Contemporary Design Company

SHUTTLE® MiniPress

Take the leg press to the patient

OWNER'S MANUAL

Contemporary Design Company

SHUTTLE® SYSTEMS

MADE IN U.S.A. | PATENT NO. 6,042,523 | MANUAL VERSION 2.0

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I. SHUTTLE MINIPRESS INTRO

The Shuttle MiniPress was designed to serve the patient in the period between surgery and her/his ability to bear partial weight. It was developed to provide simple, quality movement shortly after surgery and then expand into a low-level exercise program. A patient may use the MiniPress in bed, on the floor, sitting in a chair or wheelchair, or on a treatment table.

In response to the need for a method of restoring and maintaining the range of motion for postoperative patients, CDC Shuttle Systems has developed the Shuttle MiniPress. This highly portable device can be easily transported to the patients home as well as be used in a professional setting with a patient in need of early range of motion movement or exercise. The MiniPress utilizes the same general technology employed on all models of Shuttle machines and is poised to bring the benefits of early closed chain rehabilitation to an even wider range of patients than was previously possible.

Users and professionals working in clinical, institutional, athletic, and specialized settings have created a wide variety of exercises for Shuttles that were not imagined when the original CMC Shuttle 2000 was first conceived. We expect a similar expansion of applications to occur with the MiniPress. Please connect with us if you have a specific protocol to share with other Shuttle MiniPress users.

WARRANTY REGISTRATION

Scan the QR code to be directed to the warranty registration form on our website. You can find more information about your warranty at www.shuttlesystems.com/support

LIMITED ORIGINAL EQUIPMENT WARRANTY

CDC Shuttle Systems makes every effort to assure that its' products meet high quality and durability standards and warrants to the original retail consumer/purchaser of our products that each product be free from defects in workmanship and materials under normal and reasonable use and correct assembly (if assembled by consumer/purchaser), as follows. Warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities or to a lack of maintenance.

1. For a period of FIVE YEARS: Bolted metal frames, Carriage, Footplate, frame, and wheels.
2. For a period of TWO YEARS: Footplate face
3. For a period of ONE YEAR: Elasticords, Lockdown ropes, foam handle, and all other parts.

If the shipping carton appears damaged upon delivery, or the MiniPress Carriage does not slide as it should, please contact us immediately

II. UNDERSTANDING YOUR SHUTTLE MINIPRESS

The heart of the Shuttle MiniPress is the method employed to add resistance to the Carriage. The components of this system are the Elasticord Hook-Up Plate, a set of pulleys, and six Elasticords. Each Elasticord fits in a slot in the Carriage. The user grasps the Elasticord knob protruding from the Carriage, pulls it out and inserts the knob in the corresponding slot in the frame. The user also selects the number of Elasticords to reach the desired load. When engaged, these Elasticords provide the desired resistance. The five black Elasticords provide about 7 lbs of starting load each. The red Elasticord has a beginning resistance of about 2 lbs. At full stroke, the black Elasticords provide about 20 lbs of resistance each and the red, about 5 lbs. Thus, the load capacity of the MiniPress Elasticord Resistance System ranges from 2 lbs to approximately 100 lbs at full extension.

The Shuttle MiniPress has a wide range of possibilities. Because the unit is lightweight and portable, desired degrees of flexion and extension are easily established by varying the position of the patient and the distance between the unit and the patient.

For example, a patient will have greater flexion at the knee if they use the MiniPress while seated in a chair, or lying in a supine position in bed or sitting flexed at the hip on a treatment table. Use of a goniometer will ensure an accurate flexion angle measurement and documentation of improvement.

Increasing the number of Elasticords allows the practitioner to add small incremental loads to enable low to moderate levels of muscle and joint strengthening. In addition, the Elasticords allow for both concentric and eccentric muscle loading.

Unlike many closed chain devices, the Shuttle MiniPress has the advantage of being used as a progressive form or "active CPM". For example, with minimal friction provided by the wheels as they roll on the aluminum track, the recovering leg can be propelled on the Footplate by the active leg. Gradually, the healthy limb exerts less pressure and the affected limb is called upon to do more work, thus requiring increased active muscle firing and recruitment patterns to improve the neurological feedback from the injured limb.

LATEX WARNING!

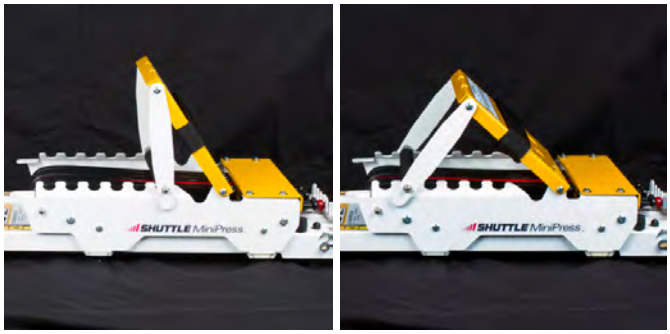
Elasticords are made of natural latex. Some people have an allergic reaction to latex. The MiniPress is constructed so that the Elasticords can be moved and adjusted without direct contact with the latex. We recommend using gloves when maintaining the MiniPress.

Distance Indicator Label

Assists the user in measuring the stroke distance traveled. Distance is measured from the leading edge of the Carriage. The numbers indicate the distance of carriage movement in inches.

Footplate Adjustment

The Footplate is adjustable from 0 to 75 degrees from a horizontal line with the Carriage. Adjustment is accomplished by lifting the support bar on the back side of the Footplate frame and placing the bar into the appropriate slot. The rubber sleeve helps secure the bar.



Foot Position Label

The label on the Footplate shows correct positioning of the patient's foot.

Security Strap

There is a black strap attached to the Footplate, which secures the extremity against the Footplate.

WARNING!

Keep fingers and foreign objects outside the Frame at all times. Do not place hands inside the Frame or on the Carriage while the machine is in use.

Stabilizing the MiniPress

Two black ropes with hooks are attached to each side of the MiniPress. When secured properly, these ropes keep the machine in place when the patient pushes the Footplate.

Stability from a chair - The Stabilization Ropes may be attached to chair legs or wheelchair frame to maintain the desired range of motion for the patient. Place the chair up against a wall in order to keep it from tipping over when resistance is applied.

Stability from a treatment table or bed - The Stabilization Ropes may be held in the hand of the practitioner if they are not able to wrap around the legs of the table or bed.

Stability from a tabletop (for Upper Body Exercise) - The rubber feet at the ends of the frame are placed against the edge of a tabletop. This helps stabilize the machine and prevents it from sliding on the table when the patient pushes against the Footplate.

Maintenance and Cleaning

The MiniPress is easy to keep clean and requires only a limited amount of maintenance. Mild soap and water, or antibacterial wipes are safe cleaning products.

Removing the Carriage - To remove the Carriage from the rails remove the two clips from one side of the carriage using a phillips head screwdriver. Then lift one side of the Carriage up over the side of the rail. The carriage will slip off easily. To install the Carriage, reverse the process. During normal use, the carriage will be held on the rails by the two clips extending under each rail.

Cleaning the Carriage and Frame - Once the Carriage is removed, both the Frame and Carriage may be washed with mild soap and water. Prolonged exposure to water can rust the bearings in the wheels attached to the Carriage, so do not immerse the Carriage or Frame in water. Lubrication of the wheels and track can be done using Tri-Flow® or WD-40® for smooth operation.

Cleaning the Footplate - The surface of the Footplate can be washed with disinfecting wipes or mild soap and damp cloth.

Elasticord Lubrication - Lubrication of your Elasticords (using only Shuttle Systems Silicone Gel) is recommended every 2 years. Without lubrication, your cords will eventually become brittle and weak and can result in decreased resistance.

To Lubricate Elasticords:

1. Engage one cord at a time and press carriage 10-12 inches exposing the Elasticord.
2. Apply a pea size portion of Shuttle Systems Silicone Gel to each Elasticord using latex gloves.

Part #4011 - SILICONE GEL - 5.3 oz tube
Part #4407A - COMPLETE SET MINIPRESS ELASTICORDS (SET OF 6)

An example of a poorly maintained Elasticord

WARNING!
Do not use oil, or any petroleum products on the elasticords. Silicone gel may be purchased from your Shuttle Dealer

III. USING THE SHUTTLE MINIPRESS

PRECAUTIONS

The MiniPress is very safe and user-friendly. Moving parts are kept to a minimum and safely covered by the aluminum frame and carriage. However, there are a few procedures to follow for safe operation.

1. When using the MiniPress for upper and lower extremities, the Security Strap should always be used to bind the extremity to the Footplate.
2. When in use, the Stabilization Ropes should be attached to a stable object.
3. Keep fingers and objects outside the frame at all times while the MiniPress is in use.
4. When using the MiniPress with a patient sitting in a chair, the back of the chair must be up against the wall, or an immovable object, to prevent the chair from being overturned. Excessive force applied to the Footplate might cause the chair to tip over backwards.
5. Do not stand on the MiniPress, or attempt to use it while standing on it. There are several exercises in which the MiniPress is used while standing; however, in these, the patient is always stabilized on the floor, not on the machine. We strongly suggest that the patient is firmly holding onto a railing, such as parallel bars, or supported by the therapist.

GENERAL MACHINE FUNCTIONS

Elasticord Resistance

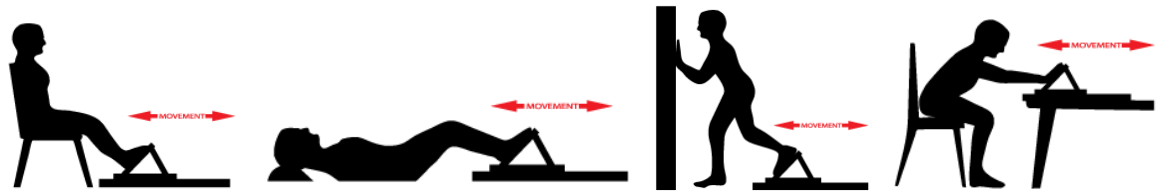
The MiniPress is equipped with five black latex Elasticords, each with a starting load of 7 lbs, and one red Elasticord, with a starting load of 2 lbs. With all Elasticords engaged, the initial load is approximately 32 lbs. When stretched to the maximum, the total load is approximately 100 lbs.

Attach Elasticords - Pull one black knob from the Carriage and insert the slotted knob into the respective slot on the frame to secure it.

Detach Elasticords - Grasp the knob and lift from the frame slot, allowing the cord to retract gently to its starting position.

IV. EXERCISE PROTOCOLS

The MiniPress is a closed kinetic chain exercise device designed to initiate early lower extremity motion in a functional pattern. It allows the practitioner to introduce un-weighted range of motion or gradual resistance from very light to moderate, applied either unilaterally or bilaterally. Exercises may be performed from a supine, standing or seated position, as dictated by their health. Some basic exercises for the MiniPress are shown below.



TREATMENT PROGRESSION

NOTE THESE ITEMS BEFORE YOU USE THE SHUTTLE MINIPRESS

1. Use the Stabilization Ropes to steady the machine, if necessary.
2. Set the Footplate to the appropriate angle for the patient's use. The varying angles of the footplate will allow Plantarflexion and Dorsiflexion.
3. Monitor range of motion, smoothness and alignment of the foot with the knee.
4. Begin with a light load to allow full use of the patient's available range of motion and gradually increase resistance.
5. To increase hip & knee stability add a ball or proprioceptive disk, this will introduce a neuromuscular component to the exercise.

SEATED LOWER EXTREMITY PROTOCOLS

REFER TO SEC. III PRIOR TO PROCEEDING

QUAD STRENGTHENING

1. Orient the machine with the Adjustment Load Knobs facing the patient.
2. Stabilize the machine.
3. Set the Footplate to the appropriate angle for patient's comfort.
4. Secure the patient's foot/feet to the Footplate using the Security Straps around the heel and the Velcro strap over the top of the foot.
5. The patient can perform a simple push-pull exercise within the desired range of motion.
6. Engage Elasticords as strength and comfort dictate.

HAMSTRING STRENGTHENING (Sit to Stand)

1. Orient the machine with the Adjustment Load Knobs facing away from the patient.
2. Stabilize the machine.
3. Set the Footplate to the flat position.
4. Place the black Security Strap behind the heel(s).
5. The patient can start moving the Carriage by pushing their leg(s) away from the body and drawing them back in a controlled manner.

HEEL SLIDE

(with no resistance—useful for increasing ROM after knee surgery)

1. Orient the machine with the Adjustment Load Knobs facing the patient.
2. Stabilize the machine.
3. Set the Footplate to the appropriate angle for the patient's comfort.
4. Secure the patient's foot/feet to the Footplate using the Security Straps around the heel and the Velcro strap over the top of the foot.
5. The patient can start moving the Carriage by pushing the leg away from the body and drawing it back in a controlled manner.
6. Monitor for range of motion, smoothness and alignment of the foot with the knee.

UNILATERAL LEG PRESS

1. Orient the machine with the Adjustment Load Knobs facing the patient.
2. Stabilize the machine.
3. Set the Footplate to the appropriate angle for the patient's comfort.
4. Secure the patient's foot to the Footplate using the Security Strap.
5. The patient can move the Carriage by pushing one leg away from the body and drawing it back in a controlled manner, while the other leg maintains stability on the floor.
6. Engage Elasticords based upon weight-bearing ability.
7. Monitor for range of motion, smoothness and alignment of the foot with the knee.

Unilateral Variation I:

Rotating the ankle clockwise or counter-clockwise while pressing on the Footplate will introduce medialis or lateralis muscle firing.


Unilateral Variation II:
By adding a ball, instability is added to the process which will introduce a neuromuscular component to the exercise.

BILATERAL LEG PRESS

1. Orient the machine with the Adjustment Load Knobs facing the patient.
2. Stabilize the machine.
3. Set the Footplate to the appropriate angle for the patient's comfort.
4. Secure the patient's foot/feet to the Footplate using the Security Strap over the foot.
5. The patient can start moving the Carriage by pushing the leg(s) away from the body and drawing them back in a controlled manner. If applicable, the uninjured leg may be used to propel the MiniPress to assist the injured leg.
6. Engage Elasticords based upon weight bearing ability.
7. Monitor for range of motion, smoothness and alignment of the foot with the knee.

Bilateral Variation I:

Place a rubber ball between the knees. Medialis muscles are necessarily involved to keep the ball in place. The ball should not rotate if both limbs are pressing equally hard.


Unilateral OR Bilateral Leg Press Variation I:

Leg Press with Theraband (pulling laterally on one or both knees)

Attach a Theraband from the patient's knee to a hard point to the right or left of the knee. This will activate the lateralis of either limb.

Unilateral OR Bilateral Leg Press Variation II:

Leg Press with Dynadisc® on Footplate

Place a DynaDisc® under the patient's foot or feet. This will introduce neurological involvement with the patient's ankle and knee.

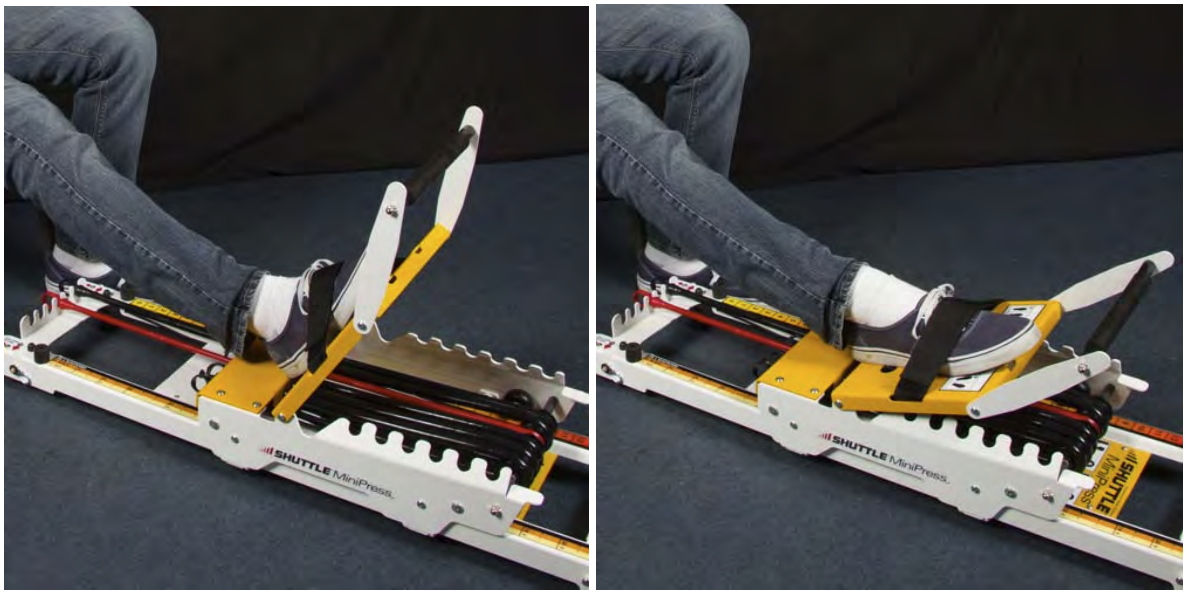
Leg Press Tip:

To accurately determine the load during the entire stroke place a simple spring scale under the patient's foot or feet. Zero out the spring scale to compensate for vertical orientation.

KNEE FLEXION (Hamstring exercise with resistance)

1. Orient the machine with the Adjustment Load knobs facing away from the patient.
2. Secure the machine.
3. Set the Footplate to a flat position.
4. Secure the patient's foot (or feet) to the Footplate using the Security Strap over the foot.
5. The patient can perform a slow, controlled push-pull exercise within the desired range of motion.
6. Engage Elasticords as based upon weight-bearing ability.
7. Monitor for range of motion, smoothness and alignment of the foot with the knee.

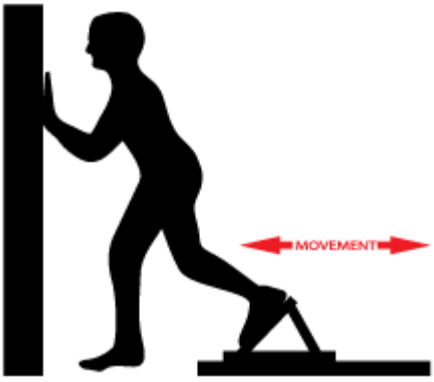
TOE LIFT (DORSIFLEXION)



1. Orient the machine with the Adjustment Load Knobs facing the patient.
2. Secure the machine.
3. Remove the Support Bar so the Footplate swings freely.
4. Secure the patient's foot to the Footplate using the Security Strap over the foot.
5. Keep the knee at full extension while pulling the toes toward the chair.

STANDING PROTOCOLS

REFER TO SEC. III PRIOR TO PROCEEDING



Do not stand on the MiniPress, or attempt to use it while standing on it. There are several exercises in which the MiniPress is used while standing; however, in these, the patient is always stabilized on the floor, not on the machine. We strongly suggest that the patient is firmly holding onto a railing, such as parallel bars, or supported by the therapist.

STANDING HIP ABDUCTION (Trunk Stabilization)

1. Stabilize the machine.
2. Set the Footplate to a flat position.
3. Direct the patient to stand in such a way that the machine is facing sideways with the Adjustment Knobs on the same side as the supporting leg.
4. Direct the patient to place their foot on the open surface of the Carriage directly before the Footplate so that the active leg is slightly across the front of the body.
5. The patient will start by pushing the Carriage laterally away from the body and bringing it back in a controlled manner.
6. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.
7. Monitor for proper stabilization of the trunk and supporting leg.

STANDING HIP ADDUCTION

1. Stabilize the machine.
2. Set the Footplate to a flat position.
3. Direct the patient to place their foot on the open surface of the Carriage directly before the Footplate so that the active leg is slightly to the side of the supporting leg.
4. The patient can start by pulling the Carriage laterally across in front of the body and pushing it back in a controlled manner.
5. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.
6. Monitor for proper stabilization of the trunk and supporting leg.

STANDING HIP EXTENSION

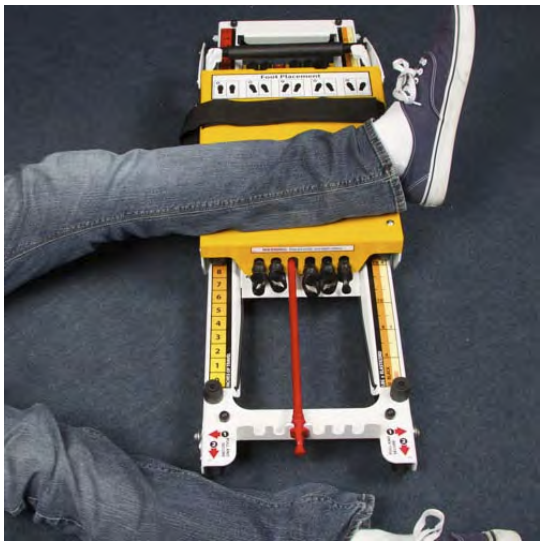
1. Stabilize the machine.
2. Set the Footplate to the appropriate angle for the patient's use.
3. Direct the patient to stand before the machine with the Adjustment Load Knobs facing the patient’s heels at a distance where the patient can perform a pushing exercise within the desired range of motion. The relationship between the machine and the patient will need to be adjusted to accommodate leg length.
4. Direct the patient to place the active foot on the Footplate.
5. The patient can start moving the Carriage by pushing the leg away from the body and drawing it back in a controlled manner.
6. Monitor for smoothness of extension, alignment and pelvic stability.

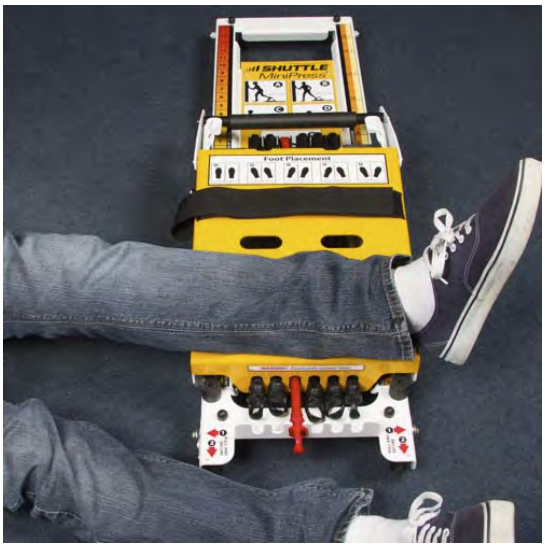
SUPINE PROTOCOLS

REFER TO SEC. III PRIOR TO PROCEEDING

When using the Shuttle MiniPress in a bed. Use foam roll or pillow to prop the end of the MiniPress. This will help prevent the Carriage from rubbing on the bed.

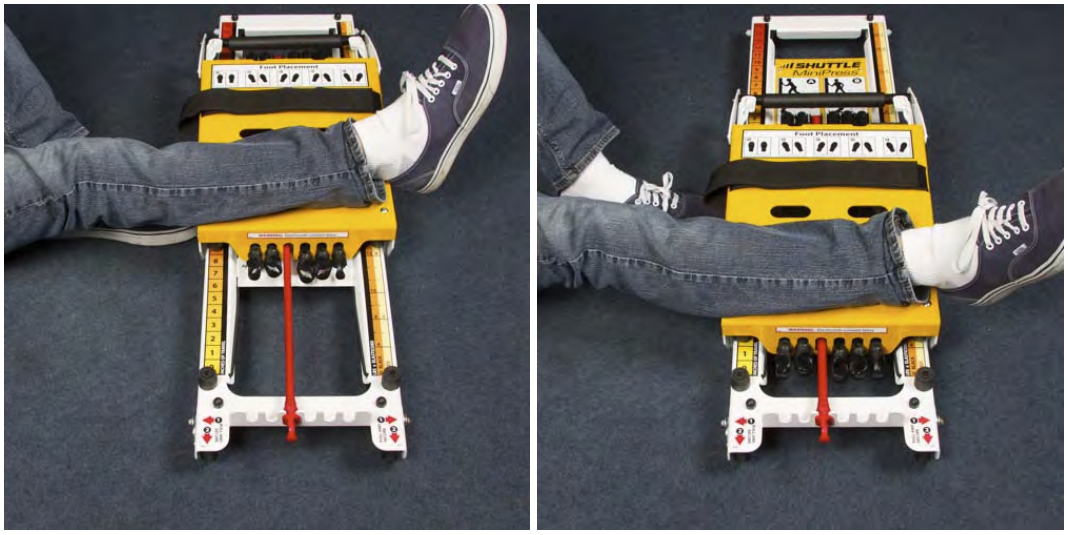
SUPINE HIP ABDUCTION





1. Stabilize the machine.
2. Set the Footplate to a flat position.
3. Direct the patient to lie supine in such a way that the machine is facing sideways in front of them with the Load Adjustment Knobs on the same side as the supporting leg.
4. Direct the patient to place their active (moving) foot on the open surface of the carriage directly before the Footplate. A pad under the patient that brings the level of the patient to the level of the MiniPress is recommended.
5. Ask the patient to start by pushing the Carriage laterally away from the body and allowing it to return in a controlled manner.
6. Begin with a light load to allow full use of the patient's available range of motion and gradually increase resistance.
7. Monitor for proper stabilization of the trunk and supporting leg.

SUPINE HIP ADDUCTION



1. Stabilize the machine.
2. Set the Footplate to a flat position.
3. Orient the patient to lie supine in such a way that the machine is facing sideways with the Load Adjustment Knobs on the same side as the active leg. A pad under the patient that brings the level of the patient to the level of the MiniPress is recommended.
4. The patient will place his/her foot on the open surface of the Carriage directly before the Footplate.
5. Ask the patient to start by pulling the Carriage laterally toward and across in front of the body and allowing it to return in a controlled manner.
6. Begin with a light load to allow full use of the patient's available range of motion and gradually increase resistance.
7. Monitor for proper stabilization of the trunk and supporting leg.

SUPINE QUAD EXTENSION

1. Orient the machine with the Load Adjustment Knobs facing the patient.
2. Stabilize the machine.
3. Set Footplate to the appropriate angle for the patients comfort.
4. With the patients leg fully extended in a supine position place a foam roll or pillow under the knee to act as a cushion.
5. The patient can press their knee down into the cushion creating a stretch in the quadricep.
6. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.

UPPER EXTREMITY PROTOCOLS

REFER TO SEC. III PRIOR TO PROCEEDING

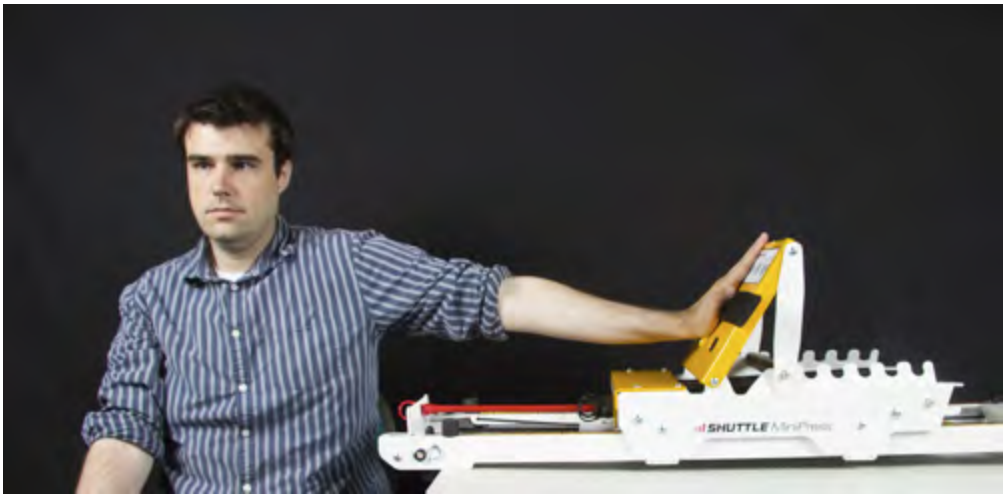
SEATED SHOULDER STABILIZATION

(Bilateral or Unilateral) (protraction/retraction)

1. Secure the MiniPress to a table edge using the white rubber pads over the edge of the table.
2. Orient the patient facing the Load Adjustment Knobs.
3. Stabilize the machine.
4. Set the Footplate to the appropriate angle for the patient's use.
5. Direct the patient to place her/his hands on the Footplate. With straightened arms, use the shoulders to push the Footplate away from the body in a controlled manner. With arms still straight, draw the shoulder blades together, allowing the Carriage to return to its starting position.
6. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.

SEATED LATERAL PRESS

90º to the Side Pivoting from the Waist



1. Secure the MiniPress to a table edge using the white rubber pads over the edge of the table.
2. Orient the patient facing perpendicular to the Load Adjustment Knobs. The patient would be looking to the right for a right arm press or to the left for a left arm press.
3. Stabilize the machine.
4. Set the Footplate to the appropriate angle for the patient's use.
5. Direct the patient to place her/his hand on the Footplate. With a straight arm, press on the Footplate while pivoting from the waist to obtain full travel of the MiniPress.
6. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.

Variation I:

90º to the Side with bend at the elbow

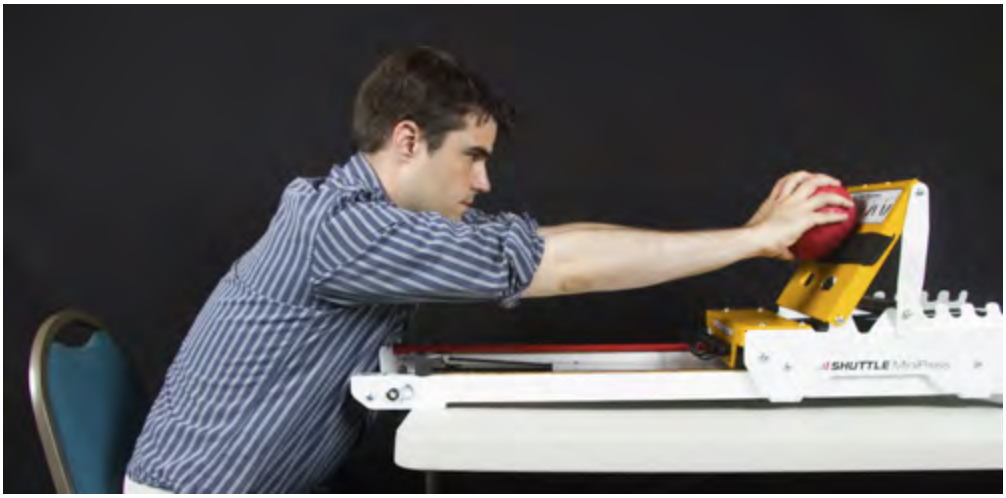
Keeping the spine straight, allow the elbow to bend, letting the carriage travel back to the resting position.

SEATED ABDOMINAL EXERCISE

1. Secure the MiniPress to a table edge using the white rubber pads over the edge of the table. Sit the patient facing the Load Adjustment Knobs.
2. Stabilize the machine.
3. Set the Footplate to the appropriate angle for the patient's use.
4. Begin with a light load to allow a full use of the patient's available range of motion at the hips and gradually increase resistance.
5. Direct the patient to place her/his hands on the Footplate. With straightened arms, use the abdominals transmitted through the straight arms to push the Footplate away from the body in a controlled manner. With arms still straight, allow the Carriage to return to its starting position resisting with the abdominals.
6. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.
7. Monitor for range of motion, smoothness and the alignment.

Variation:

Add a stability ball between hands and Footplate.



SEATED OFFSET ABDOMINAL EXERCISE

1. Secure the MiniPress over the side edge of a table or bench using the white rubber feet. Seat the patient with the Load Adjustment Knobs pointing toward the patient.
2. Stabilize the machine.
3. Set the Footplate to the upright position.
4. Ask the patient to press the carriage with a straight arm in a controlled manner. The back should be stabilized with the abdominals doing the work. Then return to starting position.
5. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.
6. Monitor for range of motion, smoothness, alignment and stabilization.

VARIATION:

To increase the activation of the core muscles move the chair to the left or right of the MiniPress. This will require more rotational strength in the core muscles.

SEATED ROW

1. Secure the MiniPress over the edge of a table using the white rubber feet. Orient the patient with the Load Adjustment Knobs pointing away from them.
2. Stabilize the machine.
3. Set the Footplate to the flat position.
4. Direct the patient to grasp the Footplate support bar in her/his hands.
5. The patient will straighten the arms and begin to pull the bar in a controlled manner toward the body with elbows lifted and out to the side. The back should be stabilized with the arms doing the work. Then return to starting position.
6. Begin with a light load to allow a full use of the patient's available range of motion and gradually increase resistance.
7. Monitor for range of motion, smoothness, alignment and stabilization.

SEATED ROW USING BACK AND GLUTEUS

1. Secure the MiniPress over the edge of a table using the white rubber feet. Seat the patient with the Load Adjustment Knobs pointing the otherway.
2. Stabilize the machine.
3. Set the Footplate to the flat position.
4. Direct the patient to grasp the Footplate support bar in her/his hands.
5. Ask the patient to straighten the arms and begin to pull the bar using the back and gluteus muscles in a controlled manner. The arms are straight with the back and gluteus doing the work. Then return to starting position.
6. Engage Elasticords slowly to allow full use of the patient's available range of motion and gradually increase resistance.
7. Monitor for range of motion, smoothness, alignment and stabilization.