Trexo Home & Plus

Instructions for Use



trexō

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1 Welcome to the Trexo Family

This chapter discusses the following topics:

- Basic Terminology
- Intended Use
- Audience
- Maximum Child/Patient Weight Restrictions
- Patient Population
- Contraindications
- Multiple Trexo Devices
- Essential Performance
- General Safety

Basic Terminology

The Walker – Rifton Dynamic Pacer. The Trexo components mount onto the Rifton Frame.

The Trexo – Trexo Device. Robotic legs and battery box attached to the Walker.

The Child/Patient - The individual in the Trexo.

The Trexo Trained Supervisor - The individual who is trained and certified by the Trexo Robotics team to operate the Trexo for the Child/Patient.

Intended Use

The Trexo is a powered ambulatory device intended to support walking and exercise among individuals with disabilities and weakness. The device is intended to be used in a home or clinic setting, to assist in a user's mobility, in general wheelchair accessible areas.

The Walker should be fitted to the child's height and the Trexo legs should be fitted to the child's thigh and shin length. Please ensure you are using the correct size device. Child/Patient height requirements can be found in the manual.



Important: Trexo Robotics does not claim/guarantee household or clinical benefits. Results may vary. Do not use the Trexo without training. You will receive log-in instructions upon your training session.

Audience

This manual is intended to be read and used as a reference by care providers and/or individuals who have received training in the correct use of Trexo. The trained individual is responsible for the correct operation of the Trexo.

Maximum Child/Patient Weight Restrictions

The maximum Child/Patient weight restrictions exist for the safety of the Child/Patient. Please ensure they are using the correct size Trexo for their weight.

	SMALL/MEDIUM	LARGE	EXTRA LARGE
WEIGHT (LBS)	80	125	150
WEIGHT (KG)	36.3	56.7	68

Patient Population

This device serves the children population with walking disabilities caused by cerebral, neurogenic, spinal, muscular or bone-related disorders, which may include the following diagnoses:

- Stroke
- Multiple Sclerosis (MS)
- Cerebral palsy (CP)
- Parkinson's disease
- Traumatic brain injury (TBI)
- Spinal muscular atrophy (SMA)
- Muscle weakness due to lack of mobility
- Hemiplegic patients

Contraindications

Individuals exhibiting the following **MAY NOT** be candidates for the Trexo:

- Knee flexion contracture > 30°
- Knee valgus > 40°
- Hip subluxation > 40% migration percentage with pain during walking
- Hip subluxation > 50% migration percentage unless with orthopedic clearance for weight bearing with the Trexo
- Hip flexion contracture (unable to obtain hip neutral of 0 degrees Extension)
- Spasticity, resistance, or behavioural concerns that interfere with the use of the device may limit use
- Weight bearing restrictions (including from any recent Orthopaedic surgery, e.g. soft tissue releases and lower limb bony surgery)
- Moderate to severe Osteogenesis Imperfecta
- Osteoporosis/Osteopenia with history/suspicion of lower limb fragility fracture would require medical clearance
- The child is unable to communicate discomfort or pain (including non-verbal cues) to the Trexo Trained supervisor



IMPORTANT: Children must be re-evaluated by their Primary Care Physician and/or Physical/Occupational Therapist on an annual basis to ensure that they are still appropriate for Trexo usage

Multiple Trexo Devices

In environments where multiple Trexo devices are used (e.g., households or clinics), ensure that each tablet is configured to remember only one Trexo device's Wi-Fi network. Verify the connection by matching the serial number label on the tablet with the corresponding Trexo device.

Essential Performance

The torque output of the motors and walking speed have been identified as the essential performance of the device.

The device has been designed in a way to ensure that the:

- The system shall not drive speeds greater than the maximum, which is 73.5 steps per minute
- The device's hip joints shall not deliver a torque greater than the following maximum torque limits: a) Small device legs: 33 Nm b) Medium device legs: 39 Nm c) Large device legs: 49 Nm d) Extra large device legs: 53 Nm
- The device's knee joints shall not deliver a torque greater than the following maximum torque limits: a) Small device legs: 20.5 Nm b) Medium device legs: 22.5 Nm c) Large device legs: 24 Nm d) Extra large device legs: 24 Nm

Safety and Liability

All operators of the Trexo Device must read and follow all instructions, warnings, and safety guidelines in the Trexo User Manual. Failure to follow these guidelines can lead to serious injury or property damage. By using the Trexo Device, you assume responsibility for its proper use and all risks associated with it. Trexo Robotics Inc. is not liable for any injury, loss, or damage resulting from:

- Operation of the device outside its intended use
- Failure to follow instructions or warnings
- Unauthorized modifications or repair
- Negligent or improper use by the operator

General Safety



IMPORTANT: Please read this entire user manual carefully before you use the device and keep the manual for future reference. For a digital version of the manual, please visit www.trexorobotics.com/user-manual.

The device is designed around an outer frame. The outer frame, chest prompt, and seat drastically decreases the risk of falls while the device is used within the intended use scenario. This is because the child/patient is supported by the outer frame through the chest prompt and harness/seat, with the outer frame acting as a support for walking.

The device provides full control to a supervisor. The Trexo Trained Supervisor can move or stop the device if needed.

The device has mechanical brakes on the wheels of the outer frame to prevent the device from moving during loading and unloading of the Child/Patient. The powered legs have mechanical limits to ensure that the legs can never go beyond the normal movement range of a Child/Patient's legs. The powered legs also have torque limitations on each of the hip and knee joint to ensure that the device never exerts a force higher than the number recommended by the Trexo Robotics Team.

The device is rated according to IEC 60601 safety standards.



WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO PERSONS:

- Treat the Trexo with care. Do not drop it or expose it to any heavy shocks.
- In the case that the device has been dropped or damaged, start the device and run it without the child/patient. Discontinue use of the Trexo if it does not operate normally and inform the Trexo Robotics Team using the Trexo Chat App.
- Do not use the device if any separate Trexo components or the device in its entirety have been exposed to rain or moisture and it does not operate normally.
- Do not use the Trexo in wet surroundings (e.g. in the rain, near a swimming pool, by a lake) as battery exposure to water can be dangerous.
- Do not immerse any Trexo components, including the robotic leg attachments, battery and cables in water or rinse under the tap. Please use alcohol-based cleaning wipes that you would use on other pieces of electrical equipment.
- Do not use the Trexo if there is visible damage, broken components, or missing parts.
- The Trexo must never be used in conjunction with any treadmills or similar equipment other than the Trexo Treadmill approved by Trexo Robotics Inc. Using a non-Trexo Treadmill may result in serious injury or death.
- Do not operate the Trexo if the charger, battery, cables, or device itself have been damaged in any way. Additionally, do not use the device if there is liquid spilling out of it, or objects have fallen into it.
- Only use the original battery and chargers provided. If either component is damaged, contact Trexo Robotics via the Trexo Chat app for assistance.
- Check that the voltage indicated on the charger corresponds to your power outlet voltage before you charge the Trexo.
- Do not use or run the Trexo while the charger is plugged into the device.
- Make sure the cables remain unobstructed during the use of the device. Protect all cables from being pinched, particularly the plugs at the outlet and cables where they exit the joints.
- In the event the child/patient is caught in the rain, the Trexo Trained Supervisor must turn off the device immediately and seek shelter. Once in shelter, do not turn on the device or charge the device. Inform the Trexo Robotics team that the Trexo was exposed to rain and the team will assess the unit.
- Do not charge the Trexo outdoors. It should only be charged in an indoor setting.

- Do not leave small parts of the device laying around as there is a high risk for a choking hazard for young children.
- Do not allow the cables to be in contact with young children to play with as it poses a risk for strangulation hazard.
- Do not connect the Trexo and parts with other equipment not described in the instructions for use.
- Do not modify the Trexo without authorization of the manufacturer.

WARNING - TO ENSURE THE TREXO IS USED CORRECTLY AND SAFELY:

- The Trexo must be used under the supervision of a Trexo Trained Supervisor. The device cannot operate autonomously.
- The Child/Patient must always be within 3 meters (10 seconds of reaction time) of a Trexo Trained Supervisor. The Child/Patient must never be left unattended in the Trexo Device. Trexo Supervisors who leave the Child/Patient unsupervised may be liable for injuries sustained.
- All Trexo Trained Supervisors must be trained by a member of the Trexo Robotics success team. The Trexo must never be operated by individuals who have not been certified by Trexo team to operate the device.
- The Trexo is not capable of turning by itself and requires assistance from the Trexo Trained Supervisor.
- Use the device on stable, even, and non-slippery surfaces without any obstacles in the way. Do not use the device on grassy surfaces, carpeted surfaces, muddy surfaces, rocky surfaces, hilly surfaces and/or other similar terrains.
- Do not use the Trexo Device at timed crosswalks
- All four walker wheels must always be firmly planted on solid ground.
- Do not use the Trexo in areas which could lead to injury or harm, including near stairwells and inclined or elevated surfaces.
- Do not attach the Trexo Robotic legs to other pacers, gait-trainers, or walkers. The Trexo is only meant to be used with the provided walker.
- The Child/Patient must be using the walker chest prompt anytime they are using the device.
- If the Child/Patient is using the Trexo with a treadmill, it can only be used with the Trexo Treadmill.
- The Trexo Trained Supervisor must be familiar with the Child/Patient's displays of pain, discomfort, fatigue and any signs of distress so when they display it, the Trexo Trained Supervisor must stop the device.
- In the event the Child/Patient is in any significant pain, discomfort, or is displaying a high degree of spasticity, the Trexo Trained Supervisor must stop the device immediately and discontinue use.
- The Trexo Trained Supervisor must discontinue use if the Child/Patient experiences any allergic reaction, skin irritation or abrasions at any points of contact with the Trexo.
- The Trexo Trained Supervisor is responsible for ensuring the Child/Patient is always using the Trexo in a safe environment.

WARNING - TO ENSURE THE TREXO IS USED CORRECTLY AND SAFELY (CONTINUED):

- Child/Patients with any open abrasions, or wounds should not use the Trexo to minimize the chance of further infection or injury and/or cross-infection with another Child/Patient.
- To prevent infection, the Trexo must be cleaned using alcohol -based wipes prior to each session.
- The Child/Patients must wear long trousers that cover the User's knees when using the Trexo to avoid friction burns.
- The Child/Patient must wear shoes and/or AFOs to prevent injury or harm to the User's feet.
- The Trexo has an emergency stop for use in the event of a dangerous situation. The Trexo Trained supervisor must always be within reach to stop Trexo.
- Children must be re-evaluated by their Primary Care Physician and/or Physical/Occupational Therapist on an annual basis to ensure that they are still appropriate for Trexo usage
- Do not dispose of the Trexo in normal waste. To ensure proper handling and disposal, please contact Trexo Support. This is crucial to promote sustainability and minimize the environmental impact.

- The Trexo should be operated where the environmental conditions are the following: ambient temperature is between 5° C - 35° C degrees (41° F - 95° F), relative humidity range of 30%RH - 75%RH (Non-condensing), atmospheric pressure range of 70.0 kPa - 106.6kPa.
- The Trexo should be stored where the environmental conditions have an ambient temperature between -20° C to 50° C (-4° F - 122° F), relative humidity range of 0% RH - 70% RH (non-condensing), atmospheric pressure range of 50.0 kPa to 106.6kPa.
- Allow the Trexo to acclimate to the environment for at least 3 hours before operating the device, if the device has been in extreme warm or cool conditions.
- In the event there is Wi-Fi interference from other common home devices, which may cause connectivity issues, please keep the source a safe distance away from the Trexo (in another room).
- Only the Trexo Robotic Legs and the Trexo provided headrest clamp should be mounted on the rear-side of the walker. Do not mount anything else there.
- Upon pressing the start button on the Trexo App, the Trexo's legs will commence automated gait patterns. The movement will persist until halted by the Trexo Trained Supervisor who can stop the action either through the tablet interface or using the Emergency-Stop button on the unit.

WARNING - TO ENSURE THE TREXO IS USED CORRECTLY AND SAFELY (CONTINUED):

- The Child/Patient and the Trexo supervisor cannot be the same person. The Child/Patient being assisted by the device and the Trexo Trained Supervisor controlling the device must be separate individuals while the device is in operation.
- The Trexo unit's legs are not designed to support the Child/Patient's weight. For weight support, the walker and the appropriate Trexo support accessories serve as the designated support system, ensuring the safety and stability of the child/patient during use.
- Do not turn on and use the device until training. Log-in credentials will be provided during training.

What Comes with a Trexo?

2

This chapter discusses the following topics:

- Trexo Description
- Trexo Robotic Leg Components
- Walker Components
- Trexo Battery Box Quick Guide

Trexo Description

The Trexo comes fully equipped with everything required for operation. Trexo is designed to work with a walker for which additional accessories may be purchased separately.

A fully assembled and ready for use Trexo is displayed in the image on the right.

The **Standard Trexo Device** consists of the following parts:

- Trexo robotic legs
- Battery Box and Charger
- Trexo Tablet with Trexo app
- Walker (*Rifton Dynamic Pacer, manufactured by Rifton*)
- Foot plates (per size)
- Shin Cuffs (per size)
- Chest Prompt (per size)
- Maintenance kit
- Piston Stopper



The **Optional Configurable Components** of the Trexo are:

- Guide Rod
- Thigh cuffs
- Arm prompts
- Headrest
- Multi-position saddle
- Walker Utility base
- Trexo Treadmill (compatibility defined below)

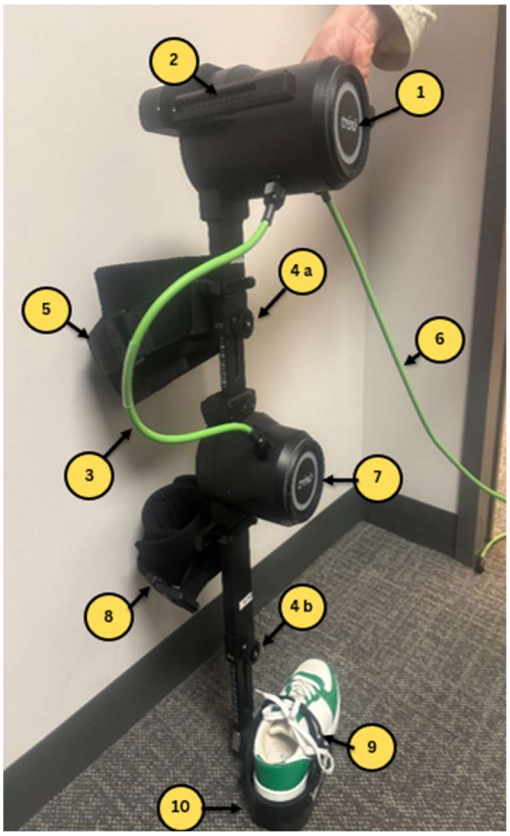


Trexo Standard Base	MED	LRG	X-LRG
Treadmill	REG	REG	X-LRG

Trexo Robotic Leg Components

Your Trexo comes equipped with two robotic legs which can be attached to the walker. Each leg consists of several parts displayed in the figure below. The components are numbered in the image below and a description of each is provided on the right.

Important: Inspect the Trexo legs each time you use the device for any visible damage. If you find any components that are missing or are damaged, do not proceed with the use of the device.



1 Powered hip joint

2 Leg attachment slider

3 Hip to knee motor cable

4 Height adjustment knobs:

4a Thigh knob
4b Shin knob

5 Thigh cuffs (optional)

6 Battery box to hip cable

7 Powered knee joint

8 Shin cuffs

9 Foot plate ankle strap

10 Foot plate

11 Trexo leg clamp (x2)

*Shoes not included. Pictured for display purposes.

1



The Trexo unit's legs are not intended to support the Child/Patient's weight. For weight support, the walker and the appropriate Trexo support accessories serve as the designated support system, ensuring the safety and stability of the patient during use.

Walker Components

Important: This section is a quick reference of the walker features. For detailed instructions, please refer to the user guide enclosed with the walker (Rifton Dynamic Pacer).



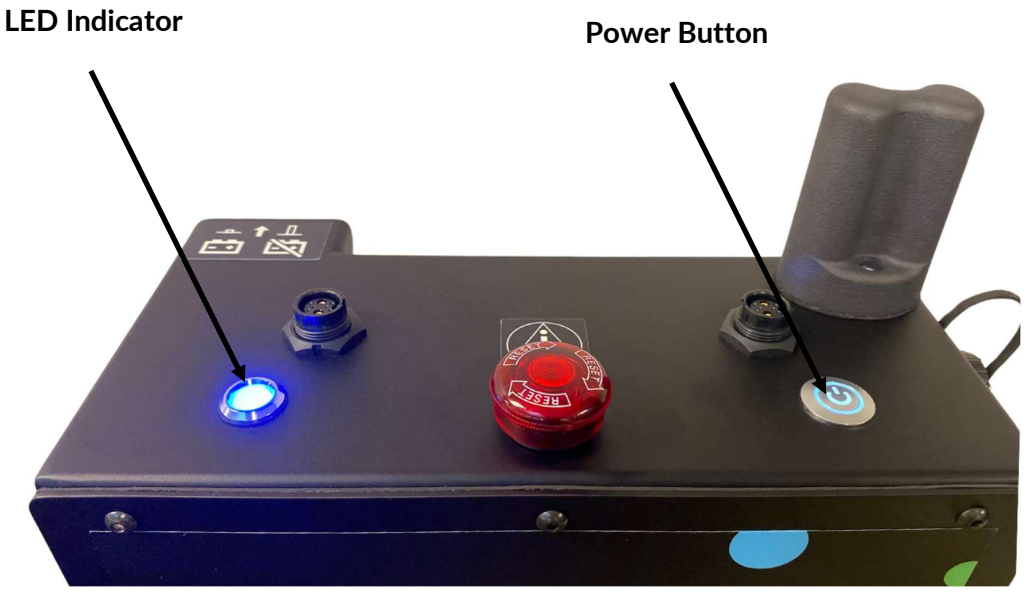
The Components are as follows:

1. Walker upper frame
2. Standard base (Alternate Option: Utility base)
3. Swivel wheel
4. Swivel release
5. Swivel lock
6. Brake
7. Direction lock
9. Seat location adjustment
10. Saddle tilt adjustment
11. Saddle height adjustment
12. Side-to-side movement lock
13. Dynamic movement lock
14. Frame height adjustment
15. Arm Prompts
16. Chest Prompt

8. Multi-position saddle

Label	Parts	Part Number
1	Dynamic upper frame	• Medium (K631) • Large (K641) • XL (K651)
2	Standard base (Alternate Option: Utility Base)	• Medium Standard Base (K634) • Large Standard Base (K644) • X-Large Standard Base (K654) • Medium Utility Base (K636) • Large Utility Base (K646)
8	Multi-position saddle	• Small (K672) • Medium (K673) • Large (K674)
15	Arm Prompts	• Small (K512) • Large (K532)
16	Chest Prompt	• Small (K514) • Medium (K524) • Large (K534)

Trexo Battery Box Quick Guide



LED Indicator	State	What it Means
	Pulsing blue (0.5 sec ON; 0.5 sec OFF)	Trexo is starting up
	Solid Green	Trexo is ready to operate or is operating
	Blinking blue: (2 quick blinks; 2 sec off)	Software malfunction

●	Solid yellow	Unable to operate due to some condition

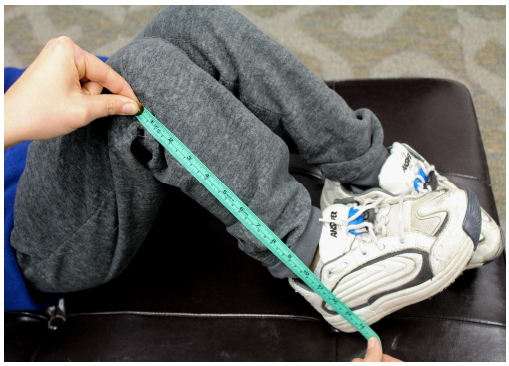
3 Before Using a Trexo

This chapter discusses the following topics:

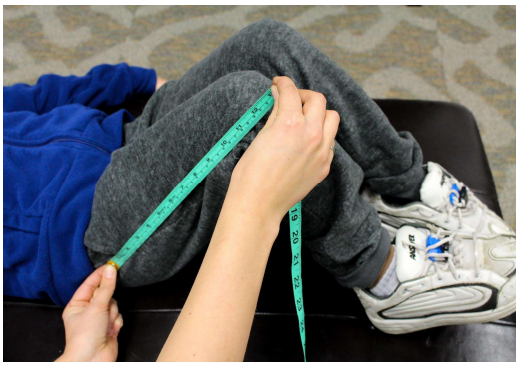
- Size the Child – Trexo Plus Only
- Identify the Right Size Trexo– Trexo Plus Only
- Perform Trexo Safety Checks
- Charge the Trexo
- Turn on Trexo
- Setting Leg Lengths
- Connecting to the Trexo

Size the Child – Trexo Plus Only

1 Hip to knee from the Greater Trochanter to lateral epicondyle (cm).



2 Knee to floor. Lateral epicondyle to the bottom of the foot (cm).



NOTE: Do NOT start measuring Hip to Knee Length from the Waist (Iliac Crest)

Identify the Right Size Trexo – Trexo Plus Only

Child/Patient Sizes (cm)	Small		Medium		Large		Extra-Large	
	Min	Max	Min	Max	Min	Max	Min	Max
Hip to floor	40	47	43	53	55	76	62	90
Hip to knee	18	18	21	24	26	34	29	39
Knee to floor	22	29	22	29	29	42	33	51
Hip width	20	33	20	33	20	35	22	41
Thigh Circumference	23	42	23	75	23	75	23	75
Shin Circumference	16	39	16	39	16	39	16	39
Child/Patient Weight								
Weight (kg)	-	36	-	36	-	56	-	68
Weight (lbs)	-	80	-	80	-	125	-	150

Perform Trexo Safety Checks

Check if the Walker has been Installed Correctly

- ❑ Is your Trexo base frame and top frame clicked in?
- ❑ Optional: Is your Trexo saddle clicked in and able to support weight?
- ❑ Is your Trexo chest prompt installed correctly?
- ❑ Are your Arm Prompts Correctly installed, and not pressing into the chest prompt?
- ❑ Optional: Is the guide rod correctly installed on the walker base (Size XL excluded)?

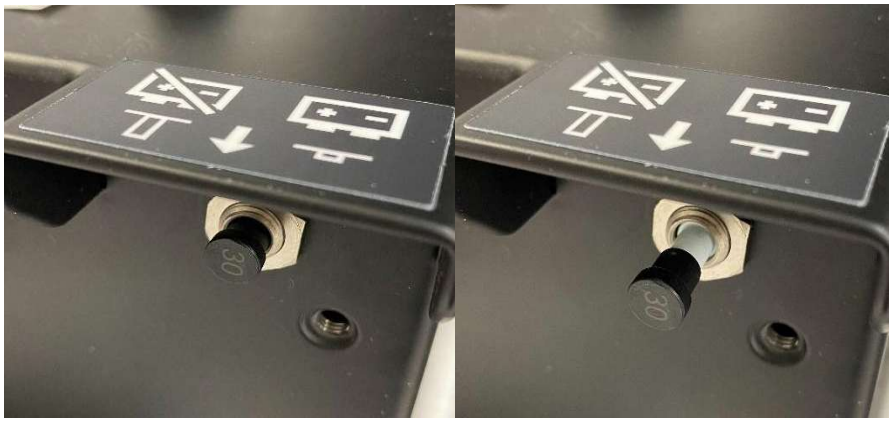
Check if the Trexo Parts have been Installed Correctly

- ❑ Are your walker leg mounts installed correctly on the Trexo frame?
- ❑ Is the Battery Box Securely Mounted?
- ❑ Have your Trexo legs been correctly installed?
- ❑ Are your shin cuffs attached at the correct spot on the Trexo leg (shin tube)?
- ❑ Optional: Are your Thigh cuffs attached at the correct spot on the Trexo leg (Thigh tube)?
- ❑ Do you have the correct size footplates? Are they installed correctly?
- ❑ Is the chest prompt mount located at the correct spot on the Trexo frame?
- ❑ Is your Chest prompt well secured into the chest prompt mounts, so that it is not sliding?
- ❑ Is the Piston stopper correctly installed at the piston height of 7 on the multi position saddle?
- ❑ Are the straps for cable management installed correctly?

Charge the Trexo

To **CONNECT** the battery, push the plunger in. To **DISCONNECT** the battery, pull the plunger out. The device WILL NOT turn on or charge if the plunger is pulled out.

With the battery switch connected, plug in the Trexo and allow it to fully charge.



- Do not use or run Trexo while the charger is plugged into the device.
- Do not charge the Trexo outdoors. It should only be charged in an indoor setting.

Follow these practices to ensure that Trexo's battery life is maximized and remains in good condition:

- Turn off the Trexo before charging it. The battery will not properly charge if it's on.
- When you see a green light on the charger, the battery is fully charged, and you should unplug it. Do not use the Trexo while it is plugged in.
- Occasionally deplete the battery entirely. Using the battery's full capacity once every few weeks will extend its useful life.
- A fully drained battery can take 12-14 hours to fully recharge.
- Disconnect the battery if you aren't going to be using the Trexo for more than a week.

Turn on Trexo

1 Press and release the power button on the battery box (see 'Trexo Battery Box Quick Guide')

2 Wait up to 2 minutes for the Trexo to boot up.

3 When ready, the battery box will turn green. See *Trexo Battery Box Quick Guide*

Setting the Leg Lengths

1 The Child/Patient should be measured on their back as shown below.

a. Hip to knee.



b. Knee to floor.



2 Set up the Trexo Shin and Thigh lengths to correspond with the child's leg segment lengths. The Trexo Shin and Thigh tubes have markers that align with the patient measurements. To adjust the shin and thigh length, turn the knob counter-clockwise, and push the knob inward to release the leg. Position the leg length as required and release the knob. Ensure the leg length clicks into place (leg no longer moves) and tighten the adjustment knob.

c. Shin length (Hip to knee)



d. Thigh Length (Knee to floor)

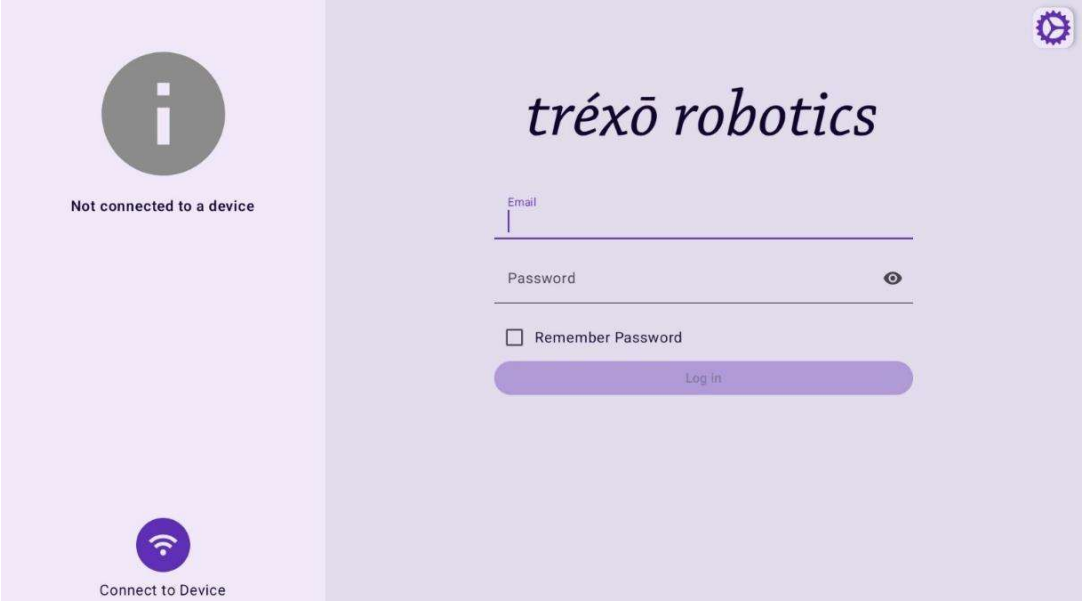


Connecting to the Trexo

The tablet should only connect to the internet through the Trexo app as shown in the instructions below. If you have already connected the tablet directly to a Wi-Fi network through the Tablet's settings application, please disconnect from the network prior to connecting to the Trexo device.

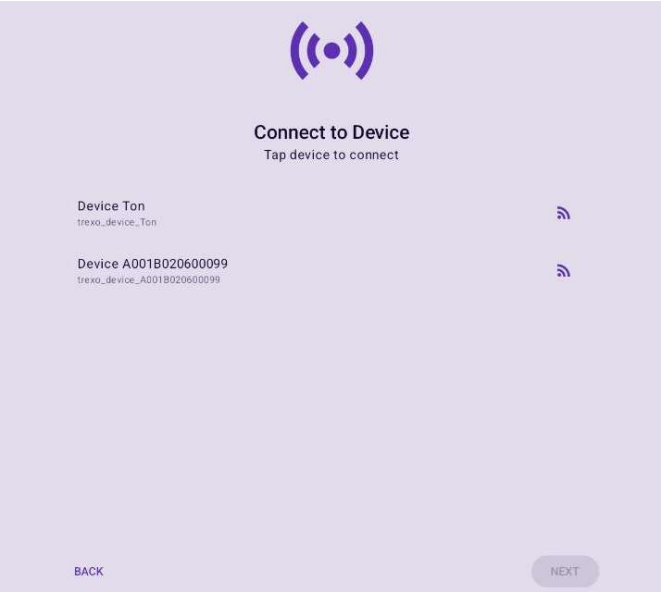
1. Turn on the Trexo device, then tap the **Trexo Robotics** app icon on the tablet.
2. On the Login Screen, click '**Connect Device**'

   NOTE: If a Trexo device was previously connected, it will automatically connect, and display on the left-hand side (see step 5). Ensure the connected Trexo device serial number matches the serial number displayed on the tablet case. Otherwise, tap Switch to Another Device and select the correct Trexo.

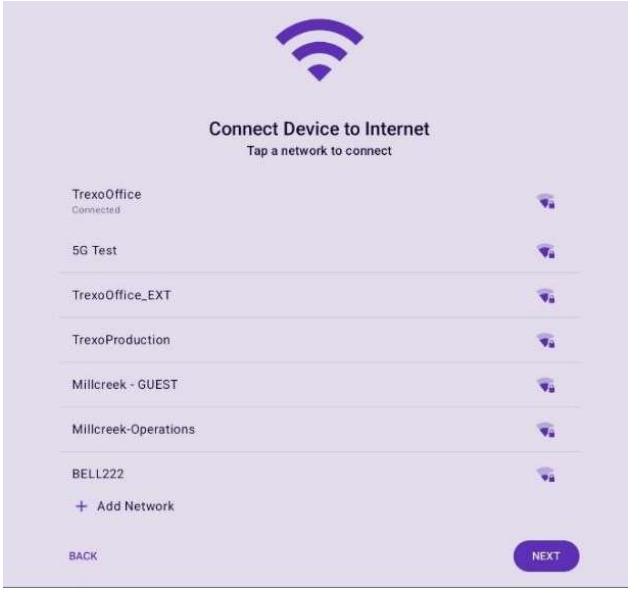


3. The app will display a list of detected Trexo devices in the area. Select the device matching the Serial Number of the device being used. Press Next.

   NOTE: An Android system menu may appear to complete the connection. Follow the on-screen steps to connect to the device network.



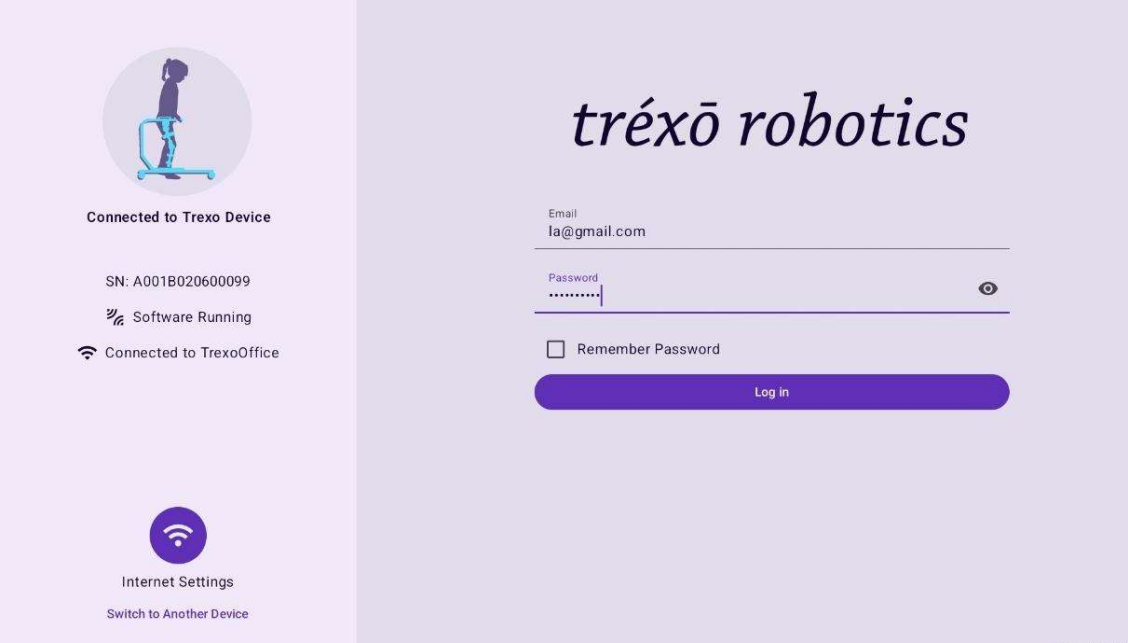
4 The app will display a list of local network connections. Select an appropriate network and connect via the app connection wizard. Press Next.



5 Ensure the connected device (left side of screen) is correctly displayed.

6 Enter valid login credentials (provided upon training completion) and press Log In.

If you are having trouble connecting, contact Trexo on the Trexo Chat App for assistance.



Do not connect your tablet directly to your local wi-fi. The tablet should only connect to the Trexo device. Internet access should only be connected through the Trexo app.

Do not install any other apps on the tablet provided by Trexo. Only use the Tablet provided by the Trexo Robotics team.

The device will not charge or power on until you push-in the battery disconnects cut-off switch. When you receive your device, the battery disconnect cut-off switch will be pulled out.

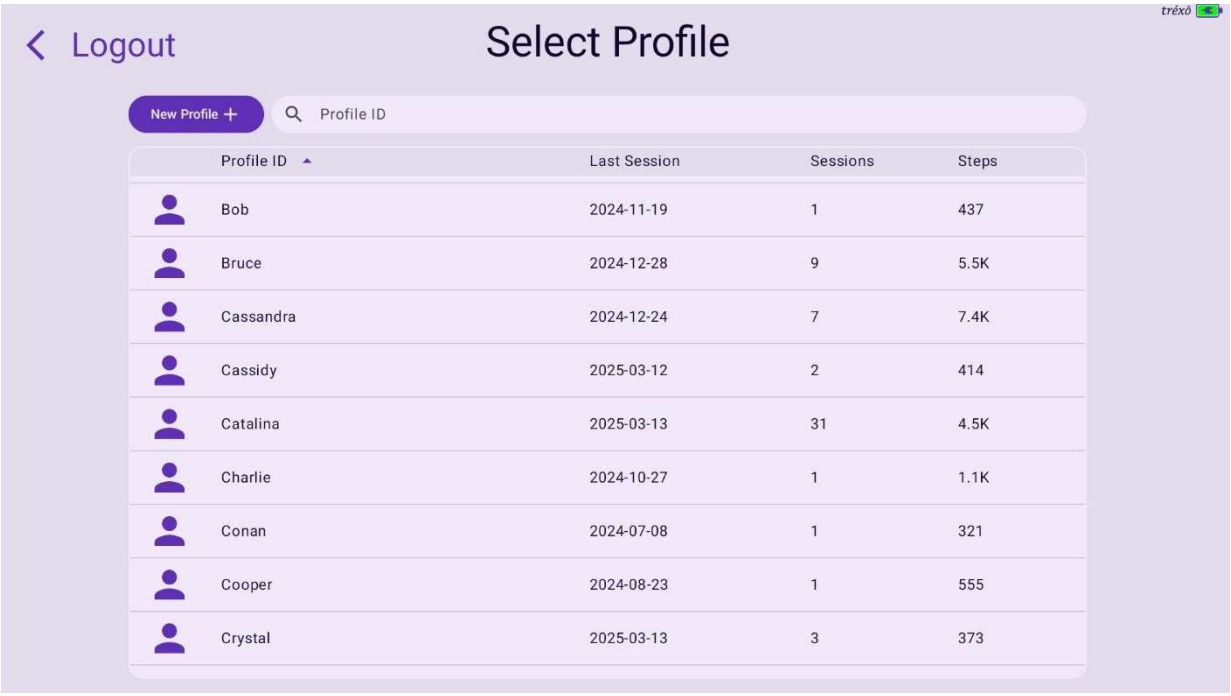
Setting Up a Trexo

This chapter discusses the following topics:

- Patient Profile Selector - Trexo Plus Only
- Adding a New Patient - Trexo Plus Only
- Make Sizing Adjustments
- Recording Child/Patient Measurements
- Place Child in Trexo
- Conduct an Inspection Check
- Calibrate the Range of Motion
- Setting the Gait Pattern
- Understanding Joint LED Lights
- Understanding the Dashboard

Patient Profile Selector – Trexo Plus only

1 The patient selector includes a list of profiles with their profile ID, last session date, number of sessions and total steps.



2 If a profile has already been created for the patient, search for the patient with their unique profile ID.

3 If a new patient profile needs to be created, follow the steps in the next section – Adding a New Patient – Trexo Plus Users Only

4 Click on the profile to open the profile dashboard.

Adding a New Patient – Trexo Plus only

1 Click on the new profile button in the patient selector

2 Type in the patient's profile ID & contact email address

3 Click **Save**

4 Click **Next**

Place Child into the Trexo

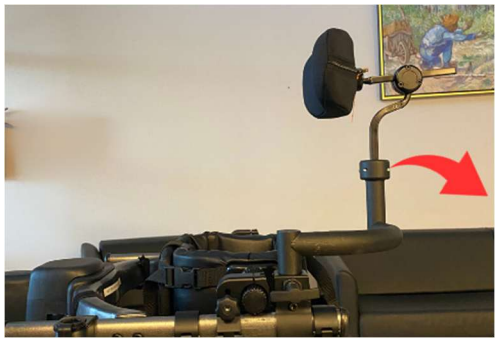
1 Ensure the brakes are secured on the walker.



2 Put footplates on the Child/Patient's foot and secure with strap.



3 If applicable, rotate the headrest away from child prior to seating.



4 Seat the Child/Patient comfortably on the saddle (if applicable) and secure the chest prompt on the child.



5 Adjust the saddle to align hips.



6 Move Trexo legs inward by releasing the T-bars (2 per leg), adjusting the leg position, and re-engaging the leg post locks



7 Clip the footplate attachments into the Trexo leg.



8 Secure and tighten the shin cuffs using the buckles.

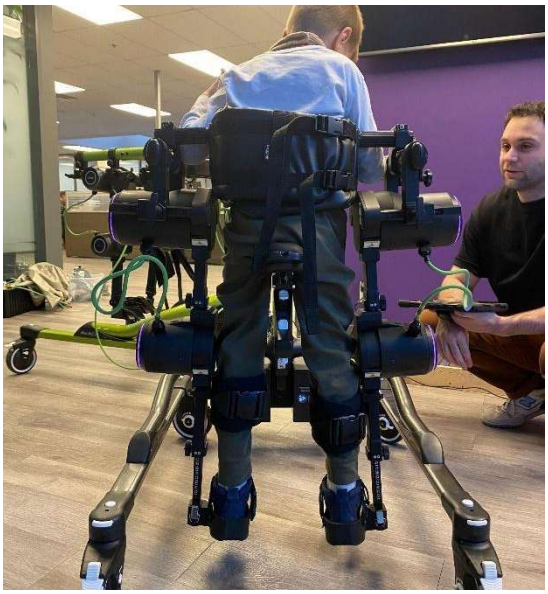


Conducting an Inspection Check

To Perform a Final Inspection:

1 Cautiously move around the device without obstructing it and do a visual check for the following.
   - The Child/Patient is seated comfortably.
   - There are no asymmetries.
   - The cuffs are in a comfortable place with no pinching or pulling.
   - Knees are in line with the knee joints.
   - Hips are in line with the hip joints.

2 If everything looks correct during the inspection, proceed to the next step.



Recording Patient Measurements

Patient measurements (see '*Before using a Trexo'*) must be recorded within the Trexo App.

1 Tap the **Footplate Size** and select the applicable size (check inner footplate surface).



2 Tap the **Hip Width (cm)** field and record the total hip width shown on the Trexo leg posts.

3 Tap the **Thigh Length (cm)** field and record patient measurement.

4 Tap the **Shin Length** (cm) field and record patient measurement.

5 Tap the **Frame Height** (number) field and record the walker height (indicated on the front of the walker post).



6 As required, the notes field can be used to record patient sizing or setup information.

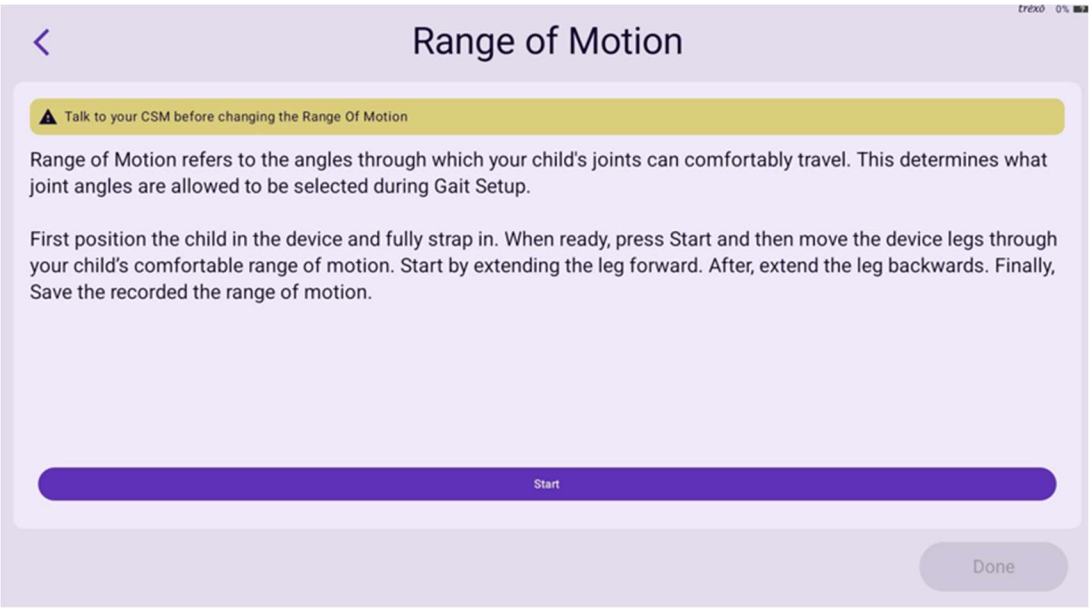
7 Invalid fields will display in red font. Once all fields are complete, Tap **Next.**

Recording Patient Range of Motion

Once you have recorded the patient's measurements, you can record their range of motion.

Trexo Home Only - Do not adjust the range of motion without prior approval from your Trexo Trained Supervisor.

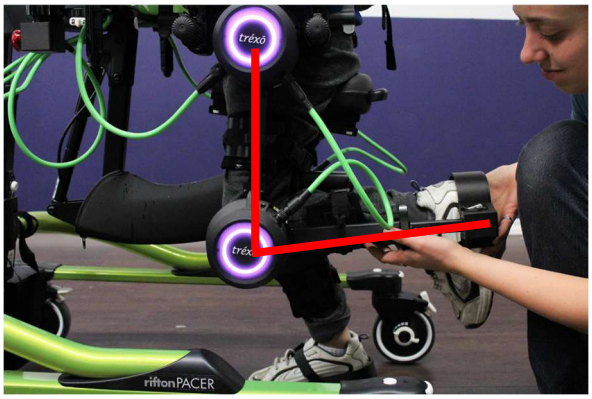
1 The **Range of Motion** page appears with instructions on the screen regarding leg movement during this step.



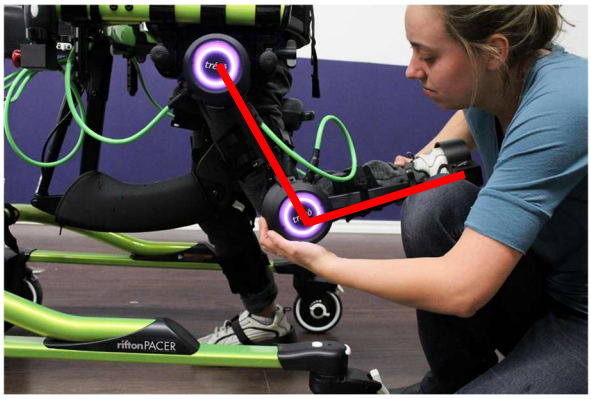
2 Ensure the child is in the device and fully strapped in.

3 Move the child's hips and knees through their comfortable range of motion.

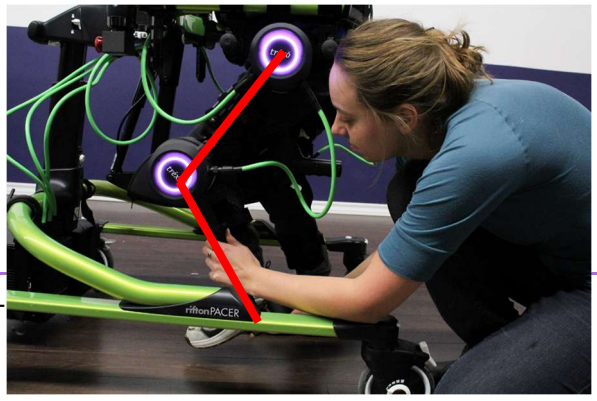
I. Start by flexing the knee.
Maximum knee flexion: 90°.



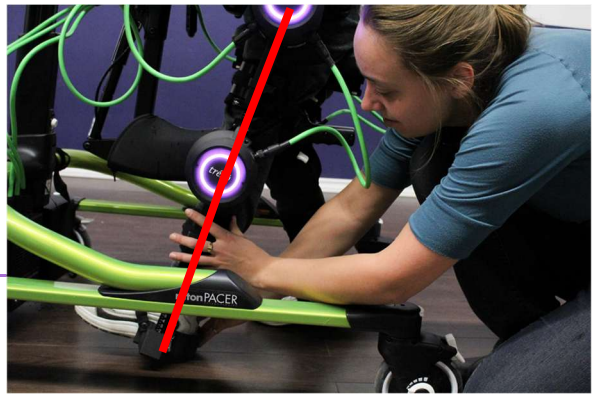
II. Pull the leg back into hip extension.
Maximum hip extension: 30°



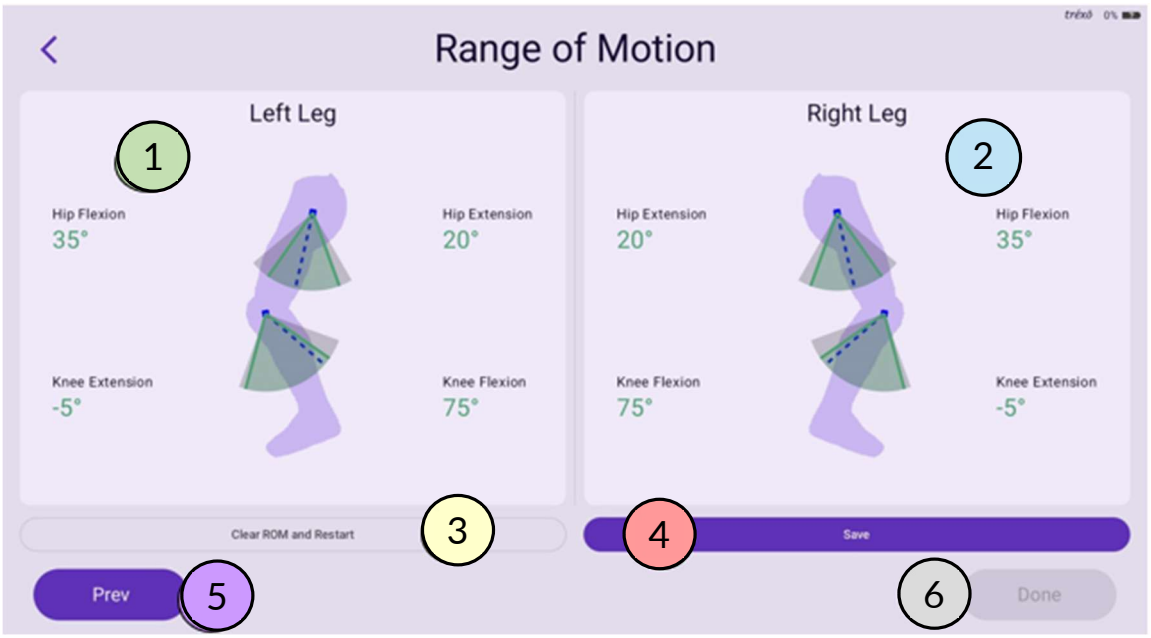
III. Push the leg forward into hip flexion.
Maximum hip flexion: 50°



IV. Extend the knee.
Maximum knee extension: 0°



4 As you move the child's leg notice that the Range of Motion is shown on the screen as shown below.



1. Range of Motion for Left Leg
2. Range of Motion for Right Leg
3. Delete all Range of Motions and restart capture
4. Save captures Range of Motions for both legs
5. Back to Range of Motion Screen
6. Exit Range of Motion capture Screen
   NOTE: Please exit screen after saving the information

Note: The grey shaded area represents the physical limits of the Trexo legs. The Green area represents the current patient's range of motion. The dashed blue line represents the live limb position.

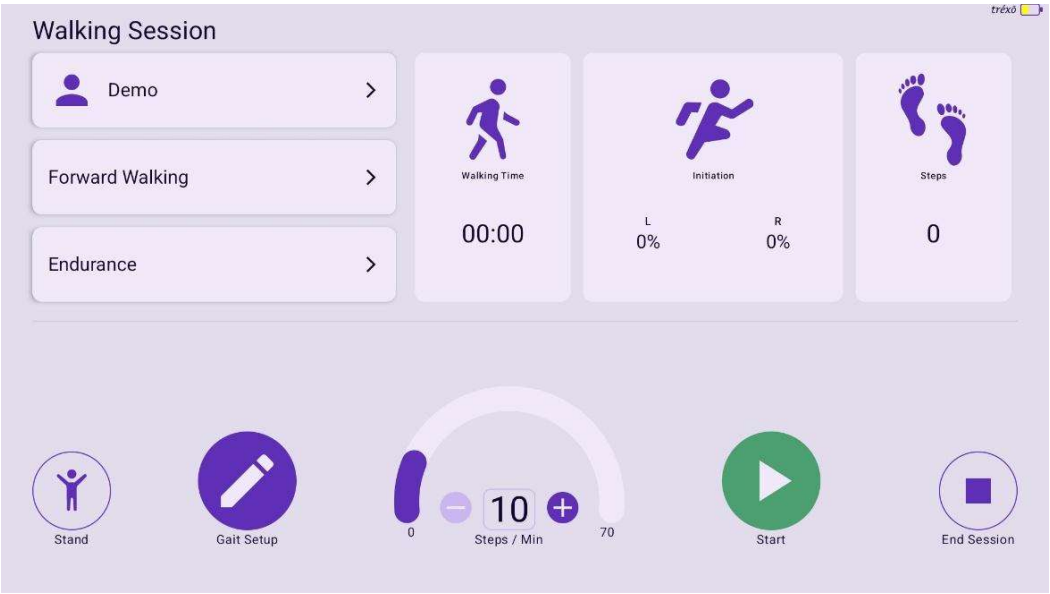
Setting the Gait Pattern

Important: Do not adjust the gait pattern without prior approval from your Trexo Trained Supervisor.

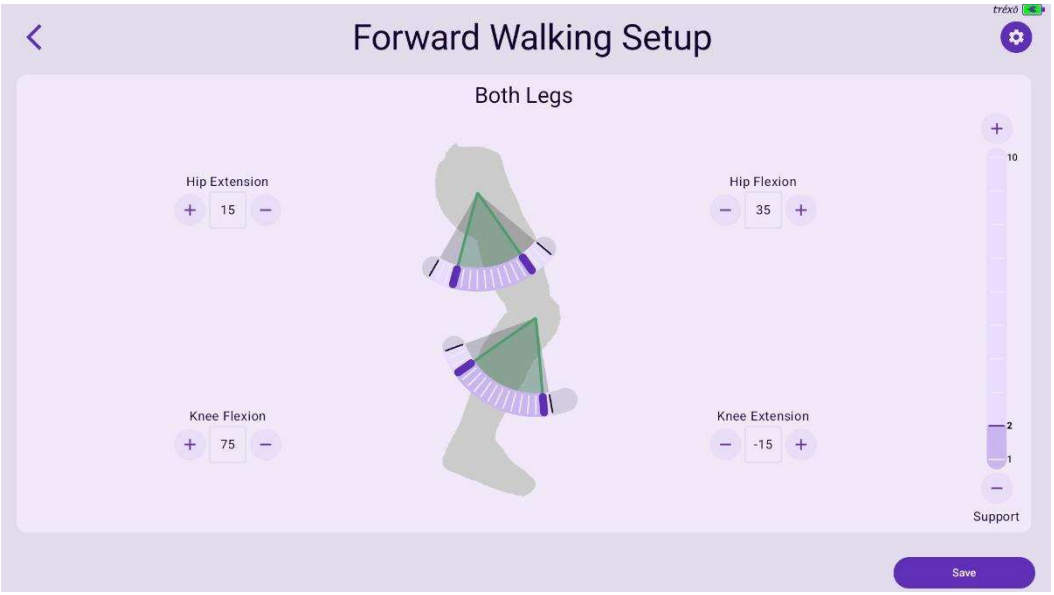
1 On the Dashboard, tap the **Walking Session** icon.



2 Tap the **Gait Setup** icon



3 On the **Standard Walking Gait** page, if necessary, use the + and - arrows to adjust the **Hip Extension, Hip Flexion, Knee Flexion** and **Knee Extension** gait angles to a comfortable gait pattern. Support force can be changed on the right-hand side using + or - buttons. See *Advanced Settings* for instruction on setting gait angles for each leg independently, or to adjust support force for the hip and knee joints separately.



Understanding Joint LED Lights

Below is a quick look at the LED lights associated with the Trexo joints. There are five colors that can appear on the joint LED making it easy for you to immediately know it's status.



White
Joint is powered, ready to operate the device



Purple
Joint is running



Pink
Joint is detecting resistance. Use this to determine required support forces on the joint.



Blue (hips only)
Joint is detecting initiation.



Spinning Purple
Joint is powered, not ready to run due to E-Stop/ not calibrated/ error.

Understanding the Dashboard



1	Displays the Profile ID. Tap on the ID to edit profile.
2	Indicates whether you are connected to Trexo via Wi-Fi Tablet is connected to the Trexo Wi-Fi Trexo is connected to an internet connection with Wi-Fi. NOTE: The icons will turn red if tablet or Trexo disconnect from Wi-Fi.
3	A usage summary showing the overall number of steps taken since start of usage.
4	Displays graphs of recent session metrics. To view a complete activity and session history for the child/patient, tap anywhere in the panel
5	Start a new Walking Session for the Child/Patient.

6	Start New Treadmill Session for the Child/Patient.

5 Using your Trexo

This chapter discusses the following topics:

- Before Running a Walking Session
- Running a Walking Session
- Turning
- Running a Treadmill Session
- Ending a Session
- Viewing Activity/Session History
- Logging Out
- Editing Profile Information
- Readjusting Device Height
- Trexo Features
- Advanced Settings (Optional)

Before Running a Walking Session

IMPORTANT: Before starting the steps in this chapter make sure you read all safety regulations pertaining to the Trexo in **Appendix A** and **Appendix B**. Below are safety precautions pertaining directly to the Running of Sessions.

- Do not operate the Trexo if the charger, battery, cables, or device itself have been damaged in any way. Additionally, do not use the device if there is liquid spilling out of it, or objects have fallen into it.
- The Child/Patient must always be within 3 meters (10 seconds of reaction time) of a Trexo Trained Supervisor.
- The Child/Patient must never be left unattended in the Trexo Device. Trexo Supervisors who leave the Child/Patient unsupervised may be liable for injuries sustained.
- The Trexo is not meant to be used for extensive periods of time. It is recommended that the Trexo be used with each Child/Patient a maximum of 2 sessions daily for a maximum of 1 hour per session.
- In the event the Child/Patient is in any significant pain, discomfort, or is displaying a high degree of spasticity, the Trexo Trained Supervisor must stop the device immediately and discontinue use.
- The Trexo Trained Supervisor must discontinue use if the Child/Patient experiences any allergic reaction, skin irritation or abrasions at any points of contact with the Trexo.
- The Trexo Trained Supervisor is responsible for ensuring the Child/Patient is always using the Trexo in a safe environment.
- The Child/Patients must wear long trousers that cover the User's knees when using the Trexo to avoid friction burns.
- The Child/Patient must wear shoes and/or AFOs to prevent injury or harm to their feet.

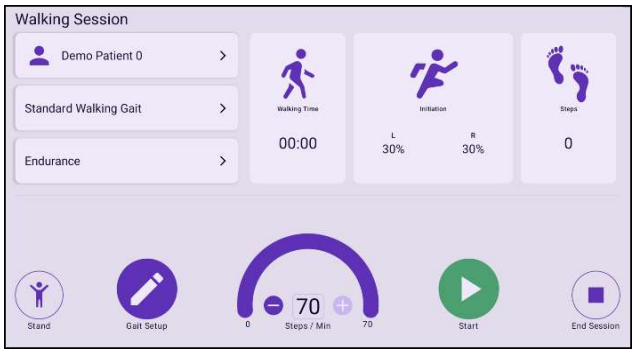
Running a Walking Session

Before running a walking session, follow the steps defined *in Place Child into the Trexo*. Once the child is properly donned within the Trexo, follow the below steps.

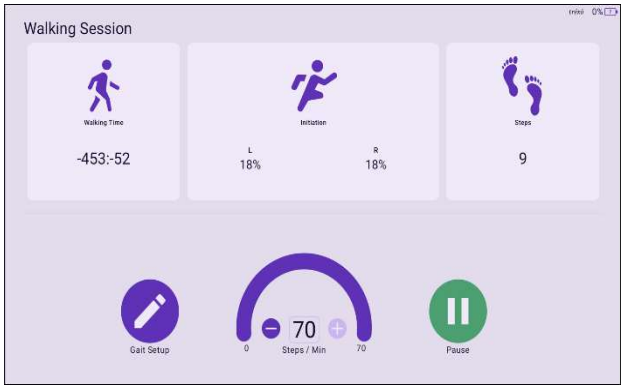
1 Release the brakes on the Trexo.



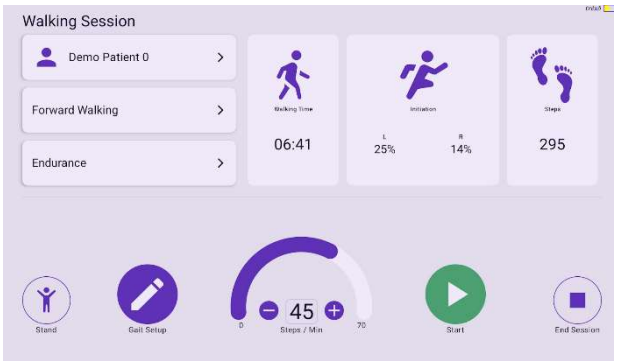
2 On the Trexo App dashboard, tap **Walking Session** and then tap **Start on the screen that appears.**



3 During the session, the **Walking Time**, **Initiation** and **Steps** are displayed. Tap **Pause** at anytime to pause the session.



4 In the **Steps/Min** gauge, tap + or – to adjust the steps per min. At the end of the session, tap **End Session** to save the data.



Turning

The device is not capable of turning independently and requires assistance. You must assist the Child/Patient in turning. Prior to turning, ensure the swivel lock is released from the wheels, and you choose an environment with sufficient room to turn.

1 Steer the device in the desired direction



2 Turn the device with each step.



3 Set the device straight when the turn is complete.



Running a Treadmill Session

The Trexo must never be used in conjunction with any treadmills or similar equipment other than the Trexo Treadmill approved by Trexo Robotics Inc. Using a non-Trexo Treadmill may result in serious injury or death.

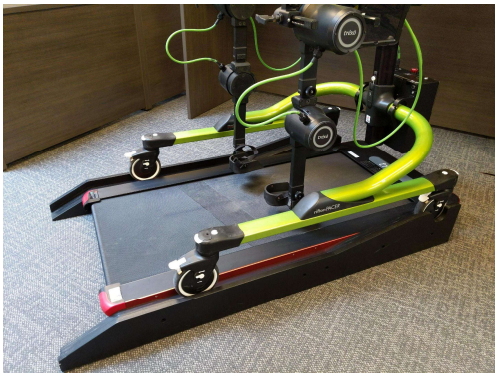
1 Ensure the brakes are unlocked on all four (4) walker wheels.



2 Lock the wheel swivel on all four (4) walker wheels.



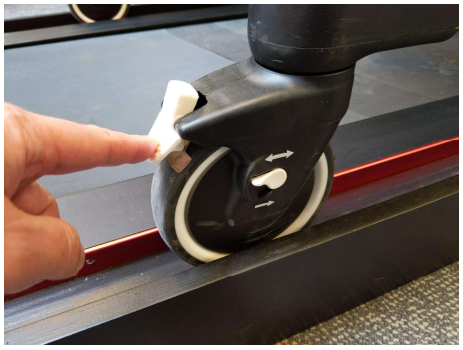
3 Lift the Trexo unit onto the treadmill.



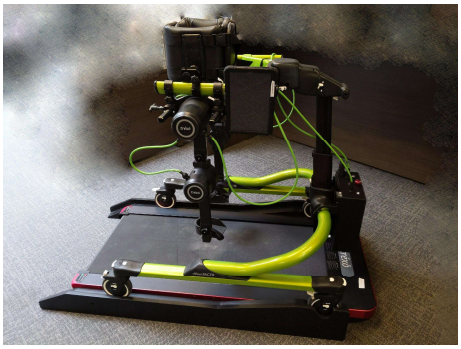
4 Secure the Trexo unit into the Trexo Treadmill Guide Rails.



5 Lock the brakes on the Trexo.



6 Raise the Trexo to its maximum height.



Running a Treadmill Session (Continued)

7 Put footplates on child's foot and secure with strap.



8 Place the child into the Trexo and secure the child with the chest strap.



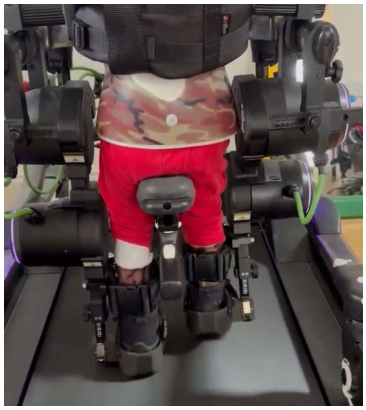
9 Align the childs legs with the Trexo legs



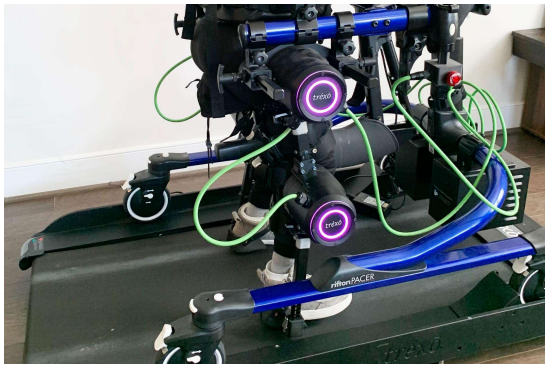
10 Secure and tighten the shin cuffs using the buckles.



11 Conduct a visual check to confirm correct leg coupling.

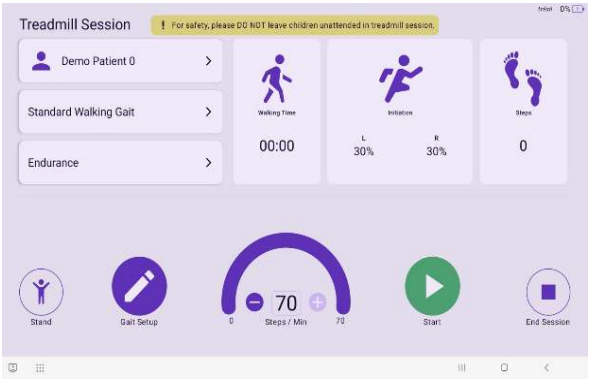


12 Switch to standing mode. Then adjust frame height as necessary.

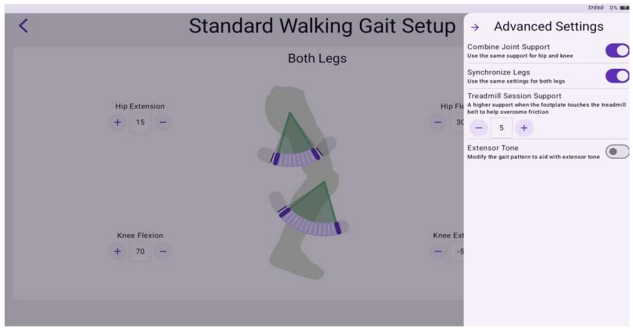


Running a Treadmill Session (Continued)

13 On the Trexo App dashboard, tap **Treadmill Session** and then tap **Start on the screen that appears.**

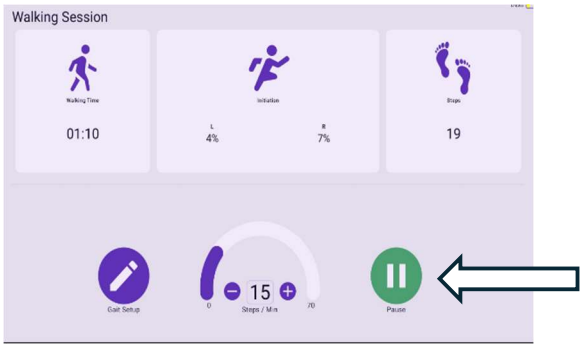


14 Select Gait Setup. Adjust gait angles as required. As required, increase the treadmill support force via Advanced Settings.



Ending a Session

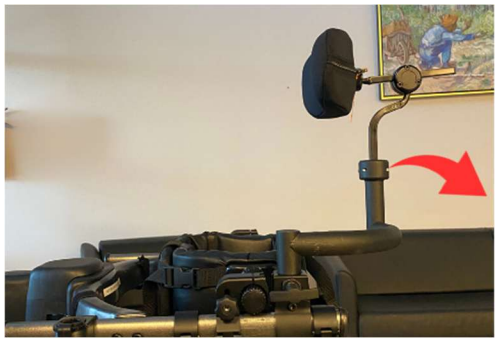
1 Pause the device.



2 Lock the wheels on the Trexo.



4 If applicable, rotate the headrest away from the Child/Patient prior to removal.



5 Undo clasps and Velcro straps on footplates.



6 Undo the clasps on shin cuffs.



7 If applicable, undo the thigh cuffs.



Ending a Session (Continued)

8 Slide the seat back to make removal of the Child/Patient easier.



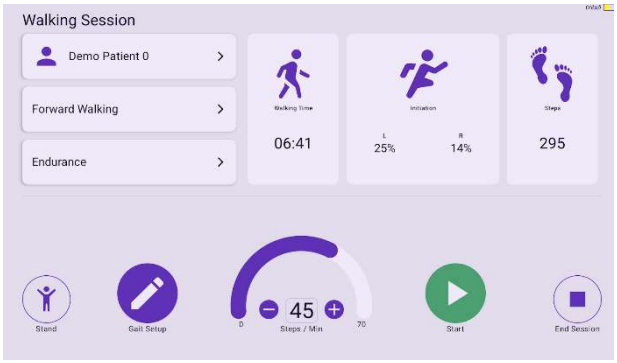
9 Undo straps on the chest prompt last. This safety piece keeps the Child/Patient in place.



10 Lift the Child/Patient off the saddle and remove from the Trexo.



11 End the session and log out on the tablet to save all session data.



- Shutting down the Trexo without closing the session may lead to loss of session data.
- The Trexo Trained Supervisor must ensure that the cuffs on the Child/Patient's legs are unstrapped before unstrapping the chest prompt.

Viewing Activity/Session History

You can view an activity and session history for the child/patient using the History screen.

- **Activity:** Shows the number of steps taken and the number of steps taken for the following time periods —Last 7 Active Days, Week, Month, 6 months and for All Time.
- **Session:** Shows the number of steps taken in a session, along with the walking time, average/maximum speed and average/left/right initiation percentage

To Access the History Screen:

Once a walking/treadmill session is complete, the History screen will automatically appear. You can also access it at any time from the Dashboard by tapping the History panel as shown below.

To View Activity:

1 Tap **Activity** on the **History** screen if it's not already displayed.

2 The number of steps is shown for the following time periods —Last 7 Active Days, Week, Month, 6 months and for All Time.

3 To view a time period, simply touch the applicable tab.

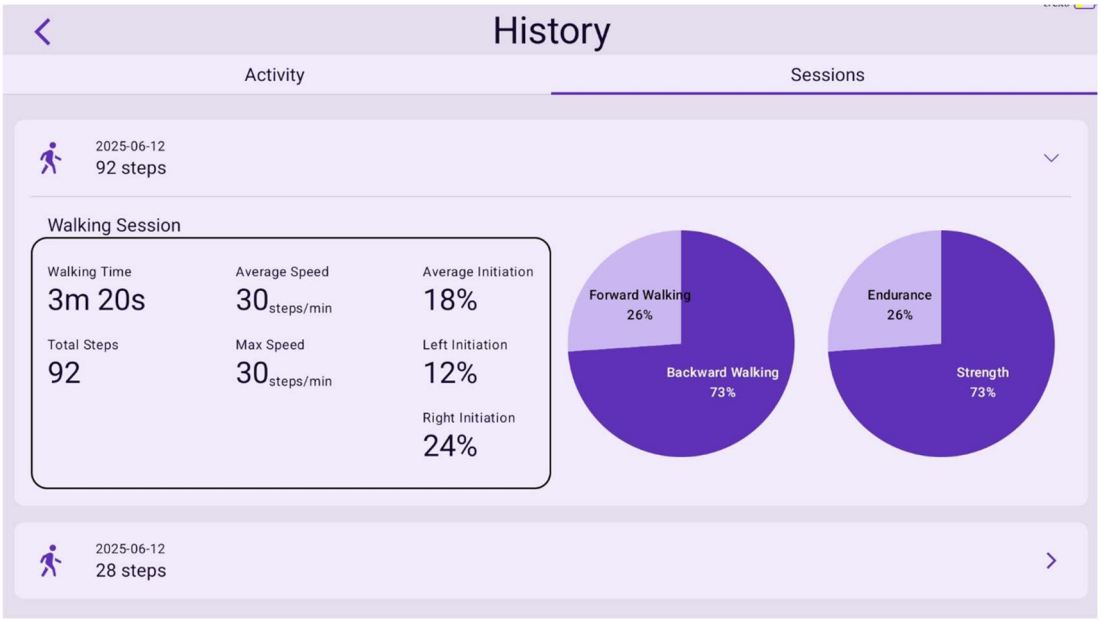
To View Sessions:

1 Tap **Sessions** on the **History** screen.



2 Each session by date is shown along with the number of steps taken as shown above

3 To view details of a specific session, click the > icon.



Each session shows the following:

- **Walking Time** in Hours/Minutes and Seconds
- **Average** and **Maximum Speed** (steps/min).
- **Left/Right** and **Average Initiation** percentage.
- **Total Steps** walked during the session.

4 Click the < icon in the upper-left corner to exit. You can view an activity and session history for the child/patient using the History screen.

Logging Out – Trexo Home Users

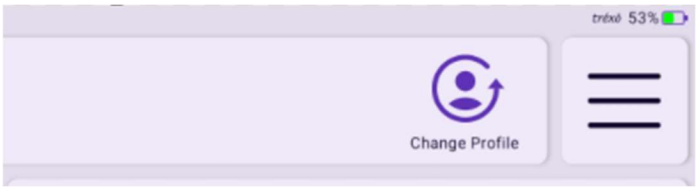
1 On the Dashboard, tap on the Logout icon.



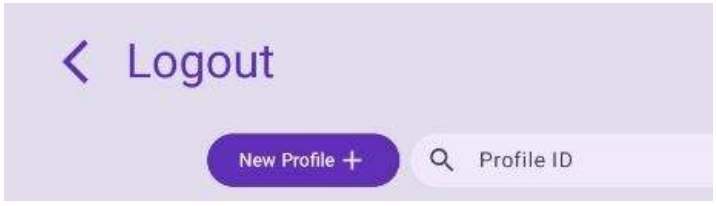
2 A message appears: “Are you sure you want to logout?” Click Yes.

Logging Out – Trexo Plus Users

1 On the **Dashboard** page, tap the **Change Profile** icon.



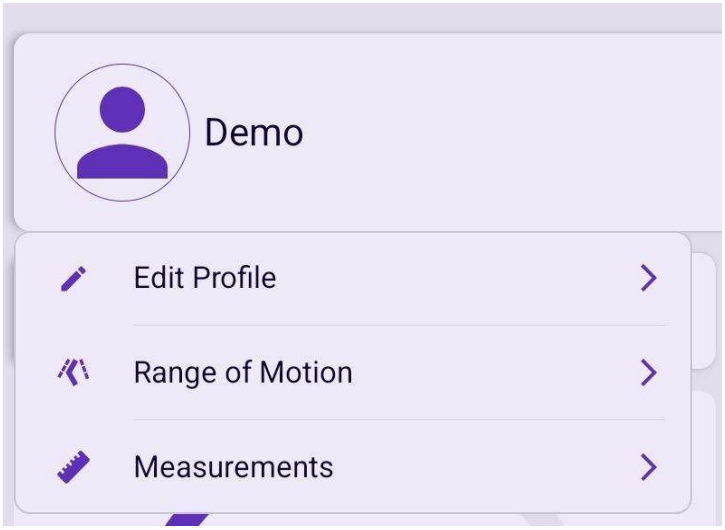
2 The **Patient Selector** page appears. Click **Logout** in the upper-left corner**.**



3 A message appears: “Are you sure you want to logout?” Click **Yes.**

Editing Profile Information

1 On the **Dashboard,** tap on the Profile ID at the top left of the screen.



2 A drop-down menu appears with three options.

a. Edit Profile
   i. Profile ID and email address can be changed.
b. Range of Motion
   i. Consult with Trexo Trainer before changing Range of Motion
   ii. Follow previous instructions in section 4.
c. Measurements
   i. Footplate size, hip width, thigh length, shin length, frame height and notes can be updated.

Readjusting Device Height

Trexo Home Only - Do not adjust the device height without prior approval from your Trexo Success Team.

1 Raise the walker to its maximum height.



2 Put footplates on child's foot and secure with strap.



3 Set up the device with child. Feet won't touch the ground yet.



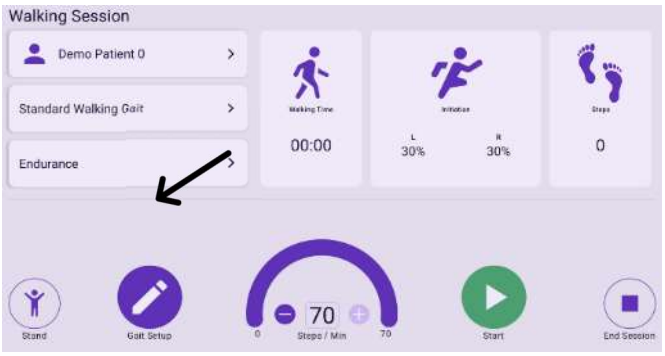
4 Adjust the robotic leg lengths as necessary using the knobs.



5 Clip in all straps and conduct a visual check to confirm correct leg coupling.

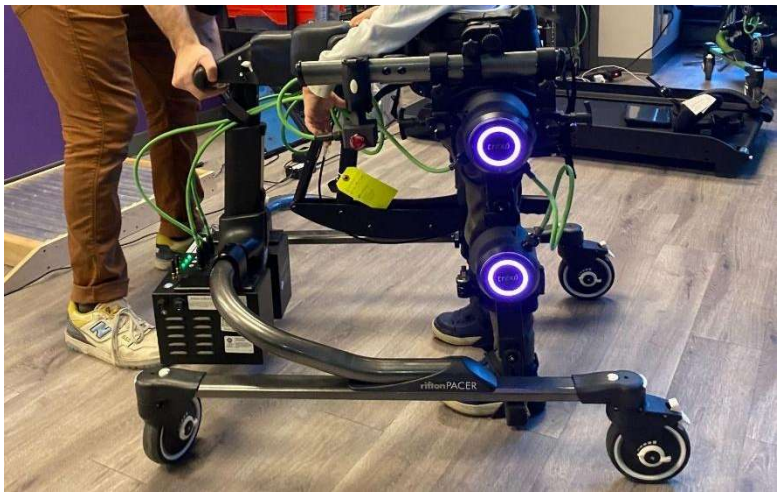


6 From the Trexo App dashboard, select **Stand**, then adjust frame height as necessary (on next page).



Readjusting Device Height (Continued)

You will need to adjust the frame height in the very first session and any time you adjust the leg length.



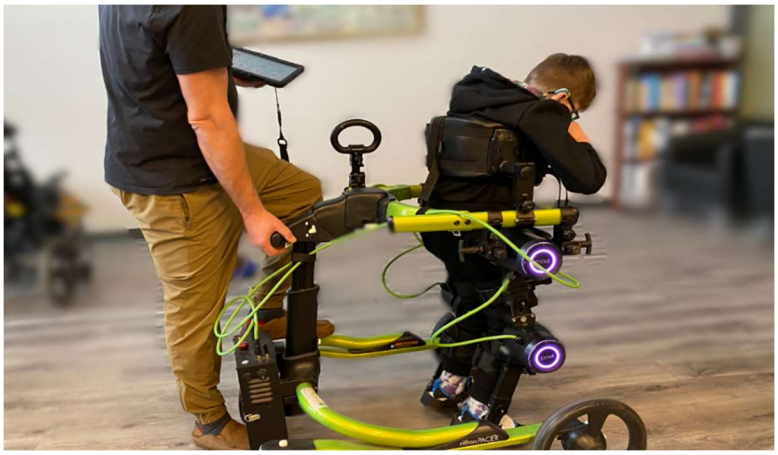
To raise or lower the frame:

1 Adjust the walker frame by gently pressing and holding the white button located at the front of the pacer frame.

2 Lower the device until both heels are comfortably on the ground.

3 Observe for foot clearance and heel to ground contact during assistive stepping. Readjust the height of the frame if necessary. Press Pause on the tablet to leave standing mode.

4 Note the height of the frame in the Trexo App by selecting the Profile ID, then **Measurements**.



5 All changes to device configurations or leg lengths must be recorded in the Trexo App. See *Editing Profile Information*.

Trexo Features

In addition to our two endurance and strength modes, the Trexo has the following features.

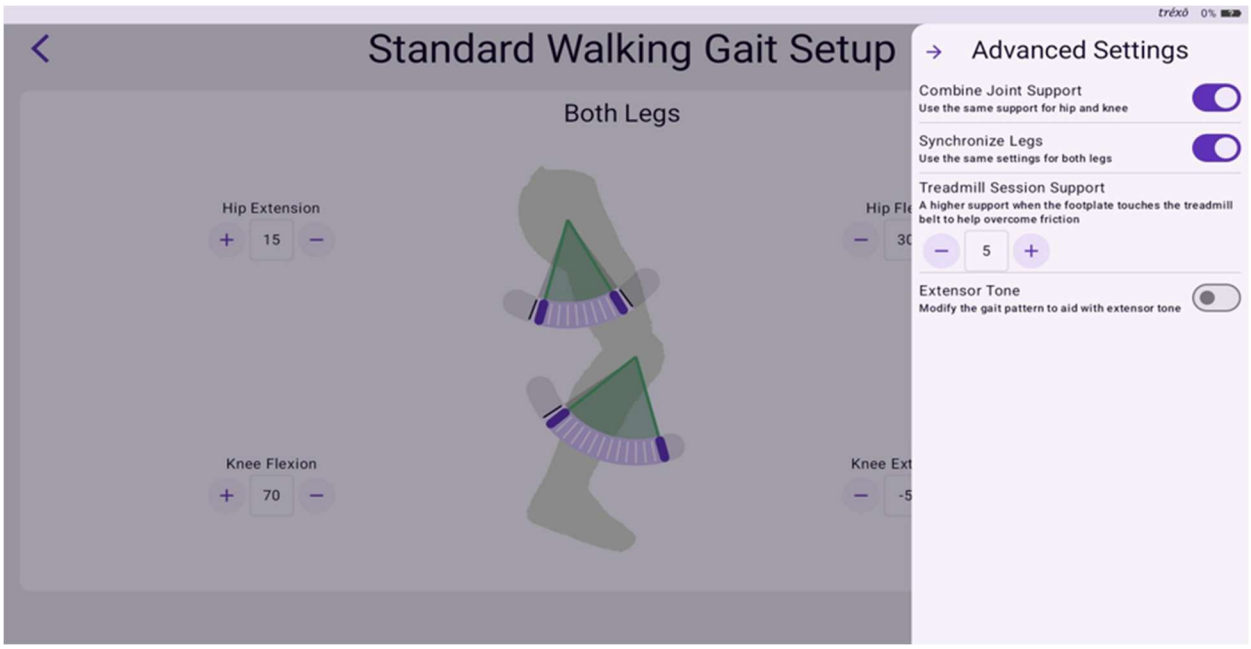
- **Backwards Walking:** Change the gait pattern to have the child walk backwards!
- **Standing Mode:** Children can use the Trexo as a standing frame or to take breaks from walking
- **Extensor Tone Mode:** This gait pattern helps reduce knee extensor tone spasticity in the walking pattern by bending the knee earlier in the gait pattern.

NOTE: We are continuously investing in research and development, and we will release updates through the Trexo software on your Trexo tablet.

Advanced Gait Settings (Optional)

By default, joint support forces are combined, and gait angles are synchronized between left and right legs. If a patient requires a higher degree of customization to the default gait pattern, Advanced settings can be used as below:

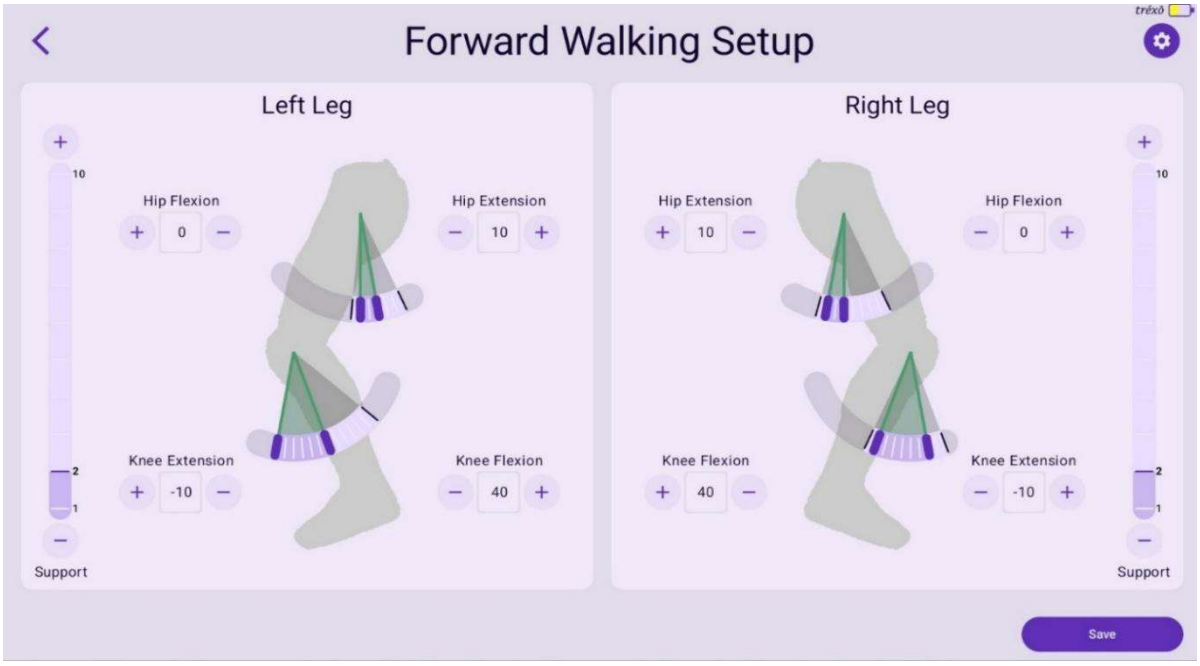
1 Click on the settings button in the upper-right corner to open advanced settings.



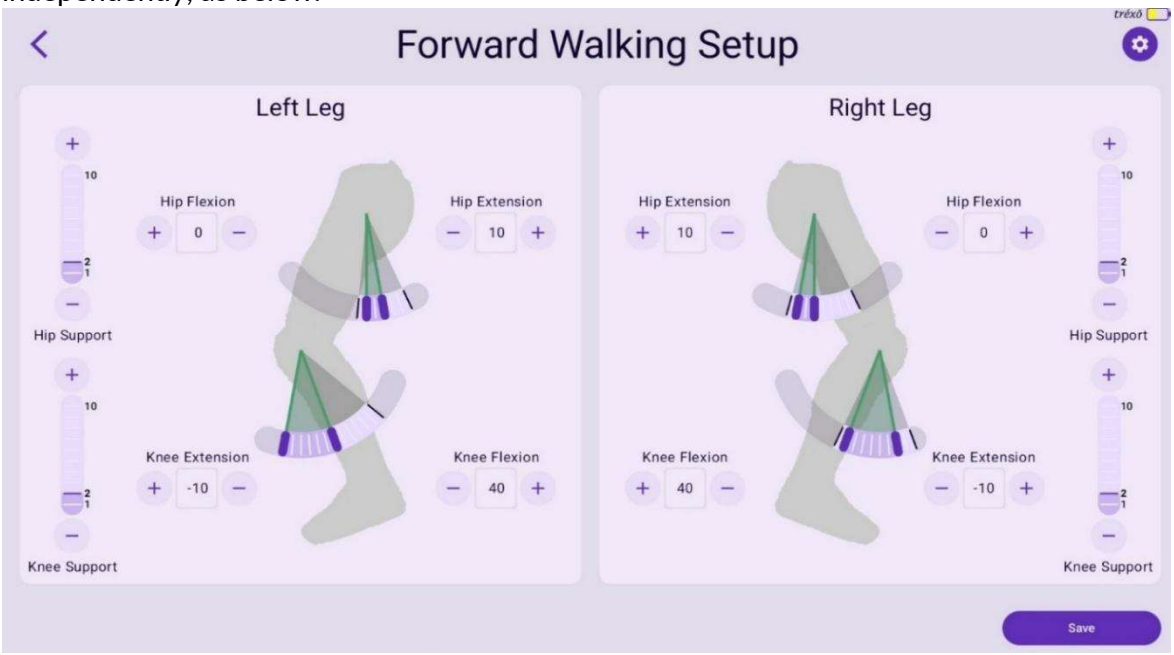
NOTE: Treadmill Session Support is only available during 'Treadmill Walking' sessions.

NOTE: 'Extensor Tone' toggle is used to aid patients with extensor tone. This feature is enabled on a per patient basis. Please contact Trexo for further information.

2 If **Synchronize Legs Button** is untoggled, gait angles and support forces can be set for the left and right legs independently as below:



3 If **Combined Joint Support Button** is untoggled, hip and knee support forces can be set independently, as below:



4 Treadmill Session Support represents the support force that is used when the child's foot is in contact with the treadmill belt. The Treadmill Session Support may be set higher than the support force set in the Gait Setup screen, as the treadmill belt requires additional force to move.

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6 Maintenance and Troubleshooting

This chapter discusses the following topics:

- Routine Maintenance
- Cleaning Instructions
- Storage Instructions
- Reporting Device Issues
- Battery Charger Colors
- Installing Trexo Software Updates
- Responding to Faults

Routine Maintenance

Regular maintenance of the hardware shown below should be conducted every **6 months**. The system will require routine maintenance for the duration of its service life.

- ❑ Inspect each joint for cracks.
- ❑ Inspect each strap and padding for tears or damage.
- ❑ Inspect each cable and connector point for exposed or pinched wiring.
- ❑ Confirm the fan in the battery box is running by turning on the device.

Cleaning Instructions

- The Trexo should be cleaned before each use with disinfectant alcohol wipes.
- Do not clean with excessive amounts of water or place under running water.
- The cuff cushioning uses a hospital grade fabric that can be wiped with standard disinfectant tools. The cushions are fluid-proof and breathable with anti-bacterial and anti-fungal properties.
- The outer straps can be wiped with disinfectant wipes, machine washed and/or replaced as necessary.

Storage Instructions

- Keep your Trexo indoors in a dry place with access to an outlet.
- Charge your Trexo and accompanying tablet between uses.
- The Trexo should be stored where the environmental conditions have an ambient temperature between -20° C to 50° C (-4° F - 122° F), relative humidity range of 0% RH - 70% RH (non-condensing), atmospheric pressure range of 50.0 kPa to 106.6kPa

Reporting Device Issues

If the device is experiencing issues, please contact Trexo Robotics by emailing support@trexorobotics.com or messaging on the Trexo Chat App.

Battery Charger Colors

The table below describes the LED indications that will appear on the battery charger.

Charge Indications	Description
Yellow	Charging
Flashing yellow	Charging - Top-off
Green	Trickle
Green flashing	Battery not connected
Red flashing	Error

Wait Indications	Description
Yellow with 1 red blink	Battery temperature is too low (<0°C)
Yellow with 2 red blinks	Battery temperature is too high (>40°C)

Error Indications*	Description
2 red blinks	Battery is connected to charger with wrong polarity,
3 red blinks	Charger output is shorted. Check output cable connection.
4 red blinks	Battery voltage is low. Check battery status or voltage (ss timer).
5 red blinks	Warm error. Temperature >60°C
6 red blinks	NTC missing or short (if mandatory)
LED off	Battery voltage is too high. Check battery voltage.

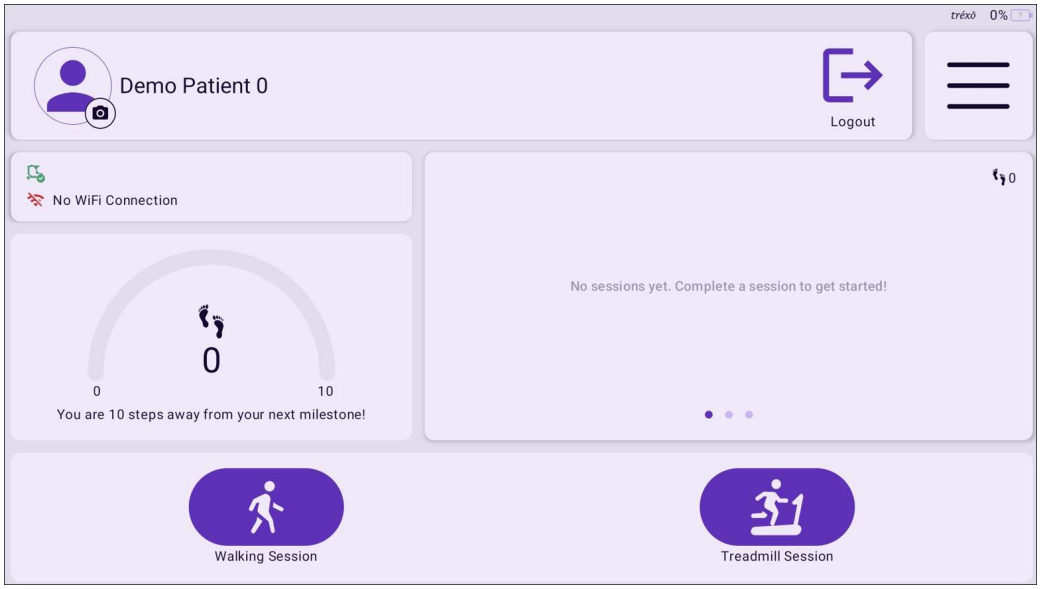
*Contact Trexo if any of the above error indications occur.

Installing Trexo Software Updates

Software updates are essential for maintaining and improving the performance and functionality of the Trexo device and application. If an update is available, a pop-up window will appear when you log on to the Trexo app on the tablet.

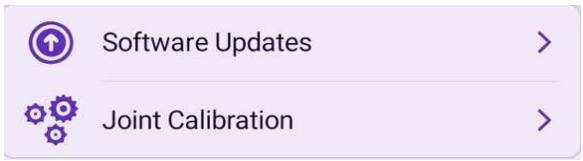
To Install an Update:

1. Make sure both the legs of the Trexo are plugged into the battery box.
2. Go to the Dashboard.



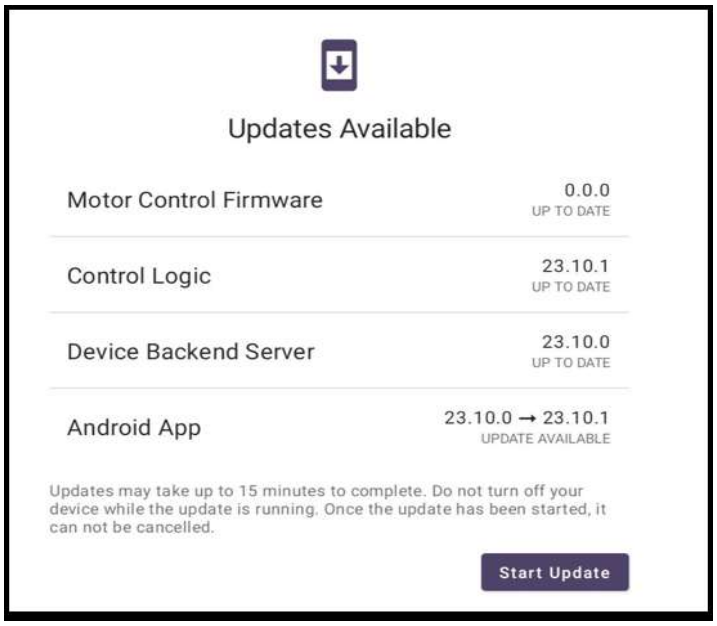
3. Tap the ☰ icon in the upper-right corner of the screen.

   A drop-down menu appears.



4. Tap **Software Updates**.

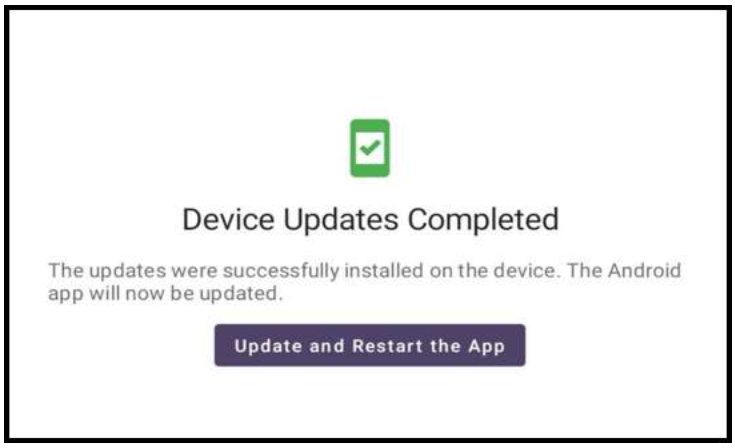
   The following message appears.



5 Click the **Start Update** button.

Note: If there were no updates available, a message appears stating "Up to Date" indicating that Trexo has the most up-to-date software, and no further action is required.

6 Once the download is complete the following message appears indicating the update was successful.



7 Click the **Update and Restart the App** button.

The software update is now completed.

Note: If you have any issues or need help updating the software, reach out to your Trexo Trained Supervisor on the Trexo Chat App.

Responding to Faults

The following faults way be observed via fault code display on the Trexo App:

List of Faults	Response
Undervolt	Charge device for at least 3 hours while turned off. If the issue persists, contact Trexo Support.
No Voltage	Reboot device. If the issue persists, contact Trexo Support.
No Connection	**1** Check the cable connection by unplugging and re-plugging the cables connected to the fault joint. **2** If the fault persists, reset joints. **3** If the issue is not resolved, then reboot the device. **4** If the issue is not resolved, contact Trexo Support.
Unknown fault	Contact Trexo through Chap App
Overcurrent	
No supply voltage or bus voltage	
Hall sensor error	
Conflicting data (hall & incremental)	
Conflicting data (absolute & incremental)	
Absolute or Incremental encoder error	
No absolute encoder calibration data	
EEPROM failure	
Extreme limits	
Communication bad packet or bad command	
Failed to start a task	
Bad current readings	
Motor driver chip fault	
Supply voltage outside expected range	
Current sensor calibration error	
Hall invalid transition	
Undetected comms timeout	
Firmware watchdog timeout	

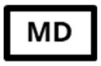
A Symbols and Specifications

This Appendix discusses the following topics:

- Symbols Directory
- Device Specifications
- Trexo Support Forces: Torque Settings

Symbols Directory

Symbol	Description	Standard Reference
REF	Catalog number	ISO 7000-2493
SN	Serial number	ISO 7000-2498
LOT	Lot number	ISO 7000 - 2492
	Date of manufacture	ISO 7000-2497
	Manufacturer	ISO 7000-3082
UDI	Unique device identifier	ISO 15223
	Temperature limit	ISO 7000-0632
	Humidity limitation	ISO 7000:2620
	Atmospheric pressure limitations	ISO 7000:2621
IP 22	Ingress protection rating	IEC 60529
	Do not dispose of the device in normal waste, contact the manufacturer.	EU Directive 2012/19 EU
	Refer to instruction manual.	ISO 7010-M002
	This part is a Body Floating (BF) applied part.	IEC 60417-5333
	Signifies an emergency stop button.	IEC 60417-5638
	Indicates that situations exist that need operator awareness or operator action to avoid undesirable consequences	ISO 7000-0434A

	Non-ionizing radiation: Radiofrequency interference may occur near this device.	IEC 60417-5140
	Indicates the item is a medical device.	ISO 15223
	Battery Connected	ISO 7000-0247
	Battery Disconnected	ISO 7000-2063

Device Specifications

Child/Patient Sizes (cm)	Small		Medium		Large		Extra-Large	
	Min	Max	Min	Max	Min	Max	Min	
Hip to floor	40	47	43	53	55	76	62	94
Hip to knee	18	18	21	24	26	34	30	39
Knee to floor	22	29	22	29	29	42	33	50
Hip width	20	33	20	33	20	35	22	41
Thigh girth	20	38	20	50	20	70	20	70
Shin girth	12	30	12	38	12	50	12	50
Child/Patient Weight								
Weight (kg)	-	36	-	36	-	56	-	68
Weight (lbs)	-	80	-	80	-	125	-	150

Technical Specifications

Device Sizing

	Small/Medium	Large	Extra-Large
Dimensions of device (cm	76 x 66	91 x 71	101 x 80
Height of device (cm)	55 - 69	72 x 98	79 x 104
Weight of device (kg)	43	45	47

Speed Settings

	Minimum	Maximum	Notes
Speed	10 steps/min	70 steps /min	The gait speed is measured in steps per minute

Gait Angle Settings

	Extension	Flexion
Hip Joints	30°	50°
Knee Joints	0°	90°

Trexo Support Forces: Torque Settings

The Trexo support force can be set from 1 to 10 (via Gait Setup) and correlate to the following motor torques (Nm):

Device Leg Size	Hip Minimum (SF1)	Hip Maximum (SF10)	Knee Minimum (SF1)	Knee Maximum (SF10)
Small	12.75	30	9.5	19
Medium	14.75	36	9.5	21
Large	17	46	9.5	22.5
Extra Large	19	50	9.5	22.5

DISCLAIMER: The values presented in this section are subject to change in the future. While Trexo Robotics strives to provide accurate and up-to-date information, various factors may impact the data displayed. We recommend customers to verify the latest information through the Trexo Robotics site or contact the Trexo Support team for the most current and reliable updates. This disclaimer serves as a precautionary note, acknowledging the dynamic nature of certain data points and the potential for adjustments over time.

The following parts of the Trexo are Type BF parts: Silicone padding, foot plates, shin cuffs, thigh cuffs, headrest, chest prompt, multi-position saddle, and arm prompts.

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B Electromagnetic Compatibility Tables

This chapter discusses the following topics:

- Electromagnetic Emissions
- Electromagnetic Immunity
- Recommended Separation Distances
- Essential Performance
- Radio Frequency Communication

Electromagnetic Compatibility (EMC) Tables

Electromagnetic compatibility means a medical device is compatible with (no interference is caused by) its electromagnetic environment and it does not emit levels of electromagnetic energy that cause electromagnetic interference in other devices in the vicinity.

The Trexo is intended for use in the electromagnetic environment specified below. Customers of the Trexo should assure that it is used in the following environment:

Electromagnetic Emissions

Emissions Test	Compliance	Electromagnetic environment —Guidance
RF Emissions CISPR 11	Group 1	The Trexo uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause interference in nearby electronic equipment.
RF Emissions CISPR 11	Class B	The Trexo is suitable to be charged in all establishments, including domestic establishments and those directly connected to the public low-voltage network that supplies buildings.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage Fluctuations / Flicker Emissions* IEC 61000-3-3	Complies	

[a]Only applicable when the device is charging. Otherwise, it is a battery-operated device.

Electromagnetic Immunity

Immunity Test	IEC60601-1-2 Test Level	Compliance Level	Electromagnetic environment — guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±8kV contact ±2kV, 4kV, 8kV, 15kV air	±8kV contact ±2kV, 4kV, 8kV, 15kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	Power Line: ±2kV Input/Output Lines: ±1kV	Power Line: ±2kV Input/Output Lines: N/A	Mains power quality should be that of a typical commercial or hospital environment for charging
Surge IEC 61000-4-5	Line to Line: ±1kV Line to Earth: ±2kV	Line to Line: ±1kV Line to Earth: N/A	Mains power quality should be that of a typical commercial or hospital environment for charging
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% / 0.5 cycle 0% / 1 cycle 70% / 25/30 cycles 0% / 5 sec	0% / 0.5 cycle 0% / 1 cycle 70% / 25/30 cycles 0% / 5 sec	Mains power quality should be that of a typical residential, commercial or hospital environment.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Proximity Magnetic Fields IEC 61000-4-39	30 kHz, CW, 8 A/m 134.2 kHz, Pulse modulation 2.1 kHz, 65 A/m	30 kHz, CW, 8 A/m 134.2 kHz, Pulse modulation 2.1 kHz, 65 A/m	Magnetic fields should be at levels characteristic of a typical location in a typical residential, commercial or hospital environment.

	13.56 MHz, Pulse modulation 50 kHz 7.5 A/m	13.56 MHz, Pulse modulation 50 kHz, 7.5 A/m	

Electromagnetic Immunity (continued)

Immunity Test	IEC60601-1-2 Test Level	Compliance Level	Electromagnetic environment — guidance
Conducted RF IEC 61000-4-6	3 Vrms, 6Vrms in ISM and amateur[a] radio bands	3 Vrms, 6Vrms in ISM and amateur radio bands	Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** d = 1.17P d = 0.35P 80MHz-800MHz d = 0.70P 800MHz to 2.7GHz Where **P** is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m) Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[b] should be less than the compliance level in each frequency range.[c] Interference may occur in the vicinity of equipment marked with the following symbol:
Radiated RF IEC 61000-4-3	Professional Healthcare Facility Environment: 3V/m Home Healthcare Environment: 10V/m 80 MHz to 2.7 GHz Additional Spot Testing: 385 MHz: 27 V/m 450 MHz: 28 V/m 710 MHz: 9 V/m 745 MHz: 9 V/m 780 MHz: 9 V/m 810 MHz: 28 V/m 870 MHz: 28 V/m 930 MHz: 28 V/m 1720 MHz: 28 V/m 1845 MHz: 28 V/m 1970 MHz: 28 V/m 2450 MHz: 28 V/m 5240 MHz: 9 V/m 5500 MHz: 9 V/m 5785 MHz: 9 V/m	E1= 10V/m 80MHz to 2.7GHz	

[a]Amateur Radio Bands are only required for adherence to the Home Healthcare Environment.

[b] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device

[c]Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended Separation Distances

Recommended separation distances between portable and mobile RF communications equipment and the ME EQUIPMENT.

The ME Equipment is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer of the ME EQUIPMENT can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the ME EQUIPMENT as recommended below, according to the maximum output power of the communications equipment.

Rated Maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.7GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.24
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

Note 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

For transmitters rated at a maximum output power not listed above, the recommended separation distance in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Essential Performance

The loss or degradation of the following performance due to electromagnetic disturbances could result in compromised patient safety:

- Accuracy of torque limiting
- Accuracy of joint angles

This degradation of performance can be observed by the following device behavior:

- Loss or reduction of torque output from the legs
- Shaking or erratic leg movement

The following performance may happen due to electromagnetic disturbances, but does not necessarily result in compromised patient safety:

- Motors stopping suddenly
- Spurious error messages

If you notice this behavior or have any instance where the tablet does not respond, press the e-stop to stop the actuation of the motors. Restart the device and move it away from any potential interference sources before re-starting ambulation.

Radio Frequency Communication

The Trexo has two Wi-Fi antennae for communication with the control tablet and an external network. The following specifications apply for the tablet to device Wi-Fi connection:

Frequency Bands	2.4GHz
Wireless Communication Standard	IEEE 802.11 b/g/n
ERP	25.6 mW

Electromagnetic Compatibility (EMC) Table

Electromagnetic compatibility means a medical device is compatible with (no interference is caused by) its electromagnetic environment and it does not emit levels of electromagnetic energy that cause electromagnetic interference in other devices in the vicinity. The Trexo has passed the following EMC tests.

Phenomenon	Basic EMC Standard	Test Level
RF Conducted and Radiated Emissions	CISPR 11	Class B – Group 1
Harmonic Current Emissions	IEC 61000-3-2	Class A
Electrostatic Discharge	IEC 61000-4-2	±8kV Contact ±15kV Air Planned Locations specified under #26 below
Radiated RF EM Field	IEC 61000-4-3	10V/m – 80 MHz to 2.7 GHz, Extra test frequencies as per IEC 60601-1-2:2014 Table 9 (copied below)
Electrical Fast Transients/Bursts	IEC 61000-4-4	Mains Supply: ±2kV, 100kHz repetition frequency SIP/SOPS: ±1kV, 100kHz repetition frequency
Surges Line-to-Line	IEC 61000-4-5	±0.5kV, ±1kV
Surges Line-to-Ground	IEC 61000-4-5	±0.5kV, ±1kV, ±2kV
Conducted Disturbances induced by RF fields	IEC 61000-4-6	3Vrms – 0.15 MHz to 80 MHz, 6Vrms in ISM and amateur radio bands between 0.15 MHz to 80 MHz. (A list of these frequencies is copied below)
Power Frequency Magnetic Fields	IEC 61000-4-8	30 A/m
Voltage Dips (single phase a.c mains)	IEC 61000-4-11	0% U_T: 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°
		0% U_T: 1 cycle 70% U_T: 30 cycles At 0°

Voltage Interruptions	IEC 61000-4-11	0% U_T: 300 cycles

Additional test frequencies for the Conducted Immunity and the Radiated Immunity tests for the Trexo.

The ISM (Industrial, Scientific and Medical) bands between 150 kHz and 80 MHz are: 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz.

Table 9 – Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment

Test frequency (MHz)	Band [a] (MHz)	Service [a]	Modulation [b]	Maximum power (W)	Distance (m)	IMMUNITY TEST LEVEL (V/m)
385	380 –390	TETRA 400	Pulse modulation [b] 18 Hz	1,8	0,3	27
450	430 – 470	GMRS 460, FRS 460	FM [c] ± 5 kHz deviation 1 kHz sine	2	0,3	28
710	704 – 787	LTE Band 13, 17	Pulse modulation [b] 217 Hz	0,2	0,3	9
745						
780						
810	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation [b] 18 Hz	2	0,3	28
870						
930						
1 720	1 700 – 1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation [b] 217 Hz	2	0,3	28
1 845						
1 970						
2 450	2 400 – 2 570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation [b] 217 Hz	2	0,3	28
5 240	5 100 – 5 800	WLAN 802.11 a/n	Pulse modulation [b] 217 Hz	0,2	0,3	9
5 500						
5 785						

NOTE If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3.

[a] For some services, only the uplink frequencies are included.

[b] The carrier shall be modulated using a 50 % duty cycle square wave signal.

[c] As an alternative to FM modulation, 50 % pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.

Warranty

The Trexo has a service life of 5 years. Subject to separate coverage for certain parts and the exclusions and limitations described in this Warranty, the Warranty covers the repair or replacement necessary to correct defects in the materials or workmanship of any parts manufactured or supplied by Trexo Robotics Inc. (Company) that occur under normal use for a period of 3 years.

BATTERY: The Battery will experience gradual energy or power loss with time and use. Loss of Battery energy or power over time or due to normal battery usage is NOT covered under this Warranty. With proper maintenance of the battery, as outlined in the Charging Best Practices section, the service life will be approximately 500 charge cycles.

This Warranty does not cover any damage or malfunction directly or indirectly caused by, due to or resulting from normal wear or deterioration, abuse, misuse, negligence, accident, improper maintenance, operation, storage or transport, including, but not limited to, any of the following:

1. Failure to take the Trexo to, or make repairs or service recommended by the Company upon discovery of a defect covered by this Warranty.
2. Accidents, collisions, or objects striking the Trexo.
3. Any repair, alteration or modification of the device that was made inappropriately, or the installation or use of parts or accessories, made by a person or facility not authorized by the Company.
4. Any damage to the Trexo hardware or software, or any loss or harm to any personal information/data uploaded to the Trexo resulting from unauthorized access to the data or software from any source, including non-Trexo parts or accessories, third party applications, viruses, bugs, malware, or any form of interference or cyber-attack.
5. Theft or vandalism.
6. Fire, explosion, lightning, hail, flood, or water exposure.
7. Using the device over rough, uneven or hazardous surfaces.
8. Overloading the Trexo beyond the maximum weight rating.
9. The environment or an act of God.

In addition to the above exclusions and limitations, expendable items such as footplates, paddings, straps, and cuffs are limited in coverage for a period of 6 months, subject to the exclusions and limitations already described in this Warranty.

The walker, if provided with the Trexo, is NOT part of this Warranty, and has its own warranty provided by Rifton Equipment. Please contact Rifton for any issues relating to the gait trainer.

Assistance

For any questions/concerns regarding the use of the device or the contents of this manual, please email support@trexorobotics.com.

Website: www.trexorobotics.com/contact
Call: Toll Free - (844) 844-0607
Email: support@trexorobotics.com

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Mississauga, ON L5N 5M4, Canada

For devices sold in Australia contact:

Australian Sponsor

APEX MOBILITY
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2025 Trexo Robotics Inc.

THP-IFU-008 Rev 2 - Trexo Home / Plus Instructions for Use

Specifications are subject to change

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