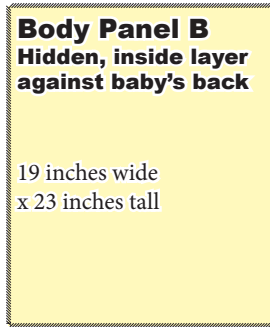
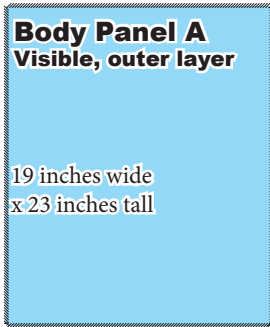
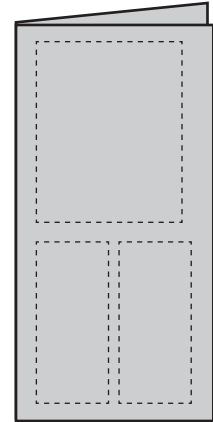


# How To Make A Toddler Size Buckle Onbuhimo

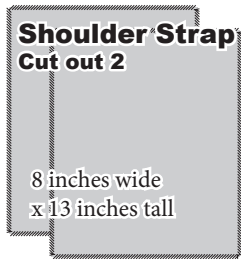
## You Need:



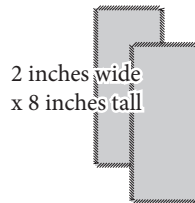
Cutting diagram from 1.5 yards of 45" fabric, folded in half lengthwise, cutting through both layers:



This fabric is:  
 without any stretch  
 VERY thick like a strong bag  
 natural fibers like cotton or linen  
 machine washable  
 very tightly woven



**Legs-Out Padding**  
 Optional; Cut out 2



This material is either:  
 1" thick high density open cell foam  
 OR  
 4-6 layers each of fleece,  
 basted together around the edges

**Webbing A** Cut out 2 10 inches  
**Webbing B** Cut out 2 30 inches  
**Webbing C** Cut out 2 16 inches  
**Webbing D** Cut out 1 8 inches  
**Webbing E** Cut out 1 17 inches



Webbing shown in black in tutorial;  
 colors shown here are represented in  
 the preview image on page 2.

This material is:  
 1" webbing  
 Nylon or Polypropylene  
 Weight rated up to a MINIMUM  
 of 100lbs, preferably MUCH higher!

Use a lighter to gently melt and seal  
 ALL cut webbing edges before sewing

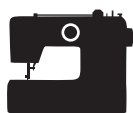
Total webbing needed: 3.75 yards

**Sternum Adjuster**  
 Need 2  
 1" strap to 1" adjuster

**Ladder Locks**  
 Need 4  
 1" strap size

**One-Side Adjustable  
 Side Release Buckle**  
 Need 1  
 1" strap size

These buckles and adjusters are:  
 Weight rated up to a MINIMUM  
 of 100lbs, preferably higher



Any full size sewing  
 machine should be fine



100% Polyester All Purpose Thread  
 Good quality brand like Gutterman

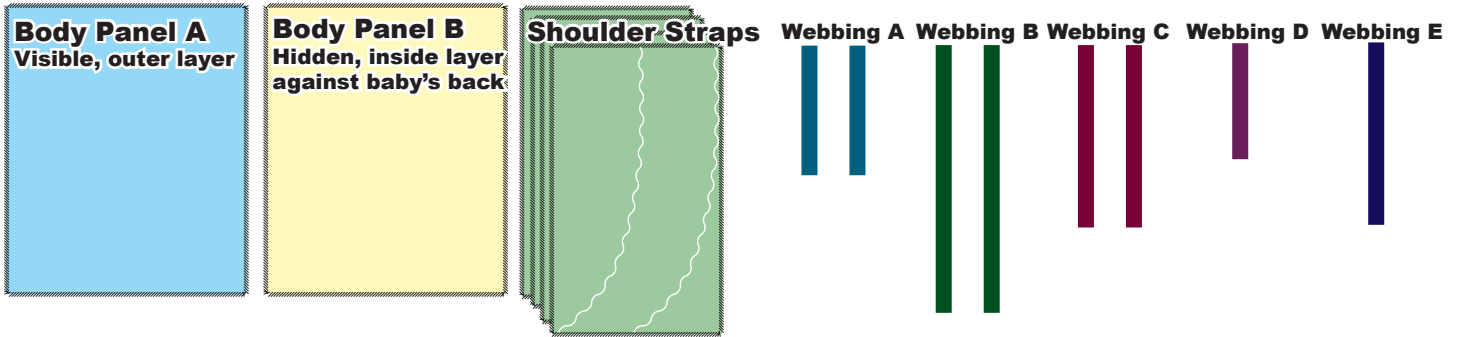


Size 14-16 Denim Needle  
 NEW needles! With backups!

# Preview of Finished Product

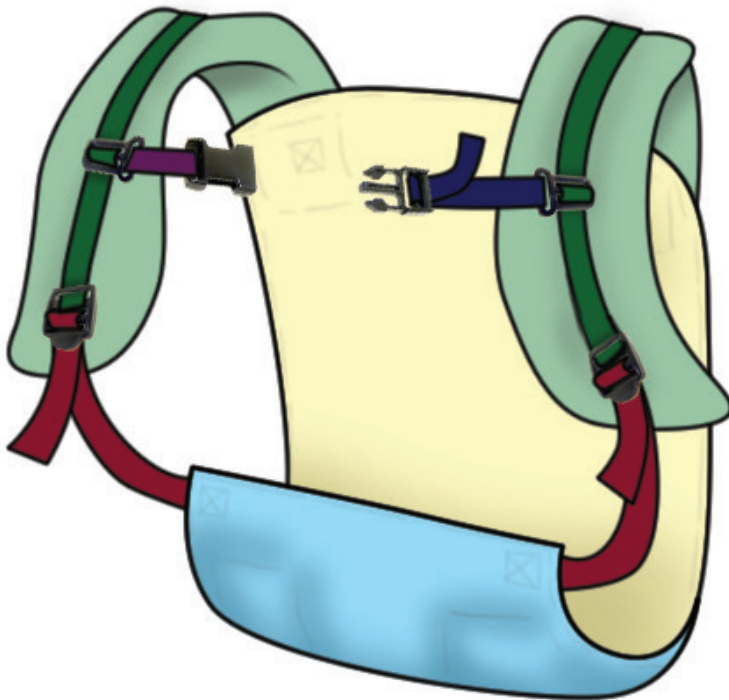
Webbing colored in this image for location clarification.

All webbing in the tutorial is represented in black.



Webbing shown in black in tutorial.

Colors shown here are represented in the preview below.

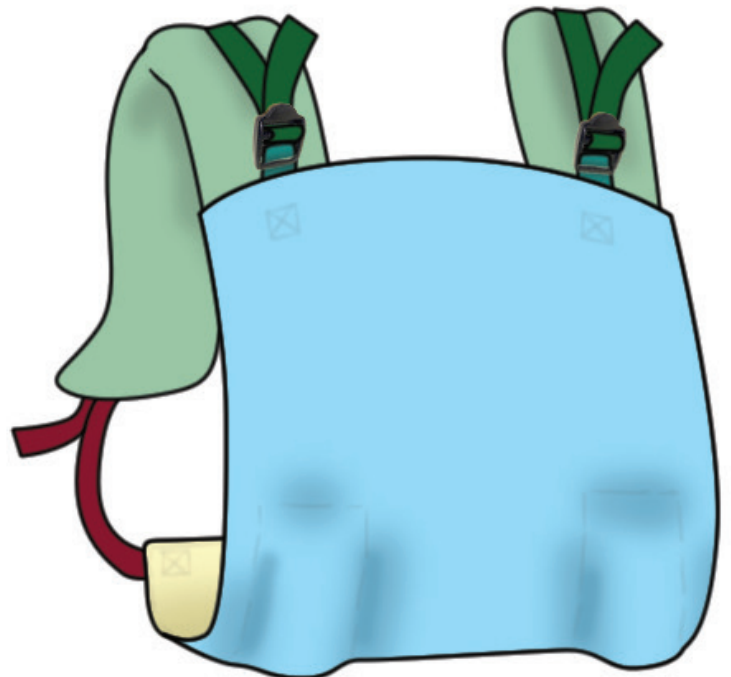


## Sizing Note:

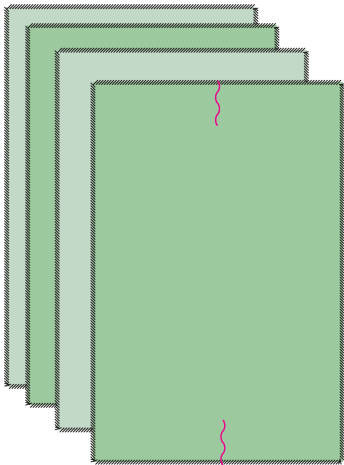
A toddler-sized panel typically begins to fit a child once they are wearing 2T pants for length (and will fit best once they are moving into 3T) and will likely be able to fit the child through preschool. You may choose to make a larger preschool sized carrier for better weight distribution if you choose to continue wearing regularly once the child outgrows a toddler size, though.

The strap length and webbing lengths provided are to fit an "average" sized wearer, and this pattern includes "PFAs" - Perfect Fit Adjusters - which allow the shoulder strap length to be adjusted.

That said, particularly petite wearers may need to modify the pattern to shorten the shoulder straps and shoulder strap padding by a few inches, and broad-shouldered wearers may need to lengthen each by a few inches.



# Shoulder Strap Construction 1



Layer all four shoulder strap pieces (or make a paper template first.) Two layers should be right side up, and two should be right side down.

Use chalk or a fabric pencil to mark the midline of the short sides.

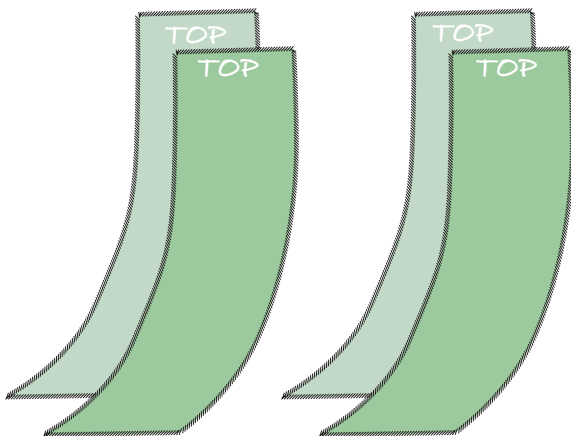
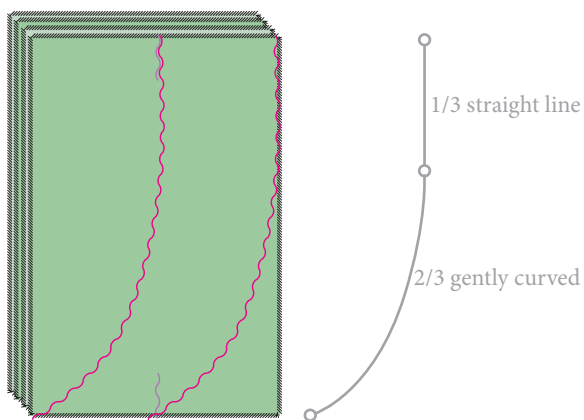
Optional: cut a piece of paper the same size as your fabric to draw out and cut the shape below before tracing it onto your fabric and cutting.

Using the midline as a guide, draw a line coming from the top midline straight down about a third of the way, and then gently curving to the far bottom left corner.

Draw a parallel curve coming straight down from the top right corner about a third of the way, and then curving gently to the midline of the bottom.

Spot-check the width of your straps before cutting; they should be about 5" across the entire way down.

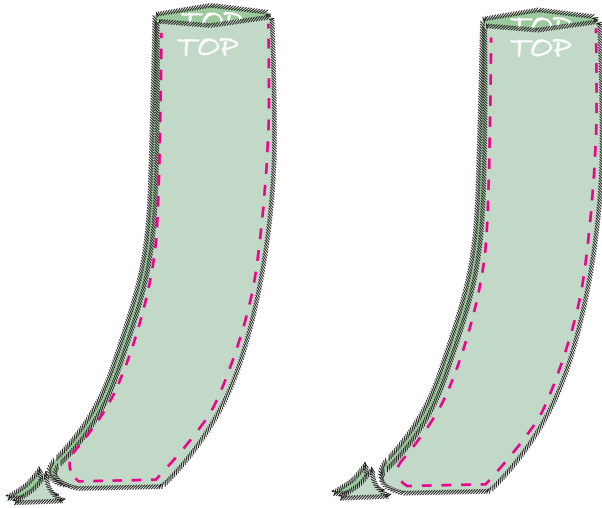
If pattern placement is important, keep in mind that the straighter top end of the straps will be attached to the carrier, and the curved bottom end will be the part going under the wearer's arm.



Cut out all four shoulder strap pieces.

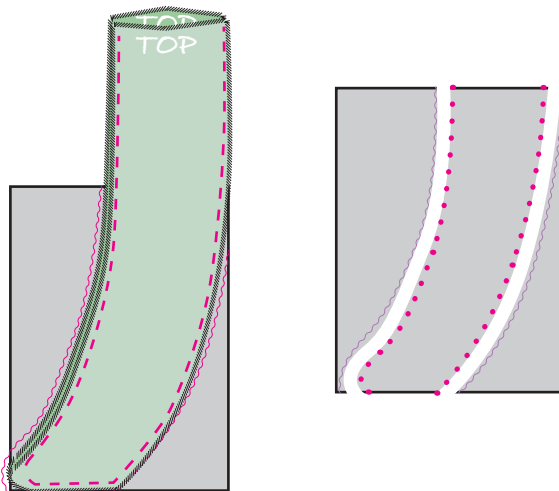
Optional:  
Using a fabric pencil or chalk, scribble "top" onto the top edge of each piece, with the straighter end of the straps, just so you don't forget which end is up and don't accidentally sew it closed.

# Shoulder Strap Construction 2



Sew two of the shoulder straps right-sides together along the curved sides and the straight bottom edge with a 1/2 inch seam allowance. While sewing around the pointed end at the bottom, gently round off the point and trim the excess seam allowance.

Repeat with the other two shoulder strap pieces.

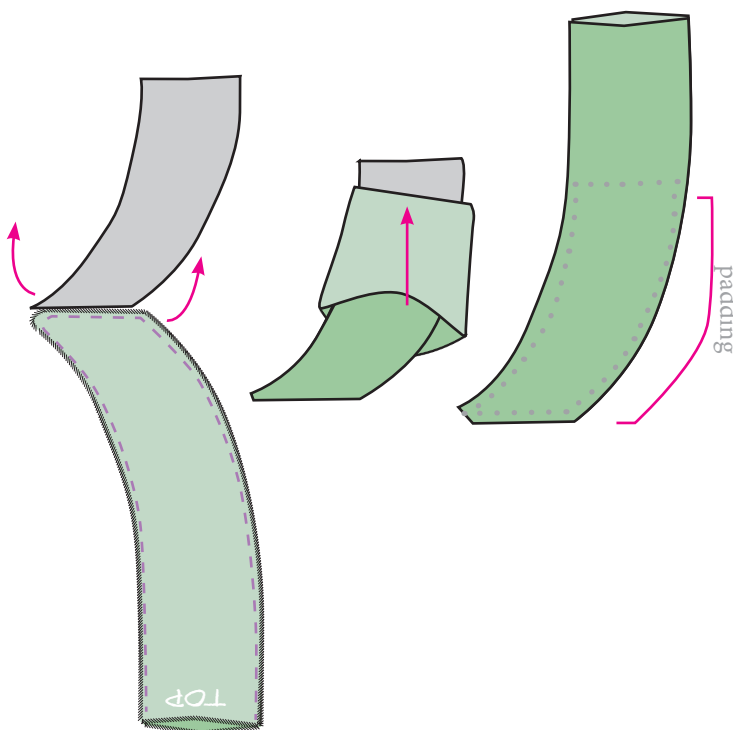


Trace your strap onto your shoulder strap padding, lining the **BOTTOM** closed edge up with the bottom edge of the foam. Cut the foam out about an inch inside your drawn line, so your shoulder strap padding is about 3" wide the entire way down. Do this for both shoulder straps.

If using layers of fleece instead of foam, you will need to rebaste your layers together again after cutting the curves.

Note:

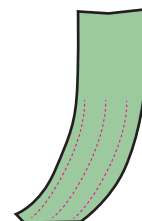
The top 4"-5" of the strap will not have padding because it will also be inside the body of the carrier, and the 4"-5" beyond that will be the base of the strap and will be left unpadded so that it can fold over on itself as the PFAs adjust the shoulder strap for length.



Turn both straps right side out around each of the foam shoulder padding pieces, like putting a pillow case around a pillow.

The padding should be flush with the closed bottom of the strap. The top 8 to 10 inches of the strap should be unpadded.

Optional: If using fleece as your padding, you may want to run a few lines of stitching up the length of the padded portion to keep your padding from shifting with use.



# Chest Clip Construction

Make sure all of your cut pieces of webbing have been sealed on both ends by gently melting the ends with a lighter.

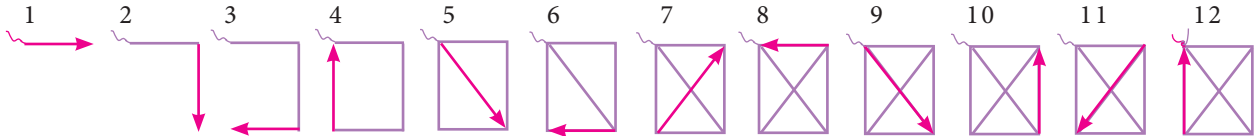


The female buckle is the hollow, boxy, "inny" side.

Thread Webbing D (the shortest piece of webbing) through the female side of the chest clip buckle.

Turn under 2 inches of webbing and sew an x box.

Sewing a 2-layer x box:



Thread the other end of the "Chest Clip Female Webbing" piece through the side loop of one sternum adjuster.

Turn under 2 inches of webbing and sew an x box.

From this point on, this whole piece will simply be referred to as the Female Chest Clip.

Make sure the ridges on the middle crossbar of the sternum adjusters are face up.

Thread the one end of Webbing E through the side loop of the other sternum adjuster.

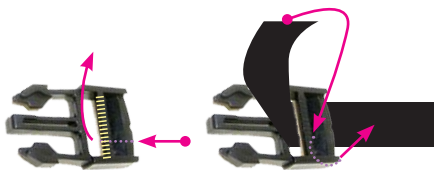
Turn under 2 inches of webbing and sew an x box.

Thread the other end of the Webbing E under the two cross bars of the buckle, up through the second "window," back OVER the middle cross bar (with the bumpy ridges on top) and under the first cross bar (with bumpy ridges on bottom.)

You should NOT be able to pull on the male buckle to loosen it. If you can, unthread the buckle, flip the buckle over, and rethread.

Fold the raw end of the webbing under 1/4" twice and sew a straight line across the fold to keep the webbing from unthreading.

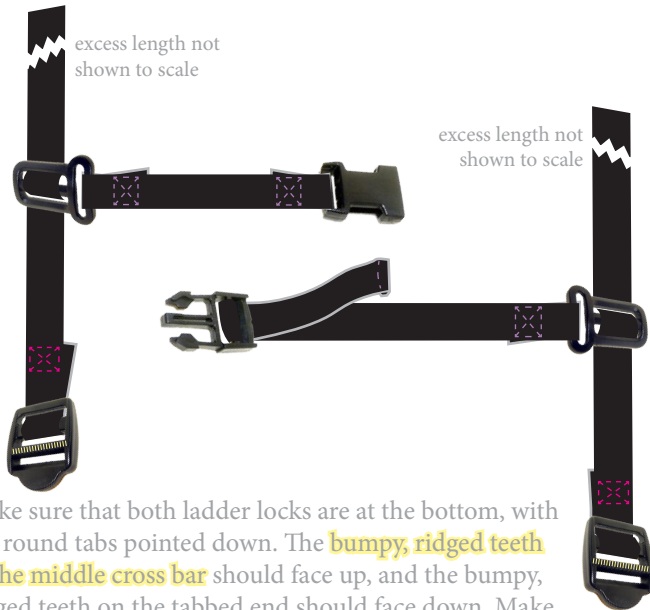
From this point on, this whole piece will simply be referred to as the Male Chest Clip.



Cross section of Male Buckle webbing path:



# Ladder Lock Webbing Construction



Make sure that both ladder locks are at the bottom, with the round tabs pointed down. The **bumpy, ridged teeth of the middle cross bar** should face up, and the bumpy, ridged teeth on the tabbed end should face down. Make sure the chest clips are pointed toward each other. This step is not fixable later, so triple check!

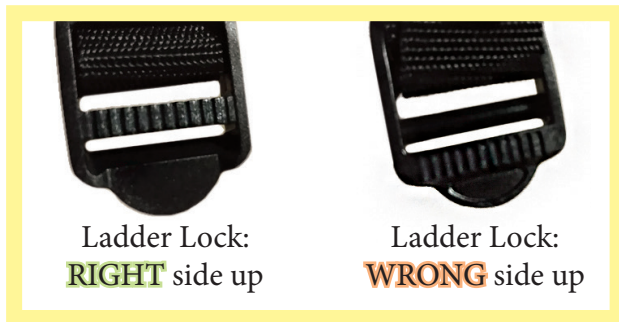
Thread the sternum adjuster of the Female Chest Clip onto one of the Webbing B pieces. The webbing should be **UNDER** the outside cross bars of the sternum adjuster and **OVER** the inside, ridged cross bar.

Thread the bottom end of Webbing B under the flat, un-tabbed side of the ladder lock, around the smooth, un-toothed crossbar, and fold about 2" under.

The rounded "tab" on the other end of the ladder lock should be pointed down, away from the chest clip and webbing. The bumpy "teeth" on the crossbar closest to the rounded tab should be face up, and the bumpy "teeth" on the actual tabbed end should be face down.

Sew an x box through the 2" of Webbing B folded under at the bottom.

Repeat the above steps to thread the Male Chest Clip to the other Webbing B. Attach a ladder lock to the bottom end of that webbing with an x box. Make sure that, with both ladder locks at the bottom and face up, the chest clip buckles point in toward each other.

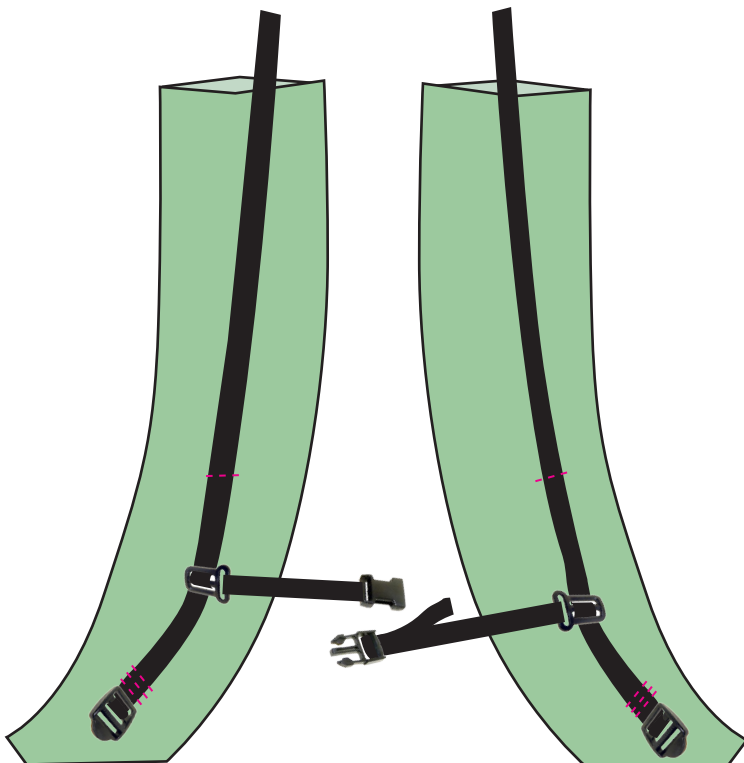


Lay your shoulder straps down with the curves flaring away from each other. If it matters, make sure the side you want visible is face up.

Pin each Webbing B to the padded shoulder straps. The bottom ladder lock should be 1" away from the bottom of the closed, padded end. The chest clips should be pointed in towards each other.

Sew across Webbing B through each of the padded shoulder straps with three parallel lines of stitching right by the bottom two ladder locks. Make sure the stitching goes all the way through the padding and is secure. Slide the chest clips down next to the bottom ladder locks before sewing the next line. Measure 9" up from the ladder locks and mark/pin the webbing. Sew one more line of stitching across the webbing here to keep your webbing in place and centered on the padding.

Press the foam down on either side of the foot with rulers if you are having trouble getting the padding under the foot of your sewing machine. Go slow, adjust the machine's tension and hand-crank the machine as needed. This is the worst part.



# PFA Construction

Take one of the Webbing A pieces and another ladder lock. Fold the webbing in half around the smooth, un-toothed crossbar and under the flat end of the ladder lock.



Just as before, the rounded tab of the ladder lock should be on the bottom side away from the webbing, the bumpy teeth on the cross bar should be face up, and the bumpy teeth on the tabbed end should be face down.

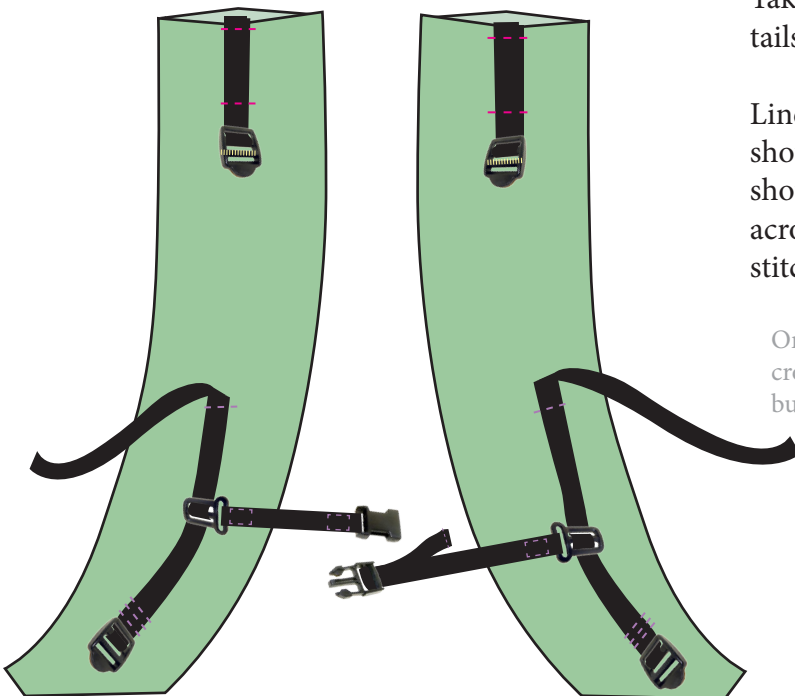
Repeat with the second Webbing A piece and the last ladder lock.



Take your shoulder straps and fold the long, excess tails of Webbing B down out of the way.

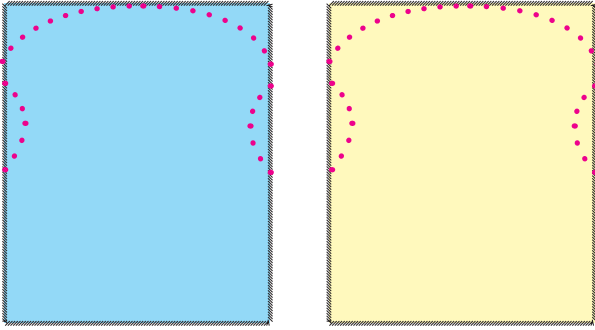
Line the cut edges of each Webbing A (both edges should be lined up together) with the open edge of the shoulder straps. Pin in place and sew a basting stitch across the ends of the webbing and another basting stitch about 2" from the ladder locks.

Once again, make sure the bumpy, toothed side of the cross-bar in the middle of the ladder lock is face up and the bumpy, toothed side of the round, tabbed end is face down.



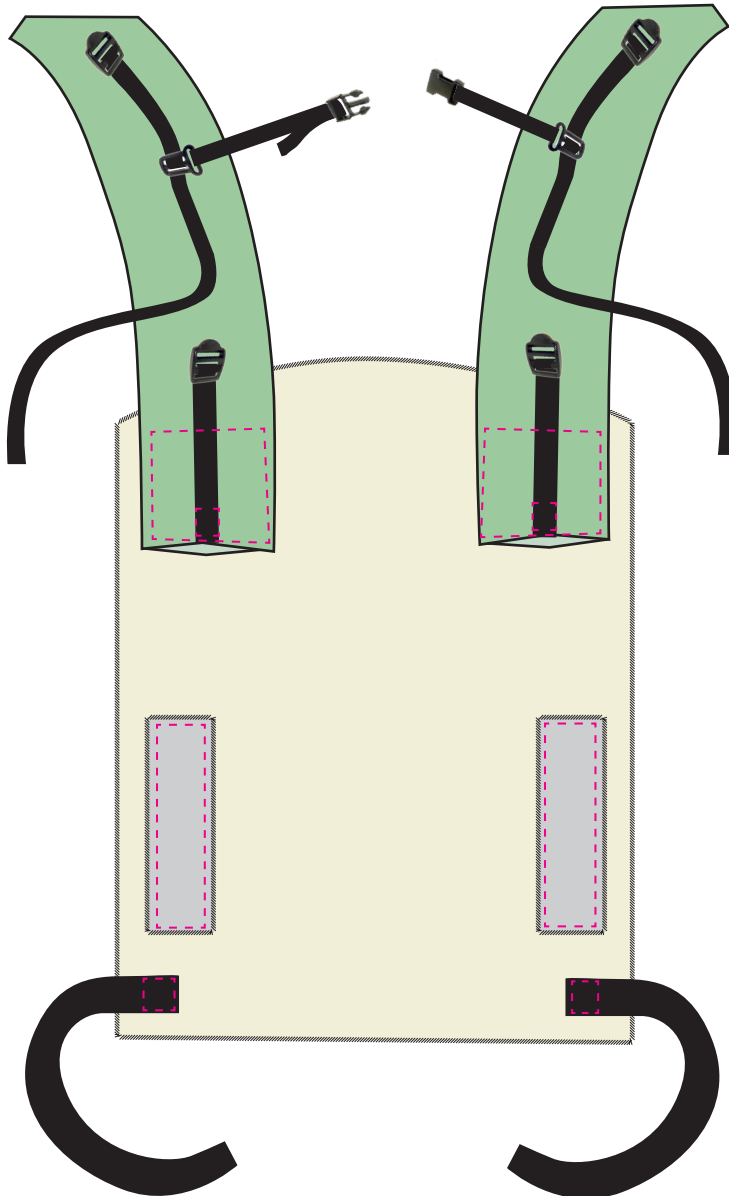
# Body Panel Construction Pt 1

Optional:



You can use the body panels as-is in a simple rectangle shape, or add shaping by rounding the top and adding an hourglass shape to the sides edges. Be sure the two panels are the exact same shape.

Make sure to leave the bottom half of your body panel (at least 10" of the height measuring from the bottom) full-width, otherwise it may not support baby knee-to-knee. A good portion of the carrier's height will be a "hammock" under baby's bottom and come up between the baby's stomach and the wearer's back, and this whole portion needs to be full-width.



Lay Body Panel B (the inside layer) right side down. You should be looking at the wrong side of the fabric, if there is one.

Arrange the padded shoulder straps, webbing side up, on top of the top edge, angled slightly outward, with the unpadded, open end of the strap overlapping the body panel by 4". Again, the curve of the padded shoulder straps should be curved outwards. Make sure your PFA ladder locks are just barely beyond the edges of the body panel, and your chest clip buckles are facing each other. You should be looking at the "right side" of the shoulder straps, with the webbing on top. Pin straps in place.

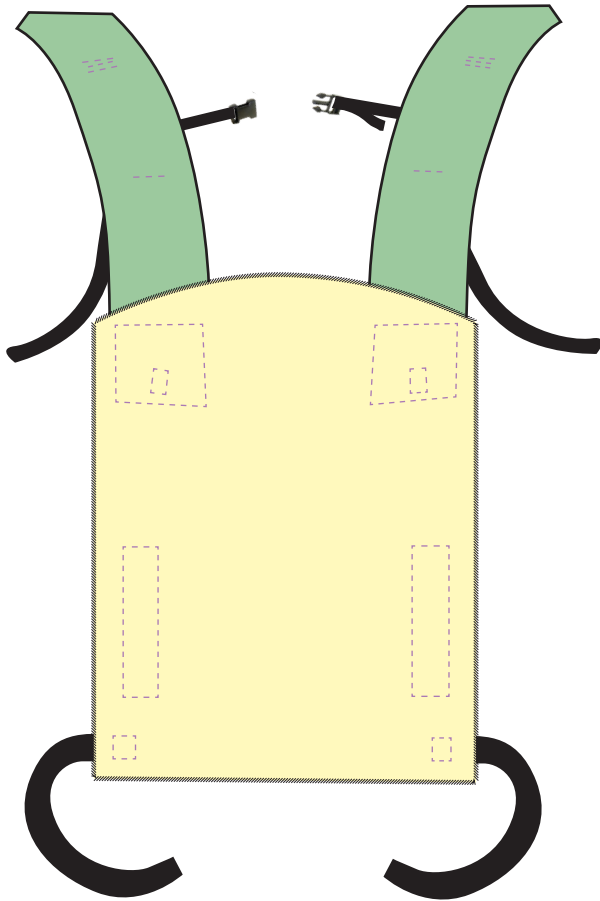
Lay each Webbing C piece on the bottom corners of the body panel, 1" up from the bottom edge, sticking out horizontally and overlapping the panel by 3". Pin in place.

Sew a large rectangle around the edges of the shoulder strap (making sure to stay at least 1" away from the edges of the body panel) to secure it to Body Panel B and then small rectangular "guides" at the base both Webbing A pieces and the base of both Webbing C pieces to secure them to Body Panel B and to indicate where your x boxes will go.

Optional: If you want legs-out padding, pin it to the side edges 1.5" above the bottom Webbing C and 5/8" from the outside edges. Sew around the outside edges of the padding to attach it to the panel.



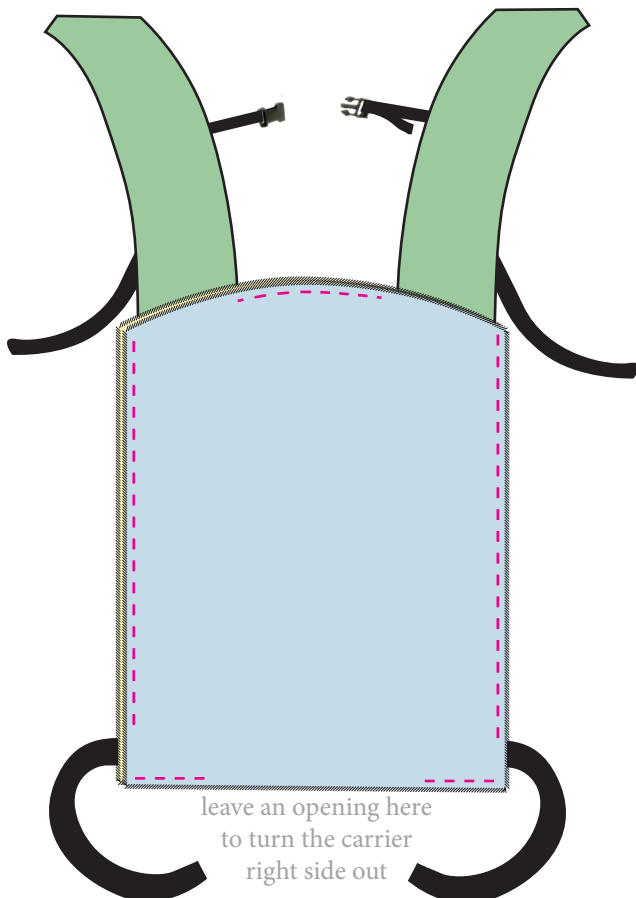
## Body Panel Construction Pt 2



Flip Body Panel B (along with all the straps attached to it) over.

The indicated stitching lines on the image to the left are what you should be able to see. This will be the inside of the carrier, hidden against baby's back, so these stitches will not be visible while the carrier is in use.

At this point you should be looking at the RIGHT side of Body Panel B (if the fabric has a right side) and the underside of the shoulder straps.



Lay Body Panel A on top, right side DOWN. You should be looking at the WRONG side of the fabric if there is one.

Carefully line up all the edges and pin.

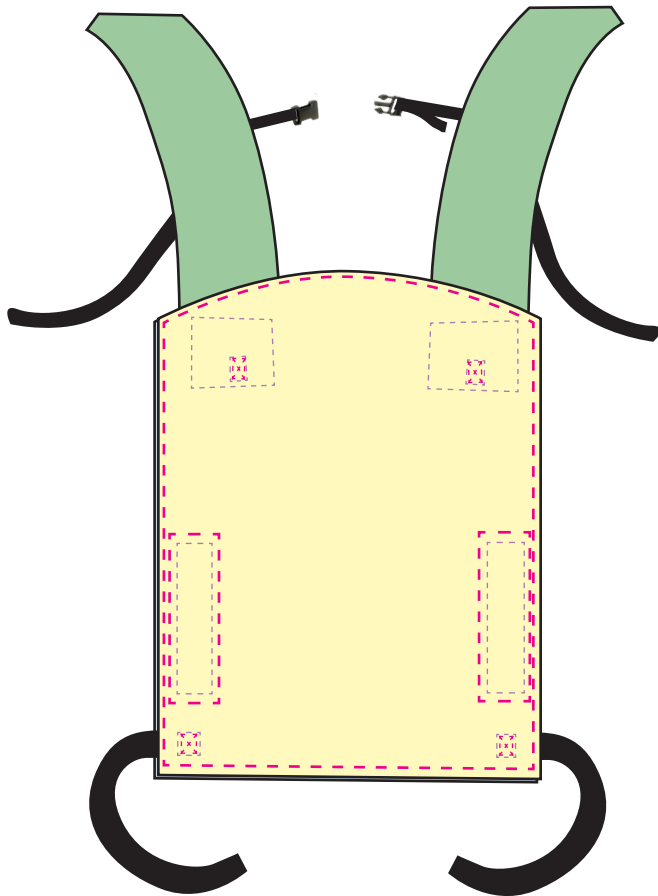
Sew along the outside edges with a 3/8" seam allowance, SKIPPING OVER any straps or webbing.

**DO NOT** sew over the shoulder straps or webbing!

Leave an 8" wide opening along the bottom edge of the body panel.

GENTLY turn the carrier, straps and all, right side out through the opening at the bottom.

# Reinforcement and Topstitching



Once the carrier is right side out and you make sure all webbing ends are pulled to the outside of the carrier, turn it face down once again so you can see the rectangles of stitching from when you attached the straps. Use the four small rectangles at the base of each Webbing A and Webbing C as guides to sew x boxes over all 4 pieces of webbing that overlap with the body panel.

**These are the most important stitches on the carrier, so don't rush them!**

If you have heavy duty thread and a machine that can handle heavy duty thread, this is the place to use it. If not, a good-quality all-purpose 100% polyester thread like Gutterman is fine.

Turn all of the raw edges around the strap and webbing openings neatly to the inside of the carrier and pin. Do not iron over webbing!

Turn the raw edges from the opening at the bottom of the carrier (where you turned it right side out) neatly to the inside of the carrier and pin.

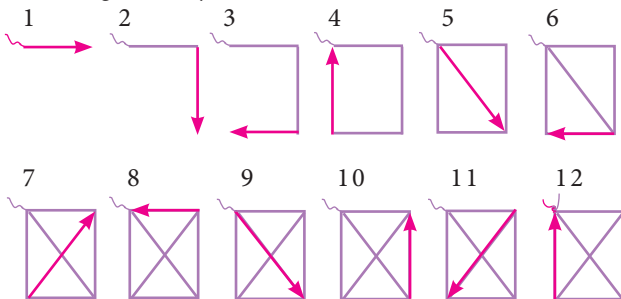
This area is safe to iron, just don't go over any webbing.

Topstitch around the edge of the body panel 1/4" away from the edge, being sure not to sew over your pins. Be sure to make sure you don't sew over the loose ends of Webbing B!

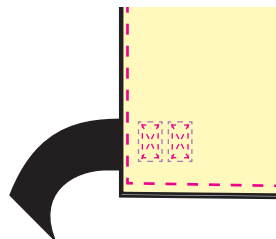
Make sure your topstitching closes off all of the raw, turned-under edges around the straps and bottom edge. If you missed any, you can either go over the sections a second time, or simply blind stitch them closed by hand.

Sew a rectangle just outside of your legs-out padding if you chose to add this feature.

Sewing a 2-layer x box:



Optional: If you want EXTRA reinforcement just for peace of mind or to carry a particularly heavy child, I would recommend doing two narrow x box stitches side by side along the webbing instead of simply going over the same x box over and over. The extra needle holes in the fabric can eventually end up weakening the spot instead of strengthening it.



# Threading and Finishing Webbing Ends

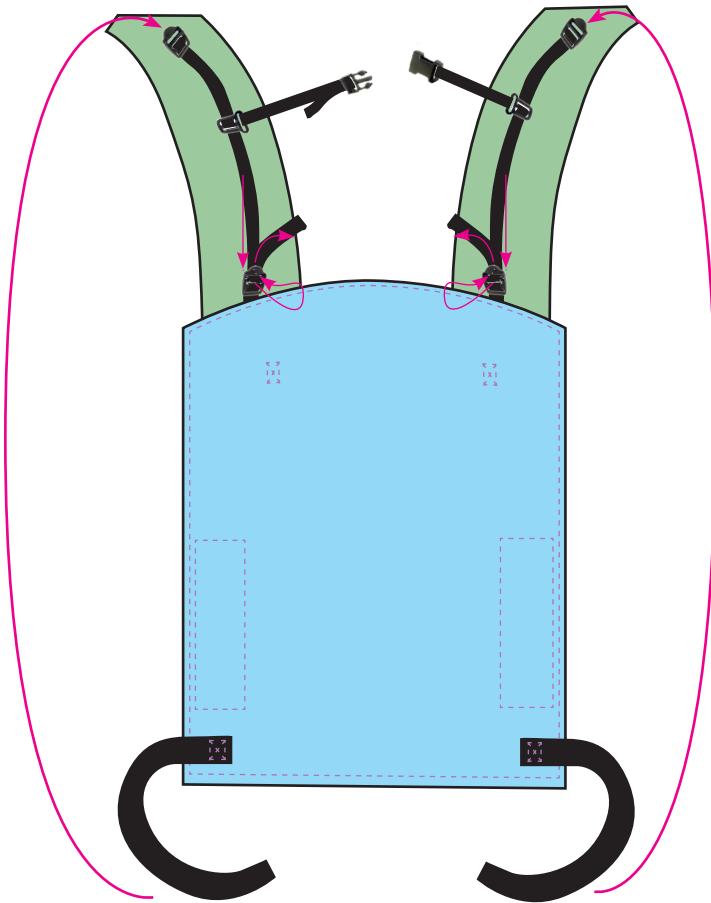
Thread each of the long, loose ends of Webbing B through the PFA ladder locks by the body of the carrier the same way you threaded the webbing through the Male Buckle: under both the tabbed end and toothed cross bar, up and back over the toothed cross bar, and then down and under the rounded tab.

Pull on the webbing on either side of the PFA ladder locks to be sure the teeth of the ladder lock are right-side-up and are grabbing the webbing properly, keeping it from slipping. If you can loosen the PFAs through the ladder lock by pulling on the webbing on either side of the ladder lock, the ladder lock was not correctly threaded or may be upside down.

Repeat these steps to thread each Webbing C at the bottom of the body panel through the ladder locks at the ends of the padded shoulder straps. Tug-test these as well to make sure the ladder locks are threaded correctly and holding the webbing securely.

Fold the edges of both Webbing B and Webbing C ends under twice and stitch to keep them from coming unthreaded.

Optional: You can also fold the ends of your webbing around a 1" D-ring and secure with an x-box to make adjusting the ladder locks while wearing easier.



## End Notes:

Check every ladder lock to make sure it holds the webbing tightly without slipping. Make sure all raw edges of the webbing have been folded under and stitched. Check all of your x boxes to make sure the stitches are even and went through the entire carrier. Check the topstitching around the outside edge of the body panel regularly. If the carrier were to develop any damage from just general wear and tear, these stitches would likely be the first to show it.

Before using a DIY carrier on a child, test the carrier by placing a soft-edged load (nothing pointy that might damage the fabric) heavier than the child in question in the body panel and lift the carrier gently up by the shoulder straps. A backpack full of books or bags of sugar could be used.

Consult your local BWI chapter to find a babywearing educator to help you use your buckle onbuhimo the first time. Buckle onbuhimos are designed for high back carries and should only be used with a child who can sit themselves up independently, who fits the body panel with their knees bending freely over the sides (not hyperextended by a too-wide panel) and who is tall enough to pull their arms out of the top of the carrier while being worn.