

Hand ischemia: When hand pain won't go away

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Ischemia can occur anywhere in your body. It's a term to describe what happens when a blood vessel is blocked, preventing blood and oxygen from reaching it. For those with hand ischemia, an inadequate supply of blood to the hands causes the fingers to become painfully cold, numb, and pale—or blueish in color. Small wounds may fester, to the point where a simple paper cut becomes a painful ulceration.

Though it is uncommon, hand ischemia can affect virtually anyone. "It can impact ill and healthy patients alike," says David Colen, MD, a plastic and reconstructive surgeon who specializes in [hand surgery](#) and extremity reconstruction.

Dr. Colen and David Strosberg, MD, a vascular surgeon, have seen enough patients with hand ischemia in their practices to prompt them to develop a multidisciplinary program that draws upon their different backgrounds to help patients with this rare—but serious—disorder.

Below, Drs. Colen and Strosberg discuss hand ischemia and how their program helps treat patients.

What causes hand ischemia?

One cause of hand ischemia is a condition called Raynaud's disease (or Raynaud's phenomenon), which affects about 5% of people in the United States.

There are two kinds of Raynaud's—primary and secondary.

Primary Raynaud's disease, the most common type, is vasospastic, meaning the blood vessels abnormally contract on their own. This condition makes the hand hypersensitive to temperature, so cold weather can cause the fingers to grow pale and numb. The good news is that it can often be treated with lifestyle changes.

Secondary Raynaud's disease is associated with a mixed [connective tissue disease](#), like Sjögren's disease or scleroderma. These conditions bring a proliferation of cells in the inner lining of the blood vessels, causing them to constrict and thicken. If secondary Raynaud's disease gets severe, it can result in ischemia serious enough to cause sores in a fingertip.

There are other causes of hand ischemia as well. What's called "occlusive disease" is typically the result of either a direct injury or some type of swelling in the wall of the blood vessel, resulting in turbulent (or high-velocity) blood flow, which can lead to a blood clot. It can cause pain in the fingertips and eventually ulcerations, scabs, or wounds that won't heal. A common scenario, Dr. Strosberg says, is that a patient will come in with a paper cut that just won't heal.

Yet another cause is atherosclerosis disease, or hardening of the arteries. Because it interferes with circulation, atherosclerosis can lead to [peripheral vascular disease](#), which most commonly affects the legs (vascular surgeons treat this condition with surgery) but can sometimes occur in the arms.

Over time, poor circulation in the arms can lead to calcium deposits that eventually affect all blood vessels there equally.

Hand ischemia can be difficult to diagnose

Many people live with hand ischemia symptoms for years before receiving a diagnosis. They might assume their hand pain is due to arthritis or a different condition. When symptoms worsen, as they tend to, many patients don't know where to find help.

"By the time these patients get to us, they're exhausted," Dr. Colen says. "They've been bounced around without a definitive diagnosis, and it can be very frustrating. This condition can be challenging to diagnose, as many patients typically have normal blood pressure and heart function, and these symptoms can often be confused with other, more common sources of hand pain."

For this reason, a hand specialist is crucial—he or she can interpret a constellation of symptoms that suggest ischemia as the source, he adds.

Who is most likely to get hand ischemia?

The answer depends, in part, on the cause. When hand ischemia is associated with Raynaud's disease, the typical patient is a woman in her mid-30s to mid-50s, Dr. Colen says. "Usually, their Raynaud's diagnosis occurred in their early twenties, and it took time for the connective tissue disease to get to the point where there's what's called 'terminal limb ischemia'—and there's no longer a way to reconstruct the damaged vascular area."

Many patients who see Drs. Colen and Strosberg have multiple medical problems. Their hand ischemia may be one symptom that has arisen from atherosclerosis disease or occlusive disease. Many have diabetes and/or kidney problems.

"Such patients often require hospitalization," says Dr. Colen. "They're commonly admitted to the hospital with other issues, be it kidney or heart function—and they end up having a fingertip that's starting to change color. Part of the issue can be that fingertip pain and discoloration do not take priority over treating organ dysfunction in that setting."

Treatment options for hand ischemia

There are a range of possible treatments depending on the type and severity of the ischemia, starting with healthy lifestyle changes (such as quitting smoking) and, if possible, avoiding cold temperatures.

If these efforts don't help and the condition worsens, treatments range from "medications to minimally [invasive procedures](#) to major bypasses—whatever will be needed to give patients the best chance to preserve hand function," says Dr. Colen.

For patients with early-stage Raynaud's disease, medications such as calcium channel blockers and hypertension drugs (that help open the blood vessels) can be useful. Another potential treatment is a Botox injection, which paralyzes the smooth muscles of the blood vessels, providing months of relief from ischemic symptoms.

If medications stop working, there are surgeries that can help, including sympathectomy, an endoscopic procedure that can improve the flow of blood to fingers.

For patients with hand ischemia caused by a blockage that cannot be bypassed and arterial blood flow that cannot be reconstructed, a procedure called dorsal venous arterialization can be effective. This is a procedure the two doctors perform together, working within the vascular system to provide arterialized blood to ischemic fingers through the unaffected venous system.

This surgery can ease pain and help heal wounds. "When ischemia results in tissue loss, amputations might be necessary, but it is still important that we improve blood flow so that we prevent other fingers from becoming affected," says Dr. Colen.

To perform the operation, Dr. Colen focuses on the small vessels of the hand, while Dr. Strosberg works inside the [blood vessels](#) up higher in the arm. "I don't necessarily think that each of our skill sets alone is unique. However, our working in conjunction is the hallmark of our program," Dr. Strosberg says.

What kind of specialist should you see for hand ischemia?,

While both orthopedic and [plastic surgeons](#) specialize in treating hand conditions, it is crucial to find a hand specialist with expertise in microvascular surgery. Together, a hand surgeon and [vascular surgeon](#)

can diagnose the broad spectrum of upper extremity diseases and offer all treatment options individualized for each patient, Dr. Colen says.

Patients should remember that a wound on a fingertip or hand that isn't healing should always be evaluated, Dr. Strosberg explains. "Wounds are a very easy way for doctors to identify [hand ischemia](#) and to refer their patients to us, so we can discuss treatment options," he says. "We want to act as quickly as possible to stop their fingers from losing any more tissue."

Provided by Yale University

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