MyConfig View

USER GUIDE

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MYCONFIG VIEW

MyConfig View is a software application pre-installed on the Myomo laptop to visualize what your muscles are doing and how the MyoPro is interpreting them. The MyoPro, when used with MyConfig View, is one of the most sensitive EMG-detection devices available- capable of detecting faint muscle activity. It is important to understand the tools and concepts related to MyConfig software. As you become more consistent in your ability to don and operate the MyoPro, you may need to use MyConfig View less frequently. MyConfig will always be a good resource for troubleshooting issues with arm and/or hand movement.

MyConfig View is intended for MyoPro users

MyConfig View has the following functions:

o   At-home visualization of EMG signals (bio-feedback) while working with your MyoPro
o   Trouble-shoot behavior issues in the MyoPro
o   Changing *Start Mode(s)*

Note: MyConfig View may not be installed if the laptop is for clinical use only.

CONNECTING MYOPRO TO MYCONFIG VIEW

GETTING STARTED

Step 1: Turn on the MyoPro
Press the power button on the MyoPro control panel.

Step 2: Locate MyConfig View
MyConfig View is located on the Myomo laptop desktop.

Step 3: Launch MyConfig View
Double click the MyConfig View icon to launch MyConfig View.

The first screen you see should look like this:

MyConfig is searching for the MyoPro via a wireless Bluetooth connection.

Note: if the search bar doesn't appear, it is likely that the Bluetooth radio has been turned off in the laptop settings. You can enable Bluetooth in the Windows Settings.
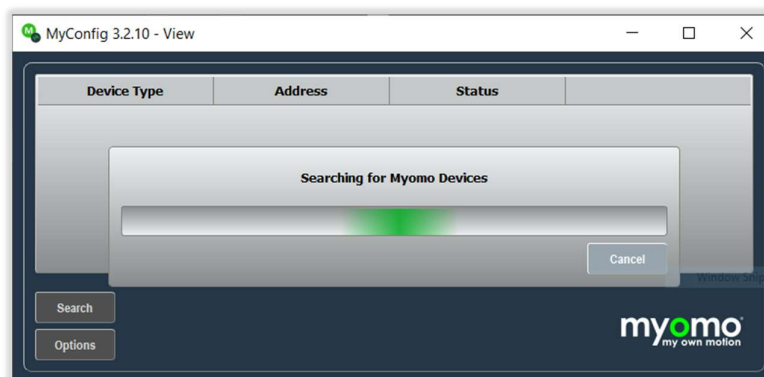
MYOPRO SEARCH

The MyoPro is always Bluetooth connection ready. If the MyoPro is powered on when you launch MyConfig, the search will begin automatically. By default, the MyoPro will automatically connect once detected by MyConfig.

If MyConfig fails to detect the MyoPro and does not connect, click the *Search* button to initiate a new search. This may occur if MyConfig is started before the MyoPro is powered on or if the signal is interrupted during transmission. Moving the MyoPro closer to the Myomo laptop resolves this issue.
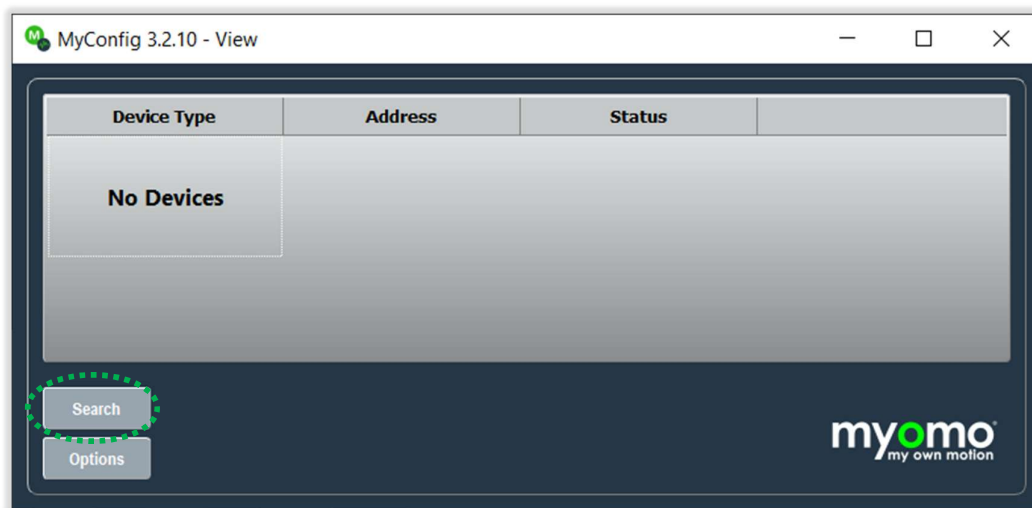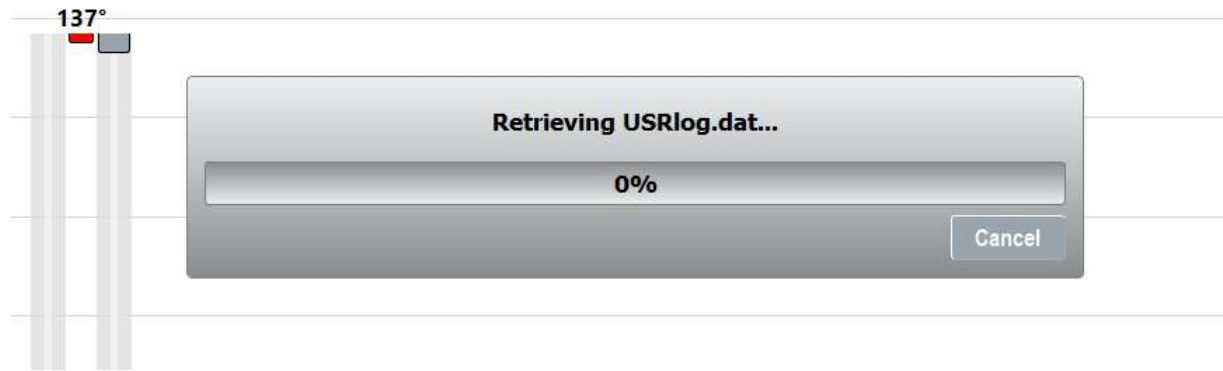

MYOPRO CONNECT

This feature is only available if the MyoPro was previously connected and the EMG screens were closed, or if the "auto-connect" option is disabled in the Options menu.

Click *Connect* for the desired MyoPro.
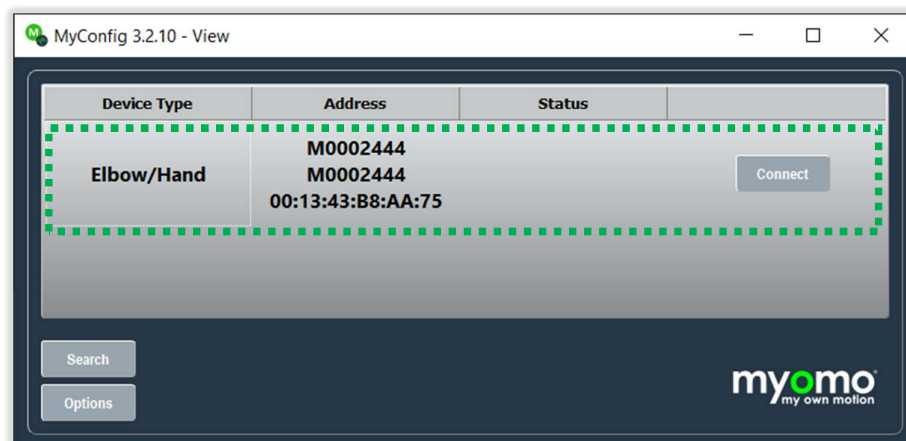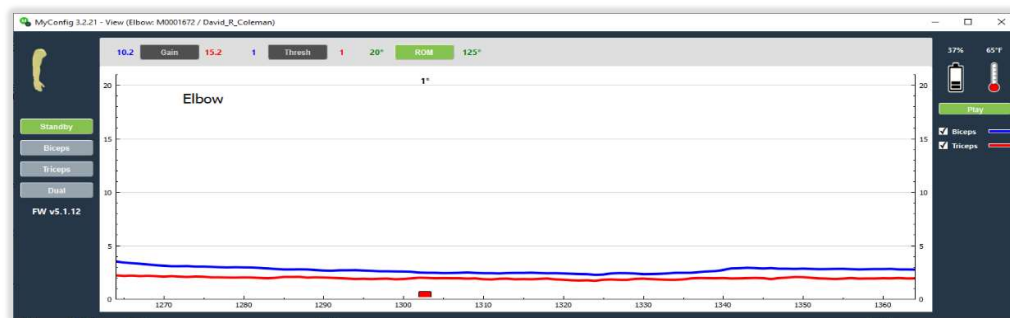
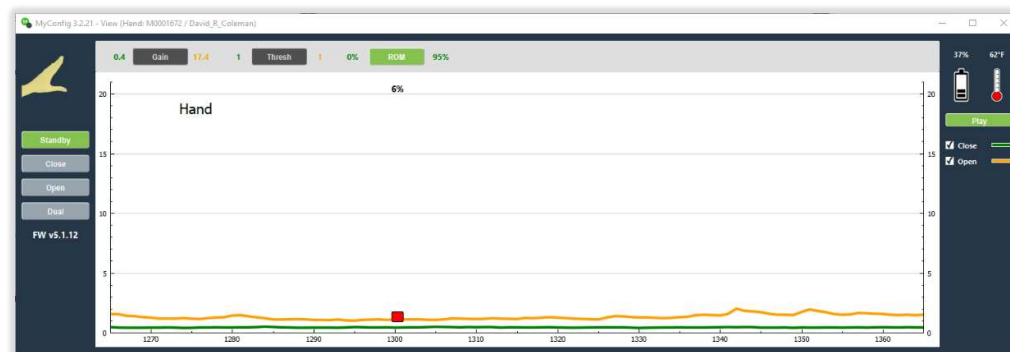Caution: Do not interrupt the data download during this connection process.

MYOPRO CONNECTION

After a brief search, a window will appear for each MyoPro joint:

Elbow

Hand

The MyoPro is now connected to MyConfig View

VISUALIZATION

RESIZE WINDOWS

Note: The hand window will appear only if you are using a Motion G.

Quickly minimize, maximize, or close windows by using the icons in the upper right window corner, respectively.

Alternatively, while hovering the mouse cursor over the window edge, left-click and hold with one finger, while using a second finger on the trackpad to resize the window.
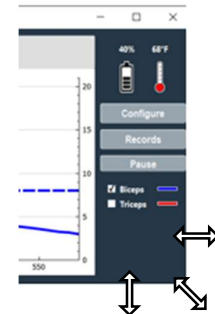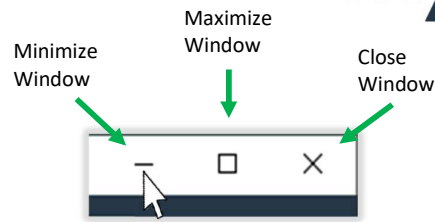
EMG GRAPH

The EMG signals are the lines of the graph to watch because they show what the muscles are currently doing, how that may differ from what they're trying to do, and if MyoPro is being suitably responsive. EMG signals are color coordinated to match the color of the MyoPro sensors. When the box is checked beside the EMG signal the EMG will be visible on the screen in the coordinating color. (e.g. if biceps is checked, a blue EMG line will be visible).
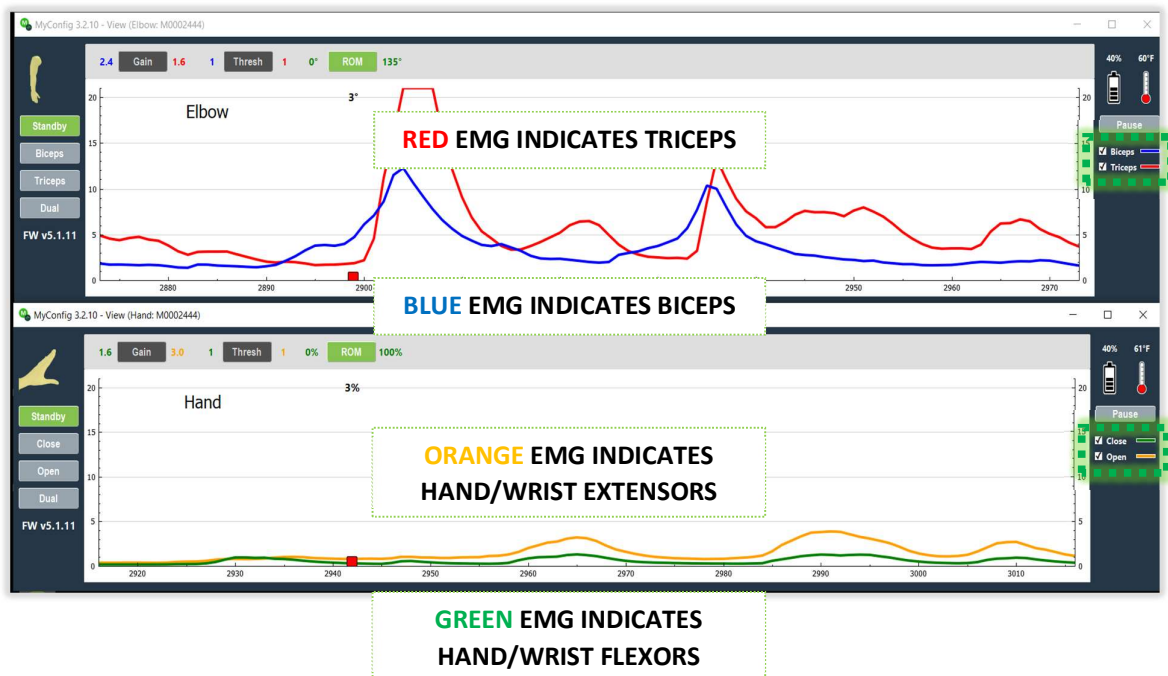
The MyoPro Motion G elbow and hand both feature four operating modes, with dual mode having 4 behavior options. With these modes, the MyoPro may be configured to your unique abilities, allowing you to select an appropriate setup for your current level of ability and modify settings as you become more proficient with your MyoPro.

DEVICE MODES

ELBOW MODES

Elbow (MyoPro Motion-W and Motion-G)

1. ***Standby*** mode – motors are inactive

In *Standby* mode the motor is on, but it will not assist motion. It will actually offer more resistance to motion than if the MyoPro were powered off. The sensors are still reading the EMG signals and will be visible on the MyConfig graph. *Standby* mode allows you to see your EMG response before moving to a mode that elicits motion.

2. ***Biceps*** mode – single-site control, biceps only
   - When biceps relax the elbow motor extends (straightens).
   - When biceps contract the elbow motor flexes (bends).

3. ***Triceps*** mode – single-site control, triceps only

   - When triceps relax the elbow motor flexes (bends).
   - When triceps contract the elbow motor extends (straightens).

4. ***Dual*** mode – dual-site control (biceps/triceps)

In *Dual* mode, the MyoPro responds to both elbow flexor and extensor EMG signals. It is the most functional and intuitive mode, and there are several control strategies that determine how the MyoPro will behave: Classic with Hold, and 3 advanced modes. The ability to produce visibly different EMG patterns during flexion and extension is needed for dual mode use, and can be a tool to help the user isolate muscles by using the EMG signal as a visual feedback tool. Advanced dual mode can be explored as you are able to isolation your muscles consistently and the need for functional motion increases.

Advanced dual modes utilize a different control strategy than the other modes, but all dual modes utilize the *elbow hold* feature.

   - Relaxing both biceps and triceps muscles at the same time so your EMG signals are quiet activates the *elbow hold* feature.
   - Elbow flexor activity causes elbow motor flexion (bending).
   - Elbow extensor activity causes elbow motor extension (straigtening).
   - *Dual* mode allows greater ability to stop or pause motion mid- range.

   Advanced Dual modes – Use a different control scheme for increased control
   - ***Constant Speed–*** one set speed into flexion and extension
   - ***Proportional-*** motor speed is directly related to measured effort
   - ***Ramped-*** rate of motor speed increases with effort (exponential)

HAND MODES

Hand (Motion-G only)

1. **Standby** mode – motors are inactive

2. **Close** mode – single-site control; hand/wrist flexors only
   - When flexors relax the hand motor opens.
   - When flexors contract the hand motor closes.

3. **Open** mode – single-site control; hand/wrist extensors only
   - When extensors relax the hand motor closes.
   - When extensors contract the hand motor opens.

4. **Dual** mode – dual-site control (hand/wrist flexors and extensors)

In *Dual* mode, the MyoPro responds to both wrist/hand flexor and extensor EMG signals. It is the most functional and intuitive mode, and there are several control strategies that determine how the MyoPro will behave: Classic with Hold, and 3 advanced modes. The ability to produce visibly different EMG patterns during open and close is needed for dual mode use and can be a tool to help you isolate muscles by using the EMG signal as a visual feedback tool. Advanced dual mode can be explored as the user's muscle isolation consistency increases and the need for functional motion increases.

Advanced dual modes utilize a different control strategy than the other modes, but all dual modes utilize the *grasp hold* feature. It is not uncommon for you to be able to utilize elbow dual mode before you are ready for hand dual mode

- Relaxing both wrist/hand flexors and extensor muscles at the same time so your EMG signals are quiet activates the activates the *grasp hold* feature.
- Flexor activity causes hand motor closing
- Extensor activity causes hand motor opening.
- Dual mode allows greater ability to stop or pause motion mid-range

**Advanced Dual** modes – Use a different control strategy for increased control
- **Constant Speed–** one set speed into hand close and open
- **Proportional-** motor speed is directly related to measured effort
- **Ramp-** rate of motor speed increases with effort (exponential)

CHANGING MODES

Modes for both the elbow and the hand can be changed by clicking the gray button with the name of the desired mode in the corresponding hand/elbow window.

The selected button appears green, displaying the current mode. EMG visualizations will change color to indicate the EMG mode that is active.

Clicking the button of the desired mode will instantly change which muscle signals the MyoPro is responding to.
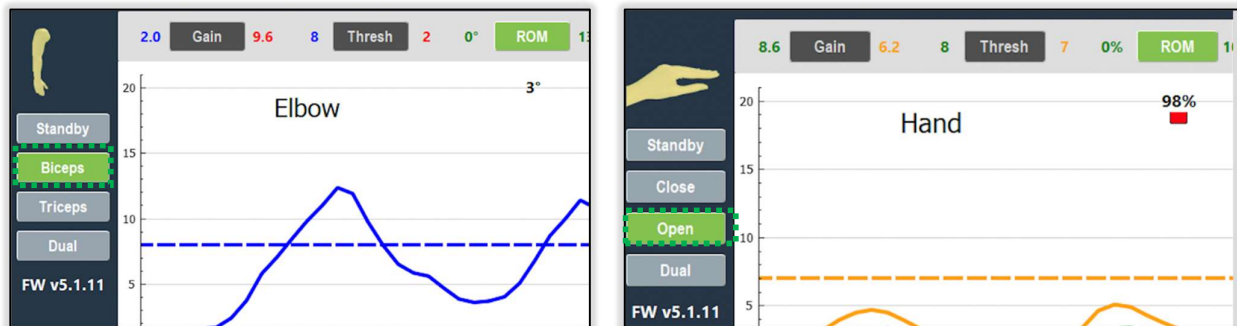

Note: Elbow and hand modes may also be changed on the MyoPro control panel.

MYCONFIG SETTINGS

MyConfig View Settings only apply to the single-modes, e.g. Biceps, Triceps, Close, and Open, and Classic with Hold Dual Mode at the elbow and hand. These settings are set by your clinician or therapist. MyoPro settings are not adjustable in the MyConfig View.

GAIN

Gain refers to amplification of EMG signal that takes place through the sensor hardware. In the case of the MyoPro, the EMG gain is amplified via software, as well, to create a large degree of adjustment. The higher the gain, the more amplified the EMG signal will be. The gain helps weaker muscles power the motor of the MyoPro. While at rest try to relax so that your EMG signal is at the bottom ¼ of the screen.When using your muscles at a maximal effort the gain should be set such that the signal doesn'textend past the top of the screen to a significant degree. If you have significant abnormal tone/spasticity, you may have an elevated resting signal that limits the screen range. When the EMG has left the screen, a text box will indicate the current value. [image below, top right]
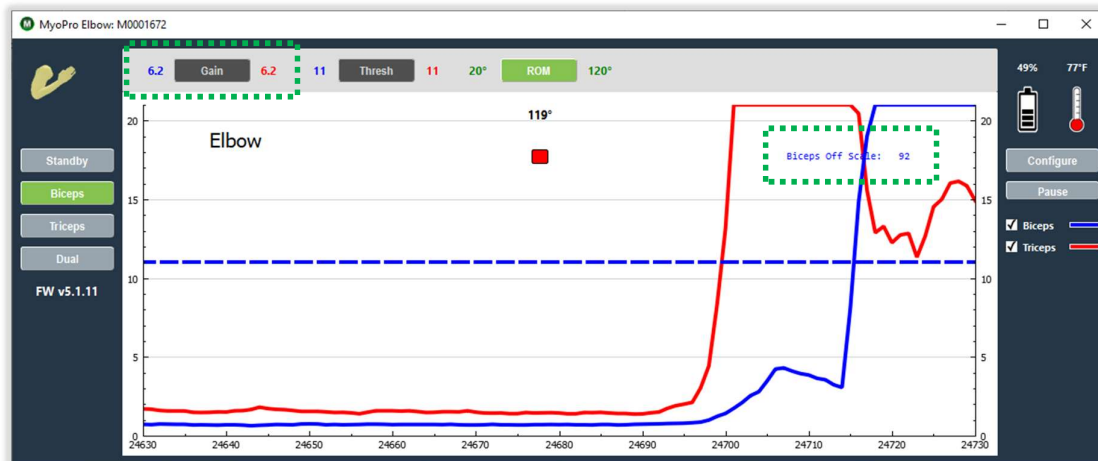
The number beside the gain header [image above, top left] represents the amount of amplification used for that mode. The numbers are color coded to coincide with the mode, e.g. the blue number next to the gain button represents the gain for the biceps mode that correlates to the elbow of the MyoPro bending.

THRESHOLD

When using the MyoPro in single mode, (e.g. biceps) the threshold should be set such that when the muscle is activated, you can get the EMG signal over the threshold to create smooth movement of the MyoPro at the desired joint/direction. When you relax that muscle, the EMG signal should drop below the threshold to allow the MyoPro to move back to the starting position of the desired joint/direction. If you have increased abnormal muscle tone/spasticity, the threshold may have to be set higher to allow your EMG signal to drop below the threshold as you relax to initiate movement of the MyoPro.

There should be an ideal threshold setting that is reasonably easy to move above and below for the user. Generally, once the *threshold* is set between 8-12, then all future adjustments can be done at the *gain slider* in an effort to minimize changing multiple settings.

Note: When MyConfig is set correctly, your EMG signals should be visible within the viewable window and not extend beyond the top of the screen except at maximal effort.

The number beside the threshold header [image below, top left] represents the threshold setting used for that mode. The numbers are color coded to coincide with the mode, e.g. the blue number next to the threshold header represents the threshold for the biceps mode [image below, dashed blue line across center].

The device in the following photo is in *Biceps* mode. Because the Triceps EMG is unchecked [image below, far right] only the biceps EMG is being graphed. Additionally, only the biceps *threshold* is visible to indicate that the device is only responding to the biceps EMG in this mode.
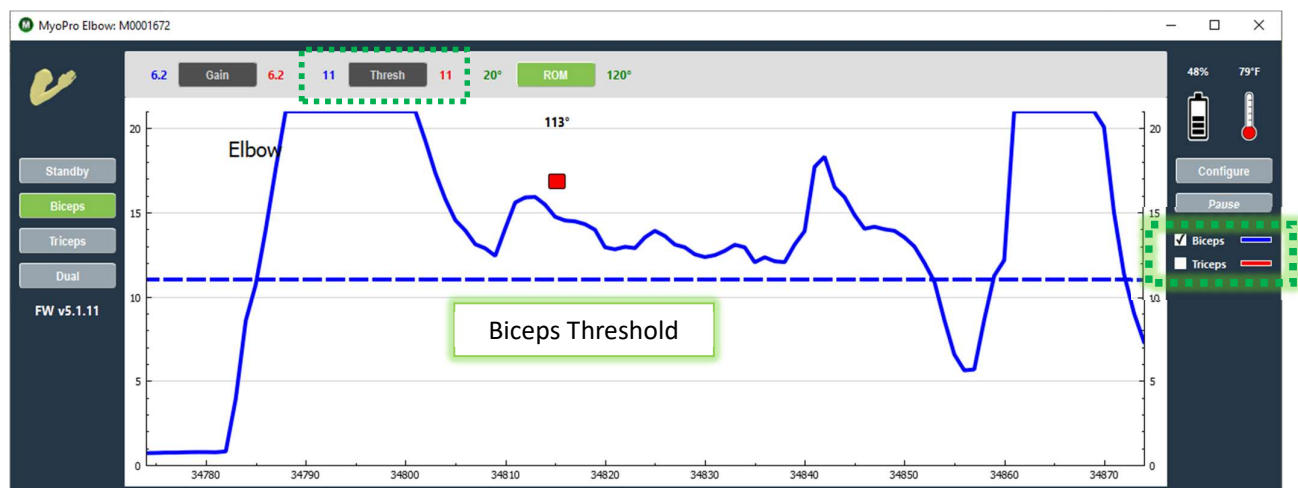
The visible EMG lines can be customized for each mode. Only the relevant EMGs will show by default, e.g. both EMGs being visible in dual mode, or the biceps EMG in *Biceps* mode in the preceding picture; the triceps EMG can be added to the graph by checking the "Triceps" check box as indicated on the right side of the screen. These boxes will hide the corresponding EMG signal when unchecked.

RANGE OF MOTION (ROM)

The *Range of Motion* (ROM) for each joint motor is available in the corresponding window. For each joint, the left-side number is the extension (elbow straight) end-range, while the right-side number is the flexion (elbow bent) end-range.

Elbow *ROM* is shown in degrees (0°=full extension, 135°=full flexion).
Hand *ROM* is shown in % (0%=open, 100%=close).

The current ROM end-ranges are displayed numerically in green above the ROM sliders. The current joint position is indicated by the red square between the ROM sliders, which will move in real-time with elbow position, with a black-colored numerical readout below the ROM header [image above]. In the preceding photos, the elbow is currently at 23° ROM (mostly extended) while the hand is currently at 94% closed (mostly closed).

The graphical representation of the current joint position in the top-left corner of each window. This is a quicker way to recognize the current joint position while looking at the computer screen without having to interpret the numbers.
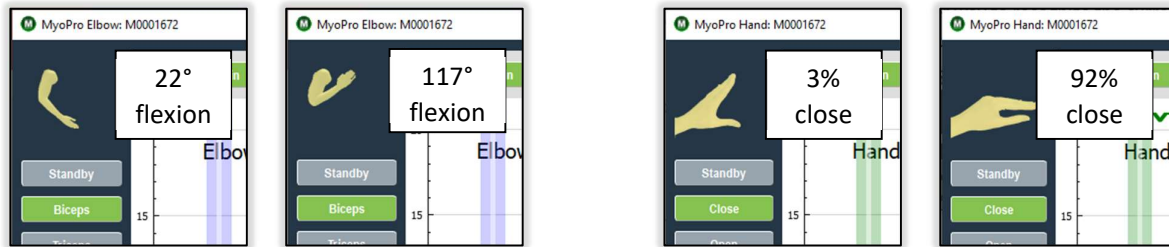
In most cases of arm dysfunction, we can expect the arm to become stronger and your functional needs will change. The settings that were correct for you a month ago may no longer be correct for how you present today.

If you believe the Gain, Threshold, or ROM settings are incorrect, please inform your therapist or the clinician responsible for your MyoPro Management.

MYCONFIG TROUBLESHOOTING

Watching MyConfig View, I see my EMG signal floating high on the graph, and/or is unresponsive to my attempts to activate it or relax my muscles.

If the EMG signals in MyConfig View do not mimic your muscle activation and relaxation, consider the following:

1) **Relax**: Ensure you are relaxed. Try taking your mind off your arm and your MyoPro, the signal, or anything else related to the orthosis for a minute or two and see if your signal changes.
2) **Sensor Position:** Check to make sure the sensors are flush on your skin (not tilted partially off your skin or partly on a bony structure).
3) **Hair:** Check for hair interference – if floating EMG continues to be an issue, try trimming your arm hair for better sensor-to-skin contact.
4) **Oily Skin:** If your skin is oily, wipe skin and sensors with dry cotton cloth or alcohol wipe.
5) **Dry Skin**: If your skin is dry and/or scaly, use a paper towel or cotton towel to lightly wipe the skin so it becomes a dull pink, and any extraneous dry skin has been removed. If dry skin persists in the area, apply a minimal amount of water to towel, and then lightly moisten the area. No build-up of water should be visible on the skin. Caution: If your skin appears fragile, take great care with wiping your skin to avoid skin injury.
6) **Perspiration:** Check for perspiration. If floating EMG continues to be an issue try an antiperspirant wipe (e.g., Certain Dri).
7) **Sensor Cuff Tension:** Sensor cuffs may be too loose or too tight – ensure the sensor cuffs are comfortably snug.