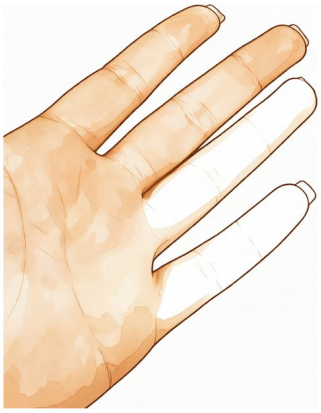
CQ HAND + UPPER LIMB
SPECIALIST ORTHOPAEDIC SURGEON

PATIENT INFORMATION — IN DEPTH

Raynaud's Phenomenon



In a Raynaud's attack the affected fingers turn pale and cold as the small blood vessels clamp down, before going blue and then red as blood returns.

What you're feeling

Your fingers change colour and feel strange when you get cold or stressed. A typical attack runs through three stages: the fingers first go **white** and feel cold and dead, then turn **blue** as the blood drains away, and finally flush **red** and may throb or tingle as the blood comes flooding back. Along the way you might notice numbness, pins and needles, or an aching pain. The same thing can sometimes affect the **toes, the nose, the ears, or the lips**.

Attacks come and go. They are often triggered by something small (taking food out of the freezer, a cold morning, holding a chilled drink, or a sudden wave of stress) and they usually settle on their own once you warm up, over a few minutes to half an hour. Between attacks the fingers typically look and feel completely normal.

What's actually happening

The small blood vessels that supply your fingers are designed to narrow in the cold, to keep your core warm. In Raynaud's, those vessels over-react and clamp down far harder than they need to. This is called vasospasm. For a short while, very little blood reaches the skin of the fingers: that's the white, cold, numb stage. As the spasm eases, the blood returns and the fingers turn blue, then red and warm again.

It helps to know there are two kinds. **Primary Raynaud's** is by far the most common and is essentially the body being over-sensitive to cold on its own, with no underlying disease behind it. It often starts in younger women, affects both hands fairly evenly, and is harmless even though it can be a nuisance. **Secondary Raynaud's** is less common but more important, because here the vasospasm is linked to another condition, usually one that affects the connective tissues, such as scleroderma or lupus. The clues that point toward the secondary type are: attacks starting later in life, attacks that hit one hand or only a few fingers rather than both hands evenly, attacks that are very severe, sores or

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ulcers at the fingertips, or other symptoms like joint pains or a rash. Those features are worth a proper medical check.

What we can do about it

For most people, the mainstay is simple and effective: **keep warm and avoid the triggers**.

- **Stay ahead of the cold.** Wear gloves (mittens keep the fingers together and warmer), use hand-warmers, and dress in layers. Keeping your whole body and core warm matters as much as the hands themselves; your fingers stay open when your core is warm.
- **Side-step sudden cold.** Wear gloves to reach into the fridge or freezer, run the car heater early, and warm cold drinks' cans or bottles in an insulated holder.
- **Quit smoking.** Smoking narrows blood vessels and makes Raynaud's worse, and stopping is one of the most useful things you can do.
- **Go easy on caffeine** and on anything that revs you up, since both can set off attacks. Managing stress with whatever works for you also helps, because stress alone can trigger the vasospasm.

If attacks are frequent, painful, or severe, there are medicines that relax the blood vessels and reduce how often attacks come. The most common are a group called calcium-channel blockers (such as nifedipine), and there are other options if those don't suit. When the cause is secondary Raynaud's, treating the underlying condition is an important part of the plan, so getting the right diagnosis matters.

What to expect

For the great majority (those with primary Raynaud's) this is a manageable nuisance rather than a danger. With sensible warmth and trigger-avoidance, many people keep attacks to a minimum and carry on normally; the fingers recover fully after each episode and no lasting harm is done. It tends to be a long-term tendency rather than something that disappears, but it is very controllable, and medicines are there for the times when simple measures aren't enough.

Secondary Raynaud's needs closer attention, because the underlying condition drives how things go and, in some cases, the reduced blood flow can damage the fingertip skin. That's exactly why sorting out which type you have is worthwhile, so the right level of care is matched to your situation.

When to see someone

See a doctor for assessment if:

- Your attacks **started later in life**, are **severe**, or affect **one hand or only a few fingers** rather than both hands evenly: these can be signs of the secondary type and usually warrant blood tests and a look at the small vessels at the base of your nails.

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- You develop **sores, ulcers, cracks or skin breakdown at the fingertips**, or an area of finger that stays white, blue, painful or numb and **won't warm back up**: this needs prompt attention.
- You have **other symptoms** alongside the colour changes: joint pain or swelling, a rash, dry eyes or mouth, difficulty swallowing, or tight or thickened skin on the fingers.
- Attacks are **frequent or painful enough to interfere with your daily life** despite keeping warm and avoiding triggers; medication can help.

In more depth

This section goes further than you need for your own treatment decisions. Raynaud's phenomenon is worth the extra reading because only one class of drug has good evidence behind it, and because the treatment attracting most current interest works by an unexpected mechanism.

ONE DRUG CLASS HAS THE EVIDENCE

Raynaud's is episodic spasm of the small arteries in the fingers, so treatment aims to keep those vessels open. Many vasodilators have been tried.

A meta-analysis of **17 trials** concluded that **calcium channel blockers demonstrated a statistically significant benefit in reducing the frequency and severity of symptoms** – and that there was **no evidence supporting oral vasodilatory agents other than calcium channel blockers** [1].

That second clause is the useful one. It is a negative finding across a whole category of alternatives, and it explains why treatment tends to start and often stay with one drug family rather than working through a list.

BOTULINUM TOXIN, AND WHY IT IS NOT DOING WHAT YOU WOULD GUESS

The intervention generating most interest in refractory cases is botulinum toxin injected around the arteries at the base of the fingers. Its use for **Raynaud phenomenon refractory to medical treatment has shown favourable results**, serving as a **non-invasive alternative to surgery with demonstrated efficacy in small-scale studies** [2].

The mechanism is worth understanding because it is counter-intuitive. Botulinum toxin is known for paralysing muscle, and the obvious guess would be that it relaxes the muscle in the artery wall directly. The current understanding is different: it interferes with the sympathetic nerve signalling that drives the vessels to constrict, and appears to act on pain pathways as well – which is why reported benefit sometimes includes pain relief out of proportion to any change in blood flow.

Note the honest framing in the evidence itself: "small-scale studies". This is a promising option for people who have exhausted medical treatment, not an established one.

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THE DISTINCTION THAT DETERMINES EVERYTHING ELSE

The single most consequential question is whether the phenomenon is **primary** — occurring on its own — or **secondary** to an underlying condition, most often an autoimmune connective tissue disease such as scleroderma or lupus.

The difference is not academic. Primary Raynaud's is a nuisance with a good outlook and no tissue damage. Secondary Raynaud's can progress to ulceration and tissue loss at the fingertips, and the underlying disease needs identifying and treating in its own right.

The features that raise concern are onset after about 30 years of age, asymmetry between hands, ulcers or pitting scars at the fingertips, and abnormal capillaries at the nail fold. Those warrant investigation rather than reassurance, and it is why a first presentation of Raynaud's is usually worked up rather than simply managed with gloves.

WHERE SURGERY SITS

For severe secondary disease with threatened tissue, periarterial sympathectomy — stripping the sympathetic nerve fibres from the surface of the digital arteries — is the surgical option, and it targets the same signalling pathway as botulinum toxin by a permanent route. It is reserved for critical ischaemia and non-healing ulcers rather than for cold, uncomfortable fingers, which is consistent with the treatment ladder above: the further along it you go, the more the goal shifts from comfort to saving tissue.

REFERENCES

1. Butendieck RR, Murray PM. Raynaud disease. J Hand Surg Am. 2014;39(1):121-4.
2. Gallegos JE, Inglesby DC, Young ZT, Herrera FA. Botulinum toxin for the treatment of intractable Raynaud phenomenon. J Hand Surg Am. 2021;46(1):54-9.

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