EAT RIGHT BOSTON

How does diabetes affect your body?

Diabetes is a disease that strikes nearly every part of the body-from head to toe. Uncontrolled blood sugars can damage the tiny blood vessels that nourish the eyes and can lead to blurry vision and eventually cause blindness. The risk of heart attack or stroke is two-fold for people with diabetes. 50% of people with diabetes have nerve damage. Diabetes is the leading cause of kidney failure. Foot and leg amputations, and dementia are also common risk factors with the disease.

What can you do to prevent diabetes and prediabetes?

Although you can't change risk factors such as family history, age, or ethnicity, you can change lifestyle risk factors; improving eating habits, physical activity, and weight. These lifestyle changes can lower your chances of developing insulin resistance or prediabetes.

Happy Spring!

I decided to solely dedicate this newsletter to the topic of diabetes and prediabetes. When I started to research articles, it just seemed like there was so much information to cover on this subject that it ended up being another specialty newsletter.

Glad the winter has come to a close and we can look forward to fun colors and nice weather, again!

Happy Spring!

Sophie

Diabetes 101

A lot has changed in the world of diabetes since I started practicing as a registered dietitian over thirty years ago. To begin with, we no longer address patients as being "diabetic" but rather "a person with diabetes." Borderline diabetes (a term I never quite understood) is now recognized as *prediabetes*. What hasn't changed is that diabetes is a chronic condition that can cause serious health problems, including heart disease, kidney disease, and nerve damage.

The Center for Disease Control and Prevention (CDC) now predicts that 15-30% of people with prediabetes will develop Type 2 diabetes in a four-year span. Lifestyle risk factors for prediabetes include overweight and physical inactivity but know that it is a reversible condition.

In 2002, The Diabetes Prevention Program (DPP) was the first to show that weight loss and exercise helped to significantly reduce the risk of getting diabetes. And yet, eighteen years later, look at the alarming statistics. About 34 million Americans are living with diabetes and 88 million adults have prediabetes. Do the math—prediabetes is almost three times more prevalent than diabetes. Picture it this way—there are eight people in a room—one of you will have diabetes. A more startling realization is out of three people in a room, one will have prediabetes.

A clear link between cardiovascular disease and prediabetes has emerged over the past few years. Recent studies have shown that patients with prediabetes can suffer from coronary artery disease and diastolic heart failure even before progressing to diabetes.

Research also shows that if blood sugars remain elevated (also known as hyperglycemia), cellular damage can begin within three hours. Add elevated lipids (cholesterol and triglycerides) and high blood pressure, and the progression of diabetes is accelerated. Long term microvascular complications can also lead to blurred vision and blindness, heart attack or stroke, dementia, and losing an infected toe/foot/leg via amputation.

Diabetes 101 (continued)

Today, we have easier ways to assess blood sugar control and its management. The discovery of HgbA1c (also called A1C) can predict health risk. This test tells you an average blood sugar over the past two to three months. It is also referred to as glycated hemoglobin test. The test result is reported as a percentage and does not require fasting. It works in this way: sugar in the blood (i.e.glucose) binds to the hemoglobin in red blood cells, so this test measures how much glucose is bound up. It gives the clinician a good view of a patient's daily blood sugar control. Of note, A1C results can be unreliable in some people with a family history of sickle cell or thalassemia, so talk to your doctor what tests are appropriate for you.

Let's talk biology for a minute. The food we eat turns into glucose, our body's main source of fuel. The beta cells in the pancreas produce a hormone, insulin, which delivers glucose in the blood to the body's cells for energy or for storage. In type 2 diabetes, your body doesn't make enough insulin or doesn't use insulin well. Often, it's pancreatic failure that leads to diabetes as beta cells have pooped out over time, or cells become resistant to insulin. It's not always a failed diet that causes diabetes.

Diagnosing Diabetes

There are now four methods that can diagnose diabetes: two consecutive fasting blood sugar readings of 125 mg/dL; a glucose tolerance test reading of > 200 mg/dL; a hemoglobin A1c reading of 6.5%; or a random blood sugar of >200 mg/dL with symptoms.

Diagnosing Prediabetes

According to the American Diabetes Association, the diagnostic criteria for prediabetes is an elevated fasting plasma glucose level (100 mg/dL–125 mg/dL), a hemoglobin A1c value of 5.7% - 6.4%, or an elevated plasma glucose level after an oral glucose tolerance test (140–199 mg/dL).

Diabetes 101 (continued)

Here's a handy table for comparison:

	Normal	Prediabetes	Diabetes
Hemoglobin A$_{1c}$, %	< 5.7	5.7–6.4	≥ 6.5
Fasting blood glucose, mg/dL	< 100	100–125	> 125
Oral glucose tolerance, mg/dL	< 140	140–199	> 199

Treatment Options for Prediabetes:

The primary aim of lifestyle interventions is to prevent diabetes and its complications by targeting obesity and physical inactivity. Patients not responding to lifestyle interventions may be candidates for medication or surgical interventions.

Medications:

There are currently four medications for treating prediabetes including metformin, pioglitazone, acarbose, and liraglutide. With medications, come side effects so lifestyle changes are strongly advised.

Lifestyle, Exercise and Diet:

Lifestyle changes such as weight loss (7% of body weight) and moderate physical activity (150 minutes per week) can reduce the risk of diabetes by as much as 58%. Studies have shown that lifestyle interventions actually decrease the incidence of diabetes better than metformin. Consider meeting with a registered dietitian (like me!) on a regular basis to discuss new strategies.

Cutting out highly processed, refined carbohydrates(white flour, cakes/cookies, juice, sugary beverages) is the first step—use whole grains, fresh fruits and vegetables, and drink more water, instead. Replace the "bad" saturated fats (butter, red meat, palm and coconut oil) with heart-healthy, unsaturated fats (olive oil, nuts/seeds, avocado, and fatty fish). Promoting and supporting long-term healthy eating patterns, watching portions, and eating a variety of nutrient-dense, high fiber foods will improve overall health and can delay/prevent diabetes complications.

Blueberry Smoothie

INGREDIENTS:

6 ounces of milk, of choice

1/2 cup low-fat plain Greek yogurt

1 cup frozen wild blueberries

1/2 banana

1/4 cup of orange juice

1/2 cup of baby spinach

1 teaspoon ground flax seeds or chia seeds

2-3 Tbl protein powder, of choice

DIRECTIONS:

Blend ingredients together and go!

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