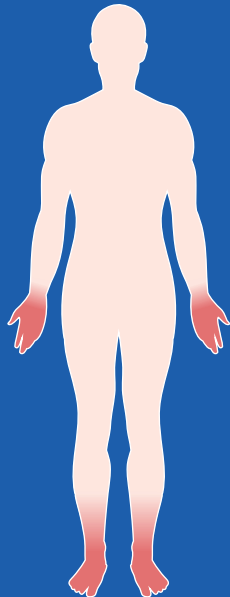


## Are You at Risk for Developing Small Fiber Peripheral Neuropathy?

Small fiber peripheral neuropathy is a condition that affects as many as 20 million American adults. Conditions that may increase the risk of developing small fiber peripheral neuropathy include:

- Metabolic causes (diabetes mellitus, metabolic syndrome, hyperlipidemia)
- Inherited causes (Fabry's disease, Tangier's disease, familial amyloid polyneuropathy)
- Toxic causes (chemotherapy, alcoholism, solvent exposure)
- Autoimmune causes (Sjögren's syndrome, vasculitis/polyarteritis nodosa)
- Amyloidosis (non-inherited forms of amyloidosis, e.g. lymphoma or plasma cell dyscrasias)
- Infections (HIV, hepatitis C, Lyme disease)
- Idiopathic/Unknown (For a relatively large percentage of cases, there is no identifiable cause of SFPN)



**Ask your physician if an ENFD analysis is right for you.**

**Pain, numbness, tingling, or burning in your toes, feet, or legs?**

*You could be suffering from Small Fiber Peripheral Neuropathy*



**Treatment and relief are available for most patients with a quick in-office diagnostic test**

# Epidermal Nerve Fiber Density Analysis and Neuropathy

## What are Epidermal Nerve Fibers?

Peripheral nerves connect the brain and spinal cord to the skin, muscles and other tissues of the body. These nerves branch in a manner similar to a tree, whereby large nerve “trunks” split to form smaller nerve “branches.” This continues as the nerves travel further from the brain and spine.

Finally, nerves terminate as tiny end-branches, called “small fibers.” When these end branches terminate in the skin, they are called “epidermal nerve fibers.”

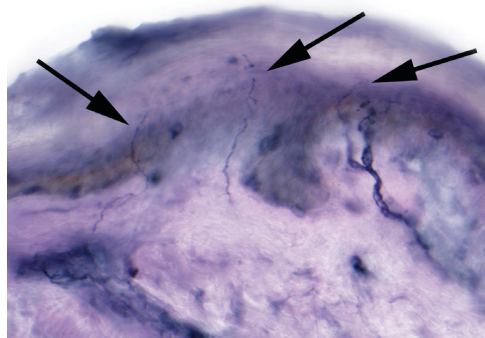
## What is Small Fiber Peripheral Neuropathy?

When peripheral nerves are damaged or fail to function correctly, the condition that results is called peripheral neuropathy. Depending on the type of neuropathy, different sites along the nerve’s course may be affected.

Some forms may affect large trunks or branches, while others may affect small fibers. Disorders that foremost affect the distal end-branches (small fibers), are designated as small fiber peripheral neuropathy.

Small fiber peripheral neuropathy usually affects the hands and/or feet in a stocking or glove-like pattern. Affected persons may experience symptoms ranging from burning and tingling, to coolness and numbness. This form of neuropathy often occurs secondary to diseases such as diabetes mellitus or it may be an indication of something else.

## What is Epidermal Nerve Fiber Density Analysis?



*Fig 1. Arrows point to a diminished number of epidermal nerves with degenerative changes.*

Small fiber peripheral neuropathy can cause progressive degeneration and then loss of epidermal nerve fibers. As small fiber peripheral neuropathy progresses, the number of epidermal nerve fibers decreases.

Epidermal nerve fiber density (ENFD) analysis is a test that allows your physician to directly detect the presence of small fiber peripheral neuropathy by evaluating the number and quality of epidermal nerves in a small sample of skin. With this information, **your physician can both definitively diagnose small fiber neuropathy and assess its degree of severity.**

To perform an ENFD analysis, a small skin biopsy is obtained in an office setting. In most cases, it is performed under local anesthesia. Potential sample sites include the proximal thigh or the lower leg/ankle.

The skin sample is then sent to Bako Diagnostics for analysis. The test is usually completed in 5-7 business days.

## Can Peripheral Nerve Health be Improved?

Once the diagnosis of small fiber peripheral neuropathy is confirmed, there are several medical treatments that may provide relief. Therapy to treat the symptoms and underlying causes of the neuropathy could include diet/lifestyle modifications, supplements, or topical medications. However, because small fiber neuropathy has many causes, no product works for everyone.

Studies show that dietary supplements, such as NeuRx-TF, containing Alpha-Lipoic Acid (600mg daily) and Benfotiamine (600mg daily) may be helpful in some cases to diminish symptoms of neuropathy and improve epidermal nerve health. Investigators also have noted a benefit to using combination therapy that includes L-methylfolate, methylcobalamin and pyridoxal 5'-phosphate. ENFD retesting may be recommended to monitor disease progression or therapy effectiveness.

## Is Epidermal Nerve Fiber Analysis Paid for by Insurance?

Yes; a vast number of insurers pay for epidermal nerve fiber density analysis. In addition, at Bako Diagnostics, a number of programs are offered to assist persons in financial need, assuring the best possible care regardless of financial limitations.

References: Ziegler D. Effect of 4-year antioxidant treatment with alpha-lipoic acid in diabetic polyneuropathy: the NATHAN 1 trial. *Diabetes* 2007; 56(Suppl.1):A2. Luong KV, et al. The impact of thiamine treatment in diabetes mellitus. *J Clin Med Res* 2012; 4(3):153-160. Walker M, et al. Improvement of cutaneous sensitivity in diabetic peripheral neuropathy. *Rev Neurol Dis* 2010; 7(4):132-139.