

# Non-surgical Treatment of Dupuytren's

## Introduction

Dupuytren's is a relatively common, benign, fibroproliferative disorder of the hands producing progressive contracture of the digits over time.

There is no specific treatment and currently no medication proven to safely control the disease. The disease is genetic in origin, runs in families and is of variable severity.

Standard treatment is some form of surgery, ranging from collagenase injection, through Needle Aponeurotomy to open surgery and even amputation. Traditionally splinting has not been thought to be of benefit in Dupuytren's and a landmark pragmatic trial in 2011 showed no benefit to a static splint after surgery. I know of no hand surgery unit which routinely provides splinting for Dupuytren's prior to surgery. I have come across no surgeon who routinely suggests splinting to their patients.

However all tissues within the body respond to gentle pressure even if very slowly and Dupuytren's is no different. Since the mid 90s we have known that dynamic splinting will correct Dupuytren's (even post-operative recurrence) completely.

Messina developed the first device in the late 1980s but it was complex and prone to infection with an operation needed to attach the device. Then Dr Agee developed the Digit widget (<https://handbiolab.com/products/digit-widget/>) which could correct any contracture over a period of 6-12 weeks. However it still required an operation to insert 2 pins and was fairly complex. It also was not available outside the US. Both of these techniques proved that dynamic stretching was capable of correcting contractures but still required an operation, recurrence was often rapid and they were seen as a way of correcting severe disease to make definitive surgery easier.

Brauns and colleagues performed a very elegant trial comparing compression and dynamic splints in 2017 and showed that a simple dynamic splint could substantially correct a contracture over a period of a few weeks. However the splint required a therapist to manufacture the device and the fingers splinted could not be moved during the period of splintage which was 20 hours per day. They suggested as have others that compression of Dupuytren's tissue could be beneficial similar to compression of hypertrophic scarring.

I also found the Fixxglove which many Dupuytren's patients find very comfortable but is a static design and whilst comfortable probably has no proven benefit.

All of this information lead me to try and develop a non-operative treatment for Dupuytren's patients.

The requirements were:

- Simple off the shelf availability
- Dynamic with integrated spring to promote extension
- Compressing like a lymphoedema glove

It has taken about 6 years to get to this stage but finally we have the first prototypes.

We looked at steel springs but they are expensive and sharp at the edges so we found a UK manufacturer of composite springs.

We found a wonderful company in Turkey who worked with us to create the gloves.

We found a company in the UK to provide a sponge backing for the springs.

We are now looking for about 100 people to use the gloves. This is not a clinical trial! This is a commercial pre-launch focus group evaluation. This is the glove with the spring inside the ring finger compartment.

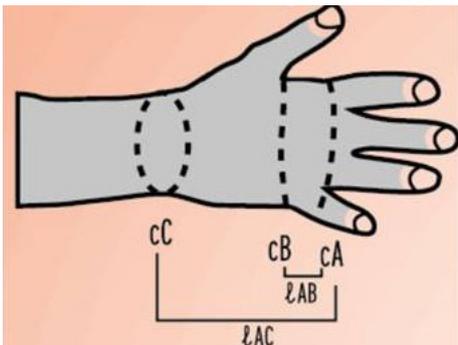


This photo shows the glove on a hand with a contracted ring finger.



We are looking for 100 people with Dupuytren's of their little and/or ring fingers who are willing to try the glove and give us feedback about comfort, usability, etc. All we ask is that:

- You measure the circumference of your hand at the level of the knuckles



and send this with a photo of your hand to [Dupuytrensglove@gmail.com](mailto:Dupuytrensglove@gmail.com) along with your address (so we can send you a glove).

- you take a picture of your hand prior to being sent a glove to show the degree of contracture



This is probably easiest if taken by someone else

- you wear the glove for 20 hours per day.
- you take a similar picture of your hand every 2-3 weeks to see if there is improvement and you let us know what you like and what you would change about the glove.

For example the glove at the moment includes all the digits. If we make the glove commercially then we would exclude the thumb, index and middle fingers. Also some of the lengths of the fingers are a little off.

Thank you.

Chris Bainbridge