



Autoimmune Resource and Research Centre

Information Sheet

RAYNAUD'S PHENOMENON

What is Raynaud's Phenomenon?

Raynaud's phenomenon is a disorder that affects the blood vessels in the fingers, toes, ears and nose. This disorder is characterised by episodic attacks, called vasospastic attacks, that cause the blood vessels in the digits (fingers and toes) to constrict (narrow). Around 5% of the population and up to 20% of women at some time in their life are said to have had an episode of Raynauds. Women are more likely than men to have the disorder. Raynaud's phenomenon appears to be more common in people who live in colder climates. However, people with the disorder who live in milder climates may have more attacks during periods of colder weather.

What Happens During an Attack?

For most people, an attack is triggered by exposure to cold or emotional stress. In general, attacks affect the fingers or toes but may affect the nose, lips, or ear lobes.

Reduced Blood Supply to the Extremities

When a person is exposed to cold, the body's normal response is to slow the loss of heat and preserve its core temperature. To maintain this temperature, the blood vessels that control blood flow to the skin surface move blood from arteries near the surface to veins deeper in the body. For people who have Raynaud's phenomenon, this normal body response is intensified by the sudden spasmodic contractions of the small blood vessels (arterioles) that supply blood to the fingers and toes. The arteries of the fingers and toes may also collapse. As a result, the blood supply to the extremities is greatly decreased, causing a reaction that includes skin discoloration and other changes.

Changes in Skin Colour and Sensation

Once the attack begins, a person may experience three phases of skin colour changes (white, blue, and red) in the fingers or toes. The order of the changes of colour is not the same for all people, and not everyone has all three colours. Pallor (whiteness) may occur in response to spasm of the arterioles and the resulting collapse of the digital arteries. Cyanosis (blueness) may appear because the fingers or toes are not getting enough oxygen-rich blood. The fingers or toes may also feel cold and numb. Finally, as the arterioles dilate (relax) and blood returns to the digits, rubor (redness) may occur. As the attack ends, throbbing and tingling may occur in the fingers and toes. An attack can last from less than a minute to several hours.

How Is Raynaud's Phenomenon Classified?

Doctors classify Raynaud's phenomenon as either the primary or the secondary form. In medical literature, "primary Raynaud's phenomenon" may also be called Raynaud's disease, idiopathic Raynaud's phenomenon, or primary Raynaud's syndrome. The terms idiopathic and primary both mean that the cause is unknown.

Primary Raynaud's Phenomenon

Most people who have Raynaud's phenomenon have the primary form (the milder version). A person who has primary Raynaud's phenomenon has no underlying disease or associated medical problems. More women than men are affected, and approximately 75 percent of all cases are diagnosed in women who are between 15 and 40 years old.

People who have only vasospastic attacks for several years, without involvement of other body systems or organs, rarely have or will develop a secondary disease (that is, a connective tissue disorder such as scleroderma) later. Several researchers who studied people who appeared to have primary Raynaud's phenomenon over long periods of time found that less than 9 percent of these people developed a secondary disease.

Secondary Raynaud's Phenomenon

Although secondary Raynaud's phenomenon is less common than the primary form, it is often a more complex and serious disorder. Secondary means that patients have an underlying disease or condition that causes Raynaud's phenomenon. Connective tissue diseases are the most common cause of secondary Raynaud's phenomenon. Some of these diseases reduce blood flow to the digits by causing blood vessel walls to thicken and the vessels to constrict too easily. Raynaud's phenomenon is seen in approximately 85 to 95 percent of patients with scleroderma and mixed connective tissue disease, and it is present in about one-third of patients with systemic lupus erythematosus. Raynaud's phenomenon also can occur in patients who have other connective tissue diseases, including Sjögren's syndrome, dermatomyositis, and polymyositis.

Possible causes of secondary Raynaud's phenomenon, other than connective tissue diseases, are carpal tunnel syndrome and obstructive arterial disease (blood vessel disease). Some drugs, including beta-blockers (used to treat high blood pressure), ergotamine preparations (used for migraine headaches), certain agents used in cancer chemotherapy, and drugs that cause vasoconstriction (such as some over-the-counter cold medications and narcotics), are linked to Raynaud's phenomenon.

People in certain occupations may be more vulnerable to secondary Raynaud's phenomenon. Some workers in the plastics industry (who are exposed to vinyl chloride) develop a scleroderma-like illness, of which Raynaud's phenomenon can be a part. Workers who operate vibrating tools can develop a type of Raynaud's phenomenon called vibration-induced white finger.

People with secondary Raynaud's phenomenon often experience associated medical problems. The more serious problems are skin ulcers (sores) or gangrene (tissue death) in the fingers or toes. Painful ulcers and gangrene are fairly common and can be difficult to treat. In addition, a person may experience heartburn or difficulty in swallowing. These two problems are caused by weakness in the muscle of the oesophagus (the tube that takes food and liquids from the mouth to the stomach) that can occur in people with connective tissue diseases.

How Does a Doctor Diagnose Raynaud's Phenomenon?

If a doctor suspects Raynaud's phenomenon, he or she will ask the patient for a detailed medical history. The doctor will then examine the patient to rule out other medical problems. The patient might have a vasospastic attack during the office visit, which makes it easier for the doctor to diagnose Raynaud's phenomenon. Most doctors find it fairly easy to diagnose Raynaud's phenomenon but more difficult to identify the form of the disorder.

What Is the Treatment for Raynaud's Phenomenon?

The aims of treatment are to reduce the number and severity of attacks and to prevent tissue damage and loss in the fingers and toes. Most doctors are conservative in treating patients with primary and secondary Raynaud's phenomenon; that is, they recommend nondrug treatments and self-help measures first. Doctors may prescribe medications for some patients, usually those with secondary Raynaud's phenomenon. In addition, patients are treated for any underlying disease or condition that causes secondary Raynaud's phenomenon.

Nondrug Treatments and Self-Help Measures

Several nondrug treatments and self-help measures can decrease the severity of Raynaud's attacks and promote overall well-being.

- **Take action during an attack**--An attack should not be ignored. Its length and severity can be lessened by a few simple actions. The first and most important action is to warm the hands or feet. In cold weather, people should go indoors. Running warm (not hot) water over the fingers or toes or soaking them in a bowl of warm water will warm them. Taking time to relax will further help to end the attack. If a stressful situation triggers the attack, a person can help stop the attack by getting out of the stressful situation and relaxing. People who are trained in biofeedback can use this technique along with warming the hands or feet in water to help lessen the attack.
- **Keep warm**--It is important not only to keep the extremities warm but also to avoid chilling any part of the body. In cold weather, people with Raynaud's phenomenon must pay particular attention to dressing. Several layers of loose clothing, socks, hats, and gloves or mittens are recommended. A hat is important because a great deal of body heat is lost through the scalp. Feet should be kept dry and warm. Some people find it helpful to wear mittens and socks to bed during winter. Chemical warmers, such as small heating pouches that can be placed in pockets, mittens, boots, or shoes, can give added protection during long periods outdoors. People who have secondary Raynaud's phenomenon should talk to their doctors before exercising outdoors in cold weather.

People with Raynaud's phenomenon should also be aware that air conditioning can trigger attacks. Turning down the air conditioning or wearing a sweater may help prevent attacks. Some people find it helpful to use insulated drinking glasses and to put on gloves before handling frozen or refrigerated foods.

- **Quit smoking**--The nicotine in cigarettes causes the skin temperature to drop, which may lead to an attack.
- **Control stress**--Because stress and emotional upsets may trigger an attack, particularly for people who have primary Raynaud's phenomenon, learning to recognize and avoid stressful situations may help control the number of attacks. Many people have found that relaxation or biofeedback training can help decrease the number and severity of attacks. Biofeedback training teaches people to bring the temperature of their fingers under voluntary control. Local hospitals and other community organizations, such as schools,

often offer programs in stress management.

- **Exercise**--Many doctors encourage patients who have Raynaud's phenomenon, particularly the primary form, to exercise regularly. Most people find that exercise promotes overall well-being, increases energy level, helps control weight, and promotes restful sleep. Patients with Raynaud's phenomenon should talk to their doctors before starting an exercise program.
- **See a doctor**--People with Raynaud's phenomenon should see their doctors if they are worried or frightened about attacks or if they have questions about caring for themselves. They should always see their doctors if attacks occur only on one side of the body (one hand or one foot) and any time an attack results in sores or ulcers on the fingers or toes.

Treatment with Medications

People with secondary Raynaud's phenomenon are more likely than those with the primary form to be treated with medications. Many doctors believe that the most effective and safest drugs are calcium-channel blockers, which relax smooth muscle and dilate the small blood vessels. These drugs decrease the frequency and severity of attacks in about two-thirds of patients who have primary and secondary Raynaud's phenomenon. These drugs also can help heal skin ulcers on the fingers or toes.

Other patients have found relief with drugs called alpha blockers that counteract the actions of norepinephrine, a hormone that constricts blood vessels. Some doctors prescribe a nonspecific vasodilator (drug that relaxes blood vessels), such as nitroglycerine paste, which is applied to the fingers, to help heal skin ulcers. Patients should keep in mind that the treatment for Raynaud's phenomenon is not always successful. Often, patients with the secondary form will not respond as well to treatment as those with the primary form of the disorder.

Patients may find that one drug works better than another. Some people may experience side effects that require stopping the medication. For other people, a drug may become less effective over time. Women of childbearing age should know that the medications used to treat Raynaud's phenomenon may affect the growing foetus. Therefore, women who are pregnant or are trying to become pregnant should avoid taking these medications if possible.

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