

Upper limb splinting

Information resources

Introduction

This information sheet aims to answer your questions about upper limb splinting: what it is, what it does and what different types of splinting might be available. This was written with children in mind, but it is equally relevant to adults, and quotes some parents on their experience of splinting.

What is upper limb splinting?

Upper limb splinting is a type of intervention where the movement of an arm, shoulder, elbow, wrist or hand is supported or restricted by a piece of material.

There are a number of different types of splints (also called orthoses) and which type you are prescribed will depend on your specific treatment plan. For example, gloves can be used to facilitate straightening at the wrists, rotating of the forearm and/or help provide stability to the fingers.

Splints are often used alongside other treatments such as botulinum toxin (or Botox) and/or occupational therapy and physiotherapy, so it is important to make sure that the splint is used as advised and that all parts of the therapy programme are followed.

What are the aims of splinting?

- To maintain range of movement or increase use of the affected side
- To reduce increased tightness and/or stiffness in the muscle
- To stabilise a joint or joints
- To reduce pain
- To improve function or performance
- To improve patterns of movement or alignment, such as holding the arm in a more natural position
- To maintain hygiene and prevent skin damage
- To minimise the possible development of a long term issue or deformity



“My son is now 11 and has worn a splint since he was one. We just made it part of his daily routine - same as brushing his teeth or putting on his shoes - and he has never questioned it. We do introduce new splints more gradually in case they rub. He won't go out without his splint on and can't understand why anyone would question wearing it, as he understands it helps”

Parent of a child with hemiplegia

Does my child need a splint?

Your physiotherapist and/or occupational therapist can assess whether splinting would be helpful for your child. They will do an initial assessment, taking specific measurements of posture and body parts and discuss the fit and use with you and your child. You may also be referred to an orthotist who will do the assessment instead.

This can be quite a long appointment which will take into account ability as well as difficulty, so it is important to think about what tasks your child finds difficult and what improvements you want to achieve in the long term. Some therapists will use photographic or video evidence in this assessment. Part of this process will cover how you should use the splint and get your child used to wearing it.

“We tried it twice a day and it lasted about five minutes on the first day but by the end of the week it was on for most of the day. He prefers to wear it now and we have had no problems.”

Parent of a child with hemiplegia

You can buy splints and orthoses privately, but it is essential to have a proper medical assessment.

A survey of professionals working in the field suggests that it can take up to three weeks to receive your splint if it is being made specially for your child, rather than being 'off the shelf'. They generally recommend that the splint be reassessed every four to six months, or more regularly if the child is growing.

What types of splints are available?

There is a range of splints available, depending on the individual need. They are available 'off the shelf' but can be made to measure. Your physio or occupational therapist will be able to advise you. Splints can be made out of different materials; some common types are:

- **Lycra** – made to measure garments, fabricated out of dynamic (elasticated) material such as Lycra. There are several types, including full body suits, vests, sleeves and gloves. A different thickness of material and, in some cases, plastic boning can sometimes be added to these orthoses so they offer more support in a specific area.

- **Neoprene** – a soft, thick material, similar to a wet suit, which has some stretch to it and can be cut and sewn into different designs. They may be reinforced with plastic or metal in places to provide extra support. These splints can be bought ‘off the peg’ from a range of manufacturers.
- **Thermoplastic** - a strong plastic which when heated up in hot water becomes malleable and can be moulded onto the child’s hand or arm. These offer less flexibility than neoprene and Lycra splints, but greater support. Sometimes they are hinged.

Using the splints

There are a number of reasons why a splint might be recommended and that will affect how it is used.

- Some splints are used only at night
- One that is being used to improve posture or use of the affected limb might be worn for eight hours
- A splint being used to improve performance might be used during specific activities or tasks

Splints tend to be classified as resting splints or functional splints.

- **Resting splints** may be worn overnight or during rest periods, as they restrict active movement and function. Children can sometimes wear them in the day if they aren’t able to use the affected hand.
- **Functional splints** are worn during the day to support a child’s functional activities e.g. to enable them to grasp toys better, or they may also be used during therapy sessions to promote specific movements or skills.

In most cases the splint is used at first for a very short period, which increases gradually until you have built up to the prescribed length of time. Splints also need to be used as prescribed to be effective.

It can be difficult to get used to a new splint. They can feel tight and restrictive. It’s worth allowing extra time to put the splint on and making sure that the process is as relaxed as possible. There are lots of strategies for getting children to like their splint more, making them more likely to wear it without a battle. ‘Hands Up For Andie’, by Brenda Palmer, is a story book featuring a little girl who has to wear a splint - which may make it feel more ‘normal’ for children who have to wear their splint at school. Putting old splints on teddy bears and dolls can also help children to get used to the idea. Decorating the splint can also help:

“My daughter has butterflies and ladybirds on her leg splints but she has a plain white hand splint for night time that she refuses to wear. I’m hoping putting Elsa from Frozen stickers on it will do the trick!”

There are lots of helpful suggestions on splints on our Facebook group:

www.facebook.com/groups/5512952137

Most children are able to adapt to the splint quite easily but if problems continue beyond two weeks it is worth going back to see whoever has provided the splint as there might be a more serious issue, such as a problem with fit. A small number of families find it too difficult to introduce or use a splint.

“My daughter finds things much easier with it and so will happily wear it as it means she can do more. Least fuss made about these things is best in our experience - weave it into normality, but go with your gut instincts on this, you’ll find a way.”

Funding

Some hospitals cover the cost of splints and other orthoses through their budgets but funding may have to be applied for. In other cases parents will need to buy the orthosis or splint privately. The situation varies greatly, depending on where you live and what you need. Your healthcare team should be able to advise you.

Evidence of effectiveness

Current clinical evidence to support the use of splinting is limited. There are several smaller studies of poor quality research. A recent systematic review (Jackman et.al. 2014) shows that generally splints are not used as a stand-alone intervention but that there is some benefit to hand and arm skills, particularly when used alongside with occupational therapy and/or botulinum toxin. It also highlighted the fact that maintaining improvement in function or skills was limited when the child stopped using the splint.

There is also limited clinical evidence to support the use of specific Lycra orthoses.

Study groups tended to be small in size and the types of orthoses used, types of cerebral palsy in clinical samples and outcome measures used were variable. It is therefore difficult to make generalisations about their effectiveness. One study (Elliott C, Reid S, Hamer P, Alderson J, Elliott B, 2011) indicated that Lycra arm splinting made significant changes in patterns and range of movement and motor performance in children with cerebral palsy when used alongside another therapy for three months. Other authors have reported benefits in stability of the limb when it’s held closer to the body, when not walking or running for example, and the child already has some use of the affected limb. However other studies report difficulties persuading the child to use the splint, and problems with comfort and toileting while wearing it.



How can HemiHelp help you?

HemiHelp:

- has a Helpline staffed by trained volunteers who all have personal experience of hemiplegia (**0845 123 2372**) - helpline@hemihelp.org.uk
- runs a UK-wide home visiting service
- has an extensive website with news and free information downloads
- has a Facebook group and Twitter feed ([@hemihelp](https://www.facebook.com/hemihelp))
- puts members in touch with others who have faced similar problems (available upon written request) and is developing a network of local groups
- has information resources on various aspects of living with hemiplegia
- produces a quarterly magazine where members can share information and experience
- runs regular conferences and workshops around the UK for parents and professionals
- organises sports and activity days for children in different regions
- has a transition support service for young adults including employment workshops, 1:1 support, and work placements
- membership is from £10 a year and benefits include HemiHelp's quarterly magazine, access to our services and schemes and priority booking at HemiHelp events

We can provide references on the source material we used to write this information sheet. Please contact us at info@hemihelp.org.uk

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