



NeuroGym Technologies Inc.

Sit-to-Stand Trainer

Product Manual

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Unpacking Instructions

The Sit-to-Stand Trainer is shipped fully assembled on a 4x4 skid. Remove the protective wrapping. The sling(s) and bariatric extender will be included inside this wrapping.

Product Overview

The NeuroGym® Sit-to-Stand uses a counter-weight mechanism to provide a safe and effective way to strengthen weight-bearing muscles and increase standing stability and endurance. Unlike other tools that lift people to, or maintain them in, a standing position, The Sit-to-Stand enables a patient to successfully initiate the motion of standing-up, even with weakened or seemingly unsuccessful efforts. Through continued training and gradually reducing the counter-weight, a client can relearn the standing-up skill.

Equipped with a weight-stack and a locking pulley system, the counter-weight can be easily applied to the Sit-to-Stand. Because it is mounted on wheels, early steps can be attempted in all directions.

Specifications

28" x 36" x 74"

Weighs 180 lbs

Benefits

ENCOURAGES EARLY WEIGHT BEARING AND
ACTIVE MOBILIZATION AT THE HIPS AND KNEES

IMPROVES STANDING BALANCE AND STABILITY
SIGNIFICANTLY IMPROVES TRANSFERS

IMPROVES CLIENT REHABILITATION WITHOUT
PHYSICAL STRAIN TO THE THERAPIST

ACTIVELY ASSIST THE STANDING MOTION WITH SUPPORT AT THE KNEE,
TRUNK AND ARMS TO PROMOTE EARLY MOBILITY

List of Precautions for the Sit-to-Stand Trainer

1. It is not advisable to use the Sit-to-Stand Trainer with individuals who have extreme full body weakness (quadriparesis) unless supervised by a clinician.
2. Use special caution with individuals who have severe osteoporosis, especially if they have not attempted to stand for a long period of time.
3. Use caution with individuals who have weak ankles. Extra support may be necessary at the ankle joint to prevent injury.
4. Use caution with individuals who have flexor or extensor tone in the upper extremity. ***Closely supervise to ensure that the hands do not let go of the handle bar.***
5. Use caution with individuals who have flexor tone in the lower extremity (e.g. place your foot behind the user's heel). Closely supervise to ensure that the legs do not lift upwards from the ground.
6. Ensure that the individual has the ability to sit down when fatigued, especially when performing mobility exercises.
7. ***Lock the wheels of the Sit-to-Stand Trainer for all stationary movements and/or during any standing attempt prior to performing mobility exercises.***
8. Adjust the knee support pad height to a level that is at, or slightly below the knee joint.
9. Ensure that the knee support pad is set at a distance close enough to allow the individual to grasp the handle bar.
10. ***Check frequently that the knees do not slip laterally off the knee support pad.***
11. Ensure that the counter-weight support strap is attached around and/or below the bulk of the buttocks region to prevent the strap from slipping upwards.
12. Properly supervise the individual at all times that he/she is in the Sit-to-Stand Trainer.
13. Always provide a safe training environment. The floor should be flat, even and free from debris.

**For Service or Part information call:
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Identifying the Parts of the Sit-to-Stand Trainer

(See Figure # 1)

Positioning Pin Assemblies – 3

1 Handlebar Adjustment

1 Knee Pad Height Adjustment

1 Knee Pad Relative Anterior-Posterior Adjustment

Petzl

Rope

Pulley

Weight Stack Cable

Weight Stack

Weight Adjust Pin

Carabeeners – 2

1 To attach Rope to Sling

1 To attach Petzl to Weight Stack Cable

Sling (Washable)

Sling Rings – 2

One on each end of the sling

Bariatric Extender

Bariatric Center Ring

Bariatric Extender Adjustment

Knee Pad

Handlebars

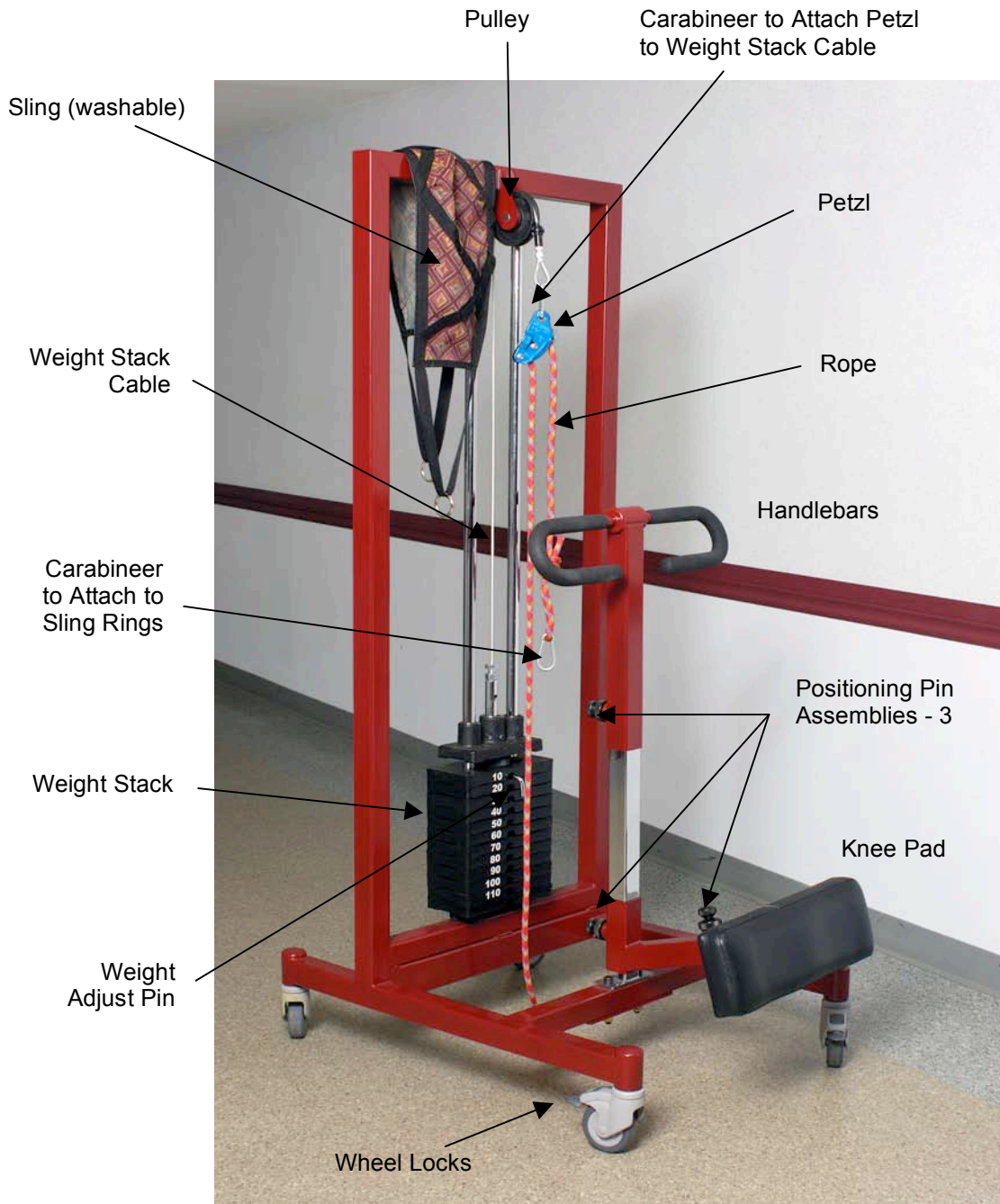
Wheels

Wheel Locks

Instructions for Use

Client should be positioned in a wheelchair (with wheels locked) or in a stable sitting chair in front of the Sit to-Stand Trainer with feet flat on the floor and knees slightly apart and in contact with the knee pad. If possible, heels should be positioned slightly back such that there is some dorsiflexion at the ankles and such that the toes are approximately in line with the knees.

Figure #1 – Sit-to-Stand Trainer



Sling Positioning



Stand behind the client and prepare the sling so that the non-fabric side of sling behind the client's back

Ask client to lean forward slightly to enable sling to be slid down client's back and under buttocks such that inguinal strap edge of sling rests along the clients gluteal fold.



Encouraging client to shift their weight to one side will enable the sling to be slid under the elevated hip. Repeat on the other side to facilitate sling positioning. (This will quickly become easier as residents understand the objective and improve their ability to assist.)



Wheelchair arms can be removed or tilted upward for easier access.

Inguinal straps should be visible between clients' legs and freely accessible for fastening to Velcro attachments once the client is standing.



Ensure clients' buttocks are centered on sling such that there is an equal amount of sling visible on either side of the pelvis and metal rings when brought together in front of client are centered.



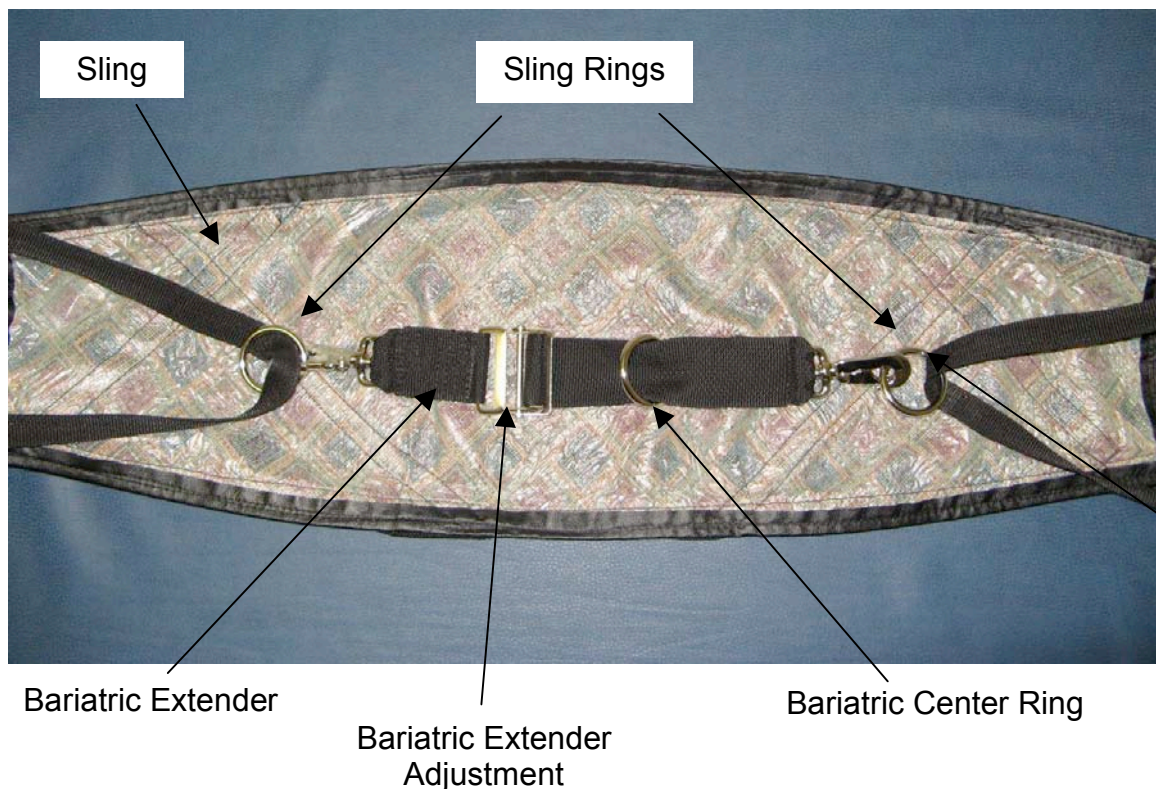
If clients' girth prevents metal rings on either end of the sling from meeting in front of client, the bariatric extender can be applied. Connect hooks on either end of the bariatric extender to opposite metal rings on the sling. (Figure #2)

Connect the Bariatric Center Ring on the Bariatric Extender to carabineer on rope.

If the Bariatric Extender is not required, connect the carabineer on the rope to the rings on either end of the sling.

After the client is in a standing or partial standing position, fix inguinal straps to Velcro fasteners, right strap to right Velcro attachment and left strap to left Velcro attachment, to prevent sling from sliding up and off client's buttocks

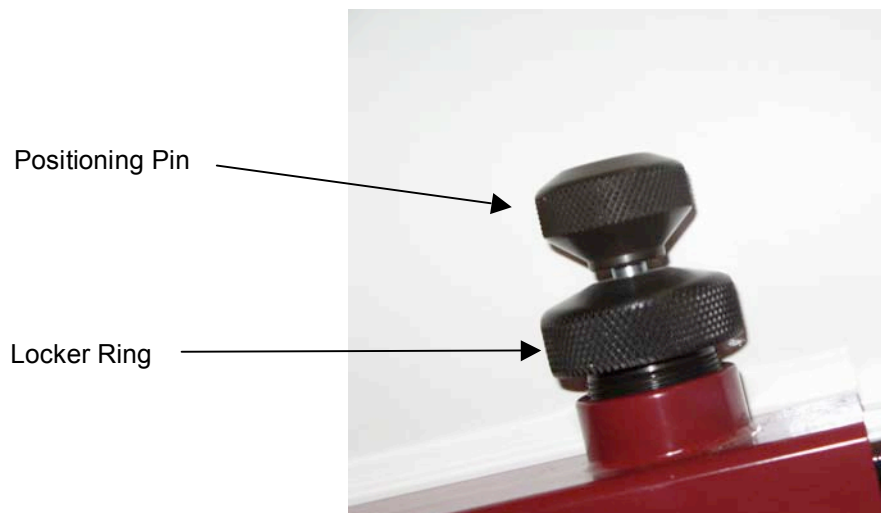
Figure #2 – Sling and Bariatric Extender



Using the Positioning Pin Assemblies

The three Positioning Pin Assemblies are used to adjust the handlebar height, and the height and relative anterior-posterior position of the kneepad to allow adjustments for particular clients. The Positioning Pin Assemblies are composed of two parts, the Positioning Pin and the Locker Ring. (See Figure 3). The Locker Ring is only required to be rotated $\frac{1}{2}$ turn counterclockwise to loosen the Assembly. The Positioning Pin can only be pulled out when the Locker Ring is loosened. After the Locker Ring is loosened, pull the Positioning Pin out and move the desired component up or down. While you are moving the desired component, let go of the Locking Pin to allow it to drop into the next setting. Once the desired position is achieved, turn the Locker Ring $\frac{1}{2}$ turn clockwise to secure the assembly.

Figure #3 – Positioning Pin Assembly



Positioning the Kneepad

Ensure all four wheel brakes on the Sit-to-Stand Trainer are locked.

Ensure client wheelchair brakes are locked.

Client is typically positioned such that knees are in contact with the knee support pad.

Position knee support pad such that pad is at or slightly below knee joint and client can still reach handlebar when leaning forward. The knee support pad height and distance from the weight stack are both adjustable by using the Positioning Pin Assembly and moving the pad up/down or in/out to the desired location. The Positioning Pin will snap into the pre-drilled holes, locking the position.

Positioning the Handlebar

Position handlebar such that when grasped by client, client's arms angle slightly upwards (not parallel to floor), enabling client to engage their arms and their core with each standing attempt.

If shoulder range of motion or flexor tone limits the client's ability to grasp the handlebar, slight assistance can be provided by pulling on the side of the sling to assist with the standing effort.

Selecting and Engaging the Counterweight

Ask the client to sit back in their chair and begin by positioning the Weight Selection Pin at 40 pounds, a good intermediate counter weight to start with. This counterweight may need to be adjusted up or down depending upon the ease of standing and the clinical goals. Increasing the counterweight will aid in the standing motion and likewise decreasing the counterweight will require more active standing effort from the client.

Grasp the free end of rope and raise the counterweight by leaning backwards, maintaining a straight torso and using lower extremities and body weight to assist with the pull.

Pull in small increments rather than one long pull to raise counterweight.

Ensure pulling motion is parallel to the rope that connects the resident. This is best accomplished by pulling from behind either the left or right shoulder of the client.

See Figure 4 for an illustration of the above instructions.

If the rope is pulled out to the side and away from the client, it can cause the plasticized weight cable to get caught in the pulley wheel. This may damage the plastic coating on the Weight Stack Cable.

To provide client with counterweight support throughout the sit to stand range, pull to position the petzl just above the knotted portion of the rope.

To provide client with counterweight support at the beginning only, rather than the end of the sit to stand motion, position the Petzl farther away from the rope knot. As client stands, support will be available only until counterweight comes into contact with remainder of weight stack. Note that at this point the Petzl is designed to release.

Figure # 4 – Correct Body Mechanics for Operating the Sit-to-Stand Trainer



Incorrect



Correct

Correct Body Mechanics

The pulley system of the Sit-to-Stand is designed to ease and assist the act of engaging the counter weight. The technique shown on the right is the biomechanically correct and easiest way for the trainer to pull the counter weight. The counter weight should be raised by leaning backwards, maintaining a straight torso, and using the lower extremities to assist with the pull. When done this way, even relatively light trainers can use their body weight to easily pull up the counter weight. It is recommended that the counter weight be pulled up in small increments rather than one long pull.

Beginning the Sit-to-Stand Practice

Ensure that client's feet are flat on the floor and that arms are extended to grasp the handlebar.

Individuals with weak ankles may require additional support to avoid injury at the ankle joint. This support can be provided by the Trainer or with the use of a properly fitted splint/brace. The Ankle can be effectively trained with the NeuroGym Ankle Trainer. (See Other Products)

Individuals with lower extremity flexor tone must be observed to ensure heels do not elevate during the standing motion. The Trainer may place a foot behind the client's heels to ensure feet stay flat on the ground.

Start the training with controlled partial standing; gradually progress to full standing.

Observe the smoothness of the standing motion. If the client is being pulled to standing and contributing little to the standing effort, reduce the counterweight. If they are unable to achieve even a slight standing motion, increase the counterweight. The goal is to provide the client with just enough assistance to be able to successfully perform the standing motion, but with as much independent effort as possible.

Adjusting the Counterweight

Adjust the counterweight when the client is in a seated position. Disengage the weight by releasing the Petzl while firmly gripping the rope and lowering the weight down onto the weight stack. As when pulling up a weight, make use of body weight and lower extremities while maintaining a slight backward lean when lowering the weight.

Standing Practice Activities

When the correct counterweight is selected, the client may perform repeated standing from a seated position. Alternatively, once standing, a squatting motion (half way down to a seated position and back to standing) may be practiced.

Once standing, weight shifting from one foot to the other may also be practiced.

When standing is stable and weight shifting is performed adequately, the Trainer may unlock the wheels of the Sit-to-Stand Trainer to allow for early first steps forward, backwards or sideways to be taken.

For additional training activities, consult accompanying CD and NeuroGym Technologies Inc. Application Notes available on the web site at www.neurogymtech.com.

Completing a Training Session

To remove a client from the Sit-to-Stand Trainer, the client should be comfortably seated.



With one hand, slowly lift the Petzl lever, while the other hand is placing a small amount of tension on the free end of the rope. The Petzl can then be guided upwards enabling the counterweights to be disengaged.

Releasing Petzl lever

Once all the tension is off the rope, the sling rings can be disconnected from the carabineer.

Remove the sling from under the client and spray inside surface with disinfectant

Maintenance

Use disinfectant wipes or spray to clean sling and handlebars after each use.

Sling can be laundered regularly in warm water when soiled.

The metal frame and weight stack should be wiped down/dusted regularly.

Inspect brakes regularly to ensure proper function.

Inspect Petzl & rope routinely to ensure integrity.

Inspect plasticized wire cable for fraying of plastic coating. If plastic coating is chipped or frayed, inspect underlying metal cable for integrity.

Sample Evaluation Sheet (See Chart # 1)

The following sample evaluation sheet may be used with the guidance of a health professional to collect relevant objective measurements to record client progress.

NeuroGym® Sit-to-Stand Trainer

Sample Client Evaluation Form

Name: _____

Date of Birth: _____

Functional Measures of Standing in the Sit-to-Stand:

Counter-weight required for standing (lbs):

| | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|
| Date | | | | | | | | | | | |
| | | | | | | | | | | | |

Able to attain:

- .25 standing position
- .5 standing position
- .75 standing position
- full standing position

| | | | | | | | | | | | |
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Ability to let go of handlebar:

- Not at all
- Halfway to standing
- Once Standing
- Stands without using handlebar

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
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Number of squats in 10 sec

(from standing to half-way to sitting & back to standing):

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Number of weight shifts in 10 sec

(foot-to-foot weight transfer):

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Able to take steps forward (Y/N):

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Functional Measures of Progress

- MDS Adjusted Measure of Standing (0-8):
- MDS Adjusted Measure of Transfers (0-8):
- Self-Tolerating in Sitting: Y/N
- Hoover-Lifted: Y/N

| | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|
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MDS Adjusted Scale:

0 - No setup or physical help

1 - Setup help only

2 - 1-person physical assist

3 - 2-person physical assist

8 - ADL did not occur during 7 days

Other Products

Bungee Walker



The NeuroGym[®] Bungee Walker is a versatile body weight support mechanism enabling safe, intensive motor retraining. The unique patented design enables the re-training of gait and natural protective reactions by counteracting loss of stability as naturally as possible. Comparable to a pool environment in terms of support, the Bungee Walker allows graduated weight bearing while normal protective reactions such as sidestepping are re-developed. The Bungee Walker provides graduated support from underneath, rather than a harness mechanism that provides the support from above. Supporting the patient from above does not allow this 'natural' graduated support, particularly upon loss of balance. The Bungee Walker enables more realistic safe practice of gait, and most importantly, the protective reactions necessary to prevent falls.

Ankle Trainer



Strengthen paretic, sprained or post-surgical ankles by isolating and training targeted muscle groups through a complete range of motion. The NeuroGym[®] Ankle Trainer is a lightweight, portable device with an axle and foot platform that can be locked into place. This unique design permits training in dorsiflexion, plantar flexion, inversion, eversion, internal and external rotation—motions that are difficult to isolate and specifically strengthen.

NeuroGym Trainer



The NeuroGym[®] Trainer II is a mobile, multi-faceted biofeedback device designed to help clients regain motor control and coordination. The NeuroGym Trainer II uses input from various sensors to control the action of computer games, for instance to move a paddle to intercept a ball or to steer a car along a track.



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