The RAPTOR is a state-of-the-art system that enhances and accelerates therapeutic recovery in sports medicine, post operative recovery and general physical rehabilitation. Its rapid mechanical percussions penetrate several layers of muscle with up to 3600 percussions per minute!

TRAINING MANUAL
Includes quick start guide, setup and trouble shooting
The RAPTOR by Hyperice is a collaboration between Hyperice Inc. and Biomechanic Systems.

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INTRODUCTION

The Raptor is a new and revolutionary therapeutic massage device that administers rapid mechanical percussive energy that penetrates all muscle layers and body tissues. This advanced technology provides therapeutic relief quicker and more effectively than the simple vibration treatments of many other therapeutic devices.

The Raptor method consists in the application of percussions ranging from 600 rpm to 3600 rpm which are applied to the body by using specialized applicators attached to the Raptor.

At variable speeds and applied pressure on the body, the applicator transfers painless percussive stimulation to the body and its underlying tissues (muscles, tendons, soft and connective tissues, vessels and body fluids).

The Raptor can be used to:

- Reduce or eliminate pain and swelling
- Restore elasticity and length to muscles
- Increase range of motion
- Increase blood flow and lymphatic drainage
- Myofascial release
- Break up post-surgical and post-injury scar tissue.
- Trigger Point Therapy
2 EQUIPMENT

Package contents

AC Plug

Power Adapter

Massager

9 pin connector

Applicator Heads
Operation

Power

To turn on your Raptor, simply connect to the power adapter and plug it into the wall. The lights on the machine will turn on letting you know the massager is ready for use.

Applicators

Applicator heads lock into place with the help of a magnet and are easily pulled out to remove.

Controls

To start the massager, press the UP button.

Massager cycles through 6 speeds with each press of the UP button.

Quickly cycle to the highest speed by holding down the UP button.

To slow to the next lowest speed, press the DOWN button.

To turn off, press and hold the DOWN button.
**Maintenance**

The Raptor is designed to be serviced only by Hyperice Engineers.

Follow all instructions listed in this manual. Proper use of this device is recommended for best results. Improper use of this device could result in injury or health complications.

**Cleaning**

The device should be cleaned regularly using an all-purpose cleaning agent.

Do not attempt to clean internal surfaces - cleaning should not require disassembling the device. Disassembling the device to clean internal mechanisms could result in device failure.

**Storage**

The device must be stored under normal storage conditions; dry, well-ventilated premises at temperatures of 68°F — 86°F.

**Disposal**

This device is intended for multiple uses. However, if the device is to be disposed of, please call a Hyperice service center prior to recycling your device.

If the device needs repair, contact Hyperice to locate a Raptor certified repair facility nearest you.

The Raptor should not be disassembled, if disassembly is required please contact Hyperice.
**Recommendations**

The **Raptor** is designed to run quiet and cool for a service life of 5000 hours. Pushing the **Raptor** beyond its intended life may increase the risk of failure, which may result in harm. If there seems to be a deviation in its intended function, follow the steps below, or if no solutions are available please call the User Assistance hotline.

**Troubleshooting**

If the **Raptor** shuts down automatically, one of two problems are indicated by the indicator light, which is located next to the speed control buttons:
- A Flashing Red light indicates overheating. Let the massager cool down before restarting it.
- A Continuous Red light indicates a fault in the motor controller. Please contact customer support.

**Travel**

The **Raptor** is designed to work at a wide range of voltages. If operating outside of the U.S. please use the proper AC Plug or Adapter to allow your machine to power on.

**Services**

User Assistance:

For customer service, please contact Hyperice headquarters:
- 15440 Laguna Canyon Road - Suite 230
- Irvine, CA 92618
- (855) 497-3742
- customersupport@hyperice.com

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How to Use The Raptor

Keep the massage head in your hands at all times during treatment. Important: you do not need to hold the handle tightly; let the machine ‘do the work’. If your hand becomes tired, this indicates that you are not holding the massage handle correctly.

Use an adjustable-height massage table. Work at the correct height, keeping your back straight, to avoid back pain and fatigue.

Make sure your Raptor is properly plugged into electrical socket before turning the equipment on.

Applying percussion to the body

Attach the desired applicator for type of treatment (see page 13 for applicator guide.)

The patient does not disrobe; treatments are done over clothing. Apply gentle pressure (only the weight of the massage head and its applicator) to the treatment area.

Start all treatments on a low speed setting. Once muscles are acclimated to percussive stimulation, then increase the speed.

Keep communication with patient at all times.
Applicator Attachments

Small Round ‘Universal’ Flat Applicator
• Can be used for all protocols

Large Round Flat Applicator
• Best used on large muscle groups

Pointed ‘Target’ Applicator
• Used for:
  – Trigger Point Therapy
  – Scar Tissue
  – Joints
  – Small Bony Areas

Small Rounded Applicator
• Best for targeted treatments
  (a milder version of the “Pointed Target Applicator”)
Physiological Effects of Percussive Massage

Movement is the blueprint for repair. Tissues that heal with functional movement are better suited to meet functional demands. Percussive Massage utilizes rapid movement to accelerate the healing process.

Effects on the skin and underlying tissues

- Relaxation of thickened connective tissue, fascia and adipose tissues
- Break down of adhesions and internal scar tissue, present after injuries or surgery
- Increased venous and lymphatic circulation
- Elongation of muscle fibers, especially when spasms, stiffness and restrictions are present
- Stimulates reflex contraction of muscle fibers
- Increased range of movement by relieving stiff joints.

Effects on Central and Sympathetic Nervous Systems

- Stimulation of receptors localized in muscles, which reduce pain and aid relaxation.
- Does not create pain
- Does not engage an inflammatory response
- Stimulation of spinal nerves
- Delivers rhythmical, consistent functional movement to the body
General Recommendations for Treatment

Muscle, Tendon, and Joint Pain
The most common causes of muscle pain are injury or trauma, overuse, and tension or stress. Where injury or trauma has occurred, percussive therapy can speed up the healing process by expediting the breakdown of inflammation to trauma areas. Likewise, when areas of the body are overused or under stress, percussive therapy can enhance circulation to affected regions and relieve underlying tension.

Sports Rehabilitation
Therapeutic massage helps the body recover from the stresses of strenuous exercise, and facilitates the rebuilding phase of conditioning. Rehabilitation leads to removal of waste products and better cell nutrition, normalization and greater elasticity of tissues, deactivation of trigger points, and faster healing of injuries. It all adds up to relief from soreness and stiffness, better flexibility, and less potential for future injury.

Post-Surgery and Post-Injury Recovery
Following injury or surgical repair, the body undergoes the active repair process of inflammation. Percussive stimulation expedites the breakdown of the inflammatory process, in addition to scar tissue and adhesions.

Myofascial Release
Scarring or injury to the myofascial network of connective tissue is a major cause of pain and impeded motion. The Raptor alleviates these problems by breaking up, or “releasing,” constrictions or snags in the fascia.

Relaxation
Massage is restorative bodywork that increases the patient’s physical comfort and overall sense of well-being.
INDICATIONS

The Raptor can be used to:

- Relieve muscle pains and spasms in muscle contusions, sprains and strains
- Aid in mobilizing edema fluid in swollen areas
- Relax thickened connective tissue and fascia
- Increase venous & lymphatic circulation
- Decrease lactic acid build-up in muscles.
- Increase range of motion
- Soft tissue mobilization

CONTRAINDICATIONS

The Raptor should not be used on patients who:

- Are diagnosed with aneurysms
- Have hemorrhaging areas
- Suffer from malignant lesions
- Are pregnant
- Suffer from poor heart conditions
- Have a pace-maker or defibrillator
- Have cancer
- Are on blood thinners
- Had joint hardware installed within 90 days of the treatment. If this is the case, the Raptor should not be used within 3 inches of the new hardware.
Physical Assessment for Treatment Protocols – P.R.A.S.T.

- Posture
- Range of Motion
- Assessment of Gait
- Symptoms
- Treatment Plan
Posture

Head alignment
Head should be stacked directly over the body, with the chin parallel to the floor. Cheekbones and collarbone should be in line.

Shoulders
Shoulders should be level (make sure one is not higher than the other).

Elbows
Have the patient stand with arms by sides - there should be equal space between elbow and waist on both sides of the body.

Hips
Have the patient put their hands on their hips - both hands should be positioned at the same height. Both legs should meet the foot at the same position on the ankle.

Knuckles
Hands should be at sides in line with the hips so knuckles are hidden. When standing naturally, knuckles should be hidden equally on both hands.

Back
Back should not be stiff and straight, but should have natural curvature (s-curve).

Feet
Toes should be marginally pointed outwards; they should not be turned in nor should they be turned out too far.
Physical Assessment for Treatment Protocols

Range of Motion (ROM)

Limitation of joint motion is described simply. An example of a limitation of joint motion is an elbow that can only be flexed from 30 degrees (above 0 deg./neutral) to 90 degrees (above 0 deg./neutral). Normal ROM is 0 degrees to 150 degrees.

Neutral Zero Method
- All motions of a joint are measured from defined zero starting point positions.
- The degrees of motion of a joint are added in the direction the joint moves from the zero starting position.
- The extended “anatomical position” of an extremity is accepted as zero degrees rather than as 180 degrees.

Motions are described as active or passive.
- Active motion is the patient’s movement of the joint through a specified arc of motion.
- Passive motion is the examiner’s movement of the joint through a special fied arc of motion. Both motions are compared to the accepted ROM for that joint, and any limitation in range due to muscle contracture; capsule restriction; or ligamentous, bony or spastic antagonist is noted.

Extension vs hyperextension
- Extension is the natural motion opposite to flexion at the zero starting position; As is present in wrist and shoulder joints. If, however, the motion opposite to flexion at the zero starting position is an unnatural one, such as that of the elbows or knees, it is referred to as hyperextension.
- Hyperextension occurs when motion opposite to flexion at the zero point is unnatural. This occurs in the knees or elbows.
### Normal Values for Range of Motion of Joints*

<table>
<thead>
<tr>
<th>JOINT</th>
<th>MOTION</th>
<th>RANGE (º)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip</td>
<td>Flexion</td>
<td>0-125</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>115-0</td>
</tr>
<tr>
<td></td>
<td>Hyperextension</td>
<td>0-15</td>
</tr>
<tr>
<td></td>
<td>Abduction</td>
<td>0-45</td>
</tr>
<tr>
<td></td>
<td>Adduction</td>
<td>45-0</td>
</tr>
<tr>
<td></td>
<td>Lateral rotation</td>
<td>0-45</td>
</tr>
<tr>
<td></td>
<td>Medial rotation</td>
<td>0-45</td>
</tr>
<tr>
<td>Knee</td>
<td>Flexion</td>
<td>0-130</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>120-0</td>
</tr>
<tr>
<td>Ankle</td>
<td>Plantar flexion</td>
<td>0-50</td>
</tr>
<tr>
<td></td>
<td>Dorsiflexion</td>
<td>0-20</td>
</tr>
<tr>
<td>Foot</td>
<td>Inversion</td>
<td>0-35</td>
</tr>
<tr>
<td></td>
<td>Eversion</td>
<td>0-25</td>
</tr>
<tr>
<td>Metatarsophalangeal joints</td>
<td>Flexion</td>
<td>0-30</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>0-80</td>
</tr>
<tr>
<td>Interphalangeal joints of toes</td>
<td>Flexion</td>
<td>0-50</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>50-0</td>
</tr>
<tr>
<td>Shoulder</td>
<td>Flexion to 90°</td>
<td>0-90</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>0-50</td>
</tr>
<tr>
<td></td>
<td>Abduction to 90°</td>
<td>0-90</td>
</tr>
<tr>
<td></td>
<td>Adduction</td>
<td>90-0</td>
</tr>
<tr>
<td></td>
<td>Lateral rotation</td>
<td>0-90</td>
</tr>
<tr>
<td></td>
<td>Medial Rotation</td>
<td>0-90</td>
</tr>
<tr>
<td>Elbow</td>
<td>Flexion</td>
<td>0-160</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>145-0</td>
</tr>
<tr>
<td></td>
<td>Pronation</td>
<td>0-90</td>
</tr>
<tr>
<td></td>
<td>Supination</td>
<td>0-90</td>
</tr>
<tr>
<td>Wrist</td>
<td>Flexion</td>
<td>0-125</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>115-0</td>
</tr>
<tr>
<td></td>
<td>Abduction</td>
<td>0-45</td>
</tr>
<tr>
<td></td>
<td>Adduction</td>
<td>45-0</td>
</tr>
<tr>
<td>Metacarpophalangeal joints</td>
<td>Abduction</td>
<td>0-130</td>
</tr>
<tr>
<td></td>
<td>Adduction</td>
<td>120-0</td>
</tr>
<tr>
<td>Interphalangeal proximal joints of fingers</td>
<td>Flexion</td>
<td>0-30</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>0-80</td>
</tr>
<tr>
<td>Interphalangeal distal joints of toes</td>
<td>Flexion</td>
<td>0-50</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td>50-0</td>
</tr>
<tr>
<td>Metacarpophalangeal joint of thumb</td>
<td>Abduction</td>
<td>0-90</td>
</tr>
<tr>
<td></td>
<td>Adduction</td>
<td>90-0</td>
</tr>
<tr>
<td></td>
<td>Flexion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td></td>
</tr>
<tr>
<td>Interphalangeal joint of thumb</td>
<td>Flexion</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Extension</td>
<td></td>
</tr>
</tbody>
</table>

* Ranges are for people of all ages. Age-specific ranges have not been established, however, values are typically lower in fully functional elderly people than in younger people.

† Extension beyond midline.
Gait

The feet are the foundation of the body. The foot is the first and last thing to hit the ground each day, giving it the greatest influence on overall biomechanics. As the foot goes, so goes the rest of the body. As illustrated below, when you have an abnormality in your gait, a domino effect of anatomical dysfunctions takes place. If the foot can strike the ground confidently, the rest of the body will move confidently. However, if there is fear of pain, or if the foot has become rigid and dysfunctional, the Raptor will be compromised and aches and pains will follow.
<table>
<thead>
<tr>
<th>Components</th>
<th>Normal</th>
<th>Abnormal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiation of gait (have patient walk down hallway)</td>
<td>Begins walking immediately without observable hesitation; initiation of gait is single, smooth motion</td>
<td>Hesitates; multiple attempts; initiation of gait not a smooth motion</td>
</tr>
<tr>
<td>Step height (begin observing after first few steps: observe one foot, then the other; observe from side)</td>
<td>Swing foot completely clears floor but by no more than 1-2 inches</td>
<td>Swing foot is not completely raised off floor (may hear scraping) or is raised too high (&gt; 1-2 inches)*</td>
</tr>
<tr>
<td>Step length (observe distance between toe of stance foot and heel of swing foot; observe from side; do not judge first few or last few steps; observe one side at a time)</td>
<td>At least the length of individual's foot between the stance toe and swing heel (step length usually longer but foot length provides basis for observation)</td>
<td>Step length less than described under normal</td>
</tr>
<tr>
<td>Step symmetry (observe the middle part of the patch, not the first or last steps; observe from side; observe distance between heel of each swing foot and toe of each stance foot)</td>
<td>Step length same or nearly same on both sides for most step cycles</td>
<td>Step length varies between sides or patient advances with same foot with every step</td>
</tr>
<tr>
<td>Step continuity</td>
<td>Begins raising heel of one foot (toes off) as heel of other foot touches the floor (heel strike); no breaks or stops in stride; step lengths equal over most cycles</td>
<td>Places entire foot (heel and toe) on floor before beginning to raise other foot; or stops completely between steps; or step length varies over cycles</td>
</tr>
<tr>
<td>Path deviation (observe from behind; observe one foot over several strides; observe in relation to line on floor (e.g., tiles) if possible</td>
<td>Foot follows close to straight line as patient advances</td>
<td>Foot deviates from side to side or toward one direction</td>
</tr>
<tr>
<td>Trunk stability (observe from behind; side-to-side motion of trunk may be a normal gait pattern; need to differentiate this from instability)</td>
<td>Trunk does not sway; knees or back are not flexed; arms are not abducted in effort to maintain stability</td>
<td>Any of preceding features present</td>
</tr>
<tr>
<td>Walk stance (observe from behind)</td>
<td>Feet should almost touch as one passes other</td>
<td>Feet apart with stepping</td>
</tr>
<tr>
<td>Turning while walking</td>
<td>No staggering, turning continuous with walking, and steps are continuous while turning</td>
<td>Staggers, stops before initiating turn, or steps are discontinuous</td>
</tr>
</tbody>
</table>
**Chain Reaction**

Structurally, we have very little control over the development of our bones. Biomechanic Systems has geared our attention to the soft tissue of skeletal muscles because we know we can make dramatic improvements over time that will ultimately change how the body moves. Efficiency of movement is the result of pliable skeletal muscle tissue that allows the body to do what it naturally was created to do.

It is important to address the entire biomechanic chain because a fault in one area of the body could damage the body as a whole. By performing Myofascial release techniques, tissue tolerance will increase as length tension relationships and elasticity are restored. These results lead to enhanced mobility and improved overall biomechanics.

Beginning in the foot, the biomechanic chain reaction can shift dysfunction from the lower leg all the way up to the quads, hip, IT band and even the lower back. Trigger point therapy addresses biomechanical efficiency within the body from the ground up. Similar to the structure of a well-built house, the foundation of the body begins at the foot and the body is built around a sound and efficient base. The stronger the foundation, the more positive response the body will yield as a whole.
Anatomical View of Muscular and Skeletal & Joint Dysfunction in the injury cycle

Just as every bone has muscle and fascia that surrounds it, every joint has a muscle and a tendon, which support it. Muscles are designed to create and maintain structural integrity in the body through proper force couples and length tension relationships. Structural integrity of the muscles produces proper biomechanics through intra and intermuscular coordination.
Symptoms

- Once you have assessed the patient's posture and gait, find out what symptoms they are experiencing. Having all the information takes the guessing work out of your job as a technician.
- Identify the correlation from your assessment of the posture and gait to the symptoms.

EXAMPLE
Patient's symptoms are, low back pain and inner knee pain.
Assessment: Posture + Tilted pelvis + Gait - Pronating = Symptoms
Recommendations for Giving a Treatment

• Use both hands.

• Maintaining contact with your patient is essential for all treatments. Hold the massager unit in one hand, and use the other hand to feel out the body area you are treating. Use one hand to guide the applicator and the other to feel for bone. Prolonged direct contact on bone should be avoided.

• Move the applicator in a slow stroking movement, similar to the stroke of a paint brush, along the muscle fibers.

• When working in small bony areas (i.e. elbow, knee, ankles and face) place a towel (fold the towel for more layers of protection if needed) over the bony area and move the applicator in small circular motions.

• When working on large muscle masses, apply more pressure by using the auxiliary handle.

• If patient experiences excessive discomfort, reduce the applied pressure and variable speed to the treatment area.
Treatment plan - Front of the body

Based on the information you have obtained through the P.R.A.S.T. method, now you are ready to treat your patient and recommend a treatment schedule.

Treatment Times & Order: Full Body

Massage (Anterior)
Pectoralis – 30 sec
Deltoid – 30 sec
Rotator Cuff – 25 sec
Biceps – 30 sec
Brachialis – 30 sec
Brachioradialis – 30 sec
Abdominals – 45 sec
Iliopsoas – 25 sec
Quadriceps – 60 sec
Abductor – 60 sec
Tibialis – 45 sec
Peroneus Longus – 30 sec
Peroneus Brevis – 30 sec
Treatment Times & Order: Full Body Massage Posterior

- Levator Scapulae – 1 min to 1.5 min
- Trapezius – 1 min to 1.5 min
- Rhomboids – 1 min
- Rotator Cuff – 25 sec
- Triceps – 25 sec
- Latissimus Dorsi – 45 sec
- Erector Spinae – 35 sec
- Gluteus Medius – 1 min to 1.5 min
- Gluteus Maximus – 1 min to 1.5 min
- Piriformis – 1 min to 1.5 min
- ITB – 25 sec
- Biceps Femoris – 1 min
- Adductor Magnus – 25 sec
- Semimembranosus & Semitendinosus – 40 sec
- Soleus – 20 sec each side
- Gastrocnemius – 40 sec each side
- Heel – 20 sec

![Muscle Diagram](image-url)
General back pain

- Trapezius – 1 min to 1.5 min
- Levator Scapulae – 1 min to 1.5 min
- Rhomboid Minor – 1 min
- Rhomboid Major – 1 min
- Latissimus Dorsi – 30 sec
- Serratus anterior/posterior – 30 sec
- Erector Spinae – 30 sec
- Internal/External Oblique – 30 sec
- Thoracolumbar Fascia – 1.5 min
General Back Pain

‘Opening the Scapula’ Technique

- Place the patient’s arm behind their back with their elbow at a 90 degree angle and gently hold their hand in place
- Staying close to the scapulae, stimulate the rhomboid muscles
Shoulder & Neck Pain

When a patient has neck and shoulder pain:

- Start working the Levator Scapulae – 1-1.5 min
- Sternocleidomastoid and Scalene muscles – 30 sec
- Trapezius – 1-1.5 min
- Stroke the Supraspinatus – 30-60 sec
- Rhomboid Minor – 1 min
- Rhomboid Major – 1 min
- Infraspinatus – 30 sec
- Teres Minor – 1 min
- Teres Major – 1 min
- Deltoid Muscles – 1 min

Have the patient face you, then:

- Work the Pectoral Major muscles – 1 min
- and the Latissimus Dorsi Muscle – 1 min
Stretching the Neck During Treatment

When a patient has very limited range of motion in the neck:

- Perform the initial protocol for neck pain,
- Give the patient a minute to rest and acclimate.
- Fold a towel, (select the layers of towel according to patient’s pain and comfort level. More towel, less painful to patient) Place the towel on the top of the Trapezius muscle.
- Have the patient bend the neck, exposing your area of treatment as much as possible. In other words, have them bring the opposite ear as close to their shoulder as possible. Hold the applicator on the top of the Trapezius muscle use your free hand and place it on the patient’s head. Have the patient push your hand as hard as they can. Provide resistance to their head and glide the applicator all the way down (towards you) the Trapezius muscle slowly allowing the patient’s push to follow completely through.
- Repeat this three times on each side.
- The goal is to engage the neck muscles while stimulating them simultaneously, which facilitates active muscle release. In the three strokes make a point to stimulate the Trapezius and the Levator Scapulae muscles.

If patient experiences excessive pain, stop immediately. This maneuver may be excessive and require you to build up the patient’s tolerance after a series of sessions/treatments

**Step 1** – Start at point 1, (the top of Trapezius) and follow the muscle through to finish point 2.
**Step 2** – Place your spare hand on the patient’s head to apply resistance while he/she pushes.
Low Back Pain

When a patient complains of low back pain:

1. Work the Gluteus Minimus and Iliac Crest for 1.5min.
2. Gluteus Maximus for 1.5min.
3. Piriformis for 1.5min.
4. Work along the Sacroiliac Joint for 1min.
5. Thoracolumbar Fascia 1.5min.
6. Work the Hamstrings for 1.5min.
7. Have the patient turn on his/her side keeping the bottom leg straight and the top leg bent at a 90º angle.
8. Work the Gluteus Medius and Iliac Crest again for 1min.
9. Work along the Sacroiliac Joint 1min.
10. Iliotibial Band for 1min.
11. Have the patient turn on his/her back.
12. Work the iliopsoas for 20sec.
14. Work the Rectus Femoris, Vastus Lateralis and Medialis for 2min.

- Do the above treatment for both sides of the body.
- *If the patient hasn’t had back surgery or a back injury, they typically have back pain due to imbalances in their gait and posture. After performing this treatment, tape the patient’s feet to insure proper gait so they receive maximum benefit of the treatment.
- This treatment protocol is also recommended for pelvic tilt and short leg.
Arms

Posterior

- Triceps – 25 sec
- Brachioradialis – 25 sec
- Extensor Carpi Radialis Longus – 15 sec
- Extensor Carpi Radialis Brevis – 15 sec
- Extensor Digitorum – 20 sec
- Anconeus – 15 sec
- Flexor Carpi Ulnaris – 30 sec
- Extensor Carpi – 15 sec
- Extensor Digiti Minimi – 15 sec
Arms

Anterior

- Pectoralis Muscles – 30 sec
- Deltoids – 30 sec
- Biceps – 30 sec
Arms

Chest and Deltoids

- Open the patient’s arm at a 90 degree angle with their hand extended up and forearm parallel to the body
- Start by stimulating the pectoralis muscles – 30 sec
- Then stimulate the deltoids – 30 sec
4

TREATMENT PROTOCOL

Legs

Glutes, Hamstrings, Calves

Glutes
- Gluteus Medius + Iliac Crest – 35-45 sec
- Gluteus Maximus + Minimus – 35-45 sec
- Piriformis – 45 sec
- Superior/Inferior Gemellus – 20 sec
- Sacrum – 25 sec
- Under the gluteal fold – 20 sec
- Biceps Femoris – 35 sec
- Semitendinosus – 35 sec
- Iliotibial Tract – 20 sec
- Adductor Magnus – 20 sec

Calves
- Stimulate each sides of the Soleus muscles – 25 sec
- Gastrocnemius Muscle Bilateral 35 sec

Tendons
- Flexor Digitorum Longus – 15 sec
- Stimulate the heel, arch and ball of the foot – 10 sec
Legs

Gluteus Stretching

After you have worked the gluteus muscles once over, bend the patient’s leg in a 45° angle exposing the Piriformis. Bend the leg slowly to the right and left. Apply the massager to the Piriformis using gentle pressure to start slowly ramp up. If you feel resistance, do not push through it, simply apply the machine, move in small circular motions until you see the muscle releasing. Once you see the muscle give, then apply more pressure.

* If the patient experiences excessive pain, stop immediately. This maneuver may be excessive and require you to build up the patient’s tolerance after a series of sessions/treatments.

**Step 1** – Place the applicator on the Piriformis using light pressure to start.
**Step 2** – Slowly move from left to right

Have the patient lay on their side, keeping the bottom leg straight and the top leg bent at a 90 degree angle

Stimulate the gluteus muscles for 35 seconds, then work the IT band
Legs

Gluteus Stretching (cont’d.)

Have your patient get into Child’s pose on the massage table, place a towel over the lower back and Gluteus area to avoid hitting bone. While he/she is stretching, apply the massager to stimulate the lower back, sacrum, Gluteus Medius and Gluteus Maximus.

Have the patient’s leg hang off the massage table at a 90° angle as seen in the picture, then apply the massager applicator gently on the Piriformis. Move in small circular motions and slowly ramp up the pressure.
Legs

Quads & Shins

Quads
- Iliopsoas – 25 sec
- Tensor Fasciae Latae – 15 sec
- Vastus Lateralis – 30 sec
- Sartorius 10 sec
- Rectus Femoris – 30 sec
- Adductor Longus – 30 sec
- Vastus Medialis – 25 sec

Shins
- Peroneus Longus – 20 sec
- Peroneus Brevis – 15 sec
- Tibialis Anterior – 20 sec
- Gastrocnemius – 10 sec
- Soleus 10 sec
- Extensor Hallucis Longus – 10 sec
Legs

Iliopsoas & Adductor

Position your body to lean against the massage table, place the patient’s leg at a 90° angle and have them push against your leg/hip (you would be standing where the red X is) while they push, stimulate the Iliopsoas, Adductor Longus and Gracilis muscle for approximately 30 seconds for each muscle.
Legs

Iliotibial Tract

Start applying the massager by the knee and stroke down towards the hip. Use minimal pressure to begin and ramp up according to patient’s comfort and tolerance.
**Legs**

**Shins**

- Place your hand on the ball of the foot and facilitate dorsiflexion
- Stimulate Tibialis Anterior – 20 sec
- Peroneus Longus – 20 sec
- Peroneus Brevis – 15 sec
- Gastrocnemius – 10 sec
- Place your hand above the toes and facilitate plantar flexion
- Stimulate Tibialis anterior – 20 sec
Trigger Points

Front

Using the target or rounded applicator, stimulate inflamed trigger points for 25–60 seconds.
**Trigger Points**

**Back**

Using the target or rounded applicator, stimulate inflamed trigger points for 25–60 seconds.
Post-Injury, Post-Surgery, Lymphatic Drainage

Post-Injury

The first treatment after injury should be mild. You can progressively do longer, more advanced treatments depending on the satisfaction of the patient and their comfort level.
- Assess ROM
- Follow treatment protocols for identified areas of the body and surrounding muscles
- Start the machine on a moderate setting, depending on the patient’s comfort level
- Start using the weight of the machine as the applied pressure

Post-Surgery

The first post-op treatment should be short and light. You can progressively do longer, more advanced treatments depending on how the patient reacts to and feels after the treatments
- Identify treatment area
- Ask the patient if they have any open wounds, stitches, drains, or implanted hardware (if so, do not stimulate these areas)
- Start machine at lowest setting
- Put towel over target area
- Apply machine to treatment area without pressure
- Work around the surrounding areas of surgical site

Lymphatic Drainage

- Do a mild, full-body treatment
- Always work up the arms and legs, towards the heart, in the direction of venous flow
**Athletic Assessment**

Have the patient stand with feet shoulder width apart and both arms raised straight up.

Patient does a slow squat three times. On the third squat, have them jump up from the squat position and land on their feet. Take note of the patient’s landing position.

Faulty movement patterns and muscle imbalances are easily identifiable.

First, identify movement dysfunctions. Observe patient walking or doing repeated squats. Do you see one or more of these four things: hips in, knees in, feet flatten, or toes point out? You may see one or all of these patterns; some may be extremely pronounced or could be very subtle.

The image here shows a moderate to severe movement. Overtime these movement patterns create muscle imbalances, where some muscles become overactive and some become underactive.

Green lines illustrate normal hip-knee-ankle-foot alignment.
Red lines illustrate femoral and tibial adduction and foot external rotation.
Green arrows show knees caving in and foot arch flattening.
Underactive & Overactive Muscles

Using the above figure as an example, here are the typical overactive and underactive muscles we would see with these movement patterns.

<table>
<thead>
<tr>
<th>OVERACTIVE</th>
<th>UNDERACTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip Flexors and Tensor Fascia Latae</td>
<td>Gluteal Group (Maximus, Medius)</td>
</tr>
<tr>
<td>Lateral calf (lateral gastrocnemius / soleus)</td>
<td>Medial Gastrocnemius</td>
</tr>
<tr>
<td>Groin muscles (adductor complex)</td>
<td>Anterior and Posterior Tibialis</td>
</tr>
<tr>
<td>Biceps Femoris</td>
<td>Medial Hamstrings</td>
</tr>
</tbody>
</table>

The goal is simple, turn-off the overactive and turn-on the underactive. Below is a basic 3-step program that can help correct this issue, step 1 -Turn-off, step 2 – elongate, and step 3 – turn-on.

**Step 1** – Turn-off the overactive muscles using the Raptor to release the following muscles:
- Gastrocnemius/Soleus, Adductors, TFL/IT-band (bullet pointed)
Treat each muscle for 90 seconds and hold tender areas for 20-30 seconds.

**Step 2** – Elongate the overactive with the Raptor followed with static stretching. Do standard treatment protocol for the hips, legs and lower back with the Raptor.
- Stimulate Gastrocnemius/Soleus followed with Static Stretch
- Stimulate hip flexors followed with Kneeling Hip Flexor Static Stretch
- Release Adductors then do Static Stretch
Perform 1-2 sets of the stretch per muscle group and hold the stretch for a maximum of 30 seconds.

**Step 3** – Turn-on the underactive with focused strengthening
- Posterior Tibialis Strengthening
- Anterior Tibialis Strengthening
- Glute Medius Strengthening (Clams)
- Lateral tube walking
- Glute Maximus Strengthening (Ball Bridge)
Taping the Foot

Have the patient sit in the chair with their feet flat on the ground.

Lift one foot off of the ground and locate the patient’s inner ankle bone, this is the starting point for the tape.

Center the red line on the tape with the patient’s inner ankle bone.

Wrap the tape towards the patient’s outer ankle bone.

Wrap the tape under the edge of the heel and up towards the inner ankle.
4 TREATMENT PROTOCOL

Taping the Foot (cont’d.)

Cross over the inner ankle bone and wrap towards the outer ankle bone.

Place tape under the heel.

Pull toward the inner ankle bone.

Cross over to outer ankle bone.

Cut tape and fasten in place.

Proceed to other foot if necessary.
## SPECIFICATIONS

**The Raptor**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3.5 lbs</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>8 x 6 x 10 in</td>
</tr>
<tr>
<td>Motor</td>
<td>Maxon Precision Brushless 100 W Motor</td>
</tr>
<tr>
<td>Speed</td>
<td>10-60 percussions a second</td>
</tr>
<tr>
<td>Stroke</td>
<td>0.25 in</td>
</tr>
<tr>
<td>Max Force</td>
<td>25 lbs</td>
</tr>
<tr>
<td>Noise level</td>
<td>80 dBA</td>
</tr>
<tr>
<td>Electrical</td>
<td>24 V / 6 A</td>
</tr>
<tr>
<td>Power Supply</td>
<td>MWA120 Medical Grade 100-240V / 50-60Hz</td>
</tr>
<tr>
<td>Cord Length</td>
<td>6 feet</td>
</tr>
<tr>
<td>Case</td>
<td>Pelican 1600</td>
</tr>
<tr>
<td>Data Output</td>
<td>Micro USB Port</td>
</tr>
</tbody>
</table>
IMPORTANT SAFEGUARDS

WHEN USING AN ELECTRICAL APPLIANCE, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:

READ ALL INSTRUCTIONS BEFORE USING THE RAPTOR

CAUTION: USE OF THIS DEVICE MUST BE ADMINISTERED BY PERSONNEL TRAINED IN THE RAPTOR METHOD

DANGER - TO REDUCE THE RISK OF ELECTRIC SHOCK:

- This equipment must only be connected to a supply mains with protective earth
- DO NOT reach for an appliance which has fallen into water. Unplug it immediately.
- DO NOT use while bathing or in the shower
- DO NOT place or store in an area which it can fall or be pulled into a body of water
- DO NOT place in or drop into water or other liquid
- Always unplug the device from the electrical outlet immediately after use or before cleaning

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

- An appliance should never be left unattended when plugged in. Unplug the outlet when the device is not use and turn the device off when changing applicator heads or other attachments.
- DO NOT operate under a blanket or pillow. Excessive heating can occur and cause fire, electric shock or injury to persons.
- Use this device only for its intended use as described in the manual. Do not use attachments which are not approved by Hyperice, particularly those which are not provided with the unit at point of sale.
- NEVER operate this device if it has a damaged cord or plug. If the device is not working properly, especially if it has been dropped, damaged, or submerged in water, return the device to a service center for further examination and repair
- DO NOT carry this appliance by supply cord or use cord as a handle
- Keep the cord away from heated surfaces
- NEVER drop or insert any object into any opening
- NEVER operate this device with the air openings blocked. Keep the air openings free of lint, hair and dust.
- DO NOT use where aerosol (spray) products are being used or where oxygen is being administered.
- To disconnect, turn all controls to the ‘off’ position, then remove the plug from the outlet
6

WARNINGS

GROUNDING INSTRUCTIONS
This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER – Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product – if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

The device should always be connected to the proper power supply as specified in the product specifications.

WARNING: DO NOT MODIFY THIS EQUIPMENT WITHOUT AUTHORIZATION OF THE MANUFACTURER

SAVE THESE INSTRUCTIONS
CAUTION - PLEASE READ ALL INSTRUCTIONS BEFORE OPERATING

• This product is not intended for recreational use. It is only intended for use by a licensed technician

• The Raptor should not be used on patients who:
  o Are diagnosed with aneurysms
  o Have hemorrhaging areas
  o Suffer from malignant lesions
  o Are pregnant
  o Suffer from poor heart conditions
  o Have a pace maker or defibrillator
  o Have cancer
  o Are on blood thinners
  o Had joint hardware installed within 90 days of the treatment. If this is the case, the Raptor should not be used within 3 inches of the new hardware

• Never leave the device unattended, especially if children are present
• Never cover the appliance while in operation
MAINTENANCE

TO CLEAN
The device should be cleaned regularly using an all-purpose cleaning agent. Do not attempt to clean internal surfaces - cleaning should not require disassembling the device. Disassembling the device to clean internal mechanisms could result in device failure.

TO STORE
The device must be stored under normal storage conditions; dry, well-ventilated premises at temperatures of 20-30°C or, depending on the climatic conditions.

TO DISPOSE
This device is intended for multiple uses. However, if the device is to be disposed please call a Hyperice service center prior to recycling your device. If the device needs repair, contact Hyperice to locate a Raptor certified repair facility nearest you. The Raptor should not be disassembled, if disassembly is required please contact Hyperice.

The Raptor is designed to run quiet and cool for a service life of 5000 hours. Pushing the Raptor beyond its intended life may increase the risk of failure, which may result in harm. If there seems to be a deviation in its intended function, follow the steps below, or if no solutions are available please call the User Assistance hotline.

STATUS ICONS
If the Raptor shuts down automatically, one of two problems are indicated by the indicator light, which is located next to the speed control buttons:

- A Flashing Red light indicates overheating. Let the massager cool down before restarting it.
- A Continuous Red light indicates a fault in the motor controller. Please contact customer support.

TRAVEL
The Raptor is designed to work at a wide range of voltages. If operating outside of the U.S. please use the proper AC Plug or Adapter to allow your machine to power on.
USER ASSISTANCE

For customer service, please contact Hyperice headquarters:
15440 Laguna Canyon Road - Suite 230
Irvine, CA 92618
Toll free: (855) 497-3742
Fax: (714) 528-3742
customersupport@hyperice.com

For help, patient safety concerns or complaints, please contact Hyperice headquarters:
15440 Laguna Canyon Road - Suite 230
Irvine, CA 92618
Toll free: (855) 497-3742
Fax: (714) 528-3742
customersupport@hyperice.com

For more information please visit: www.hyperice.com