



## FIRST study results

### **Why did we do the study?**

Finger flexor tendons are the tendons that are on the palm side of the hand. They give us the ability to bend our fingers, so that we can grip and hold things. During injuries to the hand, they can commonly be cut, and this stops them working effectively. Unfortunately the cut tendons do not heal themselves, they require surgery, followed by a lengthy rehabilitation process. Rehabilitation involves a splint to protect the repaired tendons, and exercises to restore movement and function.

In the United Kingdom there are three different splints used in the National Health Service. These three splints are called the Long Forearm-based splint (Long Splint), the Manchester Short Splint (Short Splint), and the Relative Motion Flexion Splint (Mini Splint). For the study these were named the study Long, Short, and Mini which are an indication of their size, but each also have different qualities, with the short and mini splints allowing more movement which could help prevent stiffness, and the longer splint more protection, which may be more effective in preventing tendon rupture. Due to the lack of clinical research on this topic, we wanted to do a trial with a large number of patients to see if one of these splints was better than the others, or if they were all equal.

### **What did we do?**

430 patients across 26 hospitals in the UK, were randomly assigned to a splint. All patients were followed-up for a year, unless they decided to stop the study early, and the last visit of the entire study took place in March 2025. All participants of the study had 4 follow-up appointments to collect research information throughout the study, at 6, 12, 26, and 52 weeks. During those appointments, we collected information on their personal characteristics (e.g. age, gender, ethnicity etc.), work, splint preferences, patient reported outcomes, clinical outcomes, adherence to the splint, and safety. We also interviewed 20 patients within this group to record in-depth information about their experience of wearing the splint.

### **What did we find?**

We did a statistical analysis of all the information collected, and we found no difference in the clinical or cost effectiveness between the three splints. The adherence, safety, and clinical/patient outcomes were similar no matter the splint worn. The interviews that we did with participants showed similar results in that most patients were happy with the splint they were given, and understood why they had to wear their splint. They also showed that people are more likely to wear their splint if it doesn't impact too much on their individual circumstances, or there is additional support from other people to help them whilst they are wearing the splint (work flexibility, family support). A lot of participants said that they would like to be able to have a conversation with their hand therapist so that they can jointly decide which splint is most suitable for them.

### **What does this mean for the future of finger flexor tendon repair?**

This study showed that the Long, Short, and Mini splints are all safe and effective options to treat a flexor tendon injury. This means that despite the Long splint being the most

commonly used at hospitals in the UK, this may now change, with hospitals introducing the other two splints to their patients. This gives patients and clinicians an opportunity to make a shared splint decision about which splint is best.

A future research project is planned that will help summarise the data from FIRST and present the risk and benefits associated with each of three splints, in a patient friendly manner, to help them make a decision about which splint is best for them.