

Intersection Syndrome

Intersection syndrome: friction where the thumb tendons cross over the wrist-extensor tendons, a few centimetres above the wrist, causes pain and swelling.

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What you're feeling

Intersection syndrome causes pain and swelling on the back and thumb side of your forearm, a little way above the wrist (roughly a hand's breadth up from the bony bump on the back of your wrist). It is not pain in the wrist joint itself, but higher up, where the muscles of the forearm cross over one another.

The pain is usually worse when you bend your wrist back or move your thumb, and it often comes on after a spell of repetitive activity: rowing, weightlifting, racquet sports, gardening, or a lot of keyboard or wrist-heavy work. Many people notice swelling over the sore area, and some feel or even hear a soft creaking, squeaking or grating when they move the wrist, as if something is rubbing. This is sometimes called a "wet leather" sound.

What's actually happening

On the back of your forearm, two sets of muscles cross over one another like an X. One set runs out to your thumb; the other runs down to power the wrist. At the point where they cross, a few centimetres above the wrist, the tendons slide back and forth past each other inside their smooth sheaths.

When you do a lot of repetitive wrist movement, that crossing point gets irritated and inflamed. The lining of the tendon sheaths swells, friction builds up, and the tissues become tender and puffy, causing the pain, the swelling and the creaking. It is an **overuse problem**, not an injury from a single accident, and it is not the same as de Quervain's, a related thumb-side tendon problem that sits lower down, right at the wrist. Intersection syndrome sits higher.

The good news is that the irritated tissue settles down well once the rubbing stops, and the condition does not cause lasting damage in most people.

What we can do about it

Dr Kieran Hirpara guides our approach to managing this condition in our clinic. We start with non-operative care and consider surgery only if symptoms persist despite these measures.

Almost everyone gets better **without surgery**. The mainstays are:

- **Resting the aggravating activity:** the single most important step. Easing off the rowing, lifting or repetitive task for a few weeks lets the inflammation settle.
- **A wrist splint** that holds the wrist slightly bent back. This rests the crossing tendons and is often worn for a few weeks.
- **Anti-inflammatory tablets or gels** (NSAIDs) to calm the pain and swelling.
- **Ice** over the sore area after activity.

If things don't settle with those measures, a **corticosteroid injection** into the tendon compartment (often guided by ultrasound for accuracy) usually brings the inflammation down. For the small number of people whose symptoms keep returning despite all of this, a minor operation to release and clean out the irritated tendon sheath is very effective. It is rarely needed.

What to expect

Most people settle within a few weeks to a couple of months once they rest the activity and use a splint. The outlook is excellent: this is a condition that genuinely gets better, and it does not tend to leave any lasting weakness or stiffness once it has calmed down.

The main thing that brings it back is returning to the same heavy or repetitive activity too quickly. Easing back in gradually, and where it applies looking at technique or equipment (for example oar grip in rowers, or bar grip in the gym), helps keep it away for good.

When to see someone

- Pain and swelling on the back of the forearm that doesn't settle after a couple of weeks of rest and a splint.
- A creaking or squeaking over the area, or pain that flares every time you go back to your sport or work task.
- Symptoms that keep coming back despite resting, worth assessing, as an ultrasound-guided injection may help.
- Any **fever, hot red skin, or rapidly worsening swelling**: see a doctor promptly, as that points to something other than simple overuse.

In more depth

This section goes further than you need for your own treatment decisions. Intersection syndrome is worth the extra reading mainly because of what it is confused with – it sits a few centimetres from de Quervain's tenosynovitis, is treated differently, and the evidence distinguishing them is genuinely small.

WHERE IT IS, AND WHY THAT IS THE WHOLE DIAGNOSIS

Two muscles running to the thumb cross over the two wrist extensor tendons about four to eight centimetres above the wrist, on the back of the forearm. Friction at that crossing point produces pain, swelling and sometimes an audible or palpable creaking as the wrist moves.

The location is the diagnosis. De Quervain's is tender at the wrist itself, over the bony prominence at the thumb side. Intersection syndrome is tender noticeably further up the forearm. Both are provoked by thumb and wrist movement, and both can produce swelling – but the point of maximal tenderness separates them, and it does so reliably enough that imaging is often unnecessary.

WHAT DISTINGUISHES THE TWO POPULATIONS

The direct comparison is small – **80** patients – but informative. Intersection syndrome occurred **more frequently in men and in the dominant hand** than de Quervain's disease, both across all patients and when peripartum women were excluded, and patients with intersection syndrome presented with a **much shorter duration of symptoms** [1].

Each of those fits the mechanism. Intersection syndrome is a friction injury from repetitive resisted wrist extension – rowing, weight training, racquet sports, heavy manual work – so it favours the dominant side and an occupationally exposed group. The shorter symptom duration reflects that it tends to arise after an identifiable change in activity rather than accumulating insidiously.

The de Quervain's contrast is instructive in the other direction: excluding peripartum women changed the comparison, which underlines how strongly that condition is associated with the postnatal period – an association intersection syndrome does not share.

TREATMENT, AND AN HONEST STATEMENT OF THE EVIDENCE

Management is conservative in the great majority: relative rest from the provoking movement, a thumb-spica-style splint, anti-inflammatory measures, and correction of the technique or workload that caused it. Corticosteroid injection into the affected space is used where that fails, and surgical release of the second compartment is reserved for the small number who do not settle.

The evidence base for that sequence is thin. The literature consists largely of case series and descriptive reports; there are no trials comparing the options, and the largest comparative study available is the **80-patient** series above. The treatment ladder rests on mechanism and clinical experience rather than on demonstrated superiority – which is worth stating plainly rather than implying a firmer foundation than exists.

What that means practically is that the strongest thing anyone can offer here is the diagnosis itself. Because the condition is self-limiting once the provoking load is removed, correctly identifying the site – and therefore the movement to modify – does most of the work.

REFERENCES

1. Sato J, Ishii Y, Noguchi H. Clinical and ultrasound features in patients with intersection syndrome or de Quervain's disease. J Hand Surg Eur Vol. 2015;41(2):220-5.