ESCAPE OCTAGON LOAD TRAINING.

STANCE, GRIP AND THE EFFECT ON MUSCULAR RECRUITMENT.

SECTION 6.

ESCAPE OCTAGON LOAD TRAINING.

STANCE, GRIP AND THE EFFECT ON MUSCULAR RECRUITMENT.

If adapting the training variables is the greatest way to elicit a physical change, then adjusting the positioning of the hands or feet is the best way to target specific muscles and integrate the whole body with the LOAD range.

This section outlines the exercise terminology created for LOAD to help instructors and users alike quickly prepare for an exercise and progress to more challenging exercises as they adapt.

IN THIS SECTION.

ESCAPE OCTAGON LOAD TRAINING.

WHY CHOOSE DIFFERENT STANCE AND GRIP POSITIONS?

Changing stance allows the user to recruit, activate and engage different muscle groups across the whole kinetic chain. This is incredibly important for greater crossover to everyday life or sport and is one of the unique selling points of the Octagon LOAD range.

Users will instantly notice the integration of supporting muscle groups that have to stabilize the body to maintain the posture or position required during the exercise. This section looks at the role's muscles play to allow a movement to take place and how changing stance and grip position effects the stabilization requirements across the body.

Firstly, here's a review of the muscles and their roles, when involved in a movement. It's useful to know these so you can consider what's happening in the body during an exercise and then change stance or grip where necessary to achieve the desired outcome.

PRIME MOVER (AGONIST).

These are the primary muscles responsible for generating the main force to perform a movement.

SYNERGISTS.

Synergists are muscles that assist the prime movers by adding extra force or by fine-tuning the movement.

STABILIZERS.

Stabilizers are muscles that contract isometrically to maintain posture and joint alignment during movement. The core muscles, including the abdominals, obliques, and erector spinae, often act as stabilizers during standing exercises.

ANTAGONISTS.

Antagonists are muscles that oppose the action of the prime movers. They lengthen to allow the prime movers to perform their action. For example, during a bicep curl, the triceps act as antagonists by lengthening as the biceps contract.

ESCAPE OCTAGON LOAD TRAINING.

HAND POSITION TERMINOLOGY.

NEUTRAL GRIP.

In a neutral/hammer grip, the palms face each other. This grip is used in the Row, Drive and Lift stations. The neutral grip can provide a more natural wrist position, reducing stress on the joints and allowing for greater activation of the brachialis and brachioradialis muscles in pulling movements.

OVERHAND GRIP.

In an overhand/pronated grip, the palms face down or away from the body. This grip is used in the Row, Overhead and Lift stations. During pulling movements the overhand grip emphasizes the brachialis and brachioradialis muscles in the forearms, contributing to improved grip strength and helps to integrate the whole upper body.

UNDERHAND GRIP.

In and underhand/supinated grip, the palms face up or towards the body. This grip is used in the Row and Overhead stations. Using the Row station, the underhand grip will shift focus to biceps, particularly the biceps brachii and engages the lower back and the lats. This grip can also reduce strain on the shoulders and elbows in certain movements for some users making it a safer option.

HAND RELEASE NEUTRAL GRIP.

This is the same as a standard neutral grip but is used in explosive power and speed exercises to allow the body to continue to accelerate at the end of a movement without any deceleration. As the joints come close to finishing the movement in the concentric portion the fingers should open and allow the LOAD handles to release from the palms. Special attention should be taken to receive the LOAD handles as they return towards the palm. This grip variation is used in the Drive station.

HAND RELEASE OVERHAND GRIP.

As with the neutral grip version with hand release this is used in explosive power and speed exercises to allow the body to continue to accelerate at the end of a movement without any deceleration. As the joints come close to finishing the movement in the concentric portion the fingers should open and allow the LOAD handles to release from the palms. Special attention should be taken to receive the LOAD handles as they return towards the palm. This grip variation is used in the Overhead station.

ESCAPE OCTAGON LOAD TRAINING.

OTHER VARIATIONS IN GRIP.

There are three other minor variations in grip that affect the hand placement on the LOAD handles and can be used across the LOAD range. They will impact grip strength and target muscles differently in the forearms.

NORMAL GRIP.

This is the most common type of grip used for the LOAD range. Wrapping the fingers around one side of the bar grip and the thumb around the other. It will provide a strong, secure grip in all lifts and help to develop tension and muscular activation across the upper body. Whether pushing away from or pulling towards the body most users will find this is their go to grip.

OVERHAND GRIP.

This can also become a favourable grip for use with the LOAD range when performing pulling exercises. Wrap the fingers and thumbs over the bar grip so they are all on the same side. This can be further used in Underhand Grip exercises like the Row which will help target biceps brachii, brachioradialis and the flexor muscles of the forearm.

HOOK GRIP.

Wrap the fingers over the bar grip and then trap your thumb under them, usually under the index and middle fingers. The Hook Grip is often used in Olympic Lifting as it creates a strong hook like grip on the bar and this help to lift heavy loads when straps aren't being used. However, for beginners it is often considered uncomfortable because the thumb can become trapped between the bar and the fingers rather than wrapping around the bar below the fingers. It does not necessarily help you lift heavier loads, albeit once used to the grip most people find it a strong grip for 1 rep max lifts.

ESCAPE OCTAGON LOAD TRAINING.

FOOT POSITION TERMINOLOGY.

NEUTRAL.
Two feet on the ground in a neutral position, or toes pointing out slightly if more comfortable.

SPLIT.
Front foot planted flat on the floor; rear foot raised with toes on the floor. Both feet facing forwards and inline.

SINGLE LEG.
One leg in contact with the ground during the exercise.

STAGGERED.
Front foot planted flat on the floor, rear foot turned out 90 degrees and planted flat on the floor.

STEPPING.
Starting in a Neutral stance, stepping forward with one foot into a Split stance.

NEUTRAL TO SPLIT.
Starting in a Neutral stance, perform a jump and land in a Split stance position.

NARROW.
Two feet on the ground with feet close together and pointing straight forwards.

LATERAL NEUTRAL.
Side on to the LOAD station with two feet on the ground in a neutral position, or toes pointing out slightly if more comfortable.

LATERAL SINGLE LEG.
Side on to the LOAD station with two feet on the ground in a neutral position, or toes pointing out slightly if more comfortable.

SECTION 6.

ESCAPE OCTAGON LOAD TRAINING.

THE EFFECT ON STABILIZATION REQUIREMENTS IN DIFFERENT STANCES.

Transitioning from a neutral stance to more challenging positions like split stance, staggered stance, and single-leg stance progressively increases the demand on stabilizing muscles. Each stance requires different levels of balance, core engagement, and muscle activation to maintain stability and proper alignment.

ESCAPE OCTAGON LOAD TRAINING.

Here's how each stance affects the engagement of stabilizing muscles.

1. NEUTRAL STANCE.

Weight is evenly distributing between both legs. This is a stable, balanced position used in many exercises like squats or overhead presses.

STABILIZING MUSCLES ENGAGED:

- **CORE MUSCLES:** The rectus abdominis, obliques, and transverse abdominis stabilize the torso, maintaining an upright posture.
- **GLUTES AND HIP STABILIZERS:** The gluteus medius and minimus help maintain hip alignment and prevent excessive side-to-side movement.
- **LOWER LEG MUSCLES:** The calves (gastrocnemius and soleus) and the muscles around the ankles (tibialis anterior and peroneals) stabilize the lower legs and maintain balance.

KEY POINTS:

- **SYMMETRICAL LOAD:** Both sides of the body share the load evenly, which means the stabilizing demand is relatively low compared to other stances.
- **BALANCE AND CONTROL:** This stance provides a solid base of support, requiring minimal extra stabilization beyond the core and hips.

2. SPLIT STANCE.

The weight is distributed between both legs, depending on the direction of the load, the front or rear foot can take more or less of the weight. This stance is common in lunges, split squats, and many pressing exercises.

STABILIZING MUSCLES ENGAGED:

- **CORE MUSCLES:** Core activation increases to stabilize the torso against rotational forces and to maintain an upright position, especially when the load is not evenly distributed.
- **HIP STABILIZERS:** The gluteus medius and minimus, as well as the adductors and abductors, work harder to stabilize the hips and prevent pelvic tilt.
- **QUADRICEPS AND HAMSTRINGS:** The front leg primarily engages the quadriceps for knee stabilization, while the hamstrings and glutes in the back leg work to stabilize and control the knee and hip joints.
- **CALVES AND ANKLE STABILIZERS:** The split stance places more demand on the calf muscles and the stabilizers around the ankle, particularly in the back leg, to maintain balance and prevent the foot from rolling inward or outward.

KEY POINTS:

- **INCREASED STABILITY DEMAND:** The split stance decreases the base of support, requiring more stabilization, particularly in the hips and core, to maintain balance.
- **COORDINATION:** The stance challenges coordination between the front and back leg, as they perform different roles (e.g. stabilization vs. propulsion).

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3. STAGGERED STANCE

Like a split stance in terms of weight distribution both feet take the load to varying levels depending on the direction of the load.

STABILIZING MUSCLES ENGAGED:

- **CORE MUSCLES:** The demand on the core muscles increases even further as the narrow base of support makes it harder to maintain balance, especially during dynamic movements.
- **HIP STABILIZERS:** Hip stability becomes more challenging, with the gluteus medius and minimus working hard to prevent lateral sway and maintain pelvic alignment.
- **ADDUCTORS AND ABDUCTORS:** These muscles in the inner and outer thighs are more engaged to prevent the legs from collapsing inward or outward.
- **LOWER LEG STABILIZERS:** The staggered stance places significant demands on the ankle stabilizers, as the narrow base increases the risk of rolling or losing balance.

KEY POINTS:

- **NARROW BASE OF SUPPORT:** The staggered stance requires more precise control and stabilization, making it a good progression from a split stance for increasing stability and balance challenges.
- **ASYMMETRY:** This stance increases asymmetrical loading, which further challenges the body's ability to stabilize itself.

4. SINGLE-LEG STANCE

All the weight is placed on one leg, with the other leg lifted off the ground and places significant challenge on the stabilizing muscles whilst also increasing the level of difficulty for the prime moves and synergists.

STABILIZING MUSCLES ENGAGED:

- **CORE MUSCLES:** Core engagement is maximized to maintain balance and prevent excessive rotation or lateral tilting of the torso.
- **HIP STABILIZERS:** The gluteus medius, minimus, and the deep hip external rotators (such as the piriformis) are heavily engaged to keep the pelvis level and prevent it from dropping on the unsupported side (hip drop).
- **QUADRICEPS AND HAMSTRINGS:** The supporting leg's quadriceps and hamstrings are highly active to stabilize the knee joint, prevent it from collapsing inward (valgus), and control any movement at the hip.
- **ANKLE AND FOOT STABILIZERS:** The muscles of the foot and ankle, including the tibialis anterior, peroneals, and intrinsic foot muscles, are crucial for maintaining balance on one leg. They continuously adjust to prevent rolling of the foot and ensure stable contact with the ground.

KEY POINTS:

- **MAXIMUM STABILITY CHALLENGE:** The single-leg stance provides the greatest challenge to balance and stabilization, engaging the entire kinetic chain from the foot to the core.
- **UNILATERAL TRAINING:** This stance highlights and addresses any imbalances between the left and right sides of the body, making it an essential component of balanced strength and stability training.

ESCAPE OCTAGON LOAD TRAINING.

IMPLEMENTING STANCE CHANGES INTO PROGRAMMING.

Transitioning from a neutral stance to more challenging positions like split stance, staggered stance, and single-leg stance progressively increases the demand on stabilizing muscles. Each stance requires different levels of balance, core engagement, and muscle activation to maintain stability and proper alignment. Here's how each stance affects the engagement of stabilizing muscles.

ESCAPE OCTAGON LOAD TRAINING.

LOAD STATIONS AND THE MAJOR MUSCLE GROUPS USED IN EACH HAND POSITION.

PLEASE NOTE:
Assumptions in muscular activation and the targeting of specific sections of muscles are made based on the principles of anatomy and as such may not apply to certain users and their anatomical structure and function. Using plate loaded equipment and adjusting grip positions and/or stance can provide a platform to focus on the target muscles groups but to what extent they can target muscles is down to the individual user's posture, structure, and neuromuscular function.

ESCAPE OCTAGON LOAD TRAINING.

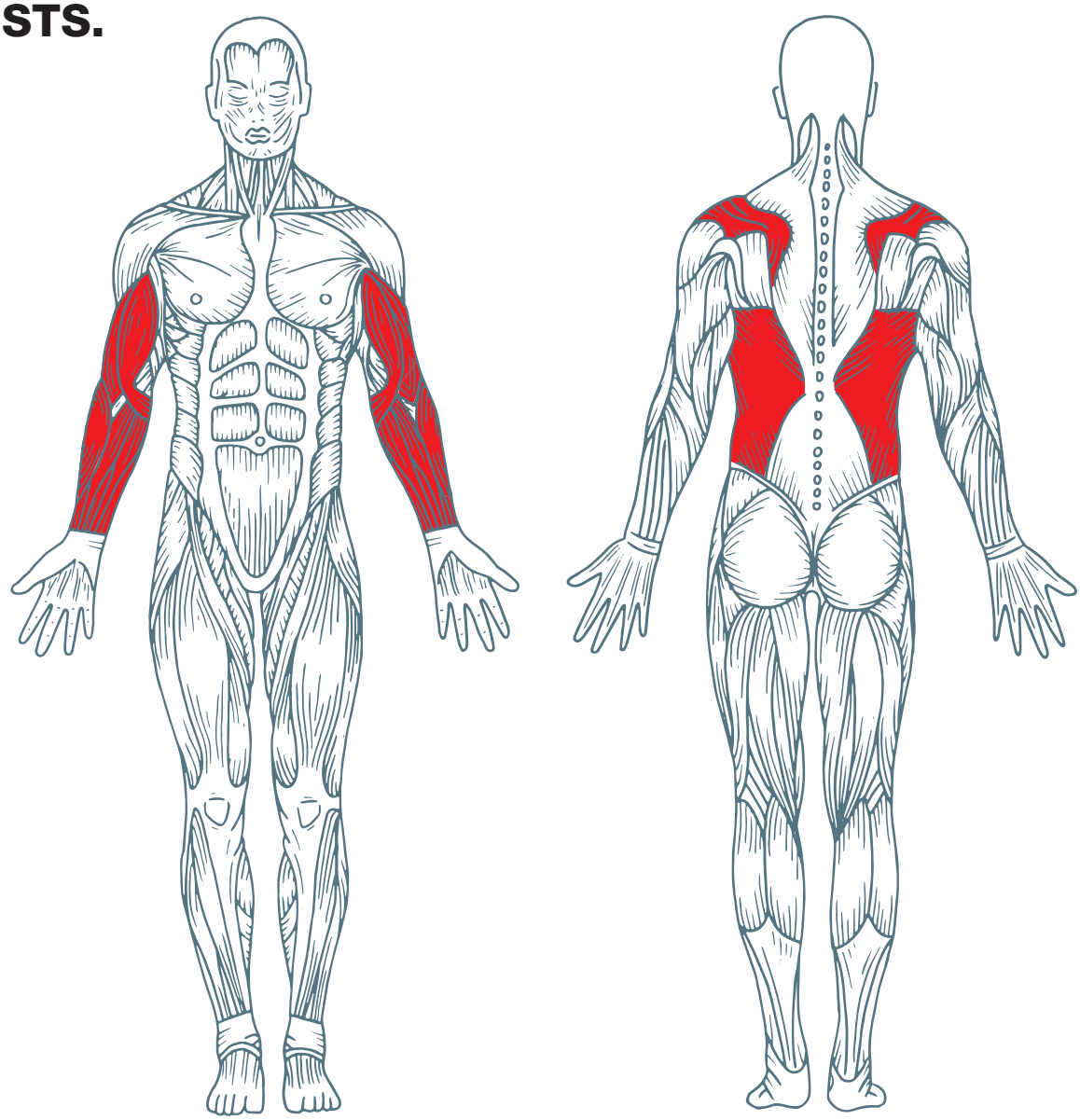
LOAD STATION: ROW

MAJOR MUSCLE GROUPS USED.

1. Latissimus Dorsi
2. Teres Major
3. Posterior Deltoids
4. Arm Flexors
5. Biceps
6. Brachialis
7. Brachioradialis

SYNERGISTS.

1. Rhomboids
2. Trapezius
3. Teres Minor



ESCAPE OCTAGON LOAD TRAINING.

LOAD STATION: ROW

GRIP CHANGES AND TARGET MUSCLES.

NEUTRAL GRIP

- Brachioradialis
- Biceps Brachii – Long and Short Head
- Brachialis
- Latissimus Dorsi
- Rhomboids
- Trapezius - Mid and Lower (depending on the line of pull)
- Posterior Deltoids
- Teres Major
- Erector Spinae (to a lessor extend and dependant on the finishing position and back extension)

OVERHAND GRIP

- Biceps Brachii – Long Head
- Posterior Deltoids
- Rhomboids
- Trapezius – Mid and Lower (depending online on pull)
- Teres Major

UNDERHAND GRIP

- Biceps Brachii - Short Head
- Latissimus Dorsi
- Brachialis
- Lower Trapezius
- Erector Spinae (to a lessor extend and dependant on the finishing position and back extension)

ESCAPE OCTAGON LOAD TRAINING.

LOAD STATION: DRIVE.

MAJOR MUSCLE GROUPS USED.

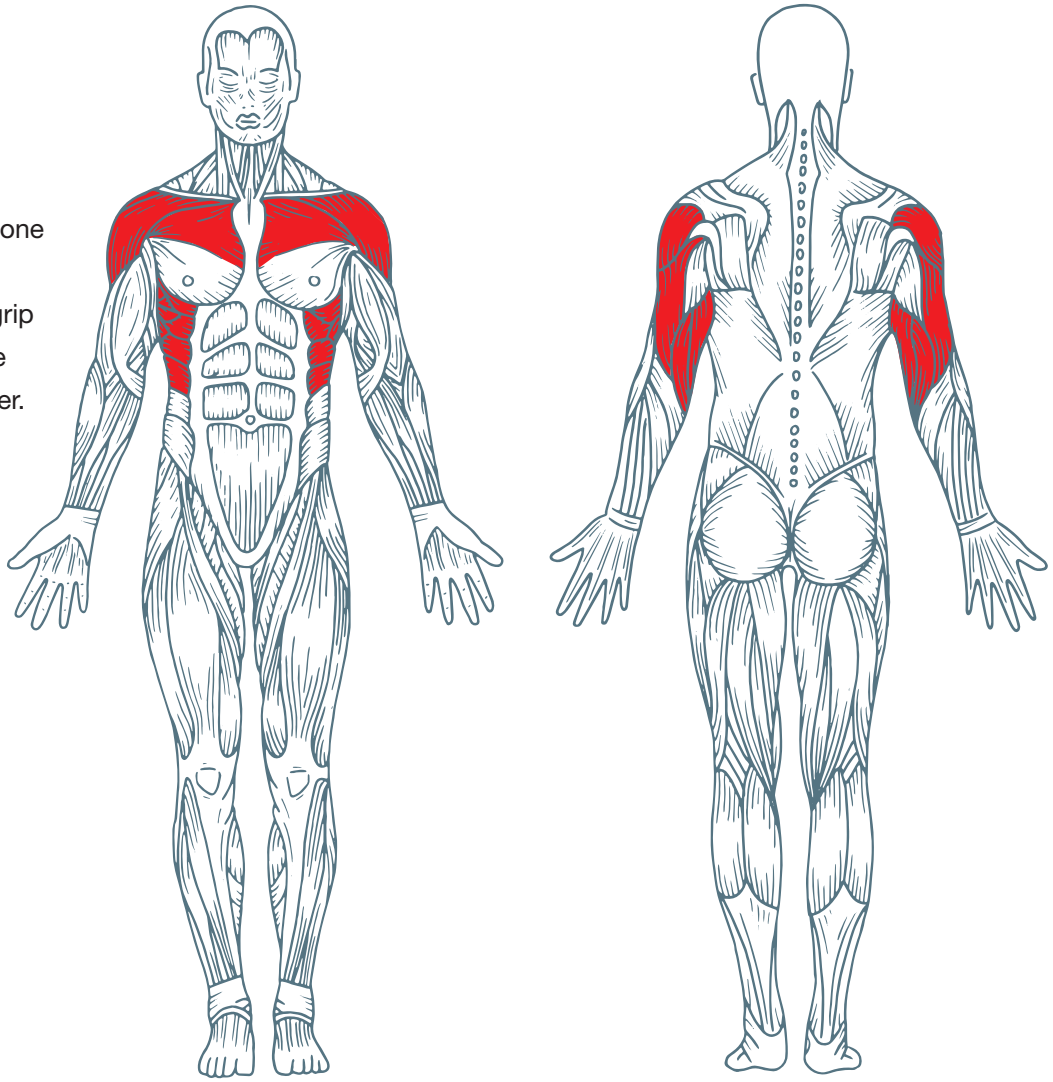
1. Pectoralis Major, mostly Clavicular part.
2. Mid Deltoid
3. Anterior Deltoid
4. Triceps Brachii Medial Head
5. Triceps Brachii Lateral Head
6. Triceps Brachii Long Head
7. Serratus Anterior

PLEASE NOTE. Because of the angle of the bar grips in the Drive station, all three heads of the Triceps Brachii will be engaged, but potentially less so for the Long Head.

SYNERGISTS.

1. Biceps Brachii
2. Coracobrachialis
3. Supraspinatus

PLEASE NOTE. As there is only one hand grip position used with the Drive station. No adjustment in grip can be made to better target one specific prime mover over another.



ESCAPE OCTAGON LOAD TRAINING.

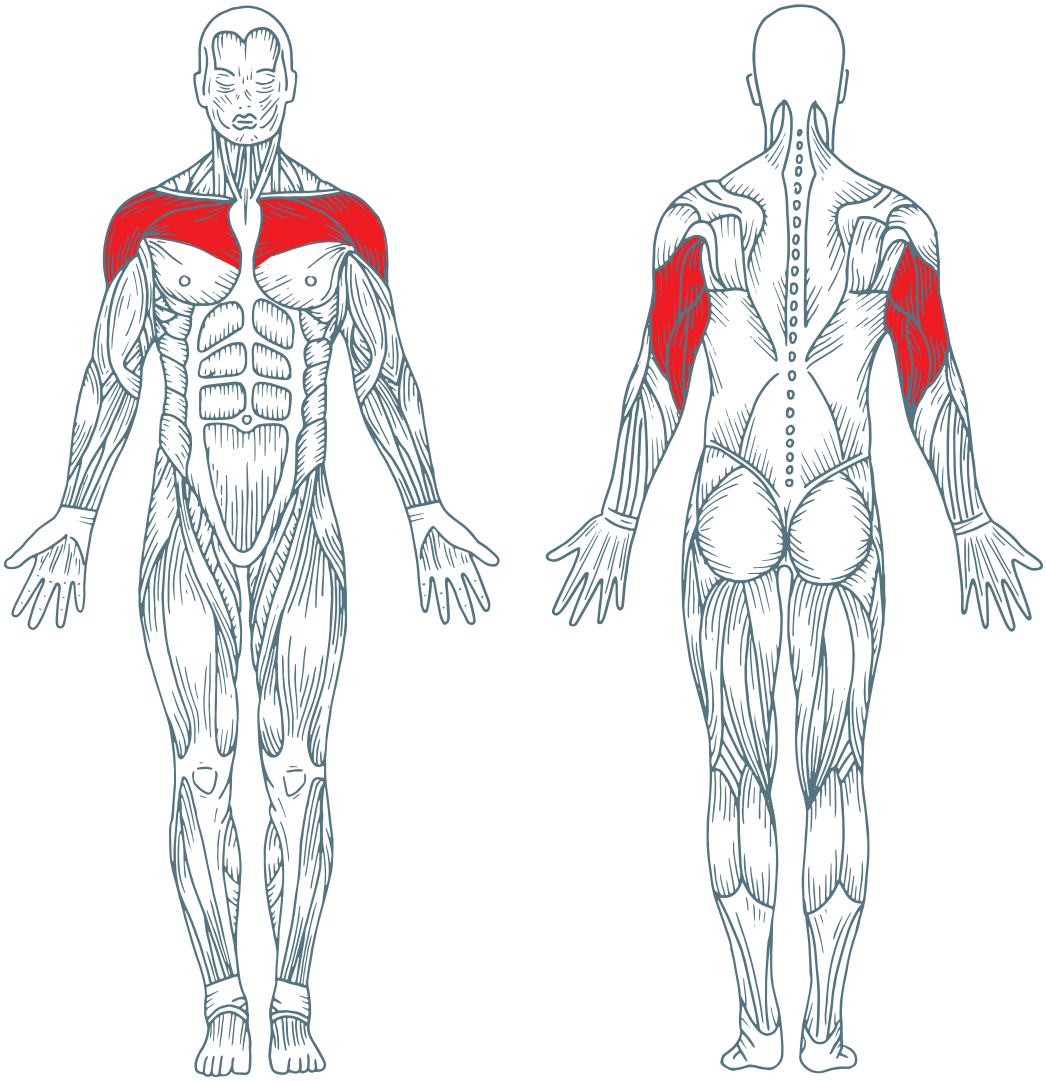
LOAD STATION: OVERHEAD.

MAJOR MUSCLE GROUPS USED.

1. Anterior Deltoid
2. Lateral Deltoid
3. Triceps Brachii
4. Pectoralis Major – Clavicular Head

SYNERGISTS.

1. Posterior Deltoid
2. Trapezius – Upper Fibres



ESCAPE OCTAGON LOAD TRAINING.

LOAD STATION: OVERHEAD.

GRIP CHANGES AND TARGET MUSCLES.

OVERHAND GRIP

- Anterior Deltoid
- Lateral Deltoid
- Triceps Brachii – Long, Medial and Lateral Heads
- Pectoralis Major – Clavicular Head

UNDERHAND GRIP

- Anterior Deltoid
- Posterior Deltoid
- Triceps Brachii – Long Head
- Triceps Brachii – Medial Head
- Pectoralis Major – Clavicular Head
  (more so in Underhand than Overhand Grip)
- Biceps Brachii – Long Head

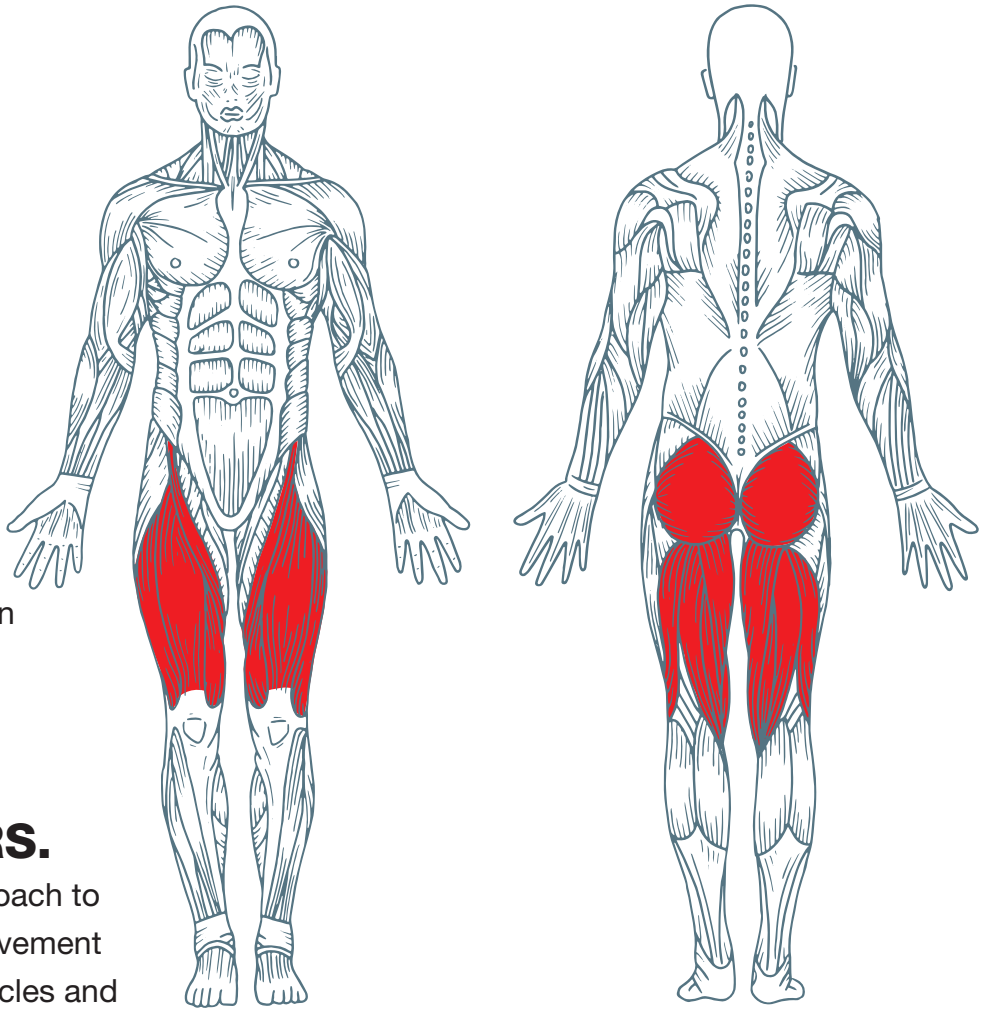
ESCAPE OCTAGON LOAD TRAINING.

LOAD STATION: LIFT.

As the Lift station primarily provides one grip option, being the neutral grip.
Variation in target muscles and prime movers is achieved by changing the stance.

MAJOR MUSCLE GROUPS USED – NEUTRAL STANCE.

1. Gluteus Maximus
2. Hamstrings:
   a. Biceps Femoris
   b. Semitendinosus
   c. Semimembranosus
3. Quadriceps
   a. Vastus Lateralis
   b. Vastus Medialis
   c. Vastus Intermedius
   d. Rectus Femoris



SYNERGISTS.

1. Adductor Magnus
2. Gastrocnemius and Soleus (assists with ankle dorsi flexion which may or may not be prominent depending on positioning and stance)

MAJOR STABILISERS.

Because of the whole-body approach to this exercise there is a large involvement isometrically in the following muscles and therefore noteworthy to include in this section for their development during this movement.

1. Erector Spinae
2. Trapezius Upper, Mid and Lower Fibers
3. Rhomboids Major and Minor
4. Latissimus Dorsi
5. Gluteus Medius and Minimus – to a (lesser extent during a 2 handed, neutral stance deadlift.)

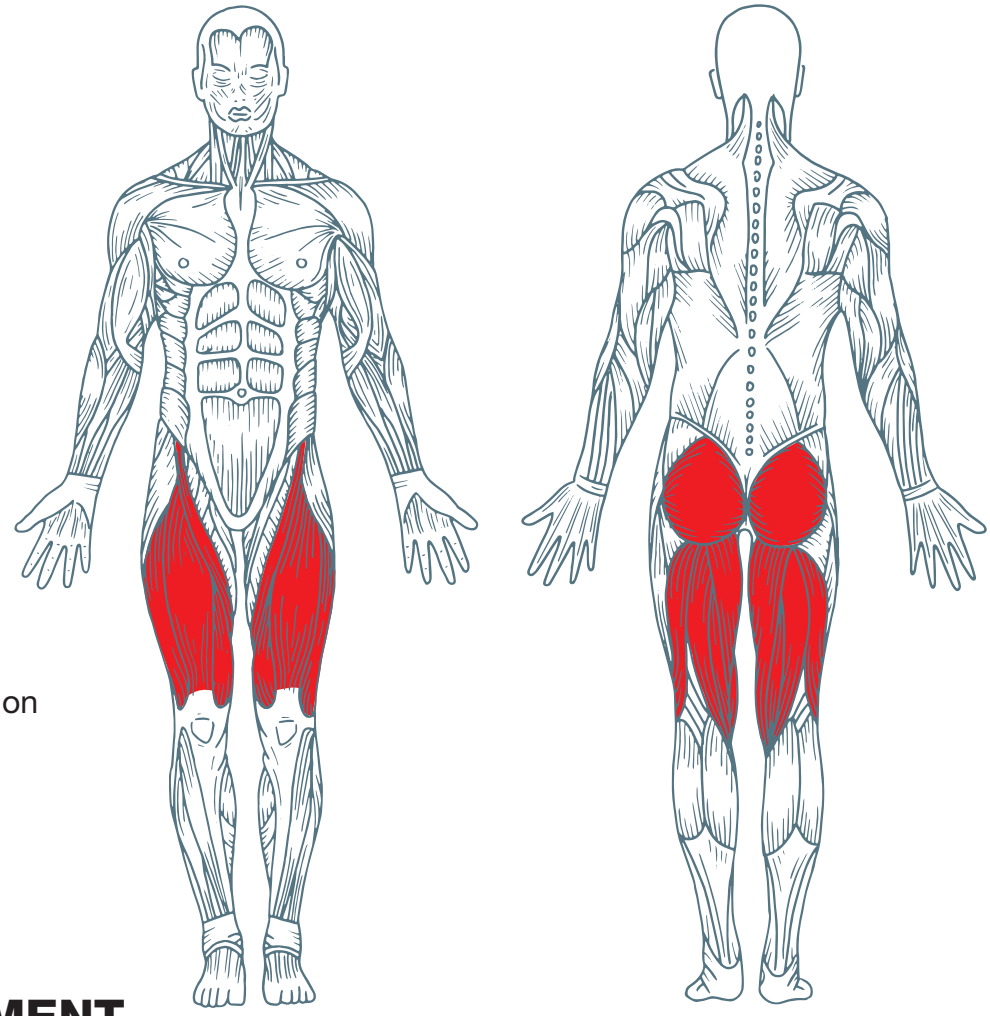
ESCAPE OCTAGON LOAD TRAINING.

LOAD STATION: LIFT.

MAJOR MUSCLE GROUPS USED – NARROW STANCE.

The narrow stance increases the degree of knee flexion and loading across the knee joint seeing a greater engagement of the quadriceps.

1. Quadriceps
    a. Vastus Lateralis
    b. Vastus Medialis
    c. Vastus Intermedius
    d. Rectus Femoris
2. Gluteus Maximus
3. Hamstrings:
    a. Biceps Femoris
    b. Semitendinosus
    c. Semimembranosus



SYNERGISTS.

1. Adductor Magnus – Reduced role in a narrow stance.
2. Gastrocnemius and Soleus (assists with ankle dorsi flexion which may or may not be prominent depending on positioning and stance)

OTHER STANCE VARIATIONS AND MUSCLE INVOLVEMENT.

As stance changes from two footed variations to split or single leg options, the involvement in stabilizers and core muscles is enhanced greatly to allow the prime movers to function optimally.

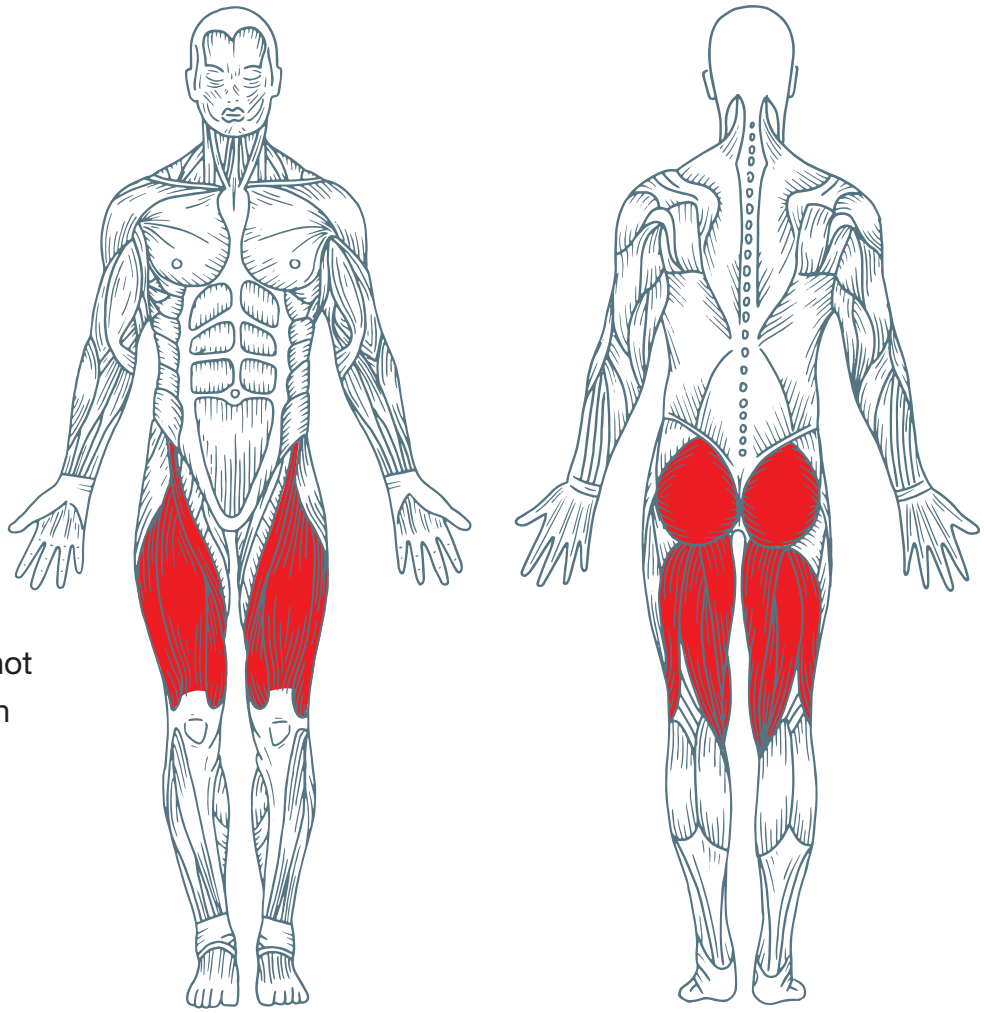
ESCAPE OCTAGON LOAD TRAINING.

LOAD STATION: BELT SQUAT.

As the Belt Squat station does not have any grip options for its primary purpose. Variation in target muscles and prime movers is achieved by changing the stance.

MAJOR MUSCLE GROUPS USED – NEUTRAL STANCE.

1. Quadriceps
   a. Vastus Lateralis
   b. Vastus Medialis
   c. Vastus Intermedius
   d. Rectus Femoris
2. Gluteus Maximus
3. Hamstrings:
   a. Biceps Femoris
   b. Semitendinosus
   c. Semimembranosus



SYNERGISTS.

1. Adductor Magnus
2. Gastrocnemius and Soleus (assists with ankle dorsi flexion which may or may not be prominent depending on positioning and stance)