

How Does Glucose Contribute to Peripheral Neuropathy?

The Drugless Doctors Approach to Glucose Instability, Circulation & Nerve Physiology



Many individuals begin experiencing burning feet, tingling, numbness, balance instability, or altered sensation years before being officially diagnosed with diabetes. Nerves require oxygen, nutrients, circulation, and stable cellular energy production in order to function properly. Elevated glucose may gradually damage both the nerves and the tiny blood vessels responsible for nourishing sensory tissue.

Over time, impaired circulation, inflammation, oxidative stress, mitochondrial dysfunction, and glucose instability may contribute to burning sensations, tingling, numbness, altered balance, and delayed healing physiology.

How Elevated Glucose Contributes to Neuropathy

Glucose instability may affect multiple physiologic systems simultaneously. In many individuals, the issue is not simply elevated sugar itself, but the downstream inflammatory and circulation-related stress patterns created by unstable glucose physiology.

- Damages microcirculation supplying the nerves
- Reduces oxygen delivery to nerve tissue
- Increases inflammation and oxidative stress
- Impairs mitochondrial energy production
- Damages nerve signaling and communication
- Contributes to nerve hypersensitivity
- Impairs tissue repair and healing
- May damage the protective myelin covering surrounding nerves

Microcirculation Damage

High glucose may damage the tiny blood vessels responsible for feeding the nerves. Reduced circulation may impair oxygen and nutrient delivery into sensory tissue. Poor circulation may contribute to tingling, burning, numbness, cold feet, and delayed healing.

Inflammation & Oxidative Stress (Cellular Rusting)

Elevated glucose may increase inflammatory chemicals and oxidative stress physiology within the body. Inflammation may irritate nerves, impair circulation, worsen sensitivity, and interfere with tissue repair physiology.

Mitochondrial Dysfunction

Nerves are highly energy-dependent tissues. Elevated glucose may impair mitochondrial energy production, reducing the cell's ability to generate stable energy in the form of ATP.

When mitochondrial output declines, nerve recovery may slow, circulation may become impaired, and fatigue physiology may increase. This is one reason many neuropathy patients simultaneously experience fatigue, weakness, and altered sensation.

Advanced Glycation End Products (AGEs)

AGEs are sugar-damaged proteins and tissues that may develop when excess glucose binds to proteins within the body.

- AGEs may stiffen tissues and blood vessels
- AGEs may accelerate tissue aging and inflammation
- AGEs may worsen circulation and nerve function
- AGEs may impair tissue flexibility and recovery physiology

Why Symptoms Often Begin in the Feet

The nerves traveling into the feet are among the longest nerves in the body. Longer nerves require greater circulation, oxygen delivery, and metabolic support. The feet are often affected first when circulation and nerve nutrition begin to decline.

Common Symptoms Associated with Glucose-Related Neuropathy

- Burning feet
 - Tingling
 - Pins-and-needles sensations
 - Numbness
 - Balance problems
 - Cold feet
 - Reduced sensation
 - Weakness
 - Burning sensations at night
 - Altered temperature perception
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How We Evaluate Glucose & Neuropathy Physiology

When evaluating the severity of glucose-related neuropathy, we focus on identifying circulation stress, inflammatory patterns, metabolic instability, mitochondrial stress, and sensory dysfunction.

- Fasting glucose evaluation
- Hemoglobin A1C evaluation
- Circulation assessment
- Inflammation evaluation
- Nitric oxide physiology
- Thermographic imaging
- Nutritional evaluation
- Mitochondrial stress patterns
- Sensory nerve evaluation
- Balance and gait observations

From a functional perspective, we generally prefer to see fasting blood sugar closer to approximately 84. It has been suggested that for every 1-point increase above 84, there may be approximately a 4% increase in diabetic physiology risk over time.

We also evaluate Hemoglobin A1C levels carefully and generally prefer the A1C at approximately 5.7 or lower. The A1C reflects average glucose patterns over approximately the previous 120 days.

We review symptoms such as frequent urination, carbohydrate cravings, fluctuating energy patterns, fatigue, and dietary habits together with whether the patient is currently taking pancreatic or diabetic medications.

Continuous Glucose Monitoring (CGM)

One of the tools we increasingly utilize is a Continuous Glucose Monitor (CGM). A CGM is a small wearable device that allows patients to observe how food, stress, sleep, inactivity, and lifestyle patterns affect blood sugar throughout the day in real time.

Many patients are surprised to discover how specific foods, poor sleep, stress physiology, or even seemingly healthy snacks may significantly impact glucose stability.

The CGM creates awareness and accountability while helping patients better understand the relationship between food choices, metabolic stability, circulation, inflammation, and neuropathy physiology.

Sensory & Circulation Observations

Reduced microcirculation is one of the major challenges associated with diabetic neuropathy. Reduced circulation may contribute to nerve damage, sensory loss, tingling, burning, numbness, and balance instability.

We also evaluate circulation using thermographic imaging involving the hands and feet to observe thermal patterns and reduced microcirculation.

One of the more interesting observations in some neuropathy patients involves altered temperature perception. Patients may occasionally perceive heat or burning sensations when cool stimulation is applied to the feet, suggesting irritated sensory tissue or altered neurologic processing.

The Drugless Doctors Three-Tier Supportive Approach

Our overall goal is not simply symptom masking, but supporting circulation, nerve physiology, tissue recovery, and long-term metabolic stability.



Tier 1 — Biochemical Support

The biochemical tier focuses on supporting glucose stability, nutritional balance, inflammatory regulation, nitric oxide physiology, mitochondrial function, and tissue recovery.

An important component of this approach involves improving nutritional stability through structured dietary guidance involving foods to enjoy and foods to avoid in an effort to support glucose stability and reduce inflammatory stress physiology.

Tier 2 — Biovascular Support

The biovascular tier focuses heavily on improving circulation, nitric oxide physiology, oxygen delivery, mitochondrial activity, and microcirculation involving sensory tissue.

A supportive modality commonly utilized is FDA-cleared photobiomodulation using the 15-watt TheraRay device. This modality is designed to support circulation, tissue oxygenation, nitric oxide activity, mitochondrial physiology, and microcirculation involving sensory-damaged tissue.

Tier 3 — Biostructural Support

The biostructural tier focuses on nerve communication, balance physiology, gait stability, sensory stimulation, and supportive nerve re-education strategies.

We also utilize a continuous electronic wave flow nerve re-educational device as part of the supportive strategy involving sensory nerve recovery physiology.

When Further Evaluation May Be Appropriate

Chemotherapy-induced peripheral neuropathy is often the result of multiple overlapping physiologic stressors including:

- mitochondrial dysfunction
- oxidative stress
- impaired circulation
- inflammation
- reduced oxygen delivery
- sensory nerve injury
- impaired tissue recovery

Patient Summary

Elevated glucose may damage circulation, increase inflammation, impair oxygen delivery, reduce mitochondrial energy production, and stress the nerves themselves.

Over time, these physiologic changes may contribute to tingling, burning, numbness, weakness, altered balance, and sensory decline involving the feet and lower legs.

The Drugless Doctors approach focuses on understanding how glucose instability may affect circulation, inflammation, oxygen delivery, mitochondrial function, tissue healing, and neurologic physiology rather than simply masking symptoms.



Watch Our Neuropathy Playlist on YouTube

<https://www.youtube.com/@DruglessDoctor>

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