



## DIY Suspension Trainer - Take Your Gym Anywhere - Inspired by Monkii Bars 2



by Jake\_Of\_All\_Trades

**Body weight training**, also known as calisthenics, is a tremendous way to improve your flexibility, mobility, strength, and endurance. It's an incredibly convenient form of exercise because you can do it anywhere with just your own body and the ground! While equipment is not a requirement to practice body weight fitness, some gear can add a lot of versatility and complexity to many exercises, as well as assist with progressions for certain movements or holds. A **suspension trainer** is a system of straps and handles anchored to a fixed point that allows you to adjust your body angle, and therefore the resistance of your body weight.

There are several types of suspension trainers, each with pros and cons. I'll focus on the two most popular types: Gymnastic rings and the TRX system.

- **Gymnastic rings** utilize two vertical straps that are looped around anchor points (tree, rafter, pullup bar, etc.) and a pair of rings that serve as handles. Each ring is approximately 8 inches in diameter, making for a large product that can be clumsy and difficult to travel with. The fact that there are two adjustable straps is very good in that the straps can be widened or narrowed along the anchor to allow for more range of motion and less interference from the straps. For things like ring pullups, dips, and pushups, this is essential.
- The **TRX system** is different in this way, as it only utilizes a single strap attached to an anchor point and then splits to two handles. The single strap system results in much less material being used which, when combined with shorter straight handles, allows for the entire system to fit in a small bag, making it more portable. However, the single strap system restricts many movements, and makes other movements (like unassisted pullups and dips) entirely impossible.

I've tried both of these systems, I even made my own version of the TRX (there are countless Instructables and YouTube videos on how to do this for about \$15), but I was never satisfied compromising portability or functionality.



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## Step 1: This Is Not a Product Advertisement

There is, however, a suspension system out there that utilizes two straps like rings, and maintains an even smaller form factor than the TRX. No movements are restricted, and it packs up to about the size of a water bottle, so it's perfect for traveling or taking on the go. It's called Monkii Bars 2. Here is their product video, pay attention to their Ultralight Kit at the 2:00 mark.

[//www.youtube.com/embed/XAETT1BJSmM](https://www.youtube.com/embed/XAETT1BJSmM)

However, I wasn't ready to spend \$150 on a (albeit incredibly attractive and well built) piece of fitness equipment. So I decided I would adapt this product to

meet my own requirements as well as my own budget. I was able to make something very similar to their Ultralight Kit for about \$40. Here's my build video:

[//www.youtube.com/embed/6X4vVsb-3dg](https://www.youtube.com/embed/6X4vVsb-3dg)

If you're more of a text-based learner, go the next step and read my step by step process for building this system.

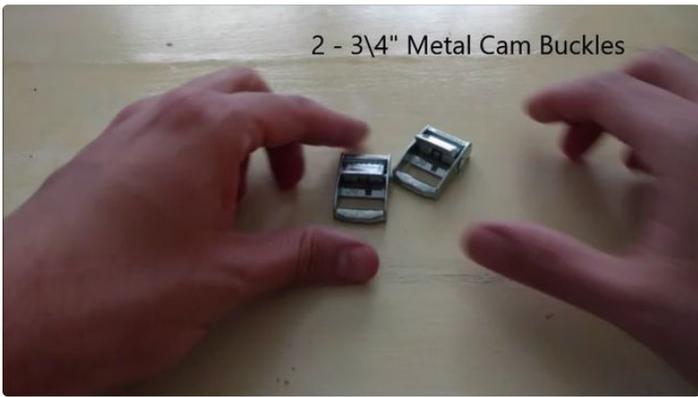
## Step 2: Materials

Most of the materials for this project were ordered from **Strapworks.com**. Strapworks is a one-stop shop for webbing, rope, buckles, and hardware. The rest of the materials and tools were bought at my local hardware store or found around my house.

### Materials

- 48 feet of 3/4" polyester webbing
  - I used 40 feet (anchor straps) in grey and 8 feet (handle/foot straps) in green
  - Compared to nylon webbing, polyester webbing has higher abrasion resistance, greater water resistance, and lower stretch, making it the ideal material for this project
- 4 - 3/4" rounded metal sliders
- 2 - 3/4" metal cam buckles
- ~6 feet of 550 Paracord
  - You really only need the inner thread, you'll be using it for sewing. It has a high tensile strength and increases the max load of this system to about 300 lbs.
- Sail Needle ---OR--- a sewing machine capable of sewing webbing
- 2 - 7" lengths of 1" diameter PVC Pipe. You can cut the PVC with a hacksaw
- 4 - 1" PVC pipe plugs
  - I had to sand the shanks of these plugs down a bit to make them fit easily into the PVC ends
- 2 - Small locking carabiners (make sure they can fit inside the PVC pipe)
- 2 - Small metal swivel clips (make sure they can fit inside the PVC pipe)
- ~32" of VELCRO One-Wrap straps
  - Cut into 2 - 10" straps and 1 - 12" strap
- 12"x6" piece of Neoprene or similar fabric
- Gorilla Tape
- Scissors
- Lighter





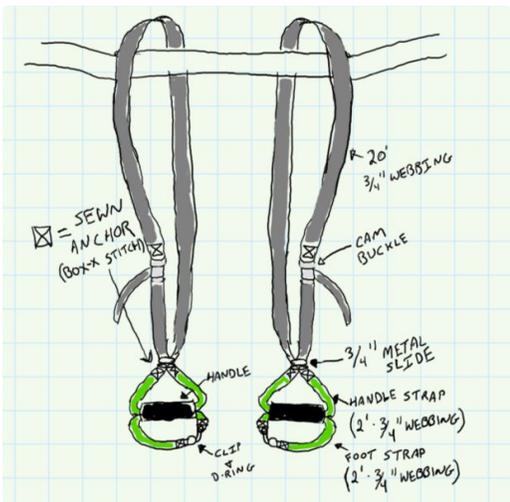
### Step 3: Step by Step

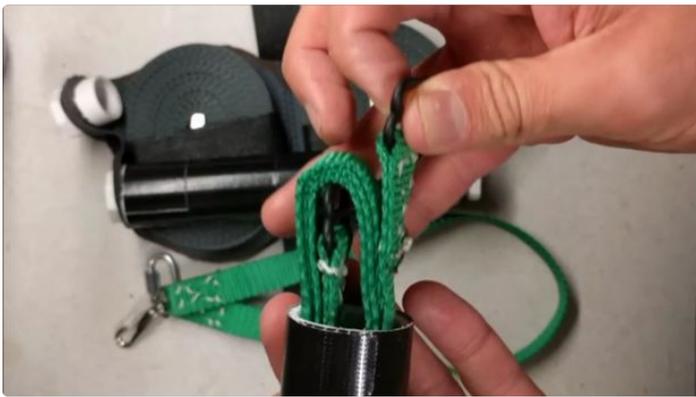
You'll be cutting webbing with scissors, and you'll need to burn the cut ends in order to prevent fraying

- Measure and cut 2 - 20 foot lengths of webbing. These will be your anchor straps
- Next, cut 4 - 2 foot lengths of webbing. These will be your handle and foot straps
- Use the scissors or a utility knife to round off the inside corners of the PVC pipe, This will prevent abrasion on the handle and foot straps

When sewing hardware to the ends of your webbing, this is the technique I used. Feed the strap through the hardware about 1.5 inches and fold it onto itself. Sew the tag end to the webbing using a running stitch in a "Box X" pattern along the tag end. This proves to be quite difficult with just needle and paracord thread, so I recommend using a heavy duty sewing machine

- Sew a metal cam buckle on an end of each anchor strap
- Sew a metal slider to each end of the handle strap
- On each foot strap, sew a swivel clip to one and and a locking carabiner to the other
- Tightly roll up up each anchor strap. Start by rolling the cam buckle first. Secure each wrap with a piece of 10" VELCRO wrap. This is how you'll store the anchor straps
- Wrap each PVC handle with a layer of Gorilla Tape. This greatly improves grip and comfort in my opinion

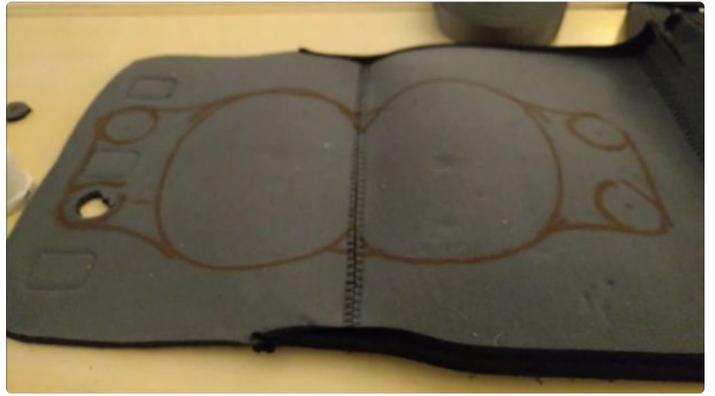
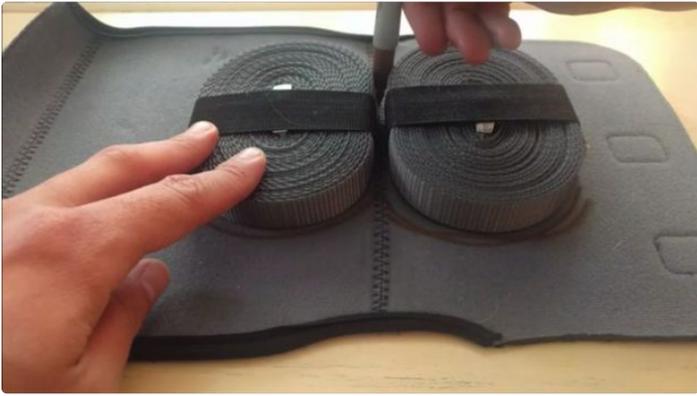




#### Step 4: Make the Case

The Monkii Bars 2 Ultralight kit has a very ingenious minimalist case to hold the system together. I had a piece of fabric-backed neoprene from an old tablet case, which I cut up to make a similarly functioning case. If you want to make a case, here's how I did it.

- Lay each rolled up anchor strap side by side in the center of the fabric and trace their outline onto the fabric
- Set the handles side by side on top of the anchor straps
- Fold the ends of the fabric straight up to meet the end of the handle. Trace this outline onto the fabric for each end of the handles.
- Draw curves connecting the four circles to the outline of the anchor straps in a pattern that you like
- Draw a small circle inside each of the four circles
- Cut out this pattern, and cut out the small circles
  - Ensure there is enough fabric left for the outer part of the circle.
- Insert a PVC plug facing up into each of the holes you've cut into the fabric
  - Ensure the fit is snug, but not too tight
- Assembly
  - Stick the VELCRO-wrapped anchor straps side by side on the case
  - Roll up the handle and foot straps and stuff them into their respective handle
  - Lay each handle side by side on the anchor straps
  - Fold the plug ends of the case up and secure the plugs into the handles. This holds the whole package together
  - Wrap the 12" VELCRO wrap around the center of the assembly to hold hold everything together tightly



## **Step 5: Put Your Gym Where You Want It**

To set up your suspension system:

### **1. Find a good spot to anchor your straps**

- I like sturdy tree branches, exposed rafters, doorways, car roof racks field goal posts.
  - To set up in a doorway, loop the straps around broom handle or t-shirt and shut it into the door so that the straps are pulling to door into the door frame
- With 20 foot straps, you have a maximum of 10 feet of strap from handle to anchor

### **2. Throw the anchor strap over your anchor**

### **3. Thread the handle strap through the handle and hold the metal slides together so that the slots line up**

### **4. Thread the tag end of the anchor strap through this slot**

### **5. Thread the tag end of the anchor strap through the cam buckle. Make sure it's threaded to that the cam engages when you try to pull the strap back through**

### **6. Adjust the strap through the cam buckle to get your handles to your desired height.**

### **7. Repeat steps 2-6 for the second strap**

### **8. If you will be using your foot straps, thread them through the handle and clip the swivel clip to the carabiner, then feed the hardware back into the handle so that only the strap is exposed**

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## Step 6: Put It to Good Use

With this suspension trainer you can do all the exercises that you can do with gymnastics rings or a TRX system. To get you started, Monkii Bars has a tremendous cache of free exercise videos and workout programs at [monkiitraining.co/training/](http://monkiitraining.co/training/).

This is the current weekly program I made up with this system, each workout takes about a half hour maximum. Thanks for reading, and if you made this system, enjoy your new portable gym! Thanks for reading!

- **Monday**
  - 3x20 Knee-Tuck Pushups (feet in footstraps)
  - 3x10 Single Leg Squat (feet in footstraps)
  - 3x10 Rows
- **Wednesday**
  - 6-*rep ladder* Archer Pushups
  - 3x15 Hip extensions (feet in footstraps)
  - 6-*rep ladder* Pullups
- **Friday**
  - 3x10 Handstand Pushups
  - 3x10 Pistol Squat (hold handles for assistance)
  - 3x25 (*each side*) Shoulder-tap Plank

