



Axon™ User Manual

V 4.1

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Thank you for purchasing Axon™, the portable, programmable tool that lets you See Your Strength™. Axon™ changes the way people everywhere, of all fitness levels, approach physical therapy and strength and mobility training.

Axon™ leverages the principle of *muscular irradiation*, which is the ability of a muscle being worked to generate more tension when surrounding muscles also contract. Muscular irradiation provides the most significant and immediate benefits in strength, power, and stability when three main groups of muscles—the abs, the glutes, and the forearms—contract along with the muscle being worked. Axon™ was designed to promote engagement of these three muscle groups as you exercise.

Axon™ uses built-in lights to encourage you to apply force along Axon's™ length and to give you a real-time indication of how much force you are applying. Axon™ measures the applied force and other metrics and displays the data as you exercise.

When Axon™ is connected to our AxonFit™ mobile app (currently available only for iOS devices), Axon™ sends data to AxonFit™, which plots each repetition (“rep”) as it is performed. AxonFit™ also allows you to configure a rep and download it to Axon™.

This manual explains how to use Axon™.

1. Introduction to Axon™

1.1 Parts

The parts of Axon™ are:

- A. The **charging end**, which includes the on-off switch and a mini-USB port that allows Axon's™ battery to be recharged using the included USB cable.
- B. The **pressure-sensing end**, which measures force applied longitudinally to Axon™ (i.e., along Axon's™ length).
- C. The strip of **lights** near the pressure-sensing end. As explained further below, the lights provide real-time feedback about the applied force.



- D. The on-board **display** near the middle of Axon™, which provides information about the operating mode, applied force, the number of reps performed, battery status, and other information.
- E. A push **button** near the middle of Axon™'s length. The push button serves a few purposes:
 - a. To wake Axon™ after it sleeps. To preserve the battery, Axon™ will enter sleep mode after 2 minutes. If Axon™ is sleeping, pressing and releasing the push button causes Axon™ to exit sleep mode without erasing any data.
 - b. To clear data. Pressing and holding the push button deletes workout data from Axon's™ memory and resets Axon™ to Freestyle Mode, discussed further below.
 - c. To dismiss the instruction and caution animations that are shown every time Axon™ is powered on or wakes up. Simply press and release the push button once to dismiss the instruction and caution animations.

NOTE: Axon's™ ability to detect and measure force is disabled while the instruction and caution animations are playing. Thus, if you do not wish to see the animations, or you want to perform a rep before the animations are finished, you will need to dismiss the animations by pressing and releasing the push button once.

- d. To cycle through the exercise carousel. The exercise carousel provides animations of a few sample exercises you can try with Axon™. Pressing and releasing the push button will cause the display to show the first exercise in the exercise carousel. By pressing and releasing the push button additional times, you can cycle through the exercise carousel. To exit the exercise carousel, press and hold the push button until Axon™ returns to Freestyle Mode.

HINT: If you begin a rep while one of the exercises in the exercise carousel is being animated, Axon™ assumes you are doing a rep of that exercise in Freestyle Mode, described further below.

HINT: To see videos demonstrating a variety of exercises you can do with Axon™, please visit our YouTube channel:

https://www.youtube.com/channel/UC_gCAQM85yzjxzVCoKj511A

1.2 Axon™ Operational Modes

Axon™ has two modes of operation:



- Freestyle Mode, and
- Guided Mode.

Both modes are described further below.

The color of a small light behind the on-stick display indicates Axon's™ mode. If the light is magenta, Axon™ is in Freestyle Mode. If it is green, Axon™ is in Guided Mode.

Axon™ can operate by itself, without any mobile device, or in cooperation with our AxonFit™ app running on an iOS mobile device.

When Axon™ is not connected to AxonFit™, it always operates in Freestyle Mode.

When Axon™ is connected to AxonFit™, it can operate either in Freestyle Mode or Guided Mode. Downloading a defined rep from AxonFit™ to Axon™ is the action that converts Axon™ from being Freestyle Mode to being in Guided Mode.

Whether in Freestyle Mode or in Guided Mode, when Axon™ is connected to AxonFit™, each rep is plotted in real time by AxonFit™.

After power-up, Axon™ operates in Freestyle Mode unless and until AxonFit™ sends a rep to Axon™.

1.3 Axon™ Feedback

There are two ways Axon™ provides feedback:

- During each rep, through the lights along Axon™'s length.
- During and after each rep, through the on-board display.

During each rep, the lights along Axon™'s length provide feedback using a scheme that depends on whether Axon™ is in Freestyle Mode or Guided Mode, as described further below.

In both Freestyle Mode and Guided Mode, Axon™'s on-board display provides a numerical indication of the measured applied force in real time. Between reps, Axon™'s display shows the number of reps since the last reset (long press of the push button), and the maximum applied force since the last reset or the last rep defined in and sent by AxonFit™.



2. Using Axon™ In Freestyle Mode

In Freestyle Mode, Axon™ measures and provides feedback about the applied force in real time using the on-board display and the strip of lights.

To use Axon™ in Freestyle Mode, perform the following steps.

2.1 Step 1: Turn on Axon™

To turn on Axon™, slide the power switch to the “on” position, indicated by a small white dot on the end cap. After the instruction and caution animations have finished playing, or you dismiss them via a short press of the push button, you will see the following lights:

- (1) A small blue light. If this light is blinking, it indicates that there is no connection to AxonFit™. When Axon™ is connected to AxonFit™, this light will stop blinking. If you have previously connected Axon™ to AxonFit™, Axon™ will automatically reconnect to AxonFit™ if your mobile device is nearby and AxonFit™ is running.

NOTE: You can use Axon™ with or without AxonFit™.

- (2) A solid light in either green or magenta. If magenta, this light indicates that Axon™ is in Freestyle Mode. If you connect Axon™ to AxonFit™ and send a rep to Axon™, this light will turn green to indicate that Axon™ is in Guided Mode.
- (3) A large solid green light at the top of the light strip.

The display will show a message that depends on whether Axon™ is connected to AxonFit™, and whether it is in Freestyle Mode or Guided Mode.

2.2 Step 2: Perform a Rep

When Axon™ is first switched on and is not connected to AxonFit™, the on-board display will prompt you to “do a rep” by applying pressure to Axon™’s pressure-sensing end.

WARNING!

Axon™ is designed to withstand and measure large forces (up to 100 lbs) applied along its length. Axon™ CANNOT tolerate substantial forces applied from the side (i.e., perpendicular to Axon’s™ length). Large side forces may cause Axon™ to break or shatter, which may cause injuries to you or to people nearby. When using Axon™, please apply force only along its length.



RECOMMENDATION

By design, the Axon™ pressure tip is slightly malleable so that it is “sticky” against surfaces. Applying force non-perpendicularly, or twisting while applying force, can stress the pressure tip and lead to premature failure.

To avoid shortening the lifespan of the Axon™ pressure tip, we recommend that you try to keep Axon™ perpendicular to whatever surface you are using while you exercise, and that you avoid twisting Axon™ while applying force.

As you perform a rep, some or all of the lights along Axon™’s length will light up to give you feedback about the force you are applying. The color and number of Axon™’s lights that are illuminated indicate how much force is being applied. The color of the lights provides the “force band,” and the number of lights illuminated indicates approximately where in the band the force is. The mapping of colors to force bands is given below:

Color	Force band (pounds)
White	1-10
Yellow	10-20
Magenta	20-30
Orange	30-40
Green	40-50
Cyan	50-60
Red	60-70
Blue	70-80
Teal	80-90
Pink	90-100

As an example, if the illuminated lights are cyan, and half of the lights are illuminated, it means the applied force is about 55 lbs.

The on-board display will also provide a real-time indication of the force you are applying.

The rep is complete when you stop applying pressure to Axon™’s pressure-sensing end. After you have completed each rep, the display will show the number of reps you have performed and the maximum force you applied during the last rep.



2.3 Step 3: Perform Additional Reps

You can perform additional reps by applying pressure to Axon™'s pressure-sensing end. The on-board display will keep track of and indicate the number of reps you have completed since you last reset Axon™ (by cycling the power switch or by pressing and holding the push button). During each rep, the display will show the applied force in real time. Between reps, the display will show the rep count and the maximum force you applied during the last rep.

To clear the metrics and start a new set, press and hold the push button until the rep count and maximum force are both reset to 0.

3. Using Axon™ In Guided Mode

In Guided Mode, you define a rep in AxonFit™ and download it to Axon™. Axon™ configures itself to guide you through the rep. Guidance is provided through the on-board display, the strip of lights, and through AxonFit™.

3.1 Step 1: Connect Axon to AxonFit

Make sure Axon™ is on and awake.

Launch AxonFit™ on your mobile device. From the home screen, tap “Connect.” AxonFit™ will connect to the closest Axon™ it detects and will display the message “HELLO!”

3.2 Step 2: Define a Rep

Once Axon™ and AxonFit™ are connected, tap “Define” on AxonFit™. Define a rep using the sliders. You can set the target force as well as the ramp-up time (the amount of time to go from a force of 0 to the target force at the beginning of the rep), the hold time (the amount of time to hold the target force), and the ramp-down time (the amount of time to go from the target force to 0 at the end of the rep).

3.3 Step 3: Send the Rep to Axon

When you are done defining the rep, tap “Send.” AxonFit™ will send the defined rep to Axon™ and will show a screen with a graphical representation of the rep you defined.

Axon™ will now have a solid green light instead of a solid magenta light, and the display will say “Guided mode.”



3.4 Step 4: Perform a Rep

Start the rep by applying pressure to Axon™'s pressure-sensing end. You will see the orange guidance light travel from near the on-board display to Axon™'s pressure-sensing end. If you are looking at AxonFit™, you will see your force plotted in real time as you perform the rep. Your goal is to “follow” the guidance light by applying force and, once the guidance light reaches the end of the light strip, turn the guidance light from orange to green.

WARNING!

Axon™ is designed to withstand and measure large forces (up to 100 lbs) applied along its length. Axon™ CANNOT tolerate substantial forces applied from the side (i.e., perpendicular to Axon's™ length). Large side forces may cause Axon™ to break or shatter, which may cause injuries to you or to people nearby. When using Axon™, please apply forces only along its length.

RECOMMENDATION

By design, the Axon™ pressure tip is slightly malleable so that it is “sticky” against surfaces. Applying force non-perpendicularly, or twisting while applying force, can stress the pressure tip and lead to premature failure.

To avoid shortening the lifespan of the Axon™ pressure tip, we recommend that you try to keep Axon™ perpendicular to whatever surface you are using while you exercise, and that you avoid twisting while applying force.

The amount of time it takes the orange guidance light to travel from near the middle of Axon™ toward the pressure-sensing end is the amount of time you set as the ramp-up time. Your objective is to increase the pressure you are applying in a manner that causes all of the lights between the middle of Axon™ and the guidance light to be illuminated in white. In other words, your goal is to “chase” the guidance light as it travels toward Axon™'s pressure-sensing end.

When the guidance light reaches the end of the strip at Axon™'s pressure-sensing end, it will remain there for the time you set as the hold time. Your goal is to continue to apply the target



force while the guidance light remains closest to Axon™’s pressure-sensing end. The color of the guidance light tells you how the force you are applying compares to the target force. The color is:

- Orange if the force you are applying is less than the target force.
- Green if the force you are applying is meeting the target force.
- Red if the force you are applying is greater than the target force.

After the hold time expires, the guidance light travels from Axon™’s pressure-sensing end back toward the middle of Axon™. The amount of time it takes the orange guidance light to travel back from the pressure-sensing end is the amount of time you set as the ramp-down time. Your objective is to decrease pressure in a manner that causes only the lights between you and the guidance light to be illuminated in white. In other words, your goal is to “chase” the guidance light as it travels away from Axon™’s pressure-sensing end.

3.5 Step 5: Perform Additional Reps

You can perform additional reps by applying pressure to Axon™’s pressure-sensing end. The guidance light will guide you as in Step 4, and the on-board display will keep track of and indicate the number of reps and maximum force you have applied.

To clear the rep count and maximum force to start a new set, you can either return Axon™ to Freestyle Mode by pressing and holding the push button until the rep count and maximum force are both reset to 0, or you can repeat Steps 1 to 4 above to remain in Guided Mode.

4. Charging and Battery Care

We designed Axon™ to maximize the lifespan of the rechargeable battery. There are a few things you can do to extend the life of your Axon’s™ battery.

4.1 Sleep Mode

When the power switch is in the “on” position (toward the white dot on the end cap), Axon™ will sleep after 2 minutes of inactivity to preserve the battery’s charge. If you are using Axon™ regularly, you can safely leave the power switch in the “on” position and simply recharge Axon™ as described below when the battery level is low.

NOTE: Each time Axon™ wakes or is powered on, it plays the instruction and caution animations. Axon’s™ ability to detect and measure force is disabled while the



instruction and caution animations are playing. Thus, if you do not wish to see the animations, or you want to perform a rep before the animations are finished, you will need to dismiss the animations by pressing and releasing the push button once.

4.2 Using the Power Switch

Turning the power switch to the “off” position (away from the white dot on the end cap) disconnects the battery from the rest of Axon’s™ circuitry to prevent the battery from discharging while Axon™ is not in use. We recommend turning the power switch to the “off” position only if you are not going to use Axon™ for an extended period of time (for example, more than a couple of weeks).

RECOMMENDATION

Wait until Axon™ is sleeping before moving the power switch to the “off” position.

The reason is that when Axon™ enters sleep mode, it first performs a number of “housekeeping” tasks that ensure it functions properly upon wake up. When the power switch is moved to the “off” position while Axon™ is awake, Axon™ does not necessarily have time to complete all of these tasks. Therefore, to give Axon™ an opportunity to complete its housekeeping tasks, it is best to let Axon™ sleep, and then move the switch to the “off” position.

4.3 Charging

We recommend that you charge Axon™ when the battery level is below about 15%. To charge Axon™, turn the power switch to the “on” position (toward the white dot on the end cap), insert the mini-USB side of the included USB cable in the port, and attach the other end of the cable to a USB charger (e.g., a “wall wart” or your computer’s USB port). When the battery is charging, you will see an amber light illuminated inside Axon™.

5. Customer Support

Please let us know if you have any questions about Axon™ or the procedures described in this user manual. Please e-mail questions and feedback to info@axonfit.com.

We look forward to hearing your feedback as you spend time using Axon™.