

User Manual Appendix A

myopro 2+
motion w

Operating instructions for MyoPro 2+ Motion W



myomo[®]
my own motion

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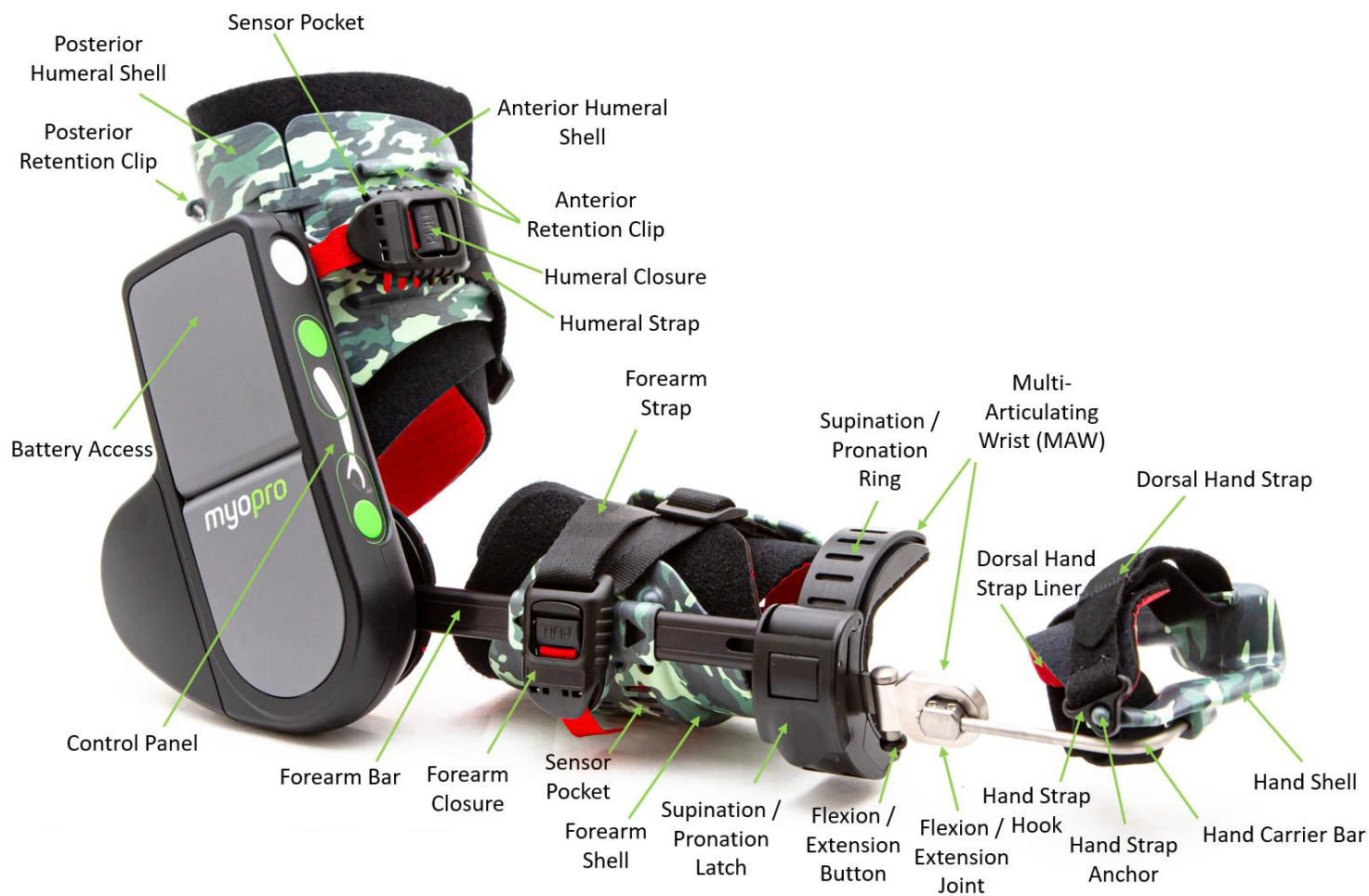
Contents

MYOPRO 2+ MOTION W COMPONENTS	5
MYOPRO 2+ CLOSURE COMPONENTS	6
MYOPRO 2+ MOTION W FOREARM SENSORS	6
MYOPRO 2+ BICEPS & TRICEPS SENSORS	7
MYOPRO 2+ CROSS-BODY HARNESS COMPONENTS	7
MYOPRO 2+ FIGURE 8 HARNESS COMPONENTS	8
PUTTING MYOPRO 2+ MOTION W ON (“DONNING”)	9
WARNINGS REVIEW	11
STEPS FOR PUTTING ON MYOPRO 2+ ORTHOSIS.....	11
DONNING PREPARATION	12
DONNING INSTRUCTIONS	14
STEPS FOR PUTTING ON MYOPRO 2+ HARNESS.....	19
Harness Clips	19
CROSS-BODY HARNESS DONNING	20
CROSS BODY HARNESS DOFFING:	22
FIGURE 8 HARNESS DONNING	23
TAKING OFF MYOPRO 2+ (“DOFFING”).....	31
OPERATING MYOPRO 2+.....	35
CONTROL PANEL	37
MODES OF USE.....	38
ELBOW MODES	39
CHANGE ELBOW MODE WITH THE CONTROL PANEL.....	41

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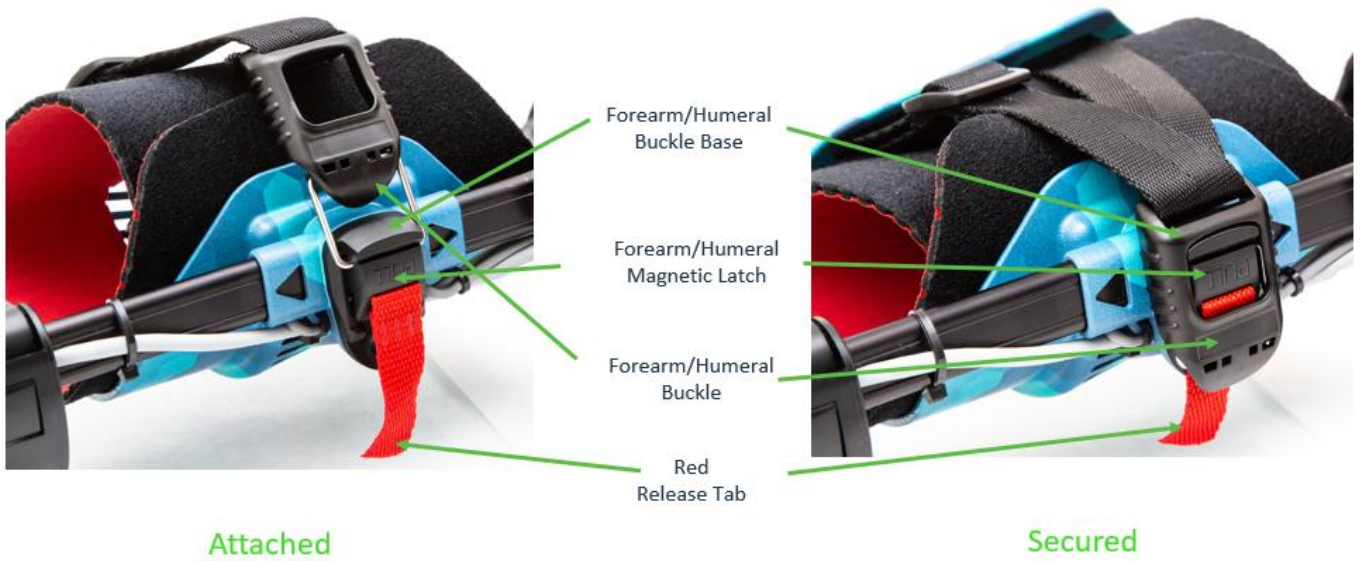
MYOPRO 2+ MOTION W COMPONENTS

Reference the diagram below to understand the various components of your MyoPro 2+ Motion W Orthosis.



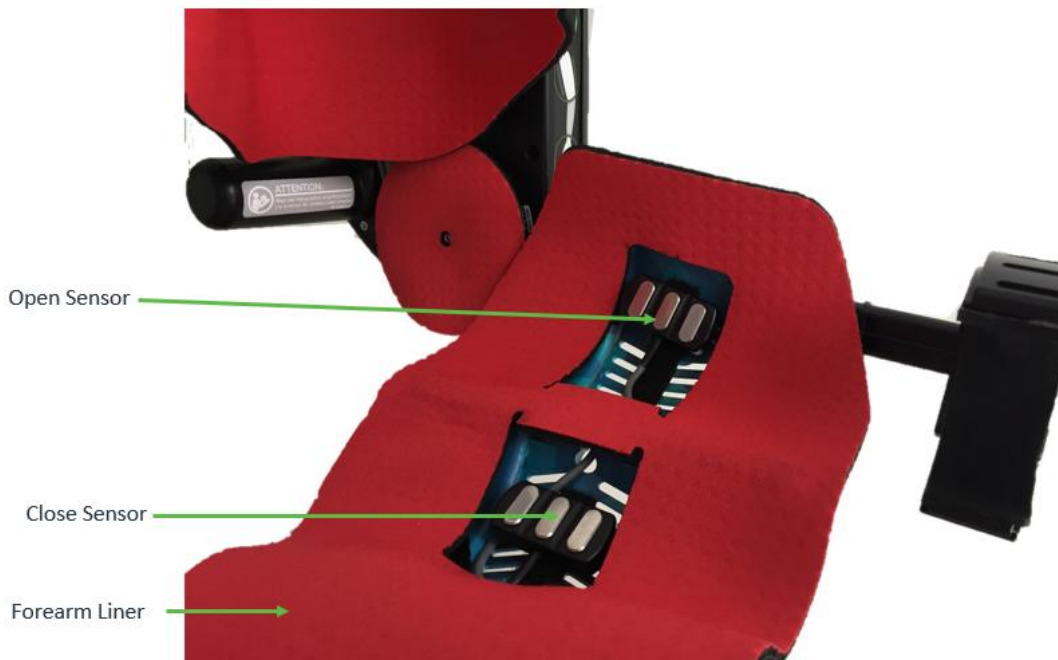
MYOPRO 2+ CLOSURE COMPONENTS

Reference the diagram below to understand the various components related to the MyoPro 2+ *closures* of the *forearm and humeral straps*.



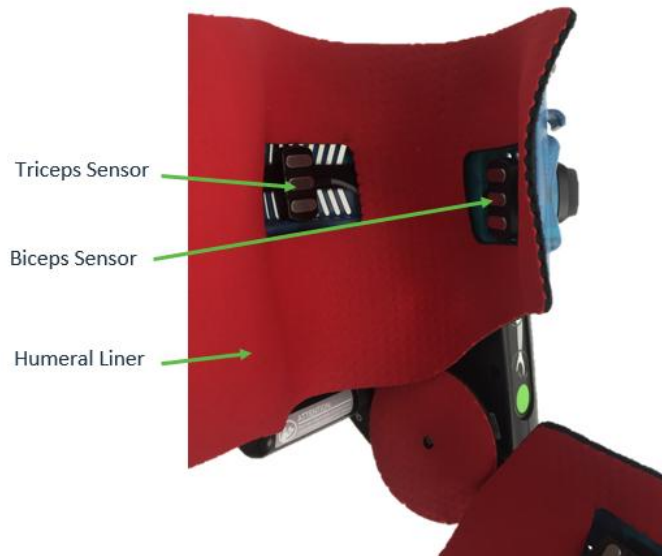
MYOPRO 2+ MOTION W FOREARM SENSORS

Reference the diagram below to understand the various components related to the MyoPro 2+ *forearm sensors*.



MYOPRO 2+ BICEPS & TRICEPS SENSORS

Reference the diagram below to understand the various components related to the MyoPro 2+ *biceps & triceps sensors*.



MYOPRO 2+ CROSS-BODY HARNESS COMPONENTS

Reference the diagram below to understand the various components related to the MyoPro 2+ *cross-body harness*.

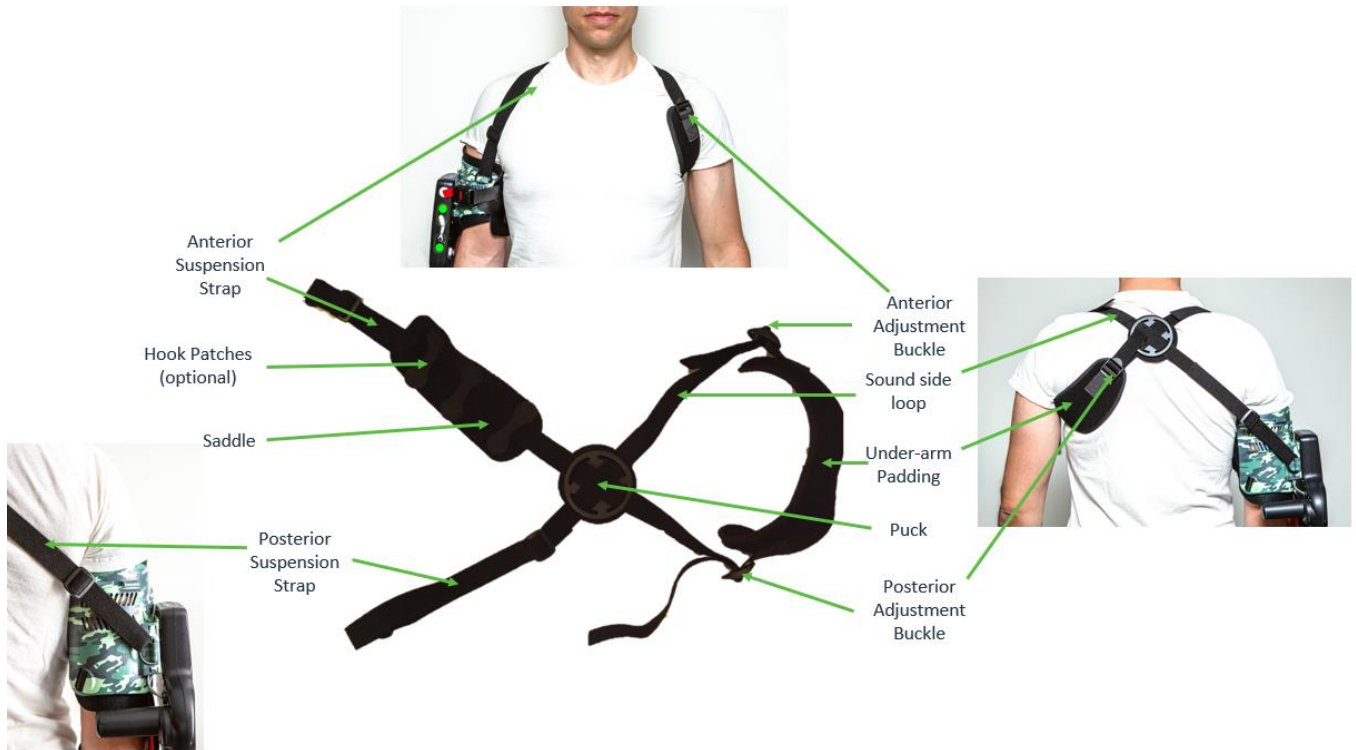
- ⓘ **NOTE:** Your Provider may have provided you with a harness which differs from the *cross-bosy harness* shown below. If you received a *figure 8 harness* with your MyoPro 2+, refer to *figure 8 harness components diagram* on page 8.



MYOPRO 2+ FIGURE 8 HARNESS COMPONENTS

Reference the diagram below to understand the various components related to the MyoPro 2+ *figure 8 harness*.

- ⌚ **NOTE:** Your Provider may have provided you with a harness which differs from the *figure 8 harness* shown below. If you received a *cross-body harness* with your MyoPro 2+, refer to *cross-body harness* components diagram on page 7.












PUTTING MYOPRO 2+ MOTION W ON (“DONNING”)

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The following pages include step-by-step instructions for putting the MyoPro 2+ Motion W on, referred to as “donning the MyoPro 2+”.

WARNINGS REVIEW

Before donning the MyoPro 2+, review the warnings below:

-  **WARNING:** DO NOT expose the MyoPro 2+ to flame or excessive heat; personal injury may occur.
-  **WARNING:** The MyoPro 2+ is a prescription device and should only be used as indicated under clinical supervision of a Provider, or after receiving instruction from a clinical Provider for at-home use.
-  **WARNING:** The MyoPro 2+ is only to be used by the person for whom it is prescribed.
-  **WARNING: Small Parts – Choking Hazard**
This device contains small components that may pose a choking hazard.
Keep out of reach of young children.
-  **WARNING:** Each component of the device is supplied for safety and best performance. Use all provided components for optimal operation.
-  **WARNING:** ONLY use the MyoPro 2+ upper limb orthosis on the prescribed elbow, wrist and hand joints. Each MyoPro 2+ is built specifically for a left arm or a right arm; never wear the MyoPro 2+ on the other arm.
-  **WARNING:** Tight straps may restrict the User’s circulation. Therefore, always check that straps are not too tight throughout the User’s range of motion.
-  **WARNING:** Do not sleep while wearing the MyoPro 2+ as straps may alter the User’s circulation.
-  **CAUTION:** If you detect fumes, flames, melting of components around the battery or battery charger, or the device is hot to touch, **TURN THE DEVICE OFF IMMEDIATELY** and contact your Provider.

STEPS FOR PUTTING ON MYOPRO 2+ ORTHOSIS

To ensure proper fit and function, it is essential the MyoPro 2+ is donned (put on) correctly before each use. If the MyoPro 2+ is donned incorrectly, you may experience discomfort, soreness, and/or pain. You may need assistance to don your MyoPro 2+ and if so, whomever assists you should receive training for proper MyoPro 2+ donning.

Myomo offers donning instructional videos for the MyoPro 2+ on its website (www.myomo.com). If you still have difficulty donning the MyoPro 2+, consult with your Provider and/or therapist for tips and strategies specific to your situation.

Consult the illustrations starting on page 5 to reference the individual components of the MyoPro 2+, which are identified as *italicized* words in the following instructions.

DONNING PREPARATION

Before donning your MyoPro 2+, perform the following steps:

1. Ensure that the MyoPro 2+ is powered off.

⌚ **NOTE:** Pads and straps should be fully air-dried from the previous use.

▲ **CAUTION:** Do not use a hairdryer to dry components of the MyoPro 2+.

2. Loosen the hand strap by removing the hand strap hook from the hand strap anchor by pulling on the *red release tab*..



3. Position the wrist *flexion/extension joint* in a neutral position (no flexion or extension). Unlock the joint by depressing the *flexion/extension button* (push the black side of button). Position the wrist *flexion/extension joint* in a neutral position. Lock the wrist *flexion/extension joint* after positioning.



4. Position the wrist *supination/pronation joint* in a neutral position. Your wrist/forearm should be in the same vertical position as if you were holding a mug. Unlock the joint by pulling the *supination/pronation latch*. Position the wrist in a neutral position. Secure the *supination/pronation latch* after positioning to lock the wrist joint.



5. Completely loosen the *forearm magnetic latch* and the *humeral magnetic latch* by pulling on the *red release tabs*. Open the *humeral* and *forearm shells* with the respective *straps* positioned out of the way.



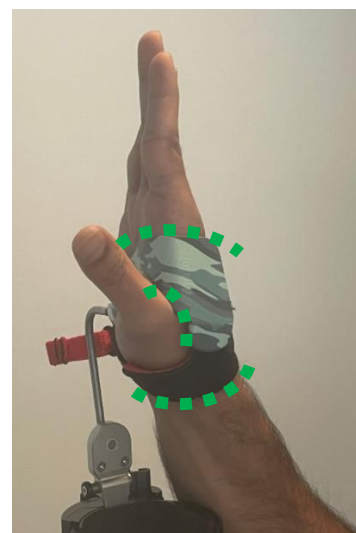
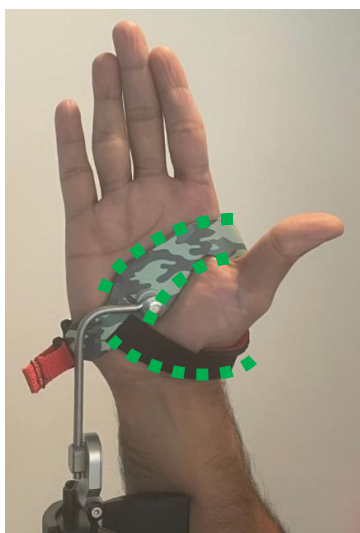
6. If you have tone/spasticity in your hand/fingers, it may be beneficial to employ various techniques to relax your wrist flexor/extensor muscles before proceeding with donning. Consult with your therapist/physician for tone/spasticity management solutions.

DONNING INSTRUCTIONS

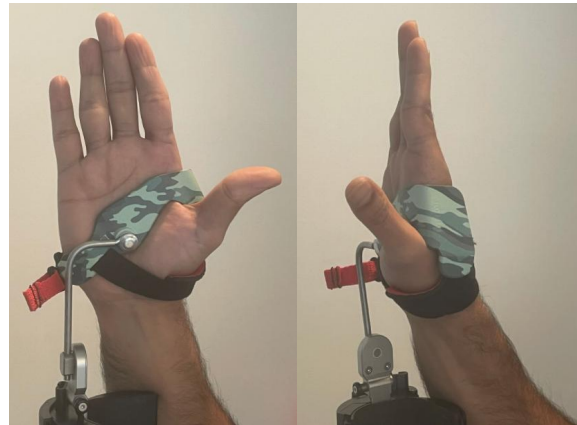
1. When donning, position the MyoPro 2+ on a surface with adequate friction to prevent it moving away from you, such as your lap.
 2. Begin by placing your affected hand onto the *hand shell*. Note the thumb should be positioned between the *dorsal* and *palmar hand straps*.
- ⌚ **NOTE:** The motor and battery case should rest on the outside of the arm. If the motor and battery case is aligned along the interior of the arm, you may be donning upside down or on the wrong arm.



3. Position your hand so the base of the thumb is in full contact with the *hand shell*. This is essential to ensure the entire MyoPro 2+ is correctly positioned on your arms, with all joints in alignment.



4. Secure the *hand strap hook* to the *hand strap anchor*. Tighten the *palmar hand strap* and/or *dorsal hand strap* as necessary.



5. Secure the *forearm shell*. Tuck the *forearm liner* into the *forearm shell*, ensuring the hand extensor (open) EMG sensor is not covered. Close the *forearm shell* and attach the *forearm magnetic latch* to the *forearm buckle base*. Secure the *forearm strap* completely by closing the *forearm buckle*.





6. Secure the *humeral shell*. Tuck the *humeral liner* into the *humeral shell*, ensuring the biceps EMG sensor is not covered. Close the *humeral shell* and secure the *humeral magnetic latch*. Attach the *humeral magnetic latch* to the *humeral buckle base*. Secure the *humeral strap* completely by closing the *humeral buckle*.





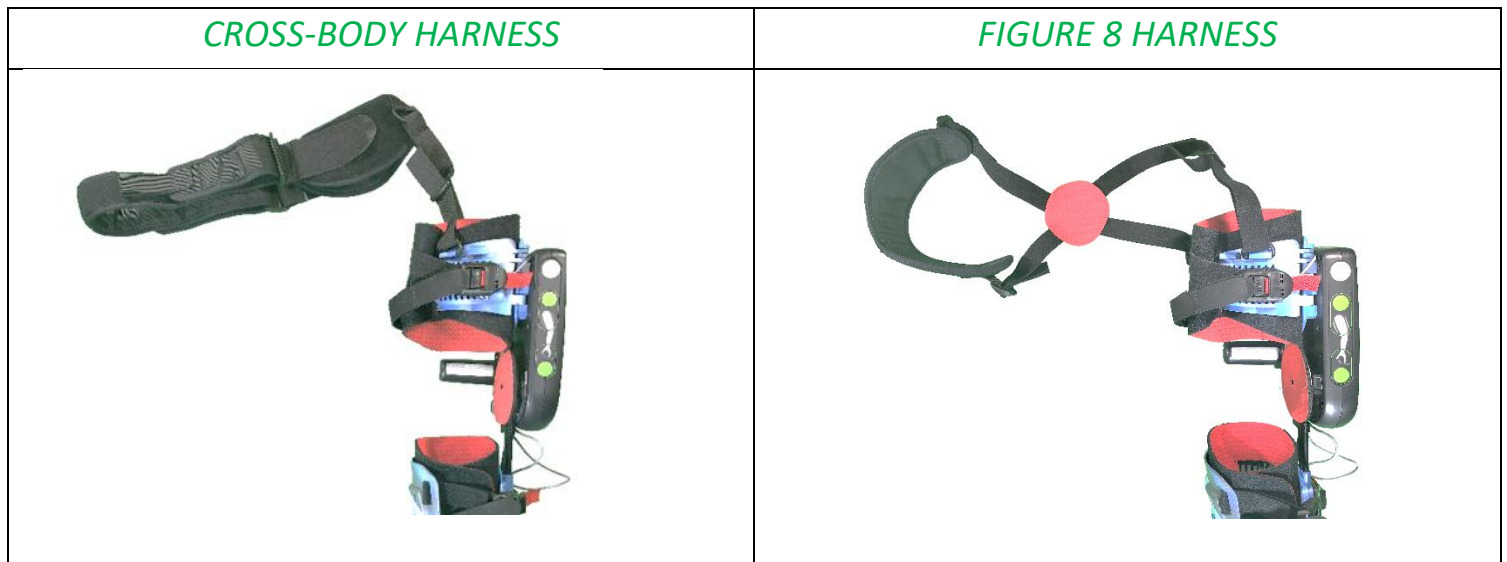
The MyoPro 2+ is now applied. For instructions on donning the harness, please reference the next pages' instructions to determine which harness you are using and the instructions for application.

STEPS FOR PUTTING ON MYOPRO 2+ HARNESS

A harness is provided with the MyoPro 2+. It serves to both protect your shoulder joint and to suspend the MyoPro 2+ in correct position on your arm, so it does not slide off.

⚠ WARNING: A harness should always be worn when the MyoPro 2+ is donned, unless directed otherwise by your physician and/or therapist. Failure to wear a harness may result in shoulder joint discomfort, pain, and/or injury.

The MyoPro 2+ is available with two harness models depicted below. Following the appropriate instructions, depending on which harness model you have.

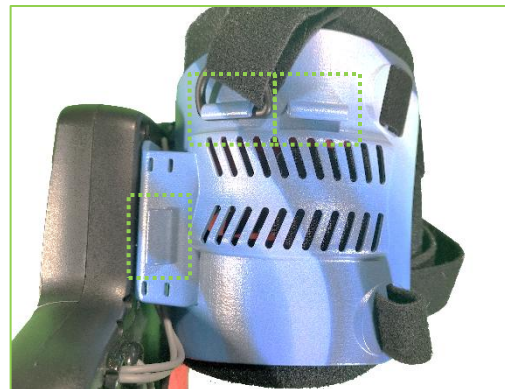


Harness Clips

Having the harness connected to the appropriate retention clip will influence the alignment of the MyoPro 2+. Your clinician will have marked or indicated which combination of retention clips to use for optimal outcomes. Ensure the anterior and posterior retention clips are securely locked in place before donning the harness. Each harness option will use (1) anterior retention clip and (1) posterior retention clip.



Two anterior clip options



Three posterior clip options

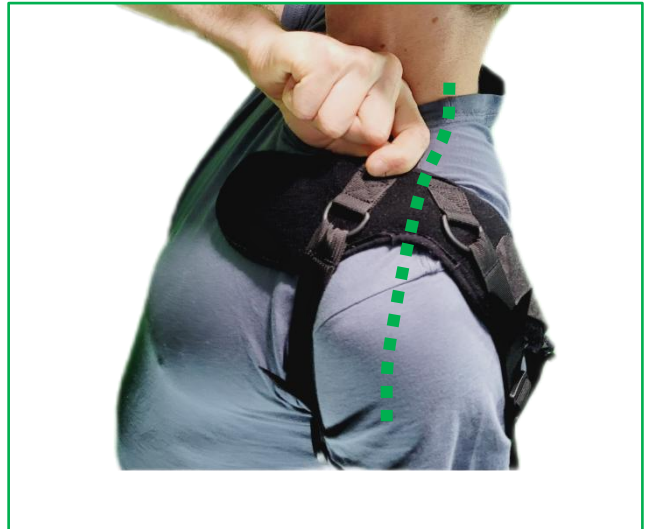
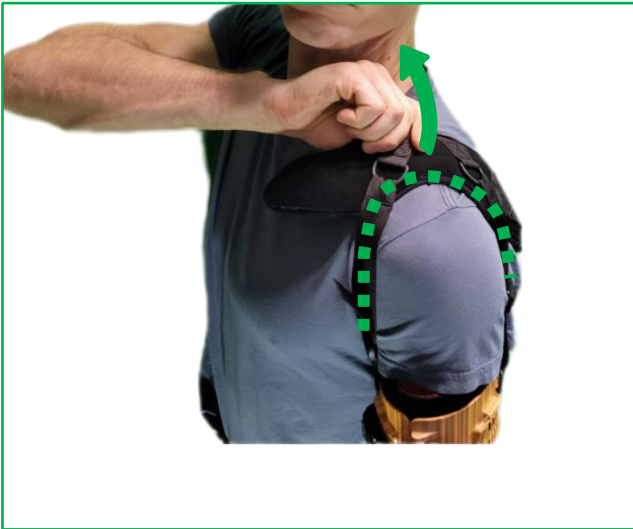
If necessary, the provided O-ring(s) can be placed over the end of the harness D-ring to secure the D-ring in the MyoPro clip. Refer to MyoPro 2+ Harness Instructions or visit myomo.com for more information.

CROSS-BODY HARNESS DONNING

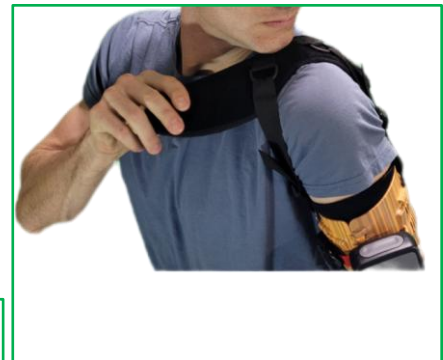
If your MyoPro 2+ was provided with a *figure 8 harness*, skip this section and proceed to the *figure 8 harness* donning instructions in the next section.

For donning the *cross-body harness*, follow the steps below:

1. Place the harness saddle on your shoulder. The suspension straps should straddle your shoulder. The middle of the saddle should be at the midline of the shoulder, touching neither the neck or shoulder joint. You may have to lift your arm out to the side in order to move the saddle into the correct position.



2. Grab the *cross-body strap* behind your back and pull it underneath your armpit on the side opposite the MyoPro 2+. It may help to hold the *saddle* in place with your chin to prevent migration.



3. Secure the *cross-body strap* using the *release tab*. The *saddle* should lay flat against your body. Adjust the angle of the fastened *release tab* to make the *saddle* sit evenly and comfortably. There should be slack in the *finger adjust loop* at this point.



4. Abduct the shoulder with the MyoPro 2+ (lifting it to the side), or use furniture to help lift while pulling the *finger adjust loop* to tension. When your arm returns to your torso, you should feel the tension of the harness saddle on your shoulder, indicating the MyoPro 2+ is suspended from your shoulder girdle, not your shoulder joint. Make minor adjustments to the *finger adjust loop* tension until a good balance is reached between suspension and comfort. The Velcro will secure your tension.



CROSS BODY HARNESS DOFFING:

When doffing the Cross Body Harness, remove the cross body strap by pulling the release tab from the front portion of the shoulder saddle.

Note: Do not remove the harness clips from the MyoPro unless you are removing for laundering purposes.



FIGURE 8 HARNESS DONNING

If your MyoPro 2+ was provided with a *cross-body harness*, skip this section and refer to the *cross-body harness* donning instructions in the preceding section.

For donning the *figure 8 harness*, following the steps below:

Orient the harness and check for twists in the strapping. The *puck* has a surface covered in red fabric, while the other surface is an intersection of the strapping. The red surface of the *puck* indicates the side that will lay against your back once the harness is donned, while the straps face away from you.

Method 1 (flexibility-dependent)

- 1.1 Place the intact-side arm through the *sound side loop* with the fabric of the *puck* facing you.
- 1.2 With your arm against the saddle, lift the harness over and behind your head. Gravity will do most of the work as you let it slide down towards your shoulder. You're done once it's nestled in your axilla (armpit).



over and



- 1.3 Adjust the *sound side loop* so it rests between the chest and shoulder, protecting the collar bone. It shouldn't make contact with the neck. The *anterior suspension strap* coming off the front of the MyoPro may require small adjustments to rest similarly.



Method 2 (back-pack method)

- 2.1 Starting with the harness behind your back, locate the puck using your sound side. Orient the puck so that the fabric side is towards your back, while the straps face away from the you. This will keep the harness oriented in the correct position as you move your hand into the *sound side loop*. Take note that both of the harness straps from the MyoPro begin around the back of the device. The *anterior suspension strap* will be moved into position at the end.



- 2.2 With the *sound side loop* around your intact-side wrist, begin to wriggle the loop up your arm, towards your shoulder. The final motion will require a shoulder shrug to help the strapping cross your shoulders to the front of your body.



- 2.3 Adjust the *sound side loop* so it rests between the chest and shoulder, protecting the collar bone. It shouldn't make contact with the neck. The *anterior suspension strap* coming off the front of the MyoPro may require small adjustments to rest similarly.

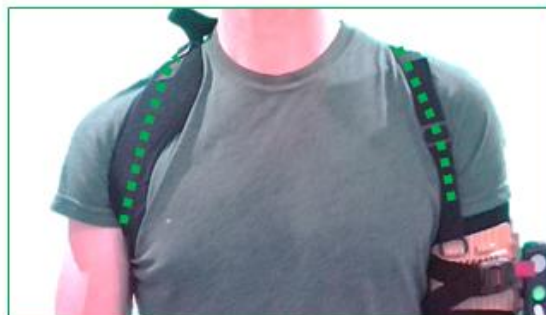
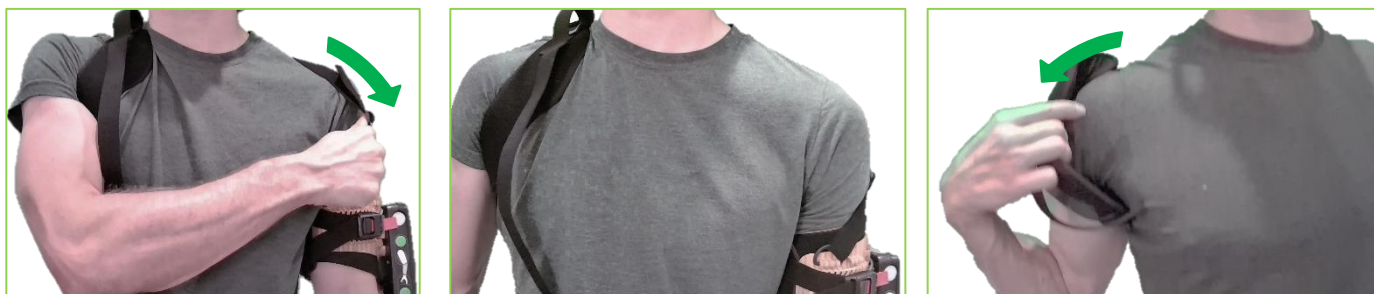


FIGURE 8 HARNESS DOFFING

Slide the *anterior suspension strap* off of the MyoPro-side shoulder. There should then be enough slack to remove the *sound side loop* off the intact side.



Resting your intact arm at your side will allow the *sound side loop* to fall down your arm. It may take minor maneuvering, but once the loop is past your elbow, simply lifting the sound side arm will finish removing the harness.



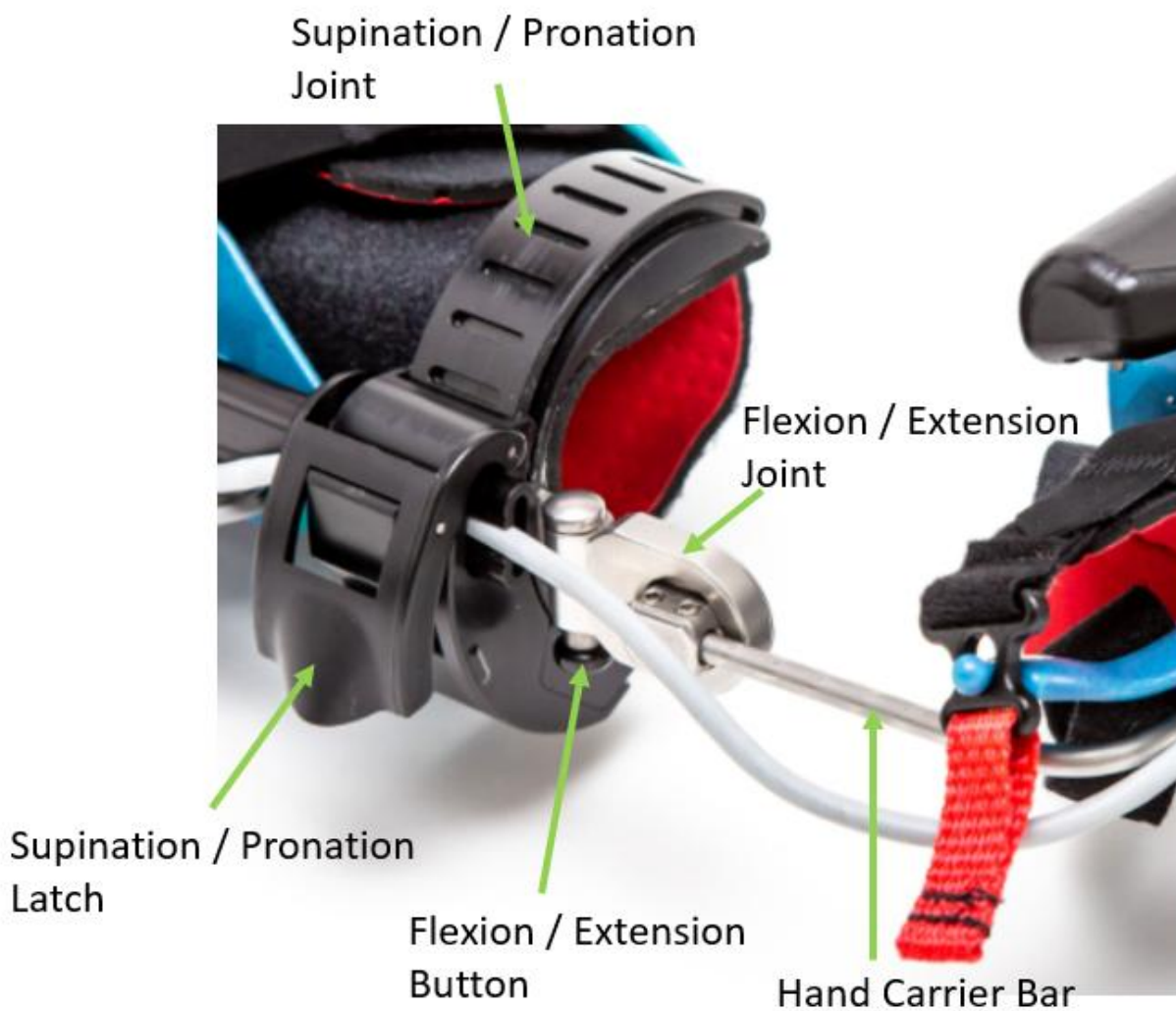
FIGURE 8 ADJUSTMENT

The harness can be made looser by pulling forward on the *anterior adjustment buckle*

The harness can be tightened by pulling back on the *sound side loop* strap that exits the *anterior adjustment buckle*

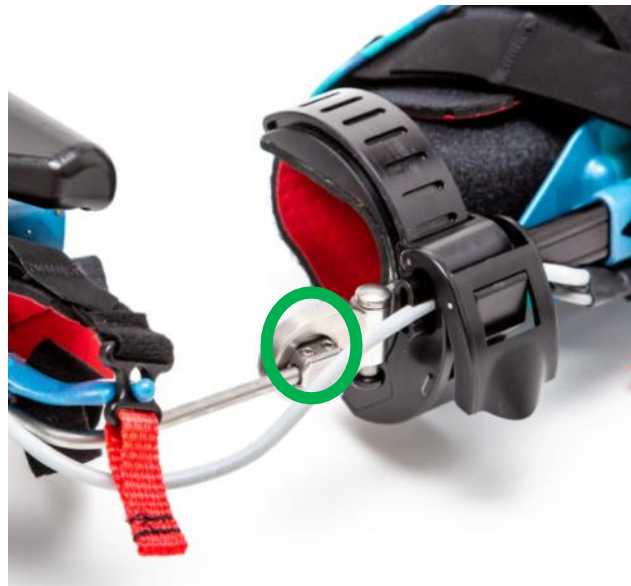


ADJUSTING WRIST MODULE



The wrist module position along the user's forearm (proximal-distal) can be adjusted two different ways.

1. Method 1: Move the Hand Carrier Bar in the Flexion/Extension Joint. This can be done by loosening and retightening these set screws with a 3 mm hex key. It is recommended to tighten the set screws to 5 inch/lbs, or approximately a ¼ turn (90 degrees) after making contact.
2. Method 2: Move the wrist module along the forearm bar. This can be done by loosening and retightening this set screw with a 2 mm hex key. While moving the wrist module, **do not** fully remove it off of the Forearm Bar. It is recommended to tighten the set screw to 5 inch/lbs, or approximately a ¼ turn (90 degrees) after making contact.



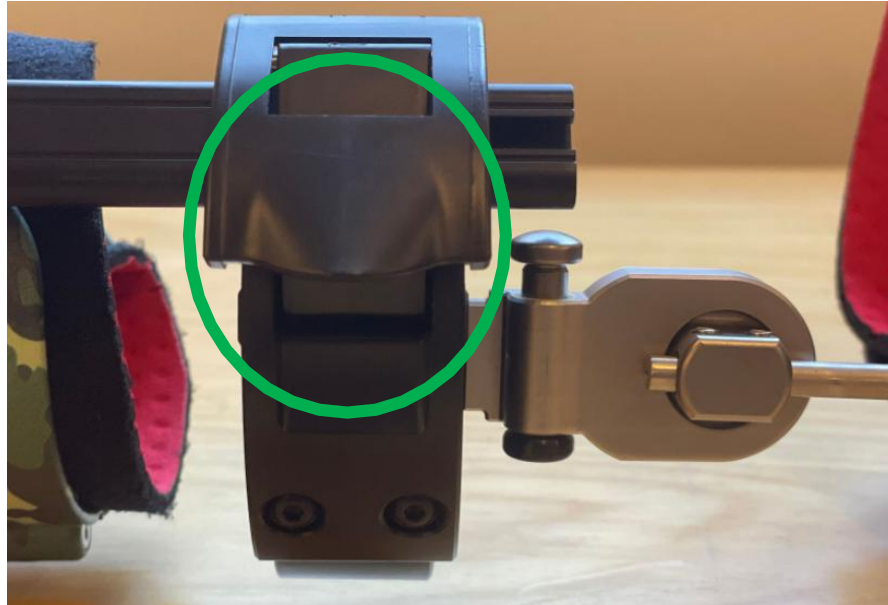
Method 1



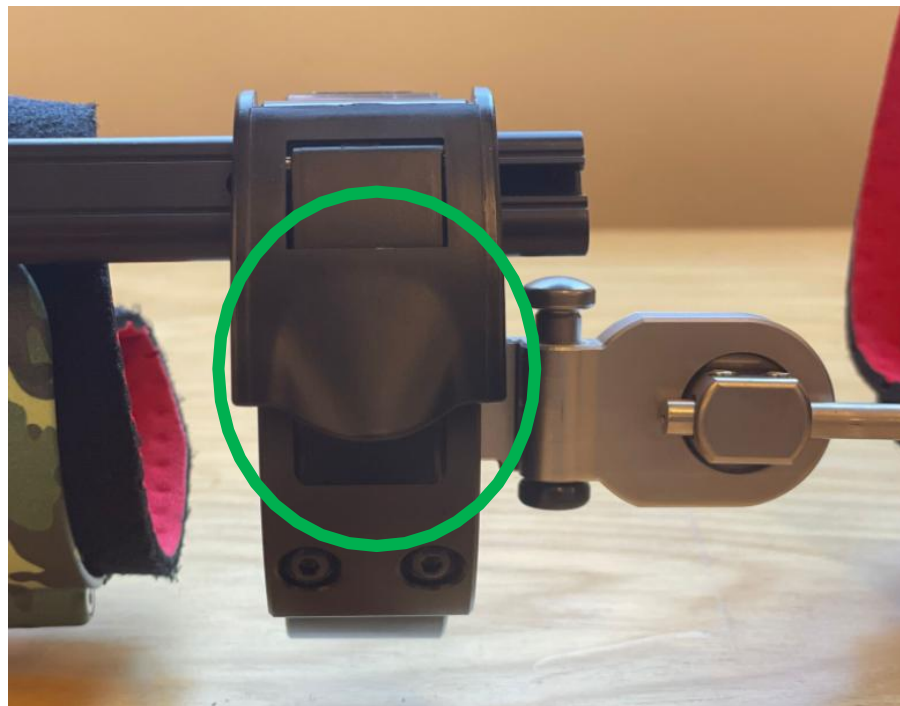
Method 2

ADJUST

Open the Supination/Pronation (SP) Latch to adjust the pronation and supination of the SP Joint. Close the SP Latch once the joint is in the desired location.



Open Latch

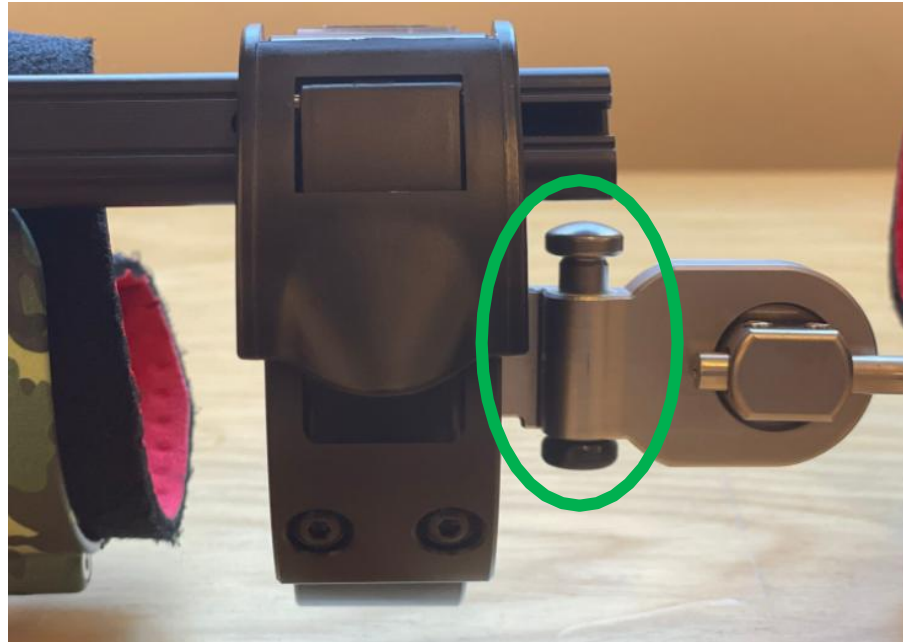


Closed Latch

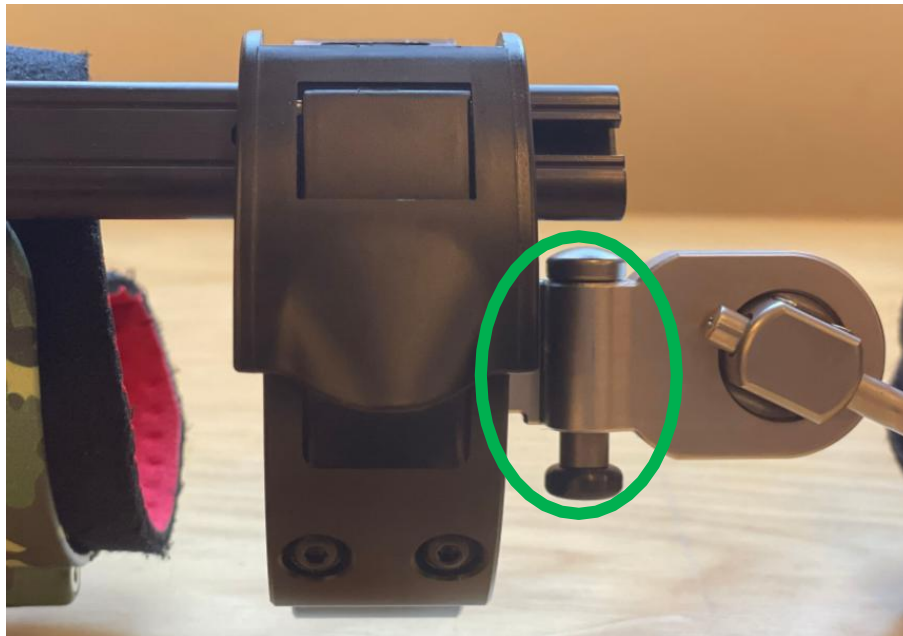
Caution: The SP latch should be closed when the device is not in use to avoid accidental damage to the components.

ADJUST

Push the Flexion/Extension Button to the unlocked position (shown below) to unlock the Hand Carrier Bar, then adjust the Hand Carrier Bar. Push the Flexion/Extension Button to the locked position to lock the Hand Carrier Bar in the desired position.



Unlocked




Locked

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TAKING OFF MYOPRO 2+ ("DOFFING")

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TAKING THE MYOPRO 2+ OFF (“DOFFING”)

 **WARNING:** If at any time during the use of this device, you notice any of the following, discontinue use and seek guidance from your Provider.

- Movement does not match the User’s desired motion.
- Persistent redness, swelling, or skin breakdown (bleeding, chafing, etc.)
- Rash on the arm, hand, or fingers.
- Pain associated with wearing the MyoPro 2+ orthosis.
- Unusual noises from the orthosis (popping, clicking, etc.)
- Smells from the orthosis (smoking, burning plastic, etc.)
- Odor from the orthosis (sour smells or other indications of bio-contamination.)

STEPS FOR TAKING YOUR MYOPRO 2+ OFF

1. Turn the MyoPro 2+ OFF.
2. Place the MyoPro 2+ in your lap, or on a flat surface that is not slippery.
3. Undo the harness Quick Release tab.
4. Undo the Upper Cuff Closure.
5. Undo the Forearm Closure.
6. Gently slide your hand back through the loosened hand strap and Hand Support Shell
7. Rest the MyoPro 2+ in a clean, dry location to ensure it will fully air-dry before next use.
8. Place the MyoPro 2+ into the carrying bag for travel or storage.

 **NOTE:** The MyoPro 2+ should remain OFF any time the MyoPro 2+ is not being worn.

OPERATING MYOPRO 2+

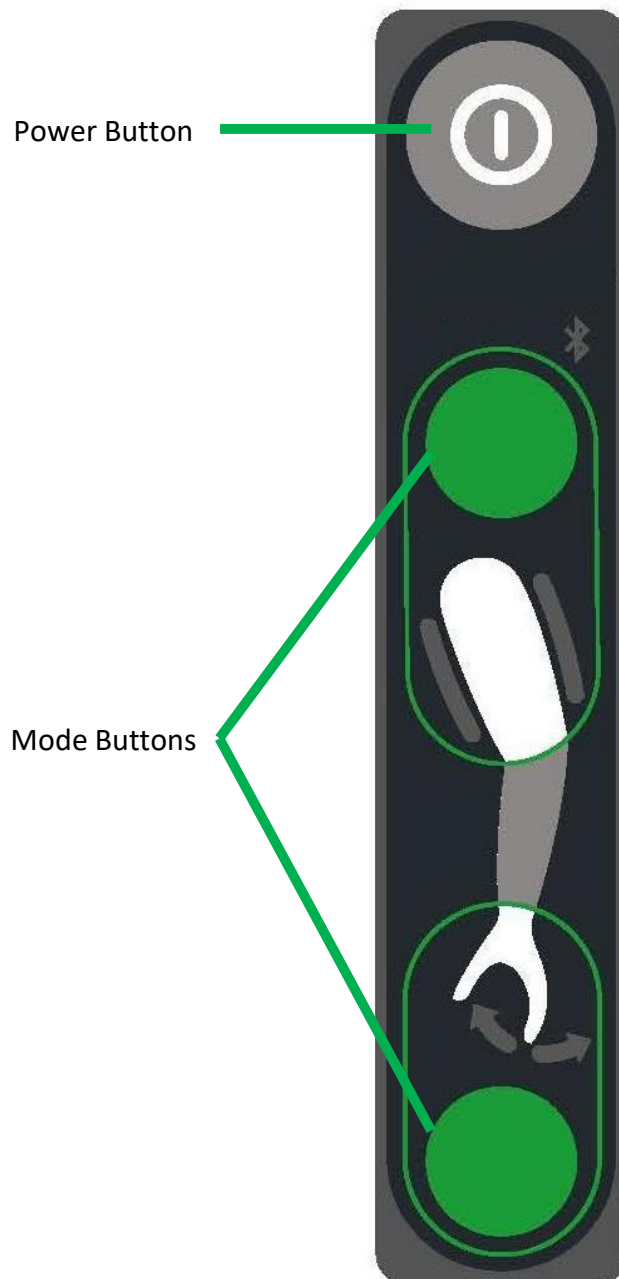
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CONTROL PANEL


See the *User Manual – Sections for All MyoPro 2+ Devices* document for a comprehensive Control Panel Buttons & Lights Diagram.

ⓘ **NOTE: For your MyoPro 2+ Motion E**

- The Grasp mode button is deactivated
- The Close Light and Open Light may turn on if a certain error occurs. See MyoPro 2+ Error section of the User Manual



MODES OF USE

 **WARNING:** Use caution when using the device in shoulder positions where it is possible for the User to hit him or herself.

The MyoPro 2+ may be used in a variety of **modes**. The different modes allow you to operate the MyoPro 2+ by tensing or relaxing different muscles. You may find that you want to use different muscles – and therefore different modes – when performing specific tasks with your MyoPro 2+. Modes may be changed using the buttons on the control panel.

When the device is fit to you, your Provider will optimize the sensitivity settings within each mode depending on the strength of your EMG signal at that time. If over time you feel that the MyoPro 2+ is not assisting your arm or hand adequately, please contact your Provider; the sensitivity settings may need to be readjusted.

START MODE

When you first power on the MyoPro 2+, the elbow will be in Standby Mode. This setting may be changed by your Provider.



ELBOW MODES



The elbow has four distinct modes of use when the MyoPro 2+ is powered on.

1. Standby mode
2. Biceps mode
3. Triceps mode
4. Dual mode

These are explained in the following pages.

ELBOW MODES




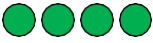
<p>Standby mode</p>	<p>In this mode, neither the Biceps or Triceps Light will be illuminated. The elbow motor will not respond to your EMG signal from either muscle group.</p> <p>Though the MyoPro 2+ is powered on, no assistance is being given to your elbow, and the arm will neither flex nor extend. The sensors will be reading your EMG signal from both biceps and triceps, but the motor response is paused.</p> <p>Actions:</p> <ul style="list-style-type: none">• This can be useful as a resting mode if straps or sensors need to be adjusted, or if you want to take a short break without turning the device off.	 <p>The diagram shows the MyoPro 2+ device with a grey power button at the top, the 'myopro' logo, and two green circular lights. Below the lights is a white silhouette of an arm. The top light is illuminated, and the arm is shown in a neutral, straight position.</p>
<p>Biceps mode</p>	<p>In this mode, the Biceps Light will be illuminated. The elbow motor will respond to your biceps EMG signal.</p> <p>Actions:</p> <ul style="list-style-type: none">• When you relax your biceps, the device will extend.• When you contract your biceps, the device will flex.	 <p>The diagram shows the MyoPro 2+ device with a grey power button at the top, the 'myopro' logo, and two green circular lights. Below the lights is a white silhouette of an arm. The top light is illuminated, and the arm is shown in a flexed position.</p>

<p>Triceps mode</p>	<p>In this mode, the Triceps Light will be illuminated. The elbow motor will respond to your triceps EMG signal.</p> <p>Actions:</p> <ul style="list-style-type: none"> • When you relax your triceps, the elbow will flex. • When you contract your triceps, the elbow will extend. 	
<p>Dual mode</p>	<p>In this mode, both the Biceps and Triceps Light will be illuminated. The elbow motor will respond to your biceps <i>and</i> triceps EMG signal.</p> <p>The elbow will only respond to muscle contraction (not relaxation, as in other modes) to assist you with active flexion and active extension of your elbow.</p> <p>You must engage both muscle groups in order for your arm to move in both directions. The MyoPro 2+ will respond to whichever muscle signal is stronger at a given moment in time. In order for Dual mode to be most effective, you should be able to isolate the desired muscle (biceps or triceps) and have a limited number of co-contractions prior to using Dual mode. When used well, this mode should allow you greater ability to hold an arm position at a mid-point between fully flexed and fully extended.</p> <p>Actions:</p> <ul style="list-style-type: none"> • When you contract your biceps, the elbow will flex, as long as your biceps signal is greater than your triceps signal. • When you contract your triceps, the elbow will extend, as long as your triceps signal is greater than your biceps signal. 	

CHANGE ELBOW MODE WITH THE CONTROL PANEL

The elbow mode button cycles through the 4 elbow modes, moving to the next mode each time you press the mode button.

When the MyoPro 2+ is turned ON, the elbow will be in Standby mode unless it has been changed by your Provider.

	Press the elbow mode button one time to put the elbow into Biceps mode
	Press the elbow mode button again (a second time) to put the elbow into Triceps mode
	Press the elbow mode button again (a third time) to put the elbow in Dual mode
	Press the elbow mode button again (a fourth time) to return the elbow Standby mode

Repeat the above cycle to scroll through and change to another mode at any point during your MyoPro 2+ use.