Increased forgetfulness / difficulty focusing	Just… • A memory lapse • Being disorganized • Having an off day • Worrying
More frequent illness	Just… • Another cold or infection • Weak immune system
Changes in appetite	Just… • Hungrier or not as hungry these days • Not liking a particular food • Being distracted or busy • Dehydrated
Muscle tension / headaches / jaw clenching	Just… • Changes in the weather, temperature, or air pressure • Soreness/strain related to an activity • Age-related aches and pains • Tired
Increased or uncharacteristic irritability / social withdrawal	Just… • Feeling frustrated by a situation • Being negative or pessimistic • Distracted • Need for time to yourself • Procrastinating
Changes in libido	Just… • Busy • Being negative or pessimistic

Consistent and comprehensive monitoring with your healthcare team helps you identify patterns and assess how stress affects you. With this information, you can make informed plans for addressing supportive changes.

Ways to reduce stress

Reducing stress is possible by using simple but effective strategies. Embracing these adaptations to your lifestyle can make a significant difference in your long-term health and well-being.

1. Get up and move around every day.

Spend at least 150 minutes each week doing activities that increase your heart rate and get your muscles moving. You don't have to run or do things that cause extreme exertion, and you don't have to do marathon sessions. Tasks around the house get you moving, too. Even ten minutes of walking helps. Movement has the added advantage of improving mental health too. Before long, you may notice that your body craves it!

2. Consume a wide variety of nutritious foods that provide your body with the vitamins and minerals that chronic stress can deplete.

Getting these through food sources rather than supplementation is always preferred. You should consult a doctor or pharmacist before taking supplements to try and counteract the effects of stress or prevent diseases. Doing so could inadvertently cause more internal stress and inflammation in your body that you are unaware of and create circumstances where your body may become more vulnerable to other diseases.

3. Reduce and redirect the time spent using social media in favour of connecting with other people.

You'll be able to practice the art of friendship, learn from other people's perspectives, and discover what it's like to be an active part of a community. You could participate in shared activities, interests, or experiences.

4. Explore the mechanism of your breath.

It's easy to start by first discovering how many times you breathe in one minute and then seeing if you can reduce that by breathing fuller, deeper, and with more awareness. How do you feel when you slow your breathing down? You might prefer to use guided meditations to help your breathing and visualize what calmness is for you.

5 Seek professional help and leverage counselling to address the root causes of chronic stress you may be experiencing.

Learning about yourself and your reactions can make you better informed and anticipate and plan a better response when you encounter a stressful situation.

Discovering more about how stress and blood sugar are interconnected is a way to manage and promote good health practices and gain knowledge to live a better life.

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