

# Mayo Clinic Reports That Some Heavy Metals Cause Peripheral Neuropathy

Heavy metals are used in many places throughout the world, but they're not intended to be absorbed into our bodies. While some heavy metals are integral to life itself, others can be harmful and cause toxic neuropathy.

First, let's get the good news out of the way – the type of “heavy metal” that can potentially contribute to the onset of peripheral neuropathy is not the musical kind. No need to rush to toss out all your Deep Purple records.

Instead, we're talking about the *actual* heavy metals. That is, metal substances that have very high molecular density and/or atomic weight, making them not just denser than their lighter counterparts, but less chemically reactive, as well. This extra-robust chemical structure makes them durable and optimal for use in a wide variety of applications.

As such, heavy metals can be found in just about anything from your golf clubs to your mobile phones. They're unquestionably useful in certain ways. But some of them can be particularly damaging to the nervous system if they're allowed to make their way into our bodies.

## Toxic Neuropathy Can Be Tough to Diagnose

When it comes to figuring out the sources of **toxic neuropathy**, doctors can sometimes have difficulty figuring out exactly what may have caused your condition. It can be caused by a great many different factors, and even then, many causes of

neuropathy are simply defined as being *idiopathic* – that is to say, we simply do not know what causes them.

Other times, it's relatively easy to see that things like environmental toxicity have contributed to nerve damage...but it can be [tough to contribute one single cause](#) to a situation without having a thorough and complete accounting of the patient's history at hand. In other words, without knowing exactly what kinds of behaviors, compounds, and chemicals to which a patient has been exposed...it can be difficult to narrow down the exact cause of something as potentially nebulous as nerve damage.

Still, while we might not have a way to create *definitive* diagnoses when it comes to nerve damage caused by exposure to toxins like heavy metals, **we do know which heavy metals are [damaging to the nervous system](#).**

## Not All Heavy Metals are Toxic

Important to point out here is that not *all* heavy metals are bad for us, or even toxic to our nerves. That's a bit too broad of a blanket statement, though. Instead, it's more accurate to say that [some heavy metals are directly toxic to our nerves](#), while others can be dangerous only if they reach certain concentrations within our body.

Still others – like zinc and iron – are what we would consider “essential nutrients,” and are important in the preservation of our everyday bodily function.

Rather, when we talk about the types of heavy metals that are damaging to the nervous system, we're typically talking about the types that are used for industrial purposes. Heavy metals have been used in manufacturing for a very long time, and they're mostly found in higher concentrations in industrial areas.

In fact, this is one of the many reasons zoning laws exist in the ways that they do – they’re designed to keep residential activity away from industrial activity that makes use of dangerous [heavy metals that can be toxic to humans](#) when they make their way into our air, food, water, and soil.

## **Mayo Clinic Reports Heavy Metal Link to Neurotoxicity**

So while there are some heavy metals that are safe for us, some simply are not. [In his report for the Mayo Clinic](#), Peter J. Dyck found that “[exposure] to several metals has been shown to cause peripheral neuropathy,” even going so far as to suggest that “[lead] neurotoxicity may present as a combination of motor-predominant peripheral neuropathy (classically described as wrist-drop) and encephalopathy.”

The takeaway here is that not only can certain heavy metals directly cause toxic neuropathy, but they can also wreak havoc on other parts of your body, too.

### **1. Arsenic**



Arsenic is considered to be among earth's most highly toxic elements. It mostly makes its way into the human body through food, which can sometimes be grown in contaminated soil or might be irrigated using contaminated water.

There are two types of arsenic – a natural type, and a synthetic one. While the naturally-occurring form of arsenic is a bit less toxic, the artificial one is *highly* toxic to us and should be avoided.

Arsenic is one of those toxins that aren't content to simply go to work on the nervous system. It's serious business when it comes to your body, and can have negative impacts on the heart, skin, gut, and lungs, as well. Even more frightening is the fact that arsenic can cause damage on a *chromosomal level*, meaning it actually damages the genetic materials contained within the cells of your body.

The symptoms of arsenic neurotoxicity typically involve painful sensory symptoms, which begin in the feet before eventually making their way up to the legs and hands. If the

condition is allowed to progress long enough, motor symptoms start to get added to the mix, making movement increasingly difficult.

## **Arsenic...In Rice?**

Yes, arsenic is [quite commonly found in rice](#), and this is mostly due to the way arsenic interacts with our soil and groundwater.

Consider what it might be like to spill a bottle of soda into a swimming pool. There's really no getting it out, is there? The same concept applies to chemicals like arsenic, which at one time was commonly used in many industrial pesticides. These pesticides were used for many decades, and they remain in the soil and water *long* after their use has stopped.

Since rice is essentially grown underwater, it's much more likely to absorb chemicals that have been leftover in water and soil, making it an oddly reliable source for inorganic arsenic leftover from pesticide treatment.

## **How to Avoid It**

The best way to avoid rice-borne arsenic is by sticking with **Basmati rice**, which comes to us from places like California, Pakistan, and India. Conversely, [Consumer Reports found that rice grown in most other US states](#) had the highest levels of arsenic, with Texas, Louisiana, and Arkansas leading the way.

Other sources of inorganic arsenic are typically related to **pesticides and other chemicals**, so making those organic produce choices is often the safest bet. Shop locally, when possible, and avoid fruits and veggies sold in most commercial supermarkets – they've been treated with harsh chemicals to ensure the largest harvest *and* to help them endure the long trip they must make from the field to the shelves.

Inorganic arsenic mostly comes to us through contaminated farming and irrigation, so it's best to know where your food

comes from, as a means of avoiding it.

## 2. Thallium

We stopped using thallium here in the United States back in the early 1970s, as soon as we began to realize how incredibly bad for us it is. Before that, we were using it in all kinds of herbicides and other vermin-killing chemicals. Since we've stopped using it, the frequency with which we see examples of thallium poisoning have dropped pretty significantly.

Still, thallium can be a risk in places where it's been allowed to seep into soil and groundwater over the years. It can also pose a problem through industrial materials and other products that are often imported from foreign markets where regulations are not quite as strict.

Common sources of thallium include:

- smoking cigarettes
- consuming contaminated foods
- industrial workplace-related uses
- living near waste sites where thallium is disposed
- soil-based exposure
- contaminated drinking water

[Thallium poisoning isn't pretty](#), either. Its onset involves some severe stomach and intestinal issues, which are then followed – within the space of a day or two – by painful sensory nerve damage symptoms (typically involving things like phantom sensations, hypersensitivity, and, eventually, loss of feeling). Next, come motor symptoms that impair movement.

Since we don't use thallium as much these days, it's increasingly rare to see individuals come down with serious cases of thallium poisoning. Still, it's out there, and even

low-level exposure can create issues if it's encountered. Avoiding the aforementioned common sources is the best way to steer clear of this powerful neurotoxin.

### 3. Mercury



Mercury might very well be the most pervasive heavy metal lurking in our environment. And while we use it for many different applications, the [most common sources](#) for mercury toxicity are in everyday items.

When it comes to the consumption of mercury, it's actually fish that wind up causing us the most concern. As published in the Journal of Environmental Public Health, [fish consumption is the leading source](#) of nerve toxicity due to organic mercury, with [dental amalgam fillings](#) coming in a close second.

By now, you're likely wondering what all this mercury is doing in our fish in the first place. Surely we're not putting it

there on purpose, right? The answer is actually a bit simpler than you might think: The [Natural Resources Defense Council tells us](#) that our reliance on coal-burning fuels and the production of chlorine are to blame for an estimated 40% of the mercury that winds up making its way into the ocean. (Kinda makes the argument for alternative fuel sources seem a bit more worthwhile, doesn't it?)

Power plants and other industrial efforts also contribute to levels of mercury that eventually wind up in the oceans, all of which can cause it to bioaccumulate within the bodies of fish in the same ways that it bioaccumulates in humans.

## How to Mitigate All That Mercury

A pretty simple rule of thumb, when it comes to fish, is that larger fish and older fish have more mercury in them. This is simply by virtue of the fact that they've had longer to absorb all that mercury and more space in which to do it.

The [FDA tells us](#) that these are the more mercury-heavy fish out there:

- king mackerel
- shark
- swordfish
- and tilefish

These fish have more moderate levels of mercury:

- chilean sea bass
- grouper
- marlin
- orange roughy
- and tuna



These fish are considered safest to eat:

- crawfish
- oysters
- salmon
- sardines
- scallops
- and shrimp

## 4. Lead

Finally, we've arrived at the element [not even Superman can stand up against](#). Lead exposure has been known to be dangerous for quite some time now, and we've been working to eliminate it from as many aspects of our lives as we possible since the 1970s or so.

Even still, it remains in our environment and our atmosphere and can be easily found in areas where building or construction might have occurred prior to its usage restriction – of which there are many.

Long-term lead exposure is particularly damaging because [it's not content to simply harm your nervous system](#). Lead toxicity can have a number of unpleasant symptoms, ranging from brain swelling to constipation to nerve damage.

[According to the Mayo Clinic](#), there are a few handy strategies that can help you avoid lead toxicity.

- **Eliminate the amount of dust** in your home by cleaning floors and wiping down surfaces on a regular basis. A mop or wet cloth is best to make sure you're actually picking up all that dust and not simply spreading it to other parts of your home.

- **Take off your shoes** when you enter your home. You'd be shocked at the amount of particulate that you bring into your home via the shoes.
- **Don't let your kids play in the dirt** if you can avoid it. A covered sandbox is a better option, so your little ones can avoid accidental exposure to lead that's accumulated in the earth over time. (Also don't go playing in the dirt, yourself.)
- **Maintain a healthy diet** as a way to keep lead from being absorbed into your body – calcium and vitamin C are especially good at blocking its absorption.

## Avoiding Toxic Neuropathy for Good

Toxic neuropathy, as you can see, can come from a variety of different sources. The encouraging news is that we're clearly learning more and more about which compounds are bad for our bodies, and as we do, we work to eliminate them from the environment.

Instances of lead and thallium poisoning, for instance, have steadily dropped in the last forty to fifty years, thanks to environmental science and industrial overhaul, placing higher importance on our health and the health of our environment.

Still, some heavy metals can remain in our food, our oceans, our soil, and our groundwater. With awareness about some of the most common sources for the type of heavy metal exposure that leads to toxic neuropathy, we are better armed to avoid them.

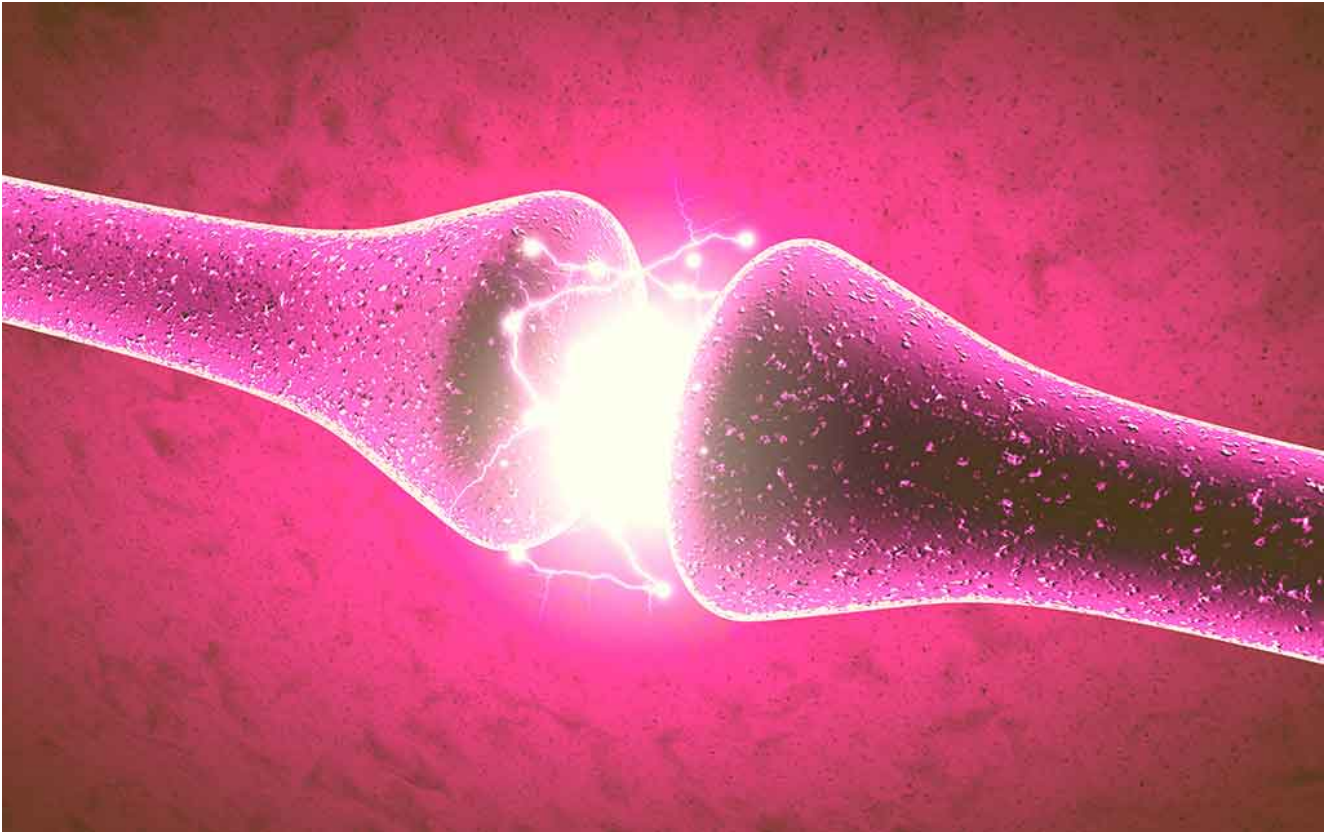
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