

IOWA BRACE

HEALTHCARE PROFESSIONAL USER GUIDE



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This guide is intended for use by healthcare professionals such as orthotists and physicians.
To view video demonstrations of how to assemble a brace and how to put a brace onto a child,
visit <http://www.clubfootsolutions.org/>

The following resources are available for parents and caregivers:

- Free Clubfoot Solutions app
- Clubfoot Solutions YouTube channel
- Clubfoot Solutions website

We recommend that healthcare professionals read this manual before providing the Iowa Brace to a responsible parent or caregiver or before applying the brace to a patient.

For more information, visit www.clubfootsolutions.org, or contact Clubfoot Solutions at 2509 River Run Ct. NE, Cedar Rapids, IA 52411, USA, or by calling (+1) 319-294-5382.



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Warnings and Cautions

WARNING: The Iowa Brace is made to be worn after a child’s clubfoot has been fully corrected with the Ponseti method. Do not put the brace onto a child with a partially corrected clubfoot or a relapsed clubfoot, as this may result in pain and injury to the child.

If any part of the Iowa Brace (shoe, straps, platform, plugs, screws, or the Iowa Flexbar) fails, malfunctions, or is severely damaged, do not use the damaged part. For information about the warranty, replacement, and return policy, visit <http://www.clubfootsolutions.org/> or contact Clubfoot Solutions.

If wearing the Iowa Brace results in skin breakdown or blisters for the child, try to discover the reason and correct the problem. If you cannot solve the problem, consult the child’s doctor or the healthcare professional supervising the care of the child.

Description of the Iowa Brace

The Iowa Brace is worn to maintain a clubfoot correction and to prevent recurrence (relapse) of clubfoot after the foot has been fully corrected using the Ponseti method. Children wear the brace on both feet even if they only have one clubfoot. The shoes are positioned to turn out 60-degrees for a corrected clubfoot, and 30-degrees for a normal foot.



Figure 1: Iowa Brace, unilateral left clubfoot

In this example of a left clubfoot, the platform for the left shoe is set at a 60-degree angle and the platform for the right shoe is set at a 30-degree angle.

Parts of the Iowa Brace

The Iowa Brace consists of the following parts:

- One pair of clubfoot brace shoes (left and right)
- Two platforms (one for each shoe)
- Two plugs (one for each platform)
- Four screws (two for each platform)
- One Iowa Flexbar
- Two Release keys



Shoes

Each shoe has an AFO insert, a tongue, and straps with enhanced buckles. The open-toe design allows room for the foot to grow between changes in shoe size. The shoes come in twelve sizes, US children’s size 000 to US children’s size 9.

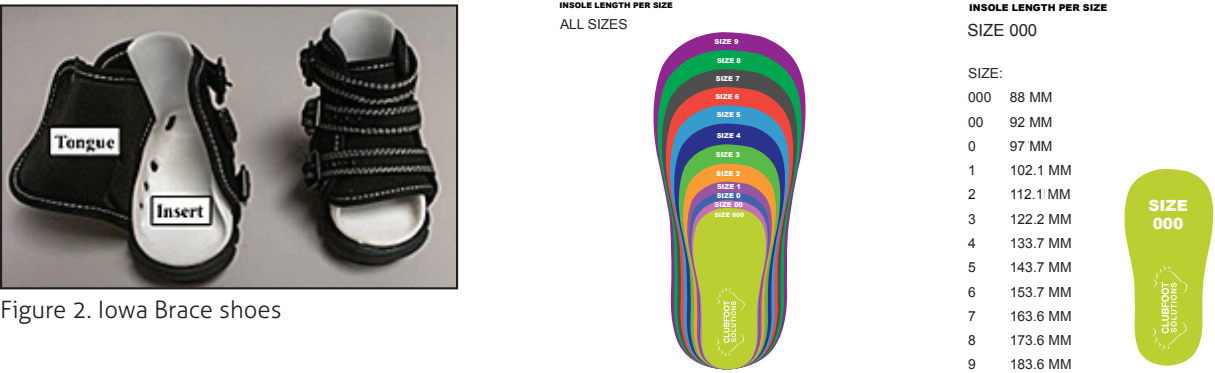


Figure 2. Iowa Brace shoes

Platforms

The platforms can be used with either a left or right shoe. The platforms have two slots on the sides that allow you to set the angle of the shoes when the Iowa Flexbar is inserted into the slot. The locking tab on the underside of the platforms prevents children from releasing the bar. Clubfoot Solutions provides a brace release key to unlock and release the Iowa Flexbar from the platform. Platforms come in two sizes. The small platforms are for shoe sizes 000–3 and the large platforms are for shoe sizes 4–9.

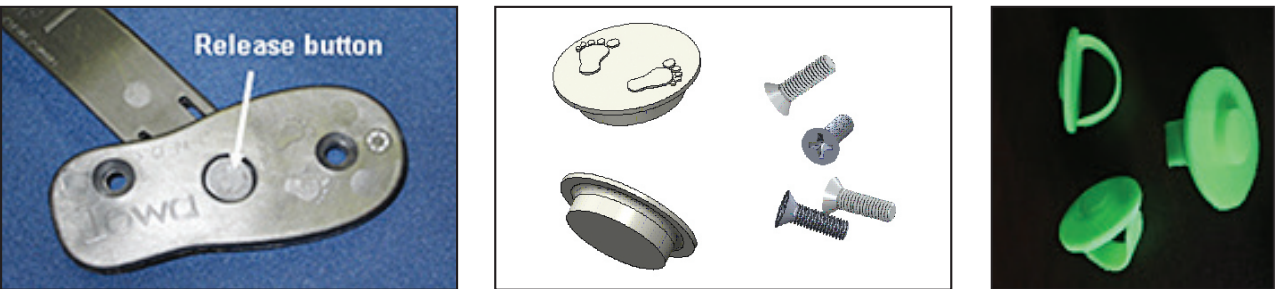


Figure 3. Iowa Brace platform, plugs, screws, and brace release key

The plugs that come with the platforms are used after you set the angle to prevent the brace from being locked with the shoes at the wrong angle. The screws that come with the platforms are used to connect the platforms to the Iowa Brace shoes. The brace release key makes it easier to unlock the platforms from the bar.

Iowa Flexbar

The Iowa Flexbar has a built-in angle of 15 degrees of dorsiflexion on each end. When the child is wearing the brace, the ends of the Iowa Flexbar point up, towards the knees. The Iowa Flexbar comes in three lengths. Although the choice of bar length is at the discretion of the supervising healthcare provider, suggested bar lengths for different shoe sizes are as follows:

- Shoe sizes 000 through 3 = 8 inch bar
- Shoe sizes 4 through 6 = 10 inch bar
- Shoe sizes 7 through 9 = 12 inch bar

Assembling a Brace

The following figure shows an expanded view of how the parts of the Iowa Brace fit together.



Figure 4. How the parts of the Iowa Brace fit together

To view video demonstrations of how to assemble a brace and how to put a brace onto a child, visit the Clubfoot Solutions website at <http://www.clubfootsolutions.org/>

Determine the Correct Angle for Each Shoe

The brace can be worn by children with corrected bilateral clubfeet or unilateral clubfoot. If a child has bilateral clubfoot, set both shoes to point outward at a 60-degree angle when they are connected to the bar. For a child with one corrected clubfoot (unilateral) and one unaffected foot, set the angle for the corrected clubfoot to point outward at 60-degrees and set the angle for the unaffected foot to point outward at 30 degrees.

Bilateral corrected clubfoot example



Figure 5. Both shoes are set at 60 degree angle

Corrected left clubfoot example

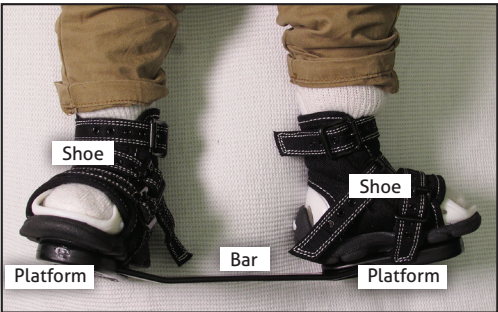


Figure 6. The left shoe set at a 60-degree angle and the right shoe is set at a 30-degree angle

Platform and Shoe Assembly for a 60-Degree Angle

This is the correct angle for a corrected clubfoot. The platforms can be used with either a left or right shoe. Platforms have two slots on the sides that control the angle of the shoe when it is connected to the bar.

To assemble a platform and shoe for a 60-degree angle:

- 1. Orient the shoe so that you are looking at the sole and the buckles are pointed medially. For a left shoe, the buckles are on your right and for a right shoe, the buckles are on your left.
- 2. Locate the 60-degree slot on the side of the platform.



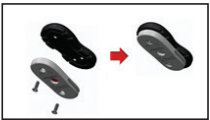
The 60-degree slot is closer to the heel area of the platform. The 30-degree slot is located on the opposite side of the platform.

- 3. Align the platform with the sole of the shoe so that the 60-degree slot is also medial (next to the shoe buckles). In this position, the toes of the Clubfoot Solution logo are near the toe of the shoe.
- 4. Insert a plug into the center hole of the platform.



The plug prevents the bar from being locked if the Iowa Flexbar is inserted into the wrong slot. The plugs should be between the shoe and the platform

5. Use the two provided screws to secure the platform to the shoe.



- Be careful not to overtighten the shoes.
- Small platforms have two screw holes in the heel area. Use the screw hole that aligns when the platform is straight on the bottom of the shoe.
- If one screw is longer than the other, use the shorter screw to attach the toe section

Platform and Shoe Assembly for a 30-Degree Angle

This is the correct angle for an unaffected foot when a child has unilateral corrected clubfoot. The platforms can be used with either a left or right shoe. Platforms have two slots on the sides that control the angle of the shoe when it is connected to the bar.

To assemble a platform and shoe for a 30-degree angle:

1. Orient the shoe so that you are looking at the sole and the buckles are pointed medially.

For a left shoe, the buckles are on your right and for a right shoe, the buckles are on your left.

2. Locate the 30-degree slot on the side of the platform.

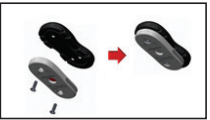
The 60-degree slot is closer to the heel area of the platform. The 30-degree slot is located on the opposite side of the platform.



3. Align the platform with the sole of the shoe so that the 30-degree slot is also medial (next to the shoe buckles).

In this position, the toes of the Clubfoot Solution logo are near the toe of the shoe.

4. Use the two provided screws to secure the platform to the shoe



- Be careful not to overtighten the shoes.
- Small platforms have two screw holes in the heel area. Use the screw hole that aligns when the platform is straight on the bottom of the shoe.
- If two one screw is longer than the other, use the shorter screw to attach the toe section.

5. Insert a plug into the center hole of the platform.



The plug prevents the bar from being locked if the Iow Flexbar is inserted into the wrong slot.

Attach the Iow Flexbar to the Shoes

The shoes must be worn together with the bar to maintain the clubfoot correction.

To attach the Iow Flexbar to the shoes:

1. Orient the bar so that the ends are angled upward like a smile.
2. Insert the ends of the bar into the slots on the medial (buckle) side of each platform.
3. Check to make sure that the buckles are facing medially and that the brace is set up with 60-degrees of abduction for one or both clubfeet and 30-degrees of abduction if there is an unaffected foot.
4. Make sure that the bar is inserted to provide 15° of dorsiflexion.



Unlock a Platform from the Bar

The enhanced locking tab is designed to prevent the child from disengaging the bar from the platform. A release key is available to help with disengaging the bar from the platform.

To unlock the shoe and platform from the bar:

1. Press down on the flat part of the locking tab.



2. Pull the bar out of the platform slot to disengage the bar.



Putting a Brace on a Child

You can decide which order to put the shoes onto the child. If the child does not fuss when the shoe is applied, put the shoe onto the most troublesome foot first. If the child tends to kick a lot when putting on the shoes, put the shoe on the easier foot first, since the child will be more likely to kick into the second shoe.

To put a brace onto a child:

- 1. Put socks on the child’s feet and make sure that the socks are smooth and wrinkle-free. Use cotton socks that cover the foot everywhere the shoe touches the child’s foot and leg. The child’s skin may be sensitive after the last cast is removed and/or there may be some initial swelling, which should only last for a day or two.
- 2. If the seams of the sock are pressing on the child’s toes, pull out the toe of the sock slightly.
- 3. Put a shoe onto the child’s foot.
- 4. Bend the child’s knee and push down slightly on the child’s thigh to make sure the heel is seated.
- 5. Press gently on the top of the foot (where the leg meets the foot) with your thumb to make sure that the heel is visible through the viewing hole in the heel of the shoe.



Note: The heel of the shoe is cupped (oversized) to prevent the heel from sliding. The child’s heel should be down and back as far as possible in the shoe.

- 6. Fold the tongue across the foot, making sure that it is flat and smooth. Make sure that the side edge of the tongue is outside of the shoe AFO insert and not against the child’s skin.
- 7. Tighten the middle strap snugly. Then tighten the other two straps. You can mark the holes on the straps that you use to be sure you are consistently securing the shoe each time.



Make sure the padded tongue is outside the shoe AFO insert

- 8. Check that the child’s heel is still down in the shoe by looking through the holes in the rear of the shoe.

Gently pull up and down on the lower leg. If the toes move backwards and forwards, the heel is not down, so you must retighten the strap. Do not cut off circulation. Run your finger under the baby’s toes to ensure that they are straight and are not bent under. As the child grows, do not be concerned if the front of the foot is not completely contained in the shoe as long as the remainder of the shoe still fits well. New shoes are needed when the child’s toes completely curl over the front edge of the shoe.

- 9. Insert the Iow Flexbar into the slots on the platform, making sure that the ends of the bar are pointing upwards toward the child’s knees.

Removing the Brace

The buckle of the Iow Brace is designed to prevent the child from taking off the shoes. The locking tab on the platform is designed to prevent the child from disengaging the bar from the platform

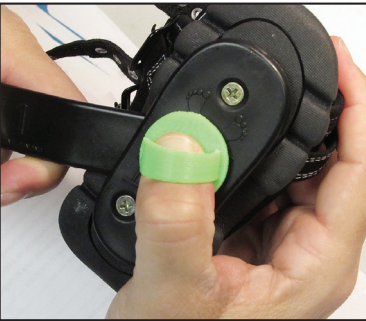
To remove the brace:

- 1. To unbuckle the shoe, lift up on the buckle and then pull the strap to remove the prong from the buckle.
- 2. To unlock the Iow Flexbar from the platform, press down on the flat part of the locking tab and pull the bar to disengage.

Each Iow Brace provides two release keys to make it easier for caregivers to remove the child’s brace for free time. Additional release keys can be purchased on the Clubfoot Solutions website - www.ClubfootSolutions.org



#1



#2

Cleaning and Maintenance

All parts of the Iow Brace are submersible and easily cleaned using soap and water. If shoes get wet, allow them to dry thoroughly before a child wears them. Avoid chemical agents and chlorinated solutions since these may damage the fabric of the shoes.

Each shoe is attached to a plastic platform using two metal screws. Inspect the screws to make sure that the platforms are securely fastened to the shoes. Tighten the screws if they become loose. Caution should be taken to not overtighten the screws.

Helping Parents and Caregivers Manage Brace Wear

Each Iowa Brace provides two release keys to make it easier for caregivers to remove the child's brace for free time. Additional release keys can be purchased on the Clubfoot Solutions website - www.ClubfootSolutions.org

To reinforce the importance of brace wear compliance and to support parents and caregivers, Clubfoot Solutions provides the following resources:

- Free Clubfoot Solutions app
- Clubfoot Solutions YouTube channel
- Clubfoot Solutions web page

For information about these resources, visit <http://www.clubfootsolutions.org/>.

Troubleshooting

Examine the child's skin for redness or blisters. Redness that goes away in about twenty minutes is normal. Redness that persists for longer than twenty minutes or a blister may be caused by the following:

- The straps are too loose (the most common cause).
- The child has outgrown the shoes.
- The straps are too tight.
- The fabric of the shoes or socks is not smooth against the skin.
- The tongue of the shoe is not tucked behind the insert.

If redness does not go away within twenty minutes, or if a blister develops, it is important to determine the cause of the problem. Note that the Iowa Brace is designed to maintain alignment of a fully corrected clubfoot. If the foot has not been corrected or has relapsed, then wearing the brace is contraindicated.

