



# BOXING INJURY MANAGEMENT PROGRAM

**BOXING**  
**ONTARIO**

A female boxer is shown in a dynamic, ready stance, wearing blue boxing gloves and blue shorts. She is positioned on the left side of the page, with her body angled towards the right. Her hair is dark and appears to be blowing in a breeze. The background is plain white, which makes the boxer stand out. The word 'Introduction' is written in a large, red, serif font across the middle of the image, partially overlapping the boxer's torso.

# Introduction

Boxing is a highly competitive, physically and mentally demanding sport. Before entering the ring it requires discipline and a special attention to detail when training. As with other sports, boxing is associated with an inherent risk of injury. The Boxing Injury Management Program (BIMP) has been developed specifically to assist boxers of all skills levels and experience, to reduce their risk of common boxing injuries and to improve their performance in the sport.

Research suggests that boxers that have more than three fights per year sustain more injuries than those that do not (Siewe et al 2015).

The most common injuries are skin lacerations and contusions. Anyone who has spent time in the ring will know this to be true. Aside from the traumatic injuries associated with boxing, other injuries referred to as Musculoskeletal Disorders (MSDs) are also common in the sport of boxing. MSDs are injuries and disorders that affect the human body's movement or musculoskeletal system (i.e. muscles, tendons, ligaments, nerves, discs, blood vessels, etc.) These are the injuries this guide is designed to help reduce.

Common boxing MSDs include neck pain, jaw pain, shoulder-rotator cuff tears, low back pain, wrist injuries, and knee injuries. Such injuries can be associated with over-training, poor technique, or poor general movement capabilities that can leave the boxer vulnerable to physical injury. By incorporating the exercise protocols outlined within this guide, boxer's can manage their risk of MSDs and enhance their boxing skills and performance.

While outside of the scope of this guide, it is also important to recognize the risk of head injuries (concussions) when participating in any contact sport. These injuries can lead to possible serious neurological complications (memory loss, confusion, headaches, etc.). Repeated concussions or a severe concussion may lead to long-lasting problems with movement, learning, or speaking.

For a boxer to get the most from their body, they must have the capacity to tolerate

the demands of training and competition. This requires a balance between movement competency (mobility, movement control and coordination) and physical fitness (strength, speed, endurance-stamina, and agility). This skill set will be unique to each athlete.

The exercises presented in this guide take into account boxing biomechanics and the athletic skills needed in order to sequence and coordinate common boxing movements. In other words, it teaches the body how to move to optimize, for example, punching power and agility to avoid contact or preparing to strike. Whether throwing a punch or evading a punch, it all begins from the ground up. Poor foot control and dysfunction of the legs will impair upper body function and general body movements. Avoiding compensatory movement and lack luster efforts to, for examples, throw a punch or avoid being punched, will maintain high levels of training and sustain longevity in the boxing ring. Competitive athletes in all sport are benefiting from this understanding and finding creative ways to incorporate injury risk management techniques into their training.

The program outlined in this guide is designed to be complementary with the boxer's existing professionally designed and executed training program. A well-designed program should also include strength and conditioning training, a nutritional strategy, adequate sleep and recovery time to allow for the body to heal and adapt. If there is any pain or discomfort while performing any of the exercises, the boxer should stop immediately and seek professional medical help.



# *How to use this program*

The program is designed to be implemented as part of each training session as an expansion of the warm-up process. This warm-up or neuromuscular facilitation is designed to appropriately prepare the boxer for training so that the training demands are met.

The first phase is the general warm-up whereby the boxer is increasing the body temperature to permit the body to accommodate the second phase of the warm-up. The second phase is called general pattern exercises. This phase is intended to instruct the boxer to work on movements that optimize both general and athletic patterns that utilize specific joints and muscles.

The final phase is called the local-regional exercises. This final phase emphasizes working on mobility, joint control, and areas that are most vulnerable with boxing.

This program will take approximately **30 minutes** of the training session to complete correctly and maximize its impact on the boxer's performance.

# BOXING INJURY MANAGEMENT PROGRAM

The warm-up or neuromuscular facilitation is designed to prepare the athlete for his or her sport. It includes three key components:

- i) **General Warm-Up:** Specific cardiovascular exercises (skip, jog, bike, etc...) to elevate the heart rate and prepare the body for athletic movement.
- ii) **General Pattern Exercises:** Athletic movements that mimic training and sport-specific skilled tasks (i.e. shadow boxing, lunge, cross-over, foot work, evading attacks, etc....).
- iii) **Local-Regional Exercises:** Targeted exercises for head/neck, trunk/shoulders, low back/hips (core), hand/wrist, and foot/ankle designed to reduce risk of injury.

# EXERCISE

EXERCISE GUIDELINES	GENERAL WARM-UP	GENERAL PATTERN EXERCISES	LOCAL-REGIONAL EXERCISES
<b>Time</b>	<b>5-10 Minutes</b>	<b>5-10 minutes</b>	<b>10-15 minutes</b>
<b>Intensity</b>	<b>&lt;65% Maximum Heart Rate</b>	<b>&lt;75% Maximum Heart Rate</b>	<b>&lt;75% Maximum Heart Rate</b>
<b>Purpose</b>	<p>Increase core temperature to prepare for training</p> <p>Offset rigidity or stiffness from occupation, driving or other unrelated activity</p>	<p>Facilitate control and coordination of basic movement patterns typically used in training and boxing</p>	<p>Focus on regions that have a higher vulnerability to injury with boxing and the associated training</p> <p>The exercises are to promote control, coordination, and compliance-mobility that will enhance awareness of the area and reduce risk of future injury</p>
<b>Options</b>	<p>Skipping, jogging laps, stationary bike, treadmill</p>	<ol style="list-style-type: none"> <li>1. Upper &amp; Lower Body Rolling Pattern</li> <li>2. Side-Lying Trunk-Shoulder Mobility Protocol</li> <li>3. Single Arm Latissimus Dorsi Pull Down with Contralateral Neck Rotation</li> <li>4. Walking Lunge Patterns</li> </ol>	<ol style="list-style-type: none"> <li>1. Head/Neck               <ol style="list-style-type: none"> <li>a. Cervicothoracic Mobility Protocol</li> <li>b. Trunk Rotation with Neck Resistance</li> </ol> </li> <li>2. Trunk/Shoulders               <ol style="list-style-type: none"> <li>a. Bear Crawl</li> </ol> </li> <li>3. Low Back/Hips (Core)               <ol style="list-style-type: none"> <li>a. Dynamic Nordic</li> <li>b. Modified Pallof</li> </ol> </li> <li>4. Hand/Wrist               <ol style="list-style-type: none"> <li>a. Quadruped Wrist Mobility Protocol</li> </ol> </li> <li>5. Foot/Ankle               <ol style="list-style-type: none"> <li>a. Single Legged Heel Drops</li> <li>b. Short Foot with Forward Lean</li> </ol> </li> </ol>





# *General Warm-Up*



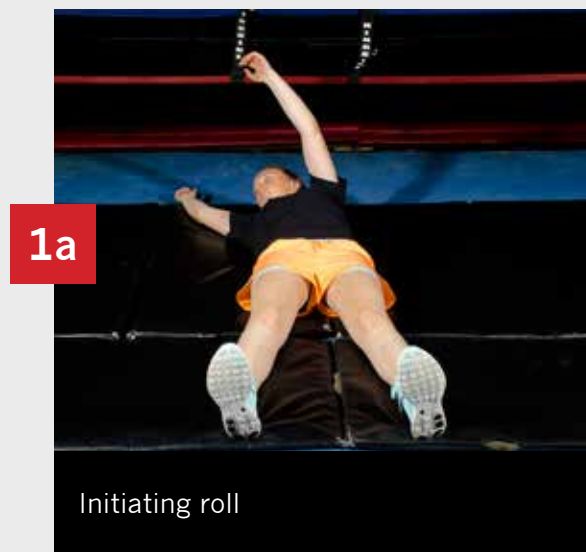
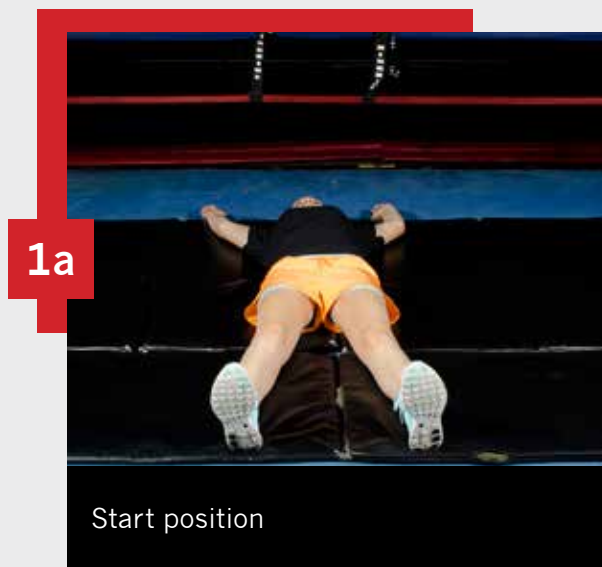
# GENERAL WARM-UP

**5 – 10 minute** cardiovascular warm-up at <65% intensity.

## GENERAL PATTERN EXERCISES

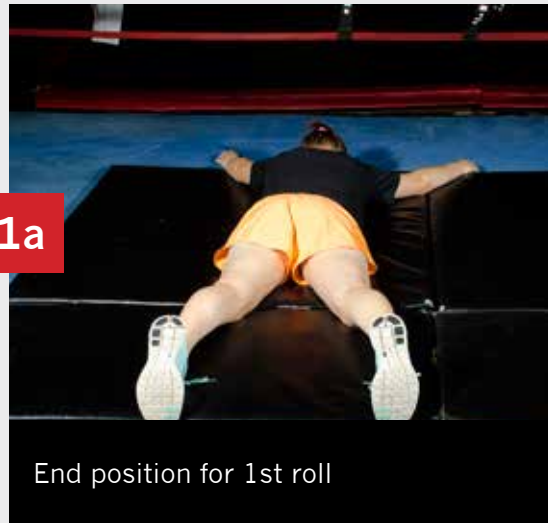
### **1a** Upper Body Rolling Pattern. **REPS: 5-10 repetitions each side and each direction.**

- Start in a starfish position facing upwards (arms overhead on an angle and legs spread).
- Allow the lower body half to remain completely relaxed and quiet.
- Rotate the head to the left (lead this motion with the eyes).
- As the head and neck are moving reach the right arm up towards the ceiling while reaching across the body to the left.
- Allow the upper body to roll while bringing the lower body along for the ride.



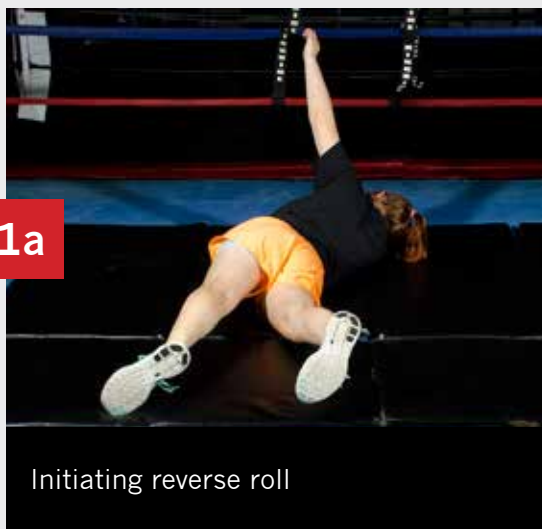
- f. Once facedown, reverse the motion by extending and rotating the head and neck to the right while leading this motion with the eyes.
- g. Reach up and across the body with the right arm, allowing the upper trunk and lower body to follow.
- h. Repeat with the opposite arm in the opposite manner.

**1a**



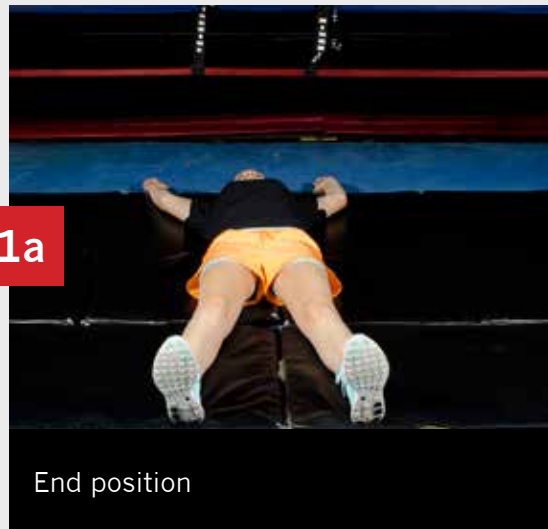
End position for 1st roll

**1a**



Initiating reverse roll

**1a**



End position

**1b**

### Lower Body Rolling Pattern.

**REPS: 5-10 repetitions each side and each direction.**

- a. Start in a starfish position facing upwards (arms overhead on an angle and legs spread).
- b. Allow the upper body half to remain completely relaxed and quiet.
- c. Reach up toward the ceiling with the right leg and across the body.
- d. Allow the upper body to follow passively as the body rolls face down.
- e. Once facedown, reverse the motion by again reaching the right leg up and across the body.
- f. Allow the upper body to follow passively as the body rolls back face-up (starting position).

1b



Start Position

1b



Reach up toward the ceiling and across the body

1b



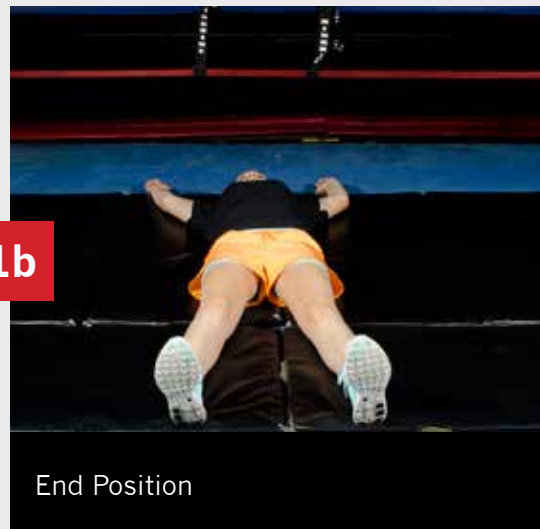
End position for 1st roll

1b



Initiating reverse roll

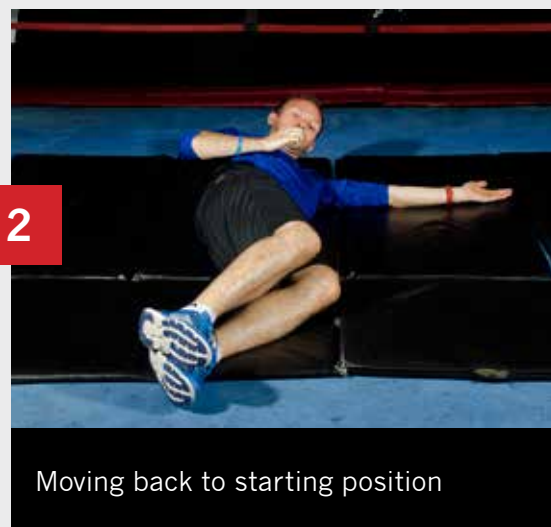
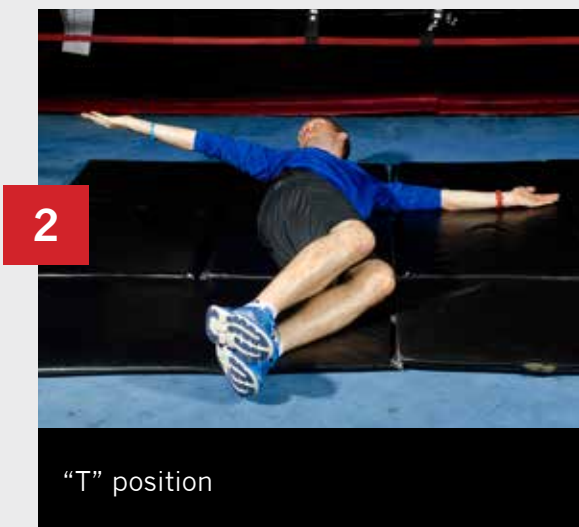
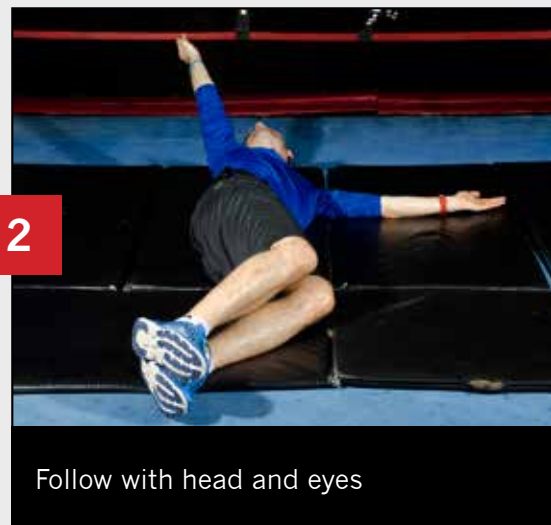
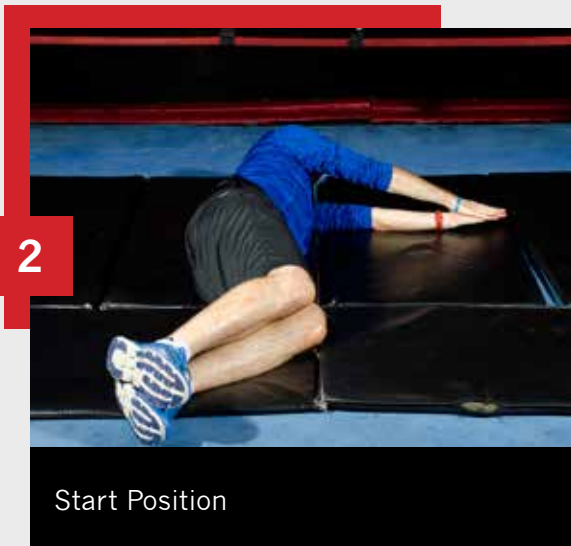
1b



End Position

**2****Side-Lying Trunk-Shoulder Mobility Protocol. REPS: 5 cycles/repetitions on each side.**

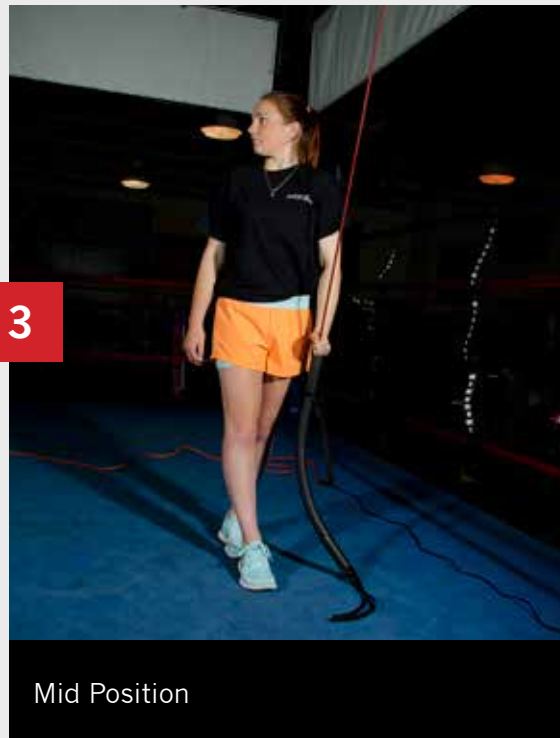
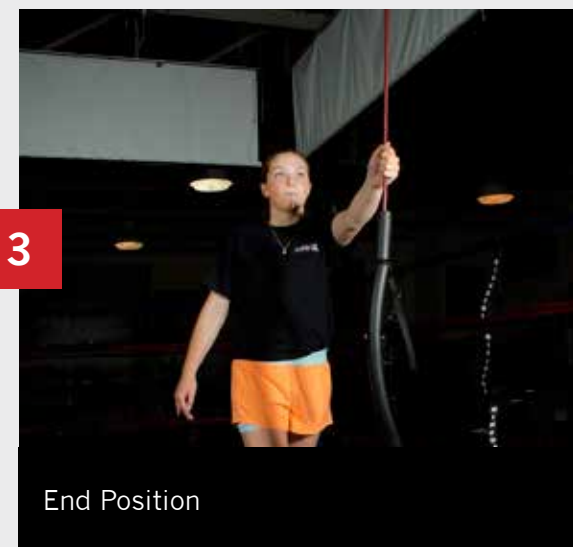
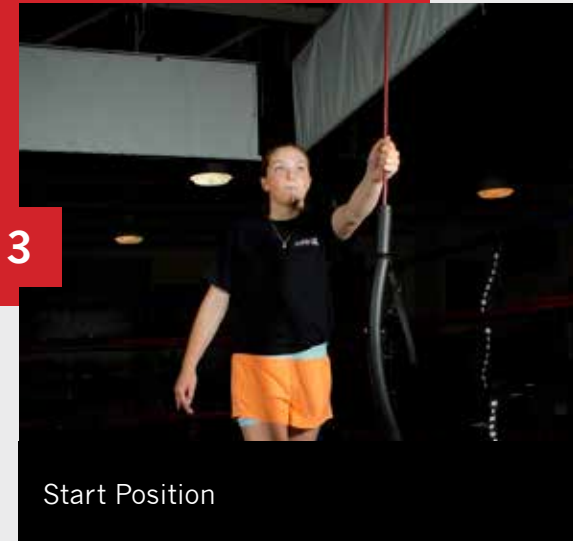
- a. Begin by lying on your side with the shoulders and hips stacked.
- b. The hips and knees are slightly flexed.
- c. Place the palms of the hands together with the elbows extended and the arms at shoulder level.
- d. Start the sequence by bringing the top arm in a circular motion over head, all the while the eyes and head/neck follow the hand path.
- e. Maintain the bottom hand position (back of the hand on the ground).
- f. Continue the circular motion all the way to the back (as the trunk rotates) until the front arm and back arm (movement arm) are in line in a “T” position.
- g. Once in this position, feed the movement arm across the body back to the starting position.
- h. Repeat on the opposite side.



**3**

**Single Arm Latissimus Dorsi Pull Down with Contralateral Neck Rotation.**  
**REPS: 10 repetitions in each direction with 5 left foot in front and 5 right foot in front.**

- a. Attach a rubber band above head height.
- b. Stand facing the rubber band attachment and grab the band with one hand.
- c. Have the athlete standing in an in-line split stance (ex. Left in front of right).
- d. Pull the band down with the left arm while looking with the eyes and rotating the head to the right (perform prescribed repetitions).
- e. Next perform this sequence with opposite foot position.
- f. Once the prescribed repetitions are finished, repeat in the same manner with the right arm pulling down paired with rotating the head/neck to the left.



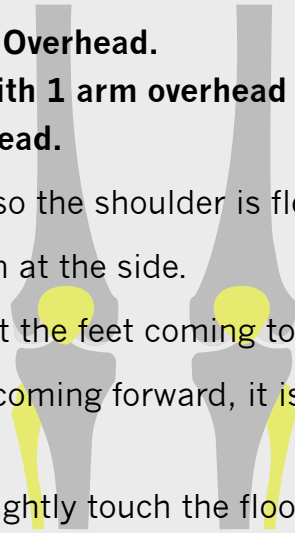


4a

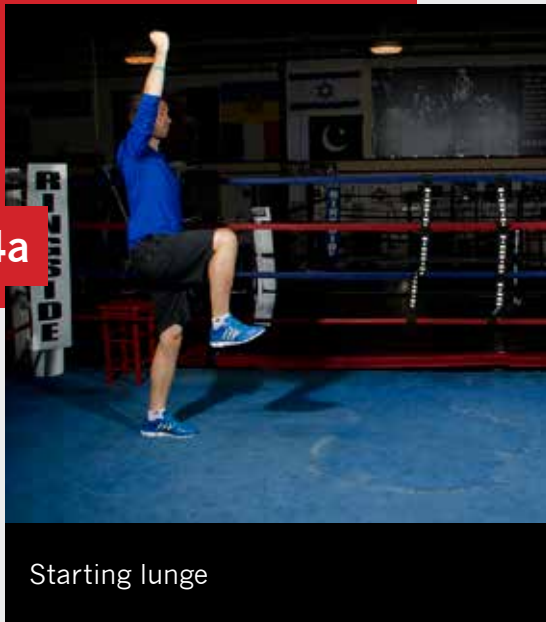
### Walking Lunge with Hand Overhead.

**REPS: 5 lunges per leg with 1 arm overhead and then 5 lunges per leg with the other hand overhead.**

- Place one hand overhead so the shoulder is flexed and the elbow is extended.
- The other arm is to remain at the side.
- Lunge alternatively without the feet coming together.
- Ensure as the back leg is coming forward, it is to clear the height of the front leg's knee.
- The back leg's knee is to lightly touch the floor on the descent without rest.



4a



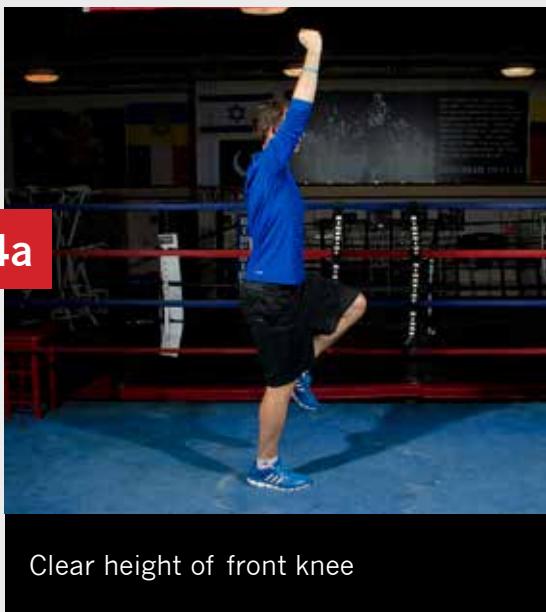
Starting lunge

4a



Mid lunge

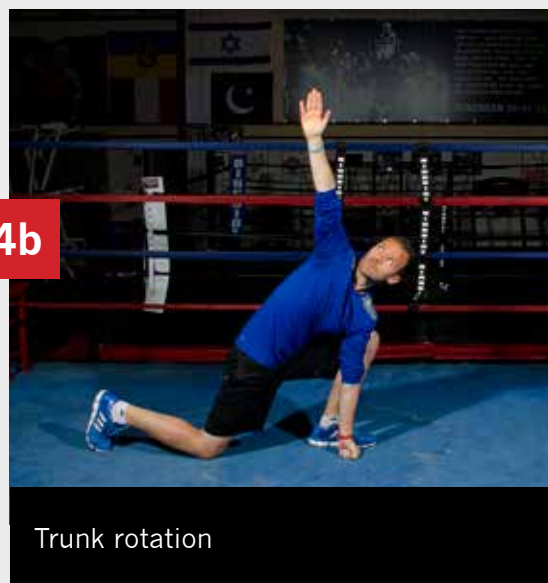
4a



Clear height of front knee

**4b****Walking Lunge with Trunk and Hip Mobility.****REPS: 5 lunge sequences per leg.**

- a. Stand with feet together.
- b. Begin with lunging forward with the right leg.
- c. Once the left knee lightly touches the ground, place the right elbow on the inside of the right ankle.
- d. Hold for a count of 1.
- e. Then place right fist (on knuckles) on the inside of the right ankle.
- f. Next rotate the trunk, head and eyes to the left until the left fingertips are pointing upwards, all the while maintaining right fist on the ground.
- g. Hold for a count of 1.
- h. Bring body back to the neutral lunge position and transition into a lunge position with the left leg in front.
- i. Repeat this process now with the left elbow being placed on the inside of the left ankle.
- j. Continue in a slow and controlled manner.

**4b****4b**



# LOCAL-REGIONAL EXERCISES

## 1a Cervicothoracic Mobility Protocol. REPS: 10 cycles/repetitions.

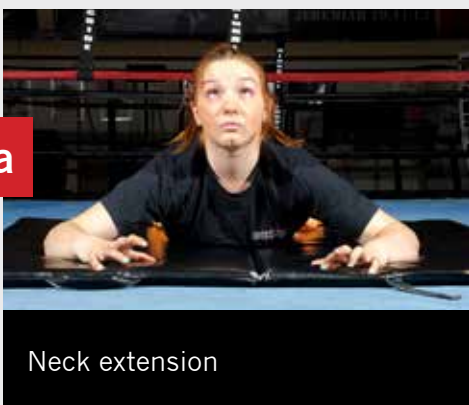
- a. Lying on the stomach propped up on the elbows (slightly wider than shoulder width and inline with the shoulder joint) with weight on the inside of the elbow.
- b. Push through the elbows in order to separate the shoulder blades (scapular protraction) (if you do this correctly you will see a rounding of the upper back).
- c. Commence the neck movement by retracting the chin (double chin), followed by bring chin to chest while maintaining chin position.
- d. Lift the head/neck while maintaining the chin retraction until neck is in line with the trunk.
- e. Next look with the eyes followed by the head/neck to the left and then to the right while maintaining chin retraction.
- f. Once back to midline, let go of the chin retraction so the following movement of full extension can be achieved.
- g. From full neck extension, flex the neck and retract the chin until chin touches the chest.
- h. Repeat sequencing.

1a



Chin tuck with separation of shoulder blades

1a



Neck extension

1a



Looking to the right

**1b**

**Trunk Rotation with Neck Resistance.**

**REPS: 10 rotations to each direction with 5 resisted in one direction and 5 resisted in the other direction.**

- a. Sit with the feet firmly on the ground and arms across the chest.
- b. Next have them rotate their trunk to the right while a partner is applying light resistance to the right side of their head while maintaining the head and neck in the starting position (facing forwards).
- c. After 5 repetitions are complete, have the partner apply the light resistance to the left side of their head while still rotating their trunk to the right.
- d. Repeat this sequence with trunk rotation to the left.

**1b**



Apply light resistance

**1b**



Rotate trunk while keeping head facing forwards

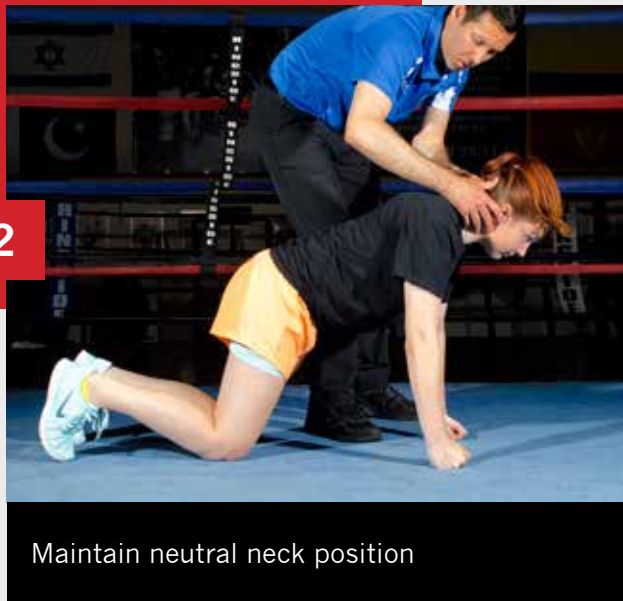
2

## Bear Crawl.

**REPS: 10 each opposite arm and leg forwards and 10 each opposite arm and leg backwards.**

- Start in a 4-point stance on the balls of the feet and on the knuckles.
- The head and shoulders should be slightly above the hips.
- While maintaining a neutral spine and not allowing for excessive side-to-side shifting, move the opposite arm and leg forward at the same time.
- Repeat on the opposite side crawling forwards.
- After prescribed repetitions are complete, repeat this motion going backwards.

2



2



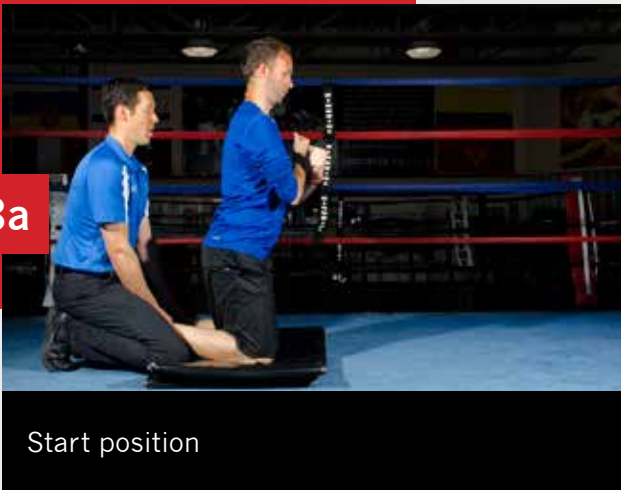
**3a**

**Dynamic Nordic  
(forwards and backwards).**

**REPS: 5 in each direction.**

- a. Begin in a tall kneeling position with a partner holding down the lower legs.
- b. Hands are to be placed in front of the chest.
- c. Slowly begin to lower your chest to the floor, hinging at the knees.
- d. The body should remain straight.
- e. Once the body cannot go further, slowly return to starting position or let the body fall into a push-up position and
- f. then push-up the body to the starting position.
- f. Once back at the starting position, the partner will release the lower legs.
- g. Next, slowly bend through the knees, which will act as the hinge, as the body moves backwards.
- h. Maintain neutral alignment.
- i. Keep bending through the knees slowly until control is about to be lost and then return to the starting position.
- j. The partner should then hold down the lower legs again.
- k. Continue the cycle.

**3a**



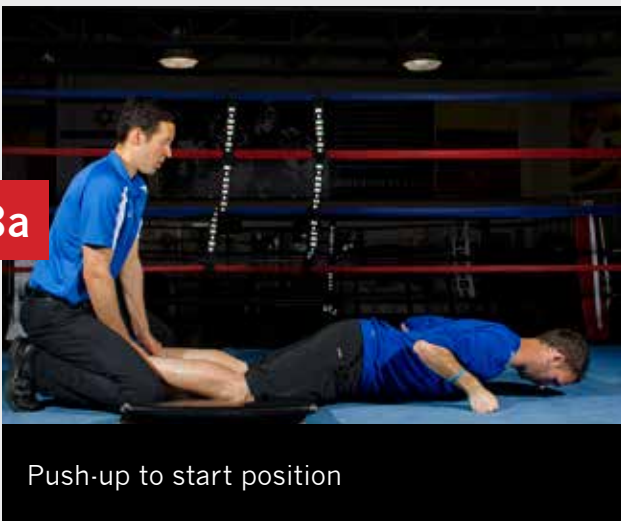
Start position

**3a**



Descent

**3a**



Push-up to start position

**3a**



Reverse motion maintaining neutral spine alignment

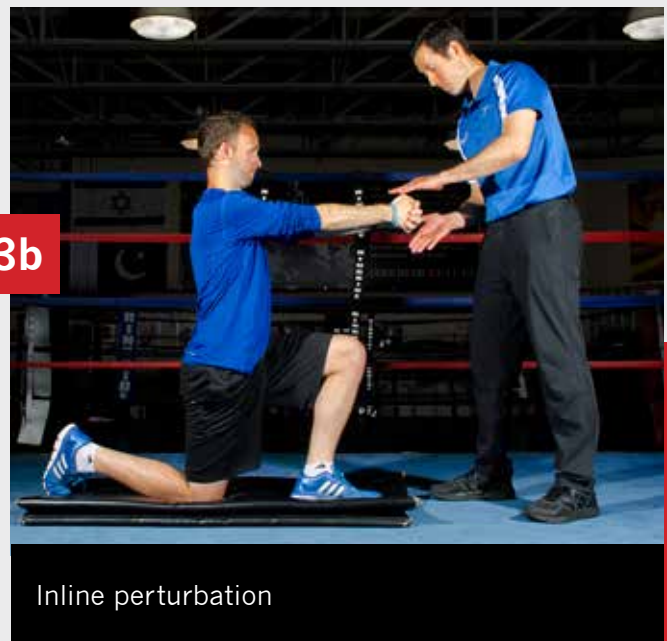
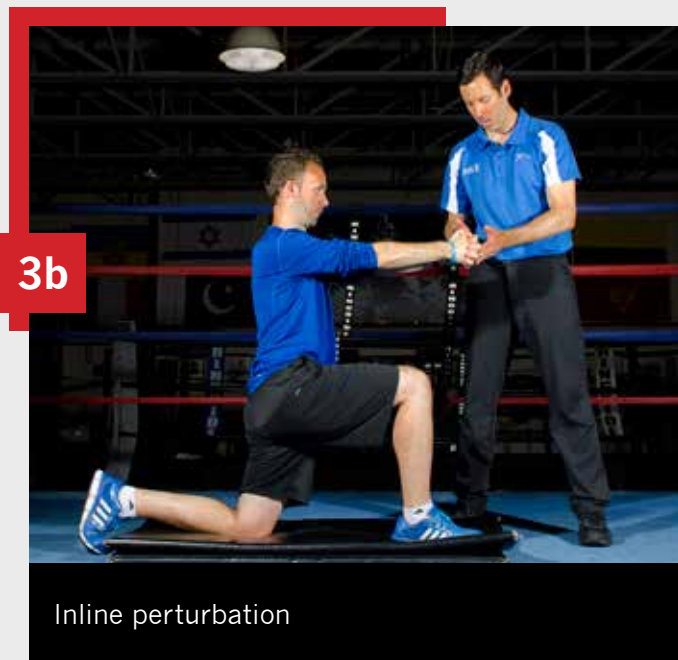


**3b**

**Modified Pallof.**

**REPS: 20 seconds with left leg in front and 20 seconds with right leg in front.**

- a. Start in a half kneeling position where the front foot is in-line with the back knee and back foot.
- b. Bring both arms out straight ahead at shoulder level and clasp the hands together with fingers intertwined.
- c. While maintaining this position, the partner will tap the hand and arms in different directions lightly.
- d. Maintain a neutral spine.
- e. Brace and breathe throughout the exercise.

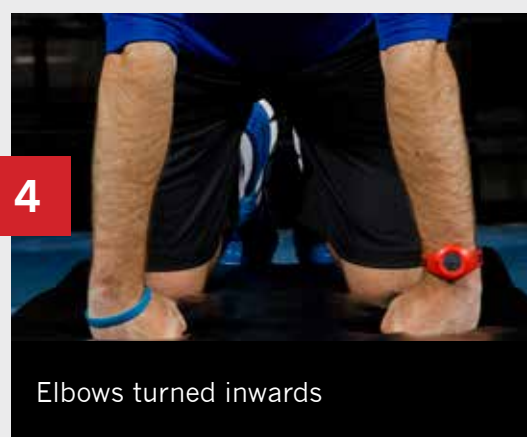
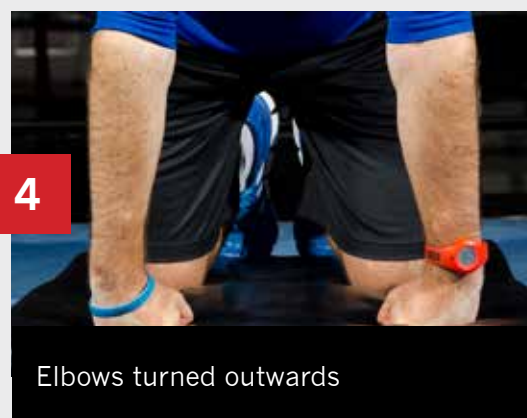
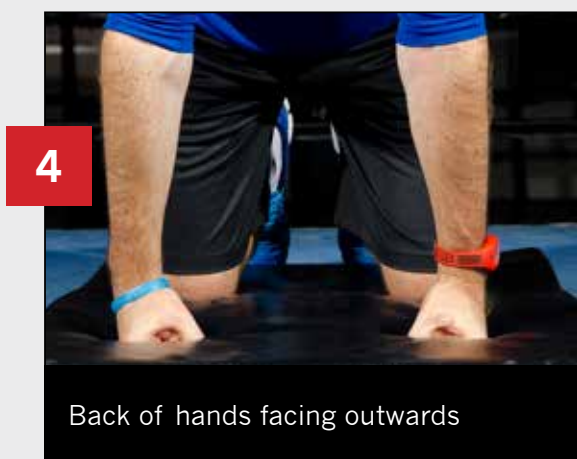
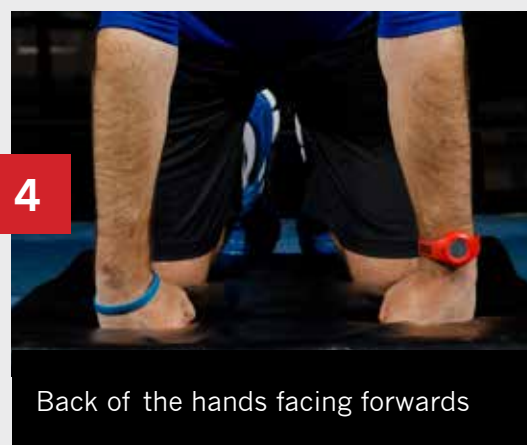


## 4

**Quadruped Wrist Mobility Protocol.**

**REPS: 10 rotation cycles with the back of the hands facing forwards and 10 rotation cycles with the back of the hands facing outwards.**

- Get in a quadruped position on the balls of the feet and on the knuckles with the back of them facing forwards.
- Maintain a neutral spine and apply slight weight unto the knuckles.
- While maintaining elbows in the extended position and the knuckles firmly planted, turn the elbows in to end range (externally rotating the upper arm and forearms) and back out to end range (internally rotating the upper arm and forearms) in a slow and controlled manner.
- After prescribed repetition cycles are complete, repeat the exercise with the back of the hands facing outwards.

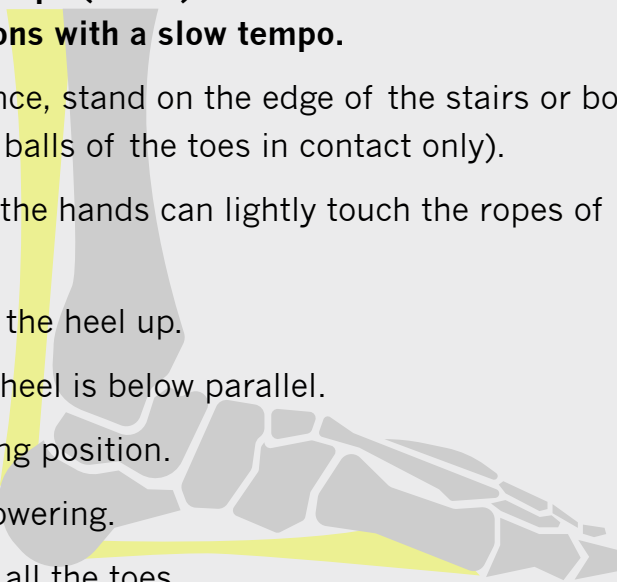


**5a**

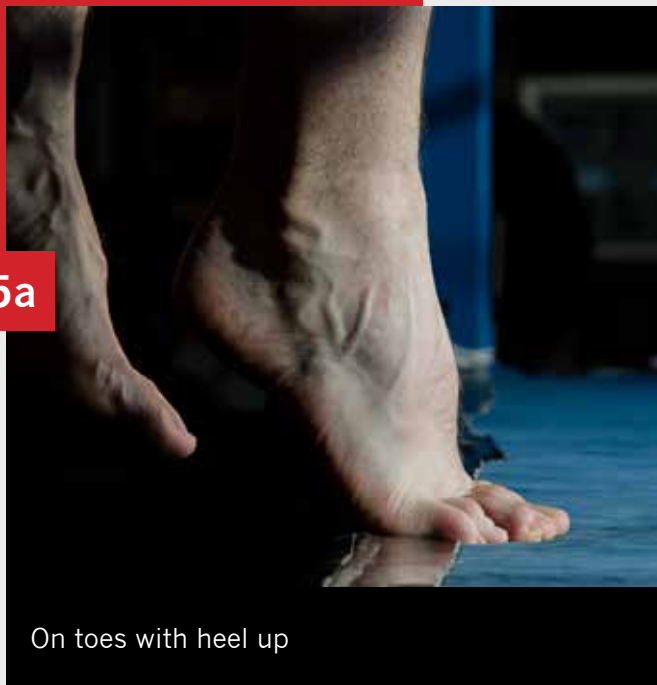
### Single Legged Heel Drops (stairs).

**REPS: 10-15 repetitions with a slow tempo.**

- In a single legged stance, stand on the edge of the stairs or boxing ring with the heel hanging off (toes and balls of the toes in contact only).
- For help with balance the hands can lightly touch the ropes of the ring or a wall/railing.
- Start on the toes with the heel up.
- Slowly lower until the heel is below parallel.
- Rise back up to starting position.
- Focus is on the slow lowering.
- Maintain contact with all the toes.
- Repeat this exercise for the prescribed repetitions and then on the other foot.



**5a**



On toes with heel up

**5a**

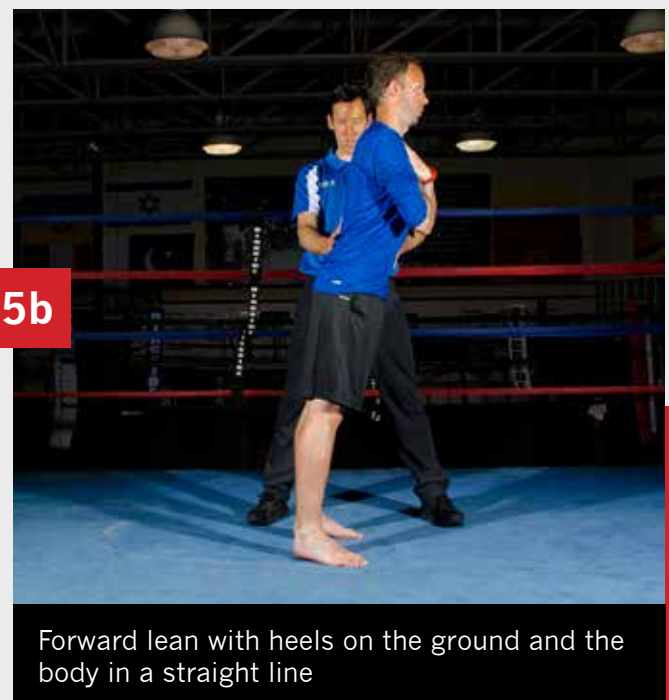
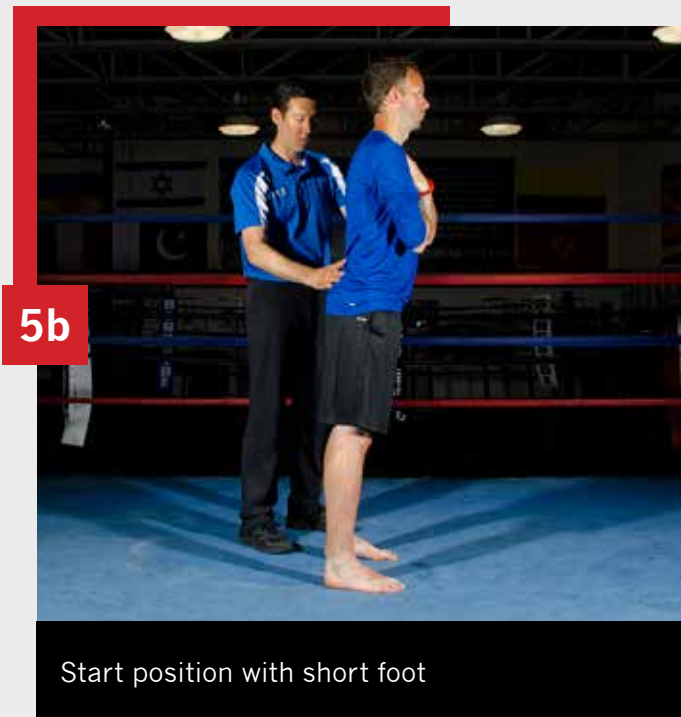


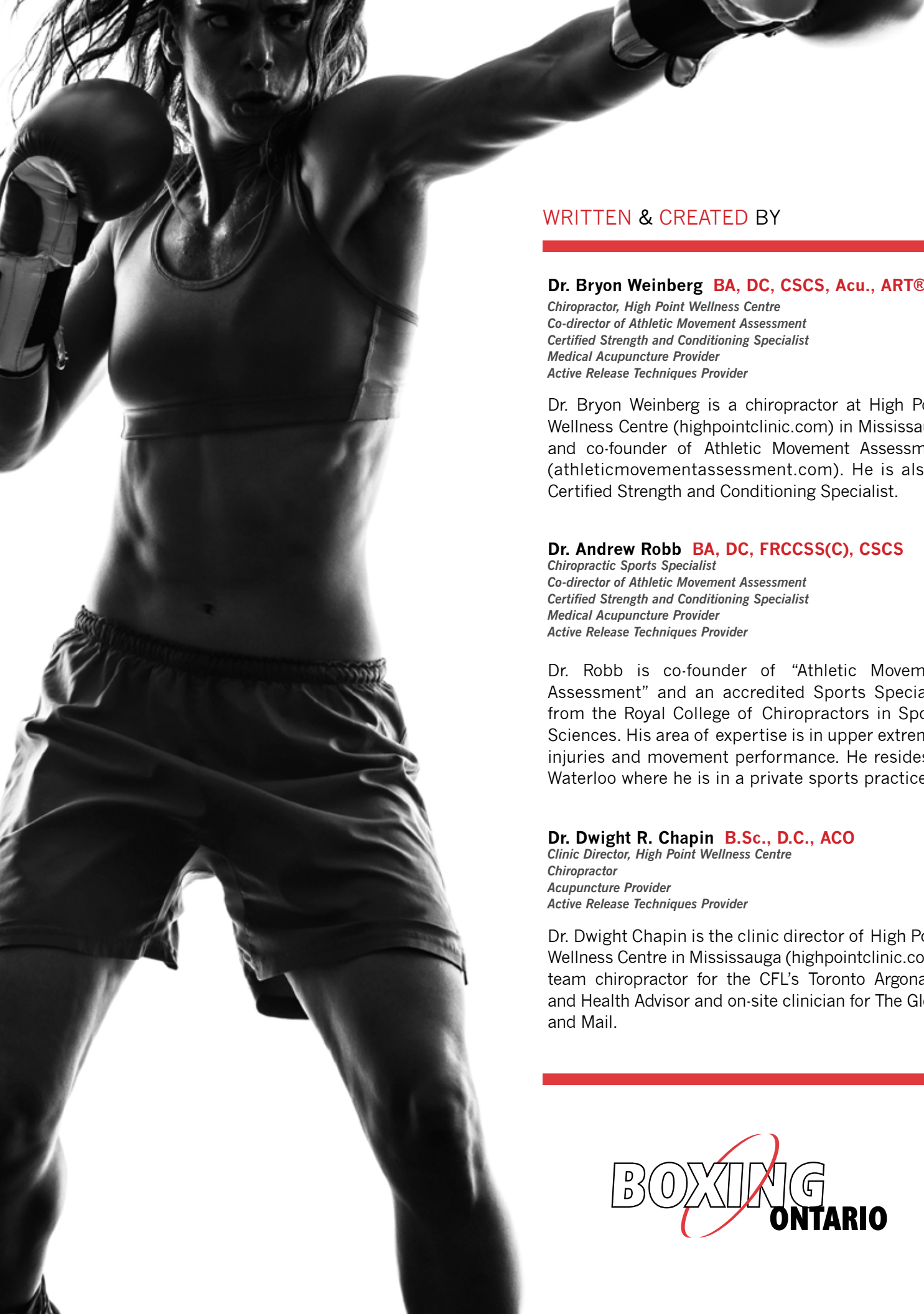
Slowly lower below parallel



**5b****Short Foot with Forward Lean.****REPS: 10 repetitions.**

- a. Stand shoulder width apart w/ the feet facing forwards.
- b. Grip the big toe into the ground without curling the toes.
- c. Turn the knees slightly outwards (external rotation of the legs).
- d. All toes remain in contact with the ground.
- e. Slowly lean forward using the ankle joint as a hinge while maintaining the heel on ground.
- f. The body should stay as a straight line.
- g. Right before the heels want to come off the ground, slowly use the feet and back of the legs to bring the body back to the upright position.
- h. Repeat for prescribed repetitions.





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**BOXING**  
**ONTARIO**