

Introduction

* My name is Debbie Wollensack. I started making carriers because I found it hard to buy the baby carriers I wanted to try ready-made - so I made my own! I am the owner of Hipababy. I make mei tai's, half buckles, full buckles, ring slings, and podaegis. I have been selling carriers for around 3 years but I have been making carriers for myself since I first discovered slings when my second child was a baby 11 years ago.

* I will be talking about carrier construction. It is not hard to make a safe carrier but there are several things you need to know.

* The vast majority of handmade carriers and the patterns that you can find to make your own are safe but there are occasionally some that aren't. The main problems are lack of reinforcement and poor choice of materials which can cause the sling to fail.

* I have included my favourite free mei tai, ring slings, and pod patterns in my handout sheet. I'll also leave the list up on my blog at hipababy.com

Mei Tais

- Prewash your fabrics in the same manner that you will wash your completed carrier.
- Finish the edges of fabrics which fray easily with a zig zag or serged edge.
- Hems in weight bearing area like the shoulder and waist should be wide around 8-9 cm/3 inches at least.
- There are two main methods for securing your shoulder straps and x box or a bartack. A bartack stitch is used on garments at high stress areas like pockets. It is a very short, tight zigzag. The advantage of this is that you can use with a smaller seam allowance since the reinforcement is sewn just above the seam. This reduces bulk. Bartacks are generally thought to be ideal for wrap conversion with no inner layer as it is thought to keep the wrap fabric properties. If you are using an inner layer or if you are not using a wrap like fabric either x boxes or bartacks will work equally well.
- An x box stitch is a box shape with stitching extending to the opposite corners. You can also use triangle or semi circles, anything with the stitching going in different directions. These stitches help provide the carrier with strength and security by increasing the surface area of stitching helping to spread the load across a larger area of fabric. There are two options for x boxes. They can be visible and sewn through all the layers of your carrier or if you prefer not to have them visible your x boxes can be hidden on a sturdy inner layer (usually canvas or denim)
- I like to add an inner layer to my mei tai's as I feel it adds strength and support. How many layers you need in your mei tai depends on the fabrics you choose. In general you either need to anchor your straps to a heavy duty fabric or to multiple layers of a medium weight fabric. Never construct a mei tai out of lightweight fabrics only – 3 layers of quilting cotton or any other lightweight fabrics are not ok.
- For wrap conversions some prefer to have no inner layer (or a third wrap layer) as they feel this preserves the feel of the wrap more

- Don't use quilting cotton, calico, gauze/cheesecloth, flannel, or similar fabric. These fabrics are thin, often tightly woven and have a plain weave so will tear easily in a worn spot. Choose a thicker fabric with a looser weave.
- Straps need to be made out of a bottom weight fabric - which is the kind of material you would use to make pants or skirts. The fabric needs to be at least medium weight. For a mei tai the fabric weight need be around 8oz – 12oz (227g – 349gsm).
- Twill, canvas, denim, linen, heavier woven cotton (like you would find in a tablecloth) and some home decor fabrics are suitable bottom weight fabrics. You can also use hemp twill, bamboo denim, and cotton duck.
- Corduroy may be used. The cord should be at least 11 wales or less. A wale is the number of lines in the corduroy per inch. Wales of 15 and higher can be used as straps but need to be strengthened in some way. You need to have the cords going parallel to the rails rather than horizontal that way the weight isn't being born on the weakest part.
- For cord (and all strap fabric really) you need to be sure that it is sturdy. Pull it, and see if it tears easily. Hold it up to the light and see if you can see through it -- if you can it might not be strong enough to use by itself. The weave between the wales needs to be thick and dense. If you can see through it, reinforce throughout, if you can't just reinforce where it's sewn onto the carrier.
- Natural fibres are best.
- Wrap fabric is a nice option for mei tai straps too. Choose a new wrap or a used wrap that has seen little use. Avoid wool wraps unless you are always prepared to hand wash the carrier.
- Make sure you use a good quality 100% polyester thread. Gutermann is a good choice and easy to find.

Ring slings

- For ring sling the fabric weight can be a bit lighter than you would use for a mei tai but it is still important that you use a bottom weight fabric. For example you could use a thinner denim or twill/drill. Some lighter upholstery fabrics are also suitable. Osnaburg is another option (often used by American DIYers for wraps but hard to buy in Australia. Occasionally found in quilting shops).
- If you are not sure if a fabric is suitable, try draping the fabric around hand, or checking if it has a nice diagonal stretch. If it feels sturdy to you, but also drapes well around you, it's probably a good fit for a sling.
- Linen and linen blends are a very nice fabric for ring slings as linen wicks moisture away from your skin keeping you and baby cooler in summer. Linen can feel quite stiff at first but will soften up with use and washing.
- Stretch twills and sateens can be used for a ring sling as long as the lycra content is 4% or below. Knit fabrics can be used for slings and wraps, but only if their lengthwise stretch is small. An example is the sports mesh used for water slings. Look for fabrics labelled 2-way stretch and avoid those labeled 4-way stretch because they will stretch along the length, leading to a poor fit
- You can use a lightweight fabric but you need to use a double layer. Double layers are generally bulkier than single layers but offer great support for toddlers. Heavy weight linen or dupioni silk make great double layer ring slings. Avoid quilter's cotton. It is not safe or comfortable even in a double layer. Always use rings from Sling Rings.com or a similar company, never use craft rings as they are not designed to support a child's weight.

- To make a safe ring sling make sure to have 3 rows of stitching to sew in the rings. Fabric length for a ring sling is very flexible. A ring sling of around 2m long will fit a wide range of people. If you prefer a shorter tail always have at least 12" (30cm) of tail. The minimum width you can get away with is 24" (60cm) but this isn't a great fit for a toddler and a width of 26- 28inches (65 -70cm) works better.
- Wraps make great ring slings. Wrap fabric has a nice diagonal stretch and when used in a ring sling this feels very comfortable and helps the fabric mould to your shoulder. If you can do a comfortable single-layer carry in a wrap, it will be fine for a ring sling.

Podaegi

- There are several methods you can make a safe podaegi just like for mei tais. Just like a mei tai the internal reinforcement can be or visible or hidden. You can also make the straps angled or straight. Angled strapped podaegis are used for front carrying and for a rucksack style carry. Straight strapped podaegis can be used for the same carries as the angled but are even more versatile and can be used for a back carry with a chestrest which takes a lot of weight from your shoulders, and a torso carry
- I prefer to have a heavy inner layer in the headrest of my pod since the weight of your baby is carried entirely by the straps. After the blanket is sewn in I reinforce the headrest with several lines of straight stitching after inserting the blanket almost to the top of the headrest. I like to secure my straps with x boxes through all the layers and add some hidden internal reinforcement too.
- For a podaegi, you don't need a bottom weight fabric for the blanket since you will not be supporting the weight of your child with this part of the carrier – that will be done with the straps. Quilter's cotton in a double layer is OK for a podaegi blanket, as the straps are the supporting pieces. A podaegi is essentially a strap carry with a blanket panel to cover your child's back. A wrap-pod can use a single layer of wrap fabric for the blanket.
- The same rules apply for pods as well as mei tai's – you need generous seam allowances at weight bearing points and if you are using wrap fabric or similar the raw edges need a zig zag or to be serged to prevent fraying.
- Blanket length – The minimum you would want is 53cm (21inches) but a length of 25-30" is more common and the maximum length would be around 92cm (36 inches)

How to visually inspect your carrier

* It is always important to inspect your carrier for signs of wear before using. You should do this for carriers you have made yourself or a carrier that you have purchased.

* Inspect your carrier visually and by feeling with your hands all seams and stress points before to every use. Check for loose or popped stitches, or frayed or ripped fabric. Run your fingers along all edges and stress points too, since sometimes our fingers can feel something our eyes miss. Check all hardware, such as buckles and snaps, to be sure that they're in good condition with no cracks. Don't use your carrier if you see any of these signs of wear. Contact the manufacturer of your baby carrier for advice. If the carrier is old, or very well- and regularly-used, it may just be time to purchase a new baby carrier. Fabric wears with use just like your favourite jeans do. The higher the quality, the longer it will take, but it will still eventually wear thin. Check every time you use your carrier to be safe.

* It used to be recommended to tug test your carrier at home by pulling as hard as you can on the straps but that is no longer considered an effective test and make actually make your baby carrier

unsafe to use. This method of testing does not replicate the way a carrier is meant to be used, where the child's weight is evenly distributed across the seat of the carrier and along the shoulder straps. It may compromise the stitching on your straps.

* If you would like to test your own carrier there are some recommendations from the Baby Carrier Industry Alliance (BCIA)

“Our industry engineers suggest that if consumers are making their own carriers, or using other homemade carriers, and are concerned about the strength of the carrier, they could consider testing the carrier by wearing it with a 50 pound weight in it. (23kg) While this is not as thorough as the ASTM testing, it may offer a somewhat similar examination and should expose any serious and immediate concerns. It is important to note that the ASTM testing is done with the carrier in usage on a torso, which replicates the way a carrier is meant to be used. Testing a carrier on a torso (or while wearing it) ensures that the stresses to the carrier are placed in the proper direction.

Consumers should be conscious of the age of their carriers. All fabrics will wear over time and with active use. Signs of excess wear can be determined by a visual and tactile inspection of seams and hardware.”