

## Step by Step Guide to building the BodyRail Ultra Edition

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Print these instructions

Read all of the instructions first before beginning - seeing the assembly pictures helps.

Tools Required (costs are approximate)

- Wire rope cutters \$20
- Cordless drill \$50
- Drill press \$100
- Drill press vise \$20
- Spade bits \$10
- Carbide or titanium drill bits \$20
- Chop saw or Radial Arm saw \$150
- Conduit cutter \$20
- Staple gun \$30
- Dremel Ultra saw \$139
- 5/16" nut driver \$10
- Spray paint \$5 per can
- Sand paper

### CUTS

Make all of your cuts first as it speeds up the build process.

### **FOR ALL CUTS WEAR SAFETY GOGGLES**

Seats

1. Take the 24" x 48" sheet of plywood and cut two sections 7.25" x 48" with either a circular saw or a Dremel Ultra Saw using a straight edge as a guide. This will leave one section 9.5" x 48". This remaining section will be used for the squat platform.
2. Cut the seat sections to 45" in length with either a chop saw or radial arm saw
3. From the plywood cut two pieces 3 1/2" by 3 1/2" for the mounting brackets for the seat posts

Rails

1. The for 1 x 3's all need to be the exact same length of 88". This can be easily accomplished by staking the boards together and making one cut with a chop or radial arm saw. Save the four 8" pieces to be cut down for spacers
2. The ten 1 x 3 spacers all need to be 5 1/8" long. Cut those with a chop or radial arm saw. Cut 4 of them from the 8" remnants of the rails. Cut the other 6 can be from the 5th 1 x 3. Save the reaming 65" section for the wall mount brackets
3. From the 1 x 4 cut two pieces 6 1/8" long for the foot-end wheel bracket. Set the 83" piece aside for the rear riser upper support
4. From the 2 x 2 cut 4 pieces 6 5/8" long for the seat stops

- Using a drill press drill pilot holes  $\frac{3}{16}$ " from the edge in the  $36\frac{3}{4}$ " steel wheel guides. Space 5 holes apart  $8\frac{1}{2}$ " from the center by marking holes with a sharpie. Repeat for all 8 wheel guides

#### Rear risers

- Cut the two 1 x 8 boards 90" in length.
- From the 65" 1 x 3 (leftover from rail spaces) cut two pieces  $29\frac{1}{2}$ " long for wall mounts
- Rear riser upper support gets cut from the 83" 1 x 4 (left over from the foot-end wheel bracket). This piece is  $27\frac{3}{4}$ "
- The front of the shelf can also be cut from the 1 x 4 and it too is  $27\frac{3}{4}$ " long
- The base of the shelf is cut from the 1 x 6 and is  $27\frac{3}{4}$ " long
- Rear riser upper connector plate is cut from the 1 x 6 and is  $29\frac{1}{2}$ " long
- The rear riser pulley bracket is cut from the 2 x 4 and is  $29\frac{1}{2}$ " long
- The rear riser top support pieces are cut from scap and are  $7\frac{1}{4}$ " inches long. These can be cut from leftover 1x stock or 2 x 2 stock
- Cut the two 2 x 2 rear riser base plate supports  $13\frac{1}{2}$ " long
- Cut the 2 x 4 rear riser base plate  $29\frac{1}{2}$ " long
- Cut the 1 x 6 rear riser lower connector plate  $29\frac{1}{2}$ " long

#### Front risers

- Cut the  $5\frac{1}{4}$ " x 8' boards 90" in length
- Front riser upper connector plate is cut from the 1 x 6 and is  $29\frac{1}{2}$ " long
- The front riser pulley bracket is cut from the 2 x 4 and is  $29\frac{1}{2}$ " long
- Cut the 1 x 6 front riser lower connector plate  $29\frac{1}{2}$ " long
- Drill the resistance holes in the front risers.. You'll need a  $\frac{7}{8}$ " spade bit and it is strongly recommended you use a drill press as the holes must be level.
  - Starting from the bottom (it doesn't matter which end of the board you select as the bottom) measure up  $2\frac{3}{4}$ ". In the center of the wide side of the board, mark this spot with a pencil. This is the center of the lowest hole. FROM THE CENTER OF THE LOWEST HOLE, mark off every 4 inches for a total of twenty holes. The distance center to center from the lowest hole to the highest hole is 76"
  - Repeat this for the other riser
  - BEFORE DRILLING**, line up the risers next to each other, bottom to bottom, and make sure all the marks are clearly visible in the center of the boards and line up with each other. These holes hold the rail-riser rod and MUST be aligned (Videos 9593 and 9594)

#### Squat Platform

- Cut the remaining  $9\frac{1}{2}$ " wide section from the plywood used for the seats to 31" in length. Ideally this would be done with a chop or radial arm saw, but can be done with a circular or Dremel Ultra saw.
- Cut the remaining piece into two sections  $4\frac{1}{2}$ " x 6" the wings of the squat platform
- For the wings drill a  $\frac{7}{8}$ " hole using a spade bit  $1\frac{3}{4}$ " in from the sort end end and 1" in from the other end (see photo 1576)
- For the support between the risers cut a section from a full 2 x 4 31" in length. Set the remainder aside for the rail support

#### Rail supports

- From one full 2 x 4s cut two lengths of 22", two lengths of  $18\frac{1}{2}$ " and two lengths of 6".

2. From the 2 x 4 used for the squat platform support, cut two lengths of 12”.

### Riser Supports

1. From a 1 x 4 cut two pieces 12 ¼” long
2. From a 2 x 4, cut two pieces ¾” long
3. Cut two pilot holes through the cut sides of the 2 x 4 ¾” from each end
4. From a ¾” dowel cut two piece 1 ⅝” long
5. Drill a 3/16” hole through the side of the dowel ¼” from the end for the security pin
6. At the other end of the dowel (opposite the security pin hole) drill a pilot hole for a number 10 screw ¾” deep

### Security bracket

1. From a 1 x 3 cut a length of 29 ¼” as well as two pieces 5 ¾” long
2. In the two smaller pieces, drill a ⅞” hole centered 1 ⅝” from the end and 1 ¼” from the sides

### Rods

1. [Watch the Conduit Cutter video on the website](#)
2. Rail-Riser rod sheath - using the ¾” conduit, measure 26” from on end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. If you’ve never done this before, check out this video. With a metal file ensure the cut end of the conduit is smooth.
3. Foot rod - using the ¾” conduit, measure 22” from on end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. With a metal file ensure the cut end of the conduit is smooth.
4. Weight bar - using the ¾” conduit, measure 43 ¼” from one end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. With a metal file ensure the cut end of the conduit is smooth.
5. Band rod - using the ¾” conduit, measure 24” from one end and mark it with a sharpie. Using a conduit cutter, cut the piece. With a metal file ensure the cut end of the conduit is smooth.
6. Exercise bar - using the second piece of ¾” conduit, measure 36” from one end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. With a metal file ensure the cut end of the conduit is smooth.
7. Rail-Riser rod - using the ½” conduit, measure 36 ¼” from one end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. With a metal file ensure the cut end of the conduit is smooth.
8. Cable rod - using the ½” conduit, measure 33” from one end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. With a metal file ensure the cut end of the conduit is smooth.
9. Seat pulley rod - using the ½” conduit, measure 17” from one end and mark it with a sharpie. Using a conduit cutter, cut the piece at the mark. With a metal file ensure the cut end of the conduit is smooth.

### Drilling carabiner holes in the cable and seat pulley rods

1. [Watch the Conduit Drilling video on the website](#)
2. To cut the carabiner holes in the cable and seat pulley rods, measure ½” from each end of the conduit and mark with a sharpie. Using a drill press and a drill press vise, position the conduit in the drill press vise and start with a small bit and step your way up to the largest bit. Make sure you use a drill bit that can cut through steel. Carbide or titanium should be just fine. **When drilling through metal, do not place your hands near the surface being drilled and it will become hot. Same thing with the drill bit. Before switching out bits, let them cool.**

- a. I started with a 3/16" bit and drilled through both sides of the conduit in one pass, then switched out ends and repeated
- b. Next I stepped up to a 9/32" bit and drilled through both sides of the conduit in one pass, then switched out ends and repeated
- c. For the 3rd pass I used a 3/8" bit. This time I drilled through one side of the conduit, flipped it over and drilled through the second side then switched ends and repeated. As the bit gets larger, it's harder to penetrate the second side from inside the wall of the conduit due to it's concave shape.
- d. For the final pass I used a 1/2" bit and once again I drilled through one side of the conduit, flipped it over and drilled through the second side then switched ends and repeated.
- e. Once done, use a round metal file to smooth out the edges and remove any excess metal.



#### Drilling holes in the steel supports for seats

1. Just like the cable rod, you should use a drill press and vice to drill the holes for the steel seat supports.
2. The supports come in a length of 36" so they don't need to be cut.
3. Mark 1" from each end as well as one mark at the 18" center.
4. You'll be using #10 sheet metal screws so you'll need to drill holes using at least a 3/16" bit or maybe a 7/32" but don't go any larger. Make sure you use a drill bit that can cut through steel. Carbide or titanium should be just fine.
5. **When drilling through metal, do not place your hands near the surface being drilled and it will become hot. Same thing with the drill bit. Before switching out bits, let them cool.**

#### Cables

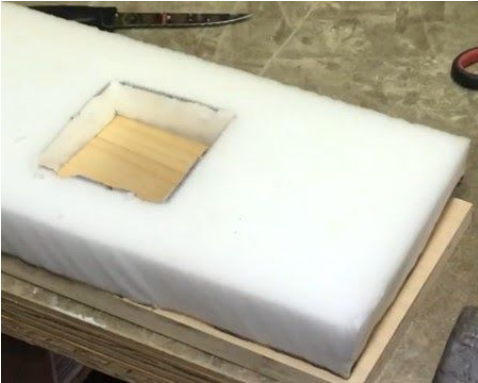
1. 4 sets of 2 cables each are needed for a total of 8 cables
2. Direct resistance handle cables - cut 36" in length
3. Short cables - cut 20"
4. Pulley handle cables - cut 73"
5. Rowing cables - cut 146"
6. Each wire rope kit has 30' or 360" of cable. One complete set takes up 275". Cut one set from each kit.
7. I used a set of wire cutters but they make wire rope cutters
8. Mark the lengths as noted above and cut the cables. Make sure each pair of cables are the same length.

#### Foam for the seats

##### **Watch the first few minutes of the Seat Assembly video on the website**

1. Take the plywood foundation for the seats (cut above) and lay on the foam and trace an outline with a sharpie

- Using a sharp knife cut along the line until you have two foam pieces 7.25" x 45".
- Take the two 3 1/2" by 3 1/2" pieces for the mounting brackets for the seat posts, place those on the 7.25" x 45" foam pieces centering 8" from one end and centering side to side. Outline with a sharpie. Remove the wood pieces and with a sharp knife cut along the lines until you can remove the section of 3 1/2" by 3 1/2"



#### Vinyl for the seats

- Lay out the vinyl on the floor
- Cut two pieces 53" long by 15 1/2" wide
- To cut the tabs, at the very end of the vinyl measure 7" in from each side and mark. 2" down from the end measure in 4" from each side and mark there as well as 2" from the end at the side of the vinyl. Connect the dots with a straightedge and a sharpie.
- Cut the vinyl with scissors Leaving the vinyl sides 49" in leaving a flat top triangular tab for a total length of 53"



#### **PAINTING or STAINING (optional)**

You don't have to apply a finish to your BodyRail Ultra. Sometimes just a natural wood looks pretty cool. But if you want to paint your BodyRail Ultra, now would be a good time to do that. Be sure to let the parts dry for at least 24 hours.

If you do want to paint it, here's what I did. I set up tarps in my garage and laid out the pieces in color sections so that overspray was not an issue. Here are the quantities of spray paint I used for my color scheme

- 5 cans of burgundy for the risers and rail supports.
- 4 cans of bronze for all of the cross members
- 3 cans of gloss black for the rails

## ASSEMBLY

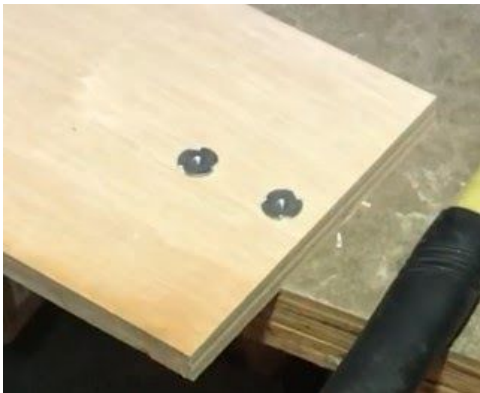
Now that all the cuts are done you can begin the assembly process.

Build the seats [watch the Seat Assembly video on the website](#)

1. You'll need a cordless drill, drill bits, tape measure, pencil, #2 phillips head screwdriver bit, staple gun with staples
2. Do this in the room where you are planning to use the machine
3. Mount the post bracket to the seat base
  - a. Take a 7.25" x 48" plywood seat base and lay it on the floor. Take a 3 1/2" x 3 1/2" post bracket and center it 8" from one end of the seat base and trace it with a sharpie.
  - b. Mount the post bracket to the seat base drilling pilot holes centered on each of the sides of the bracket, countersink the holes and secure with 1 1/4" wood screws (video 8549). Repeat this process for the second seat.



4. Mount the pulley loop t-nuts to the seat.
  - a. At the end opposite the post bracket, measure 3/4" in from the end and 3 5/8" from the side. Measure another 1 3/4" in from the first mark (a total of 2 1/2" from the end). Drill the holes for the t-nut all the way through the plywood. Make sure your drill bit is the same size and the #8-32 t-nut shaft. Hammer in the t-nuts from the top of the seat (the t-nuts will ultimately be underneath the foam). Repeat this process for the second seat.



5. Lay out the vinyl on the floor. If you have a logo or design make sure it is face down. Center and place the foam and plywood seat base on the vinyl with the cutout for the post at the foot end (if you have a logo). Make sure to measure all the way around to ensure consistency side to side and end to end.



6. Staple the vinyl to the underside of the seat. Have your staple gun loaded and accessible. Kneel on the seat to compress the foam and begin with the center of one side. Work your way to each end. Then work the other side of the seat.



7. Securing the vinyl at each end is just like wrapping a gift. While kneeling on the seat base, fold in the sides of the ends and then pull the tab over the wood and staple. Don't worry when you cover up the t-nut holes, we'll come back to that. Just don't staple over the holes. Repeat the same process on the other end of the seat.



8. Attach the pulley loop brackets under the seat by lining up the loop with the t-nut hole and insert the #8-32 machine screw. For the hole that is covered by the vinyl, positioning the bracket will allow you to find the hole and drill through the vinyl with the same bit you used to create the hole. Insert the screw and tighten. Remember to tighten the first screw.



9. Mounting the casters.

- a. Using one caster, position it in each corner flush with the ends of the seat and mark the holes with a sharpie. Repeat this in each corner.
- b. Drill pilot holes for each caster using a drill bit smaller than the thread of the  $\frac{3}{4}$ " hex head screw. Make sure the drill bit extends no further than  $\frac{3}{4}$ " so as to not penetrate the vinyl on the top of the seat.
- c. Position the casters with the nut to the inside of the seat. With an extension for your drill, drive in the hex head screws. Kneel on the seat to compress the foam and provide stability when drilling.



10. Mounting the bracket for weights and shoulder pads

- a. Position the flange over the wood bracket ( you'll be able to feel the wood bracket underneath) centering 8" from the end of the seat and  $3\frac{5}{8}$ " from the side. The flange screw holes must be in the corners of the bracket, or square with the seat. Mark the holes with a sharpie.
- b. Drill pilot holes for the temporary screws.
- c. Compress flange to seat with temporary screws
- d. Drill holes all the way through the seat for the 2" #8-32 machine screws. Insert the screws and secure with a washer and #8-32 nuts under the seat. Remove the temporary screws and repeat the process for the other two holes in the flange.





11. Mounting the steel support brackets

- a. Attach the  $\frac{3}{4}$ "  $36$ " long steel support brackets with a  $1 \frac{1}{2}$ " hex screw along the sides underneath the seat centered lengthwise.



Build the rails [watch the Rail Assembly video on the website](#)

1. You'll need a cordless drill, drill bits, tape measure, pencil, #2 phillips head screwdriver bit and a flat screwdriver
2. In the room you're planning to use the machine, lay out the rails and the spacers
3. With the rails next to each other, with a pencil mark the edges next to each other top. This way the rails are laying "top to top" and facilitates measurements. Spacers will be staggered to increase strength. The screw holes will be  $1 \frac{1}{8}$ " from either the top or bottom of the rails.

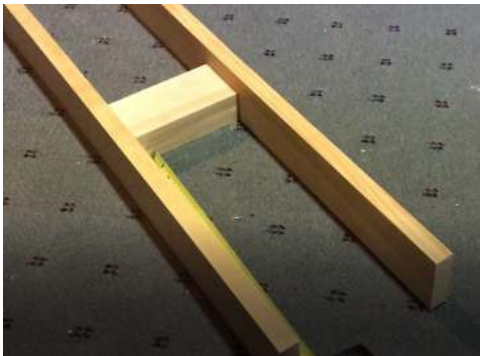


4. The first spacer will be  $5 \frac{15}{16}$ " from the foot end of the rails. The holes will be at  $6 \frac{1}{2}$ " and  $8$ ".

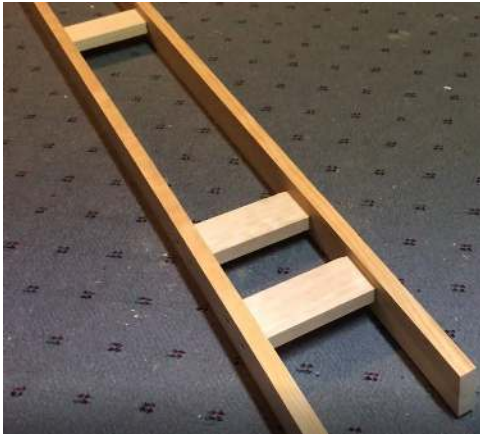
5. The second spacer will be at 12" with the holes being at 12 1/2" and 14" with the spacer ending at 14 1/2". The third spacer from the foot end of the rail will start at 35 1/2" with the holes at 36" and 37 1/2" and the spacer ending at 38"
6. From the head end of the rails the fourth spacer ends at 29" with the holes at 28 1/2" and 27" with it beginning edge at 26 1/2" and the fifth spacer edge is 5 1/2" from the end with the holes being at 5", 3 1/2" and the edge being at 3"
7. One way to assemble the rails is to place the spacers vertically on one and then place the other rail on top. This will allow you to drill the screw holes and screws in a downward motion. To provide distance from the bottom of the rail, place one of the spacers not currently being attached under the spacer to be secured.



8. Make sure the foot end of the spacers are even with each other by using a scrap piece of wood to align them. Re-measure to ensure the marks for the screw holes are where they are supposed to be.
9. Using a drill bit slightly smaller than the #8 wood screws thread, Drill the pilot holes for the first spacer and put in the first screw . Secure the spacer as you'll see in the video mine spun out due to the torque of the drill
10. Make sure the distance from the bottom rail is consistent by having an unused spacer in place and drive in the second #8 by 1 1/2" screw.
11. Secure the other side buy flipping the rails and spacers over, re-measure
12. An easier and probably better way is to set the rails on edge with the spacers flat. Drill the screw holes from the side



13. Sink the screws to complete the first rail spacer.
14. Secure the remaining spacers based on the measurements listed above. Remember to stagger distances from top and bottom. The first rail is done and repeat this process for the second rail.



15. Mounting the wheel brackets on the underside of the foot end of the rail. Place the  $6 \frac{1}{8}$ " long 1 x 4 across the underside of the foot end of the rail. Align the casters so the holes are  $\frac{3}{8}$ " in from the sides. This will allow the outside screws to do through the center of the rail. Mark the holes with a pencil and drill the pilot holes. The holes on the outside can be 2" deep while the holes on the inside should be less than  $\frac{3}{4}$ " deep so as to not penetrate the other side of the bracket.



16. Secure the foot end wheels with the appropriate sheet metal screws  
17. Add seat stops to the rails.

- a. From the foot end of the rail place the  $6 \frac{5}{8}$ " 2 x 2 across the rail  $2 \frac{7}{8}$ " from the end of the rail. Drill pilot holes through the seat stop  $\frac{3}{8}$ " from the ends of the seat stops into the rail and countersink the holes. Secure the seat stops with a  $2 \frac{1}{2}$ " wood screw. Repeat this at the foot end of the other rail.



- b. From the head end of the rail place the  $6 \frac{5}{8}$ " 2 x 2 across the rail  $5 \frac{3}{4}$ " from the end of the rail. Drill pilot holes through the seat stop  $\frac{3}{8}$ " from the ends of the seat stops into the rail and countersink the holes. Secure the seat stops with a  $2 \frac{1}{2}$ " wood screw. Repeat this at the head end of the other rail.



18. There are a total of 16 conduit brackets used to hold various rods and bars. 12 single hole brackets and 4 two-hole brackets
- Foot End Exercise Brackets. At the foot end of the rail, place the single hole steel brackets up against the seat stop with the single hole at the foot end of the rail. Mark the hole with a sharpie and drill pilot holes for a #10 2" screw. Secure the steel brackets with a #10 2" machine screw. Repeat for the remaining 3 foot end brackets.



- Head End Exercise Brackets. At the head of the rail, place the single hole steel brackets up against the seat stop this time with the single hole next to the seat stop. Mark the hole with a sharpie and drill pilot holes for a #10 2" screw. Secure the steel brackets with a #10 2" machine screw. Repeat for the remaining 3 head end brackets.



- Storage Brackets. At the end of the head of the rail, place the two hole steel brackets on the rails  $\frac{1}{8}$ " from the end of the rail. **These brackets are for rail storage only.** Mark the holes with a sharpie and drill pilot holes for a #10 2" screw. Secure the steel brackets with a #10 2" machine screw. Repeat for the remaining 3 head end brackets.



- d. Rail-Riser Rod Brackets. At the head of the underside of the rail, place the open end of the steel brackets up against the end of the rail. Mark the hole with a sharpie and drill pilot holes for a #10 2" screw. Secure the steel brackets with a #10 2" machine screw. Repeat for the remaining 3 head end brackets.



19. Place the rail on its side. Position 36" x 3/4" pre-drilled wheel guides 3/4" from the seat stop and leave 3/8" of the steel exposed over the rail to guide the wheels. Drill pilot holes for 3/4" machine screws being careful to not penetrate the other side of the rail. Secure steel rails with 3/4" machine screws. Bevel the exposed corners with a metal file.



Build the rear risers [watch the Rear Riser Assembly video on the website](#)

1. You'll need a tape measure, pencil, drill, drill bits, countersink bit and a phillips head drill bit
2. Intro to building the rear risers
3. Start with the base plate for the lower pulleys for rowing. Drill pilot holes 3" in from the ends of the 29 1/2" 2 x 4 and 1/2" from the front. You'll be using #10 screws so make sure the bit is smaller than the threads.



4. Attach the pulleys to the base plate with a #10 2" sheet metal screw. Do not tighten. Allow enough room for the pulleys to swivel.



5. Place the rear risers (the 90" 1 x 8's) on their edges so they are spaced 28" apart. Place the 29 1/2" 1 x 6 connector plate on the risers with the top of the connector plate 22 1/2" from the bottom of the risers. Secure to the risers with four 1 1/2" screws drilling pilot holes 3/8" from the ends into the risers. Do this on both risers.
6. Place the rear lower pulley base plate across the risers 13 1/2" from the bottom, directly under the connector plate, with the pulleys at the top facing out. Once in place, drill 2 pilot holes to hold a #10 screw through the 2 x 4 and into the center of the rear riser (3/8" inches from the ends) Countersink the pilot hole to make sure the screw will be flush without splitting the wood. Use 3" phillips head wood screws to attach the base to the risers with your drill and phillips head bit. Make sure the two pieces are square. Repeat this for the other end of the base plate.



7. Beneath the base plate, position the 13 1/2" 2 x 2 (which is actually 1 1/2" x 1 1/2") vertically. Drill 2 pilot hole 3/8" from each end, counter sink and then secure with 3" screws using your drill and phillips head bit



8. At the top of the risers, position the 29 1/2" 1 x 6 connector plate 2" down from the top of the risers. This leaves 3 1/2" above the top of the risers. Drill two pilot holes through the connector plate into the center of the risers (3/8" from the ends). You'll be using a #8 1 1/2" wood screw to fasten so make sure the pilot hole is smaller than the thread. And then countersink the connector plate. Attach the connector plate to the risers with the screws using your drill and phillips head bit. Repeat for the other riser.



9. At the top of the rear riser attach a piece of scap 1 x 1 or 2 x 2 for additional support of the pulley cross member that will be installed. Cut the piece 7 1/4" long and secure with two 1 1/4" wood screws after drilling pilot holes. Be careful not to penetrate all the way through the riser. Repeat for the other riser.



10. Attached the 3/8" 6" eye bolts through the pulley cross member. 3" from the end of the 29 1/2" 2 x 4, drill 3/8" holes all the way through. Slide the eye bolt through and secure on the other end with a washer and nut

11. From the connector plate side, secure the pulley cross member to the connector plate with four 1 ½" wood screws. You do not need to drill pilot holes. Just space out the screws evenly across. Once the pulley cross member is attached, add 3" corner brackets connecting the cross member to the risers. Here you will need to drill pilot holes in the top of the risers. Repeat for the other riser.



12. Mount the 29 ½" 1 x 3 wall mounts to the back of the rear risers. The top wall mount should be 12" from the top. The bottom wall mount should be 12" from the bottom. Drill pilot holes and through both the wall mount and the riser to hold a 2 ½" #8 wood screw. Countersink the pilot holes in the wall mounts and secure the wall mounts to the risers with your drill and phillips head drill bit
13. The top wall mount has additional support with a 27 ¾" 1 x 4. Center this over the 1 x 3. Connect to the 1 x 3 and the risers with four 1 ½" corner brackets.



14. Also drill a pilot hole from the outside of the risers ⅜" in and 13 ⅜" from the top of the riser. Countersink this hole. Use a 2 ½" screw to secure the 1 x 4 to the riser. Repeat this on the other side of the riser



Build the front risers [watch the Front Riser Assembly video on the website](#)

1. You'll need a tape measure, pencil, drill, drill bits, countersink bit, a phillips head drill bit and a one inch hole saw.



- The lower front connector plate needs to be notched out to make room for where the pulleys are attached. Measure 3" from each end and mark it. With a 1" hole saw, line it up at the 3" mark and drill out a half circle. Do this on the other side of the plate.



- For the front risers, place the 29 1/2" 1 x 6 connector plate on the risers with the top of the connector plate 22 1/2" from the bottom of the risers. Position the pilot holes so they are between the 7/8" holes in the front riser. Drill pilot holes through the connector plate and into the risers. Counter sink the pilot holes in the connector plate to ensure the screws will be flush. Secure to the risers with four 1 1/2" screws drilling pilot holes 5/8" from the ends into the risers. Do this on both risers



- Just like the rear risers at the top of the front risers, position the 29 1/2" 1 x 6 connector plate 2" down from the top of the risers. This leaves 3 1/2" above the top of the risers. Drill two pilot holes through the connector plate into the center of the risers (5/8" from the ends as the front risers are 5/4" stock, not 3/4" stock like the rear risers). You'll be using a #8 1 1/2" wood screw to fasten so make sure the pilot hole is smaller than the thread. And then countersink the connector plate. Attach the connector plate to the risers with the screws using your drill and phillips head bit. Repeat for the other riser.
- Just like the rear risers, from the connector plate side, secure the 2 x 4 cross member to the connector plate with four 1 1/2" wood screws. You do not need to drill pilot holes. Just space out the screws evenly across. Once the 2 x 4 cross member is attached, add 1 1/2" corner brackets connecting the cross member to the risers. Here you will need to drill pilot holes in the top of the risers. Repeat for the other riser. The front cross member does not need eye bolts.



Connect risers to the wall [Watch the Wall Mounting video on the website](#)

1. Position the rear risers against the wall where you will be planning to use the machine. Leave at least 3 feet on one side of the risers to remove the cable rod and the rail-riser rod when adjusting for exercises.
2. Since the risers are 29 1/2" wide, they will span 2 studs in the wall.
3. Find the studs in the wall with either a stud finder or knocking on the wall and mark them accordingly.
4. It's ok if the risers are not perfectly centered across the two wall studs.
5. Make sure the risers are plumb by using a level.
6. Keeping the risers plumb and resting on the floor, drill 3/16" pilot holes through the mounting brackets and into the studs.
7. Secure the lower rear riser mounting bracket to the wall studs with four 3" 1/4" lag screws. **THE RISER MUST REST ON THE FLOOR AND BE MOUNTED TO TWO WALL STUDS.**



8. Secure



9. Place the front risers in front of the rear risers.
10. Line up the lower connector plates so the ends and top are flush with each other and hold together with a C-Clamp.
11. Drill three 1/4" holes in the connector plate 1 1/2" down from the top of the plate. The first hole should be in the center with the other two holes 7" on either side of the center. Attach a 1/4" t-nut to the back of the

rear connector plate. Tap in with a hammer if needed. Place a washer over the 1 ½" ¼" hex bolts and slide through the holes in the connector plates. Tighten each bolt to the t-nut.



12. Line up the upper connector plates so the ends and bottom are flush with each other and hold together with a C-Clamp.
13. Drill three ¼" holes in the connector plate 1 ½" up from the bottom of the plate. The first hole should be in the center with the other two holes 7" on either side of the center. Attach a ¼" t-nut to the back of the rear connector plate. Tap in with a hammer if needed. Place a washer over the 1 ½" ¼" hex bolts and slide through the holes in the connector plates. Tighten each bolt to the t-nut.



Build the cables [Watch the Cable Assembly video on the website](#)

1. You'll need a tape measure, sharpie and a 5/16" hex driver
2. From the end of each cable, mark off 7". This is the length needed to create the loop



3. To create the loop on each end, take two ⅛" wire rope clips (the kit comes with two thimbles and 6 larger clips, you can set those aside as we won't be using them) and assemble them with the nuts just started on the threads.
4. Slide the clips over the end of the wire rope.



5. Loop the end of the wire rope back through the clip with the end piece of the rope on the nut side of the clip.



6. Adjust the loop so that the end of the wire rope lines up with the 7" mark you made. One clip should be just inside the mark, the second clip on the inside of the first making their loop slightly smaller



7. Tighten the nuts with either an adjustable wrench or ideally a 5/16" nut driver.



8. Repeat this process until you have completed loops at the end of all cables.

Build Squat Platform [Watch the Squat Platform Video on the website](#)

1. You'll need a cordless drill, phillips head bit and four 1 ½" hinges with screws
2. Align the 4 ½" edge of the wing along the long end of the platform ¾" from the end with the hole also toward the edge of the platform and toward the center.



3. Pivot the wing up so it is flush with the edge and secure two 1 ½" hinges to the inside of the wing



4. Repeat for the other wing
5. When storing the 2 x 4 cut above for riser support just nests behind the platform.

Build Security Bracket [Watch the Security Bracket video on the website](#)

1. You'll need a cordless drill, drill bits, countersink bit and a phillips head bit

2. Butt the non-hole end of the 5 ¾" long pieces to the outside ends of the 29 ¼" 1 x 3
3. Drill two pilot holes through the sides of the short pieces into the end of the longer piece. These should be ⅜" in so as to center with the long piece. Countersink the holes so you don't split the wood
4. Secure the shorter pieces with 1 ½" wood screws.



Build Rail supports [Watch the Rail Supports video on the website](#)

1. You'll need a cordless drill, drill bits, countersink bit and a phillips head bit
2. The larger rail support is made up of 22" and 12" 2 x 4s
3. The smaller rail support is made up of 18 ½" and 6" 2 x 4s
4. For the larger rail support, place the 12" pieces between the 22" pieces and perpendicular to them.
  - a. Butt the end of the 22" piece up against the end of the 12" piece.
  - b. Drill two pilot holes through the 22" piece into the 12" piece. Countersink the holes and secure with a #10 2 ½" wood screw
  - c. Repeat for the remaining three corners.



5. For the smaller rail support, place the 6" pieces between the 18 ½" pieces and perpendicular to them.
  - a. Butt the end of the 18 ½" piece up against the end of the 6" piece.
  - b. Drill two pilot holes through the 18 ½" piece into the 6" piece. Countersink the holes and secure with a #10 2 ½" wood screw (Video E1584)
  - c. Repeat for the remaining three corners.



6. For storage the two supports nest inside each other (Video E1585)



#### Build the riser supports

1. Riser supports are just that. Because there is a 65" span where the front and rear risers do not touch, this apparatus provides additional support anywhere up and down the riser if needed.
2. Take the 12 1/4" 1 x 4 and attach the dowel with a #10 1 1/4" round headed screw
3. Place the 2 x 4 3 1/2" from the same end as the down and connect to the 1 x 4 with 1 1/4" round head screws
4. On the outside of each end of the 1 x 4, attach 1 1/12" corner brackets so they wrap around the ends
5. Place a round headed sheet metal screw through the security hole in the dowel
6. Repeat for a second riser support



#### Build and attach Shelf

1. The 27 ¾" long 1 x 6 base of the shelf can be mounted anywhere inside the risers. I recommend about 36" from the top as this will provide plenty of space to store the foot platform and other accessories. It is also a good height to hold an iPad.
2. Secure the 1 x 6 to the risers with four 1 ½" corner brackets, one in each corner, from underneath. Leave ¾" in the front to mount the face of the shelf.
3. The 1 x 6 leaves a gap of about 1 ½" between the machine and the wall. My thought here is that it allows you to mount a mirror if you would like.
4. The 27 ¾" long 1 x 4 front of the shelf can be attached to the base with four 1 ½" wood screws. Be sure to drill pilot holes and countersink.



Thread through rowing pulleys by removing sheave.

1. To thread the 175" cables through the rowing pulleys, take the pulley that will hang from the top of the unit, pull out the pins that secure the axle for the sheave. Remove the axle, then remove the sheave. Place the cable in the pulley, replace the sheave, axel and pin.
2. Hang the pulley from the eye bolt with a locking carabiner
3. Repeat the process for the pulley that is attached in the base plate



Build seat pulley mechanism including rod

1. To thread the 73" cables through the handle pulleys, take two pulleys, pull out the pins that secure the axle for the sheave. Remove the axle, then remove the sheave. Place the cable in the pulley, replace the sheave, axel and pin. Then hang one of the pulleys from the 17" rod with a spring carabiner. Repeat this process for the other cable.





Attach storage hooks for handles and cables (optional)

1. I installed hooks on the inside of the rear risers to hold cables. Just be sure the threads on the hooks do not penetrate the outside of the riser.

Here are several pictures of what the machine will look like when you are finished

