



**QUESTION | I SOMETIMES GET ASKED TO FIT A WRIST BRACE FOR A PATIENT WITH CARPAL TUNNEL SYNDROME. SHOULD I BE DOING ANYTHING MORE WITH THE PATIENT IN ADDITION TO THE BRACE? HOW LONG SHOULD THE PATIENT PERSIST WITH THE BRACE BEFORE CONSIDERING SURGERY?**

**ANSWER |** Carpal tunnel syndrome is a condition that can cause significant patient suffering due to compression of the median nerve under the flexor retinaculum. Symptoms are often worse at night – sometimes waking patients from sleep – and in the early morning. There are various theories on why this occurs, but many patients benefit from a semi-rigid neutral-position wrist splint that prevents wrist flexion during the night.

### **The evidence for wrist splints:**

A recently published Cochrane review investigating the use of splints in carpal tunnel syndrome found that a splint worn at night was more effective than no treatment at all, at least in the short term. It also appeared that using a splint in the day, in addition to the night, led to greater relief of symptoms. Most studies concluded that a benefit should be shown within four weeks, and one study showed continued benefit for up to a year when compared to no splint.

There was insufficient evidence that one splint design was more effective than any other, but we do know that carpal tunnel pressures are higher with wrist extension compared to a neutral position. Therefore, it would seem intuitive to use a neutral position splint rather than one that positions the wrist in a functional extended position.

### **Other nonsurgical treatments:**

Only splinting, acupuncture and steroid use have consistently been shown to have proven benefits in patient symptoms in published trials. Interestingly, in addition to symptomatic relief, acupuncture has also been shown to lead to improvements on electrophysiological testing.

Steroid is usually given locally as an injection near the median nerve, in or adjacent to the carpal tunnel. This has been shown to be more effective than placebo over the first month of treatment, but clinical improvement beyond one month has not been demonstrated. Limited studies comparing steroid to splints have not shown significant differences.

Patients are sometimes reported to have some benefit from ultrasound, diuretics, yoga, carpal bone mobilisation, and nerve and tendon glide exercises, although the scientific literature has not been able to support this. Likewise, magnet therapy, exercise and chiropractic treatment have failed to show any significant improvement in symptoms when compared to placebo or control.

So, in answer to your question to whether you should be doing anything more, the evidence seems to suggest only that acupuncture or a steroid injection may be useful in addition to a wrist brace.

## What about surgery?

A randomised control trial comparing surgery to a nonsurgical regime of hand therapy, patient education, hand exercises and therapeutic ultrasound was recently published. Both groups showed significant improvements at 1 year when compared to their baseline symptoms. However, the surgical group showed significantly higher improvements at 3 months and at 1 year when compared to the nonsurgical group. This doesn't necessarily advocate surgery for everyone in the first instance – in fact, 61% of patients in the nonsurgical group showed significant enough improvement in symptoms to avoid surgery at 1 year.

## So, who should consider surgery?

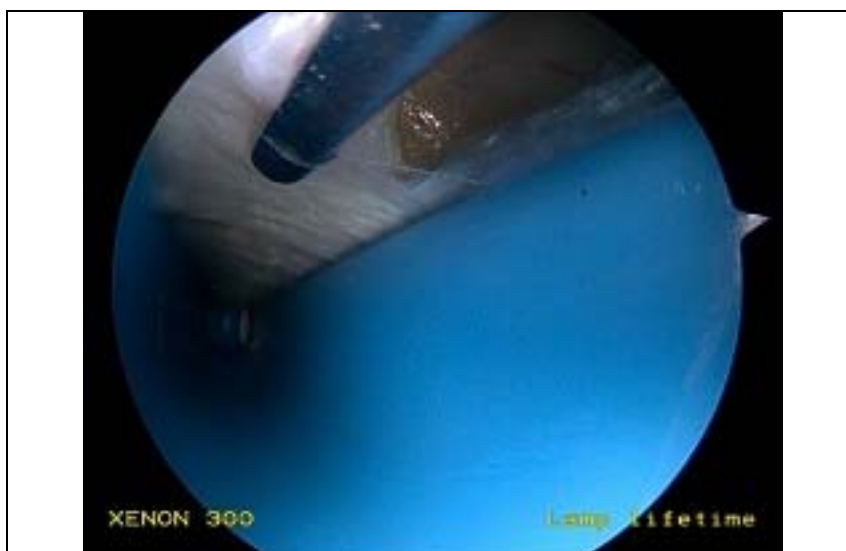
Patients who fail to improve after one or two sequential attempts at nonsurgical therapy should consider a carpal tunnel release. I would consider a trial of splint therapy to be unsuccessful if the patient has not shown any improvement within 4 weeks. I would like to see improvement after steroids within 2 or 3 weeks.

There are some patients for whom surgery should be considered in the first instance. These include:

1. Patients with thenar muscle weakness or wasting. These are signs of median nerve denervation. Once motor signs set in, they are difficult to reverse. Trialling nonsurgical techniques may allow time for function to worsen irreversibly.
2. Patients with severe symptoms for whom a trial of nonsurgical therapy may be inappropriate. Because the overall success rates for nonsurgical therapy are lower than for surgical intervention, patients with severe enough symptoms may choose to have the treatment with the highest immediate success rate.
3. Patient preference for surgical management.

## What surgical technique should be used?

The two main methods of carpal tunnel release are open procedures and endoscopic procedures. While there is no difference in long-term outcomes between these operations, endoscopic operations have been shown to generally give an earlier return to work at the expense of a slightly higher complication rate. When discussing surgery, I usually explain and offer both techniques and let the patient decide.



**Carpal Tunnel Endoscopic View**

## How quickly do patients recover after surgery?

Patients with pain or pins and needles report almost immediate relief of symptoms after surgery. Patients with finger numbness can take several months to subside completely. Post-surgical pain usually settles sufficiently for patients to return to work within 2 weeks for endoscopic procedures or 6 weeks for open procedures, but some post-surgical “pillar” pain remains for up to 9 months after surgery.

### In conclusion:

In most patients, I would suggest a neutral position night wrist splint. If symptoms have not improved within 4 weeks, then an alternative treatment should be sought. This could include acupuncture, steroid injection or surgery. Surgery should be considered for patients who fail to respond to nonsurgical treatments, or in the first instance for patients with signs of median nerve denervation or severe symptoms.

### Reading list

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