

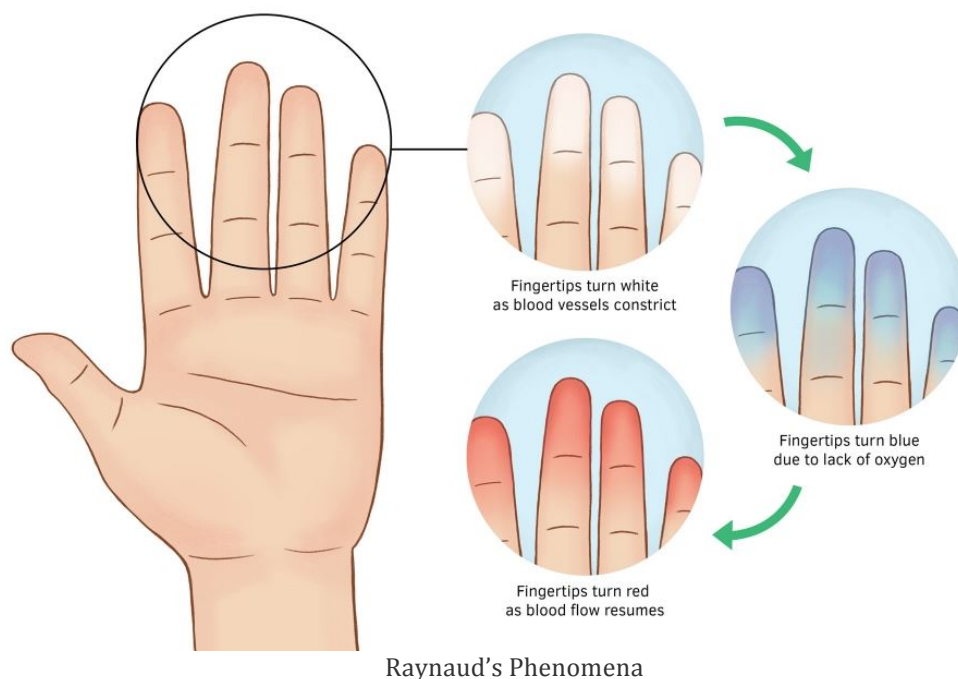
## Raynaud's Disease of the Hand

### What is Raynaud's Disease?

Blood flow to the hands is regulated by small microscopic nerves to the arteries which signal smooth muscles of the blood vessel wall to contract thereby causing the diameter of the vessel to decrease. This in turn decreases blood flow to the hands and in the reverse process allows for increased blood flow. In normal physiology, this variability in blood flow to the extremities is important for temperature regulation: radiating off heat in warm weather and maintaining warmth in the body core during cold conditions. Unfortunately this normal process can sometimes go awry. For certain patients the response to cold and stress can cause arteries of the hands and digits to clamp down — often times referred to as vasospasm — resulting in a variety of distressing symptoms.

### What are the signs and symptoms of Raynaud's Disease?

During an event of Raynaud's Phenomena the fingers will initially blanch white due to vasospasm. The fingers may then turn blue due to lack of oxygenated blood. As the fingers recover, the vascularity may rebound causing the fingers to turn red. The exact pattern and severity may vary from patient to patient. Often times an affected individual will experience cold, tingling, numbness, and pain. More severe Raynaud's Disease may cause ulcerations, non-healing wounds at the tips of the fingers, and gangrene.



### What is the difference between Primary vs. Secondary Raynaud's Disease?

Primary Raynaud's Disease means that the problem is not associated with another medical condition. It is the most common form of Raynaud's. It is seen more often in women, ages 15-30 years of age, and those living in colder climates. There can also be a genetic predisposition for Primary Raynaud's Disease. Although it can have a broad range of presentation, Primary Raynaud's Disease is often mild. Secondary Raynaud's Disease — sometimes referred to as Secondary Raynaud's Phenomena or Syndrome — means that the vascular dysfunction is caused by some other medical issue or exposure. Various forms of systemic inflammatory illness may be associated with Secondary Raynaud's including Scleroderma, Lupus (SLE), and Rheumatoid Arthritis. Peripheral vascular disease, vasculitis, smoking, frostbite, vibrational equipment use, ovarian cancer, carpal tunnel syndrome, chemotherapy, and trauma may also lead to Secondary Raynaud's Disease. Secondary Raynaud's Disease is usually more severe and has a worse prognosis. In patients with more severe episodes, it is important to rule out any other medical causes of Secondary Raynaud's Disease. Blood work may help determine the possibility of systemic inflammatory illness.

### Could this be something else other than Raynaud's Disease?

Episodes of Raynaud's Phenomena typically last 15-20 minutes before resolving. If the fingers remain pale or blue for much longer periods of time, this may represent a more chronic vascular, pulmonary, or cardiac problem and should be brought to the attention of your primary care physician. Bruising — bleeding into the soft tissues — can also be mistaken for Raynaud's Disease. **Paroxysmal Finger Hematoma** or **Achenbach's Syndrome** can present with episodes of spontaneous easy bruising typically of the palmar surfaces of the fingers or hands with minimal or no trauma. The rest of the finger and hand maintain good vascularity in cases of Achenbach Syndrome. Bruising of this type will typically resolve over 4 days on average.



Achenbach's Syndrome



Raynaud's Disease

### How do I prevent episodes of Raynaud's Disease?

The best way to treat Raynaud's Disease is to avoid triggering events and predisposing factors. It is important to avoid exposure to extreme cold weather and cold conditions when possible. During the winter months in cold climates, one should wear mittens and use hand warmers. Mittens allow one to curl the fingers into a fist in order to maintain warmth in the hand. Wearing an oven mitt when reaching into the freezer may also help prevent an attack of Raynaud's Disease.

It cannot be stressed enough that **cessation of smoking** is critical for patients with Raynaud's Disease or any other vascular problem. Limiting stress and the use of vibratory tools can also be worthwhile. Certain medications used for migraines, nasal congestion, ADHD, and oral contraception can provoke an attack. No definitive association between Caffeine and Raynaud's Phenomena has been established at this time.

If the hand does become cold or one should experience an episode of Raynaud's, one should come inside to a warm environment and run the hands under *warm* water. If unable to come in from the cold, one can try gentle massage and using other body areas to warm the hands, such as the armpits.

### Are there medications I can take?

For patients with more severe symptoms or complications from Raynaud's Disease such as fingertip ulcerations certain medications may be used. Low dose calcium channel blockers, such as Nifedipine and Amlodipine, are often first line medications. Topical nitroglycerine ointment applied to the hand can also be used. Viagra and Losartan act as vasodilators and have shown benefits as well in patients with severe Raynaud's Disease. More recently Botulinum injections have been tried with some success.

### Is there surgery for Raynaud's Disease?

Surgery for severe refractory Raynaud's Disease is an option. This usually takes the form of Digital Periarterial Sympathectomy in the hand and/or wrist. The surgery entails stripping off the exterior adventitial lining of the small arteries to prevent the microscopic sympathetic nerves from causing constriction of the arteries and limiting blood flow (see Picture). Your hand surgeon can help you decide what treatments may be best for you.

