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AN INTRODUCTION TO  
STRENGTH &  
CONDITIONING

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# Table of Contents

2	<b>Foreword</b>
3	<b>Section 1: The Squat</b>
	Overview
4	Key Coaching Points
6	Progressions
11	<b>Section 2: The Clean</b>
	Overview
12	Key Coaching Points
14	Progressions
19	<b>Section 3: Single Leg Exercises</b>
	Overview
20	Key Coaching Points
22	Progressions
27	<b>Section 4: Horizontal Push</b>
	Overview
28	Key Coaching Points
30	Progressions
35	<b>Section 5: Horizontal Pull</b>
	Overview
36	Key Coaching Points
38	Progressions
41	<b>Section 6: Vertical Pull</b>
	Overview
42	Key Coaching Points
44	Progressions
47	<b>Section 7: Vertical Push</b>
	Overview
48	Key Coaching Points
50	Progressions
53	<b>Section 8: Double Leg Plyometrics</b>
	Overview
54	Key Coaching Points
56	Progressions
61	<b>Section 9: Single Leg Plyometrics</b>
	Overview
62	Key Coaching Points
64	Progressions

# Foreword

Athletics Ireland is committed to the on-going education and development of our coaches.

Strength and conditioning is increasingly recognised as a vital component in an athletes training plan. In line with LTAD strategies, we wish to assist our coaches in understanding the fundamentals of strength and conditioning in a practical environment.

The manual provides a step by step guide across a range of exercises, including progressions and adaptations in each case.

There is an overview of each exercise and its importance explained. The key coaching considerations and teaching points are discussed. The exercises included can support a range of ages and abilities. These are designed to gradually and progressively increase capability which will ultimately assist in raising performance levels.

This manual is intended for use by coaches, athletes, clubs, schools, etc. who are interested in the topic.

We hope that this resource is helpful to coaches on their journey.

Pat Ryan  
*Director of Coaching & Development*  
*Athletics Ireland*

Lilly-Ann O'Hora  
*Women in Sport Officer*  
*Athletics Ireland*

## SECTION ONE

# The Squat



### OVERVIEW

The squat is a fundamental movement pattern.

The squatting movement pattern is key in everyday movements and, as such, it is extremely important for an individual to be able to complete this movement pattern effectively and efficiently.

The squat pattern is involved in all jumping, running and landing activities.

The squat movement pattern involves flexing and extending at the hips, knees and ankles, and this triple flexion/extension movement pattern is common to most sporting actions. There are many variations in squat technique, which can alter the demand on the joints by adjusting the moment arms.

The versatility of the squat pattern makes it ideal for resistance training and improving strength and power in the lower body.

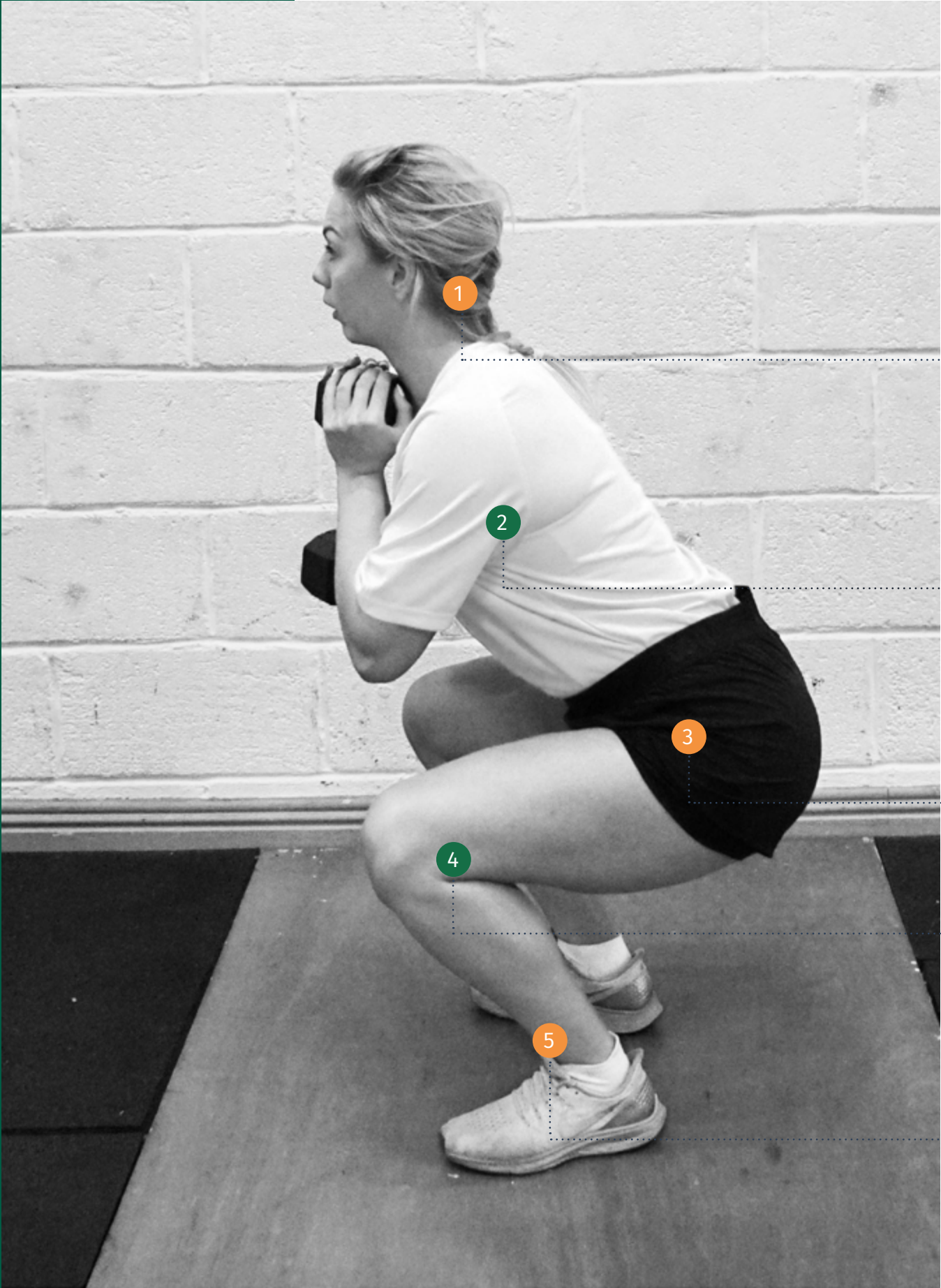
### MUSCLES INVOLVED

- Quadriceps
- Gluteus Maximus
- Adductor Magnus
- Soleus
- Hamstrings
- Gastrocnemius
- Erector Spinae
- Rectus Abdominis
- Obliques

### SQUAT PROGRESSIONS

- 09 Overhead Squat
- 08 Back Squat
- 07 Front Squat
- 06 Zombie Squat
- 05 Dumbbell Squat
- 04 Goblet Squat
- 03 Air squat
- 02 Counter Balance Squat
- 01 Pillar Squat





## Key Coaching Considerations

	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	<p>The head should be in a neutral position at all times.</p> <p>There should be no looking up or down.</p>	<p>The head looks up or down.</p>	<p>Encourage the athlete to look straight ahead at all times.</p> <p>Tuck the chin in and push the tongue to the roof of the mouth.</p>
2. Back + Torso	<p>The back should stay straight at all times.</p> <p>Keep the core braced at all times.</p> <p>The back can be allowed to slightly flex forward, but not excessively.</p> <p>Look for a big chest at all times – Shoulder blades pulled together.</p>	<p>The back becomes round (hunched).</p>	<p>Encourage the athlete to have big chest. Chest faces the opposite wall not the ground.</p> <p>Keep the torso braced at all times .</p> <p>Squeeze the shoulder blades together and pull the elbows tight to the side. (imagine trying to bend the bar over the spine).</p> <p>Have the hands as close to shoulders as possible and pull the bar down on the back.</p>
3. Hips	<p>The hips and knees should flex (bend) at the same time.</p> <p>Look for the hips be go below the knees as a gauge of correct depth (thighs parallel to the ground).</p> <p>If the back position is compromised then depth can be sacrificed.</p>	<p>Hips do not go below the level of the knees.</p> <p>Hips and knees do not flex at the same time. Most common is for a athlete to push the hips back before bending the knees to keep weight on the heels.</p>	<p>This can be developed over time. The use of a box to give confidence can be of help as you gradually lower the box.</p> <p>Check for ankle range of motion and hip range of motion as these can limit.</p>
4. Knees	<p>The knees should track the toes at all times</p> <p>Knees can be in front of toes as long as the feet are flat on the ground</p>	<p>Knees fall inward</p>	<p>Push knees outward and keep in line with toes.</p>
5. Feet	<p>Feet should be flat on the ground at all times.</p> <p>Feet should be shoulder width apart.</p> <p>Feet should be positioned so that they replicate the hands of a clock - 10 o'clock and 2 o'clock</p>	<p>Heels Come off the ground.</p> <p>Feet fall inward.</p>	<p>Sit back &amp; push heels into the ground.</p> <p>Spread toes, push knees outwards, feel pressure on outside &amp; heel of foot.</p> <p>Tie tubing/band around the knees and ask athlete to push against the pressure.</p>



# SQUAT

## PROGRESSIONS

01 Pillar Squat



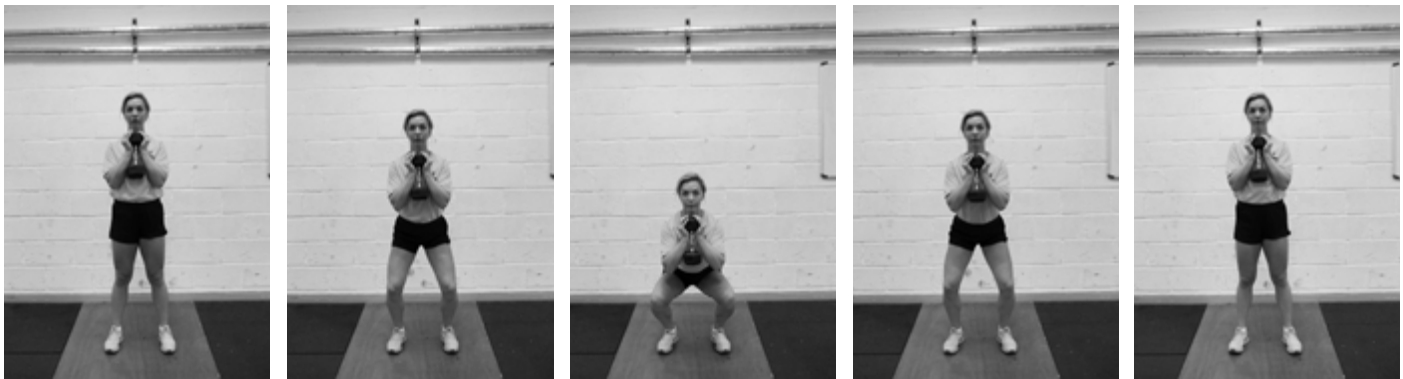
02 Counter Balance Squat



03 Air Squat



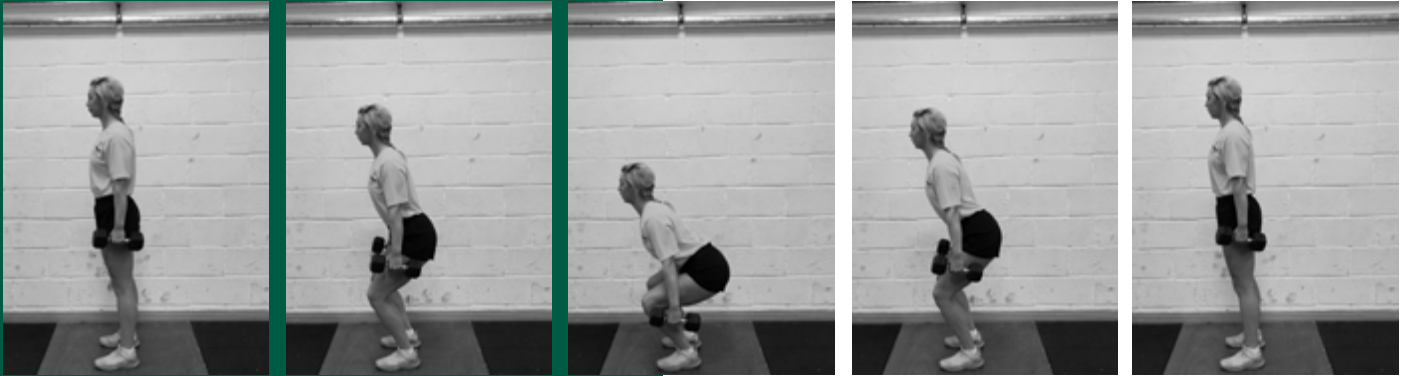
04 Goblet Squat



# SQUAT

## PROGRESSIONS

05 Dumbbell Squat



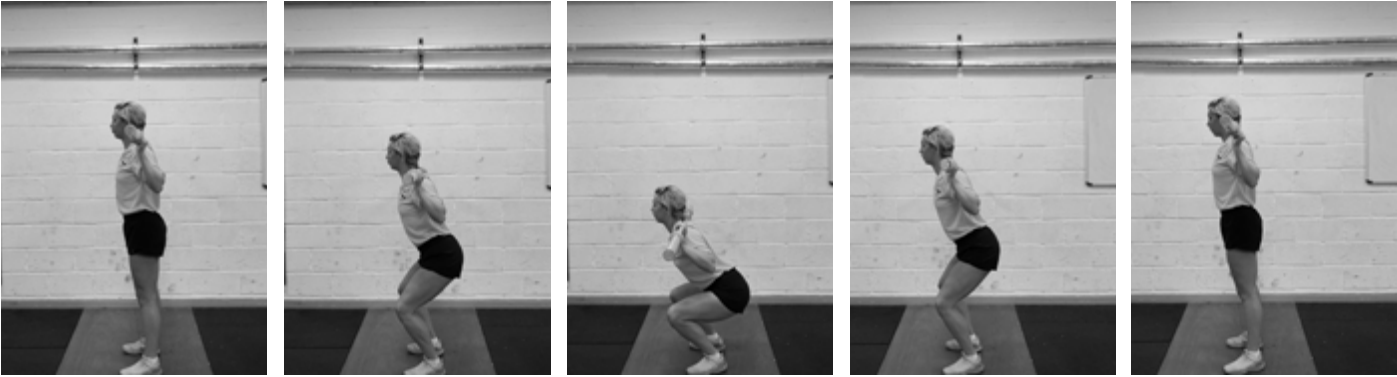
06 Zombie Squat



07 Front Squat



08 Back Squat



09 Overhead Squat





# The Clean



### OVERVIEW

The clean has been commonly used in developing explosive strength in athletes.

The exercise and its variations have shown to produce high levels of force and power in comparison to other lifting variations such as the back squat, deadlift and jump squat.

The clean falls into the strength speed component of the force velocity curve.

With the clean, there is a strong emphasis on the triple extension which strongly relate to improvements in the rate of force development and power.

Clean derivatives produce an enormous amount of explosive force and power, which links to jump and sprint performance.

### MUSCLES INVOLVED

- |              |                    |
|--------------|--------------------|
| - Quadriceps | - Chest            |
| - Hamstrings | - Triceps          |
| - Glutes     | - Latissumus Dorsi |
| - Lower Back | - Gastrocnemius    |
| - Abdominals | - Forearms         |
| - Shoulders  | - Obliques         |

### CLEAN PROGRESSIONS

- 10 Hang / Power Clean
- 09 Flip Clean
- 08 High Pull / Power Shrug
- 07 Single Dumbell Snatches
- 06 Jump Squat and Land
- 05 Drop Squat
- 04 RDL
- 03 Front Squat
- 02 Kettle Bell Swing
- 01 Good Morning



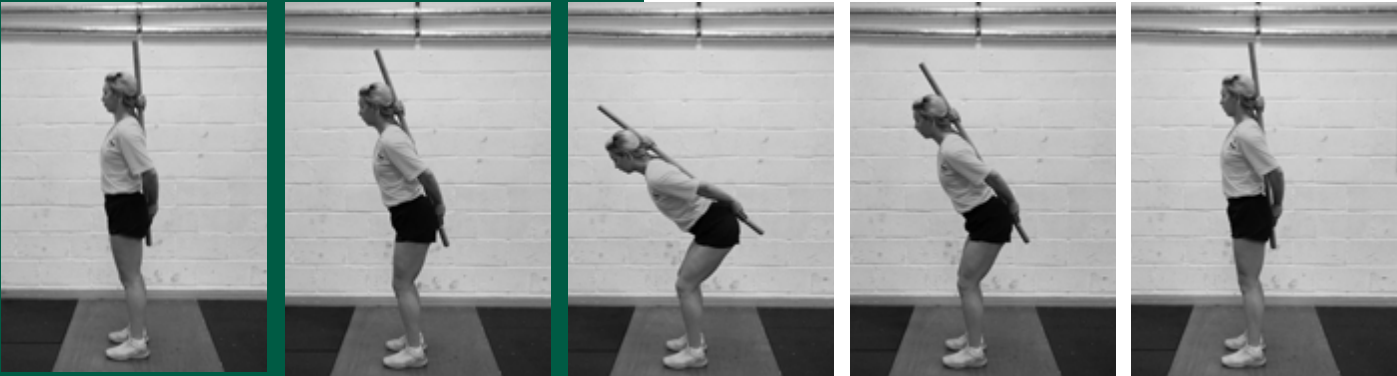


# Key Coaching Considerations

	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	<p>The head should always be in a neutral position.</p> <p>Eyes should look straight ahead or slightly up.</p>	<p>The head looks up or down.</p>	<p>Encourage the athlete to look straight ahead at all times.</p> <p>Tuck the chin in and push the tongue to the roof of the mouth.</p>
2. Back + Torso	<p>The back should stay straight at all times.</p> <p>Keep the core braced at all times.</p> <p>The back can be allowed to slightly flex forward, but not excessively.</p> <p>Look for a big chest at all times – Shoulder blades pulled together.</p>	<p>The back becomes round (hunched).</p>	<p>Encourage the athlete to have big chest.</p> <p>Chest faces the opposite wall not the ground.</p> <p>Keep the torso braced at all times.</p> <p>Squeeze the shoulder blades together.</p>
3. Hips	<p>The hips and knees should flex (bend) at the same time .</p> <p>Look for the hips of the supporting leg to have a 90 degree angle.</p> <p>..</p>	<p>Hips and knees do not flex at the same time.</p> <p>Hips not fully extending (athlete falls forward catching the bar).</p>	<p>Encourage the athlete to bend the knees and hips at the same time.</p> <p>Introduce good mornings with dowel.</p> <p>Focus on really squeezing the glutes and make yourself as tall as possible when pulling.</p>
4. Knees	<p>The knees should always track the toes .</p> <p>Knees should not go in front of the toes.</p> <p>Knees must be flexed.</p>	<p>Knees not moving quick enough.</p>	
5. Arms	<p>Arms should be down at the sides with elbows out and locked.</p>	<p>Arms doing all the action.</p> <p>Arms not getting under the bar quick enough.</p>	<p>It is necessary that the power comes from the ankle, knee and hip, to reinforce that triple extension.</p> <p>Practice fast flip cleans with light weight.</p>
6. Feet	<p>Feet should be hip width apart.</p> <p>Toes pointing slightly outward.</p> <p>Feet should be pointing forward at all times.</p> <p>The feet will raise off the ground when pulling.</p>	<p>Feet fall inward.</p>	<p>Spread toes, push knees outwards, feel pressure on outside &amp; heel of foot.</p>

CLEAN  
PROGRESSIONS

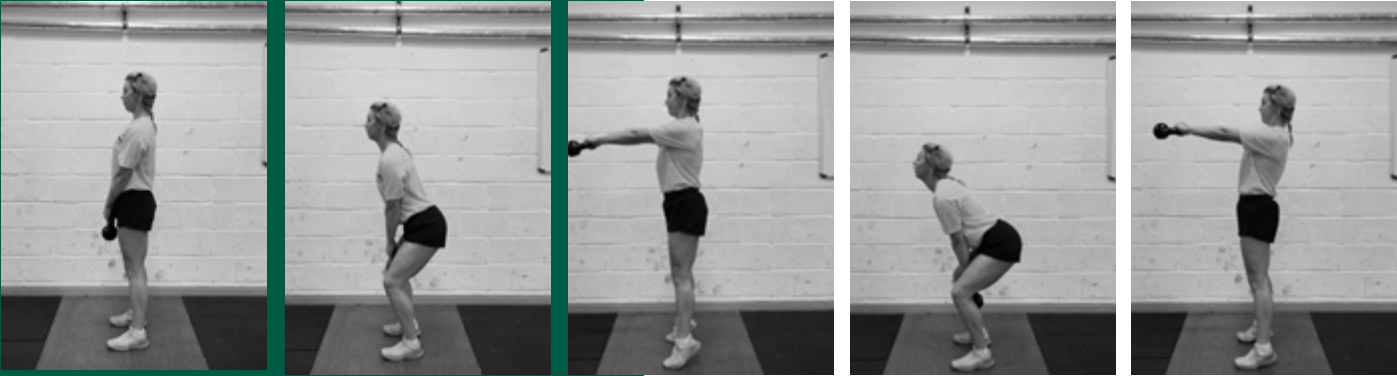
01 Good Morning



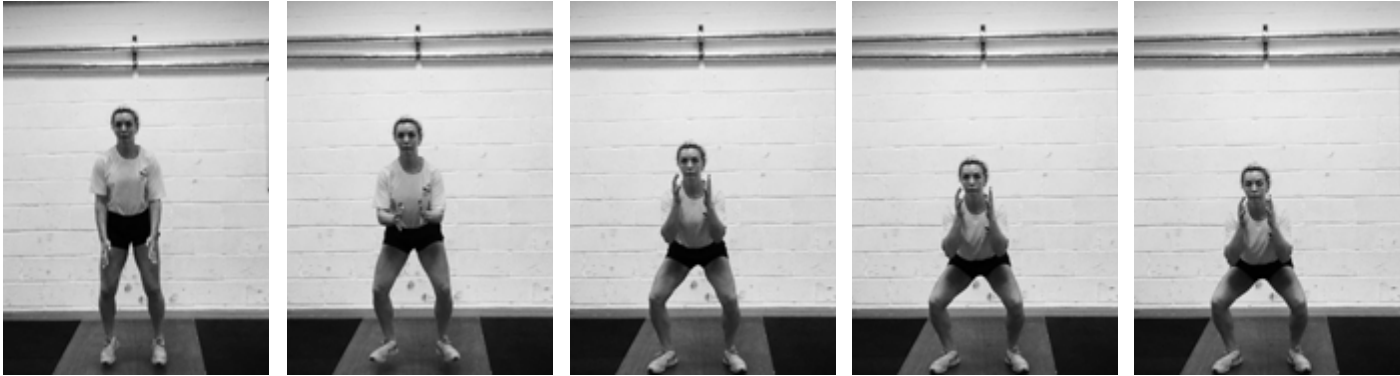
04 RDL



02 Kettle Bell Swing



05 Drop Squat



03 Front Squat



06 Jump Squat and Land





# CLEAN

## PROGRESSIONS

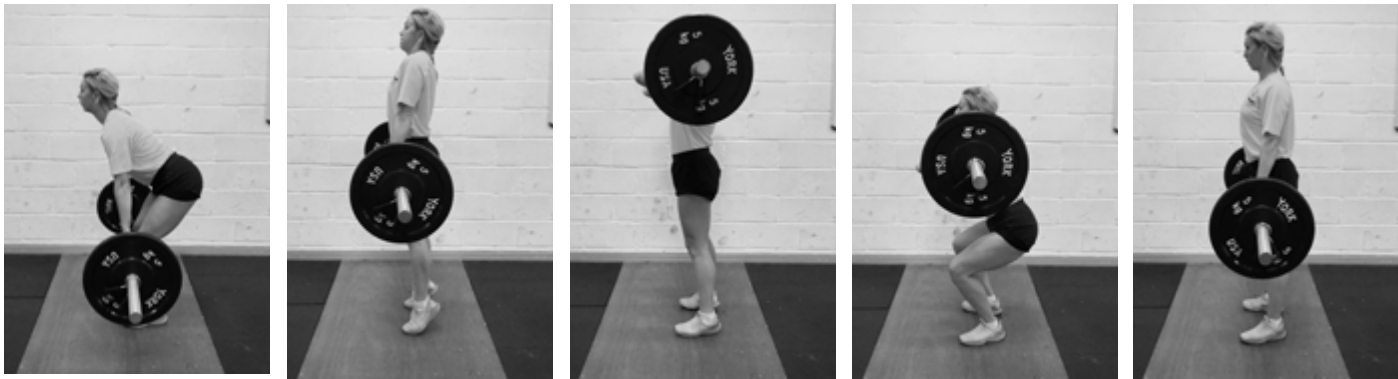
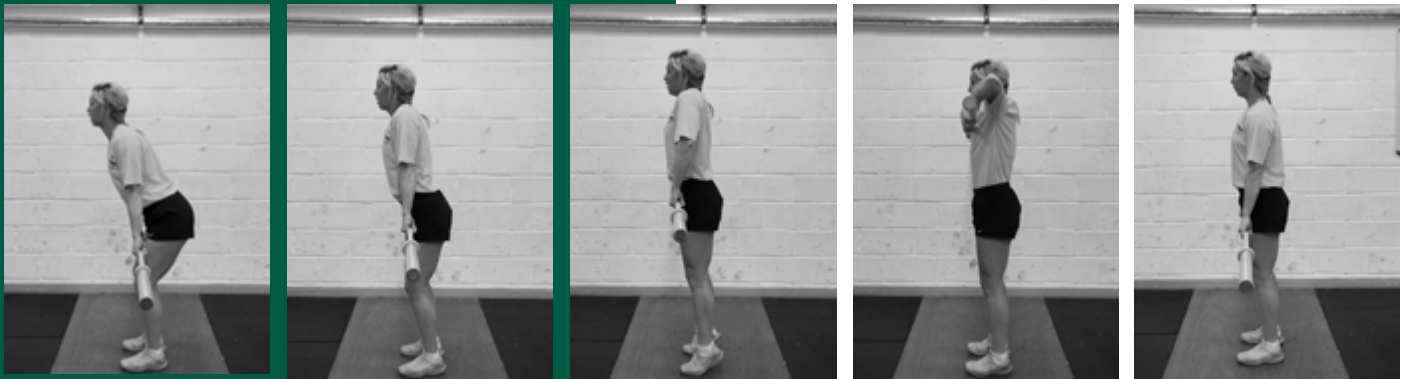
07 Single Dumbbell Snatch



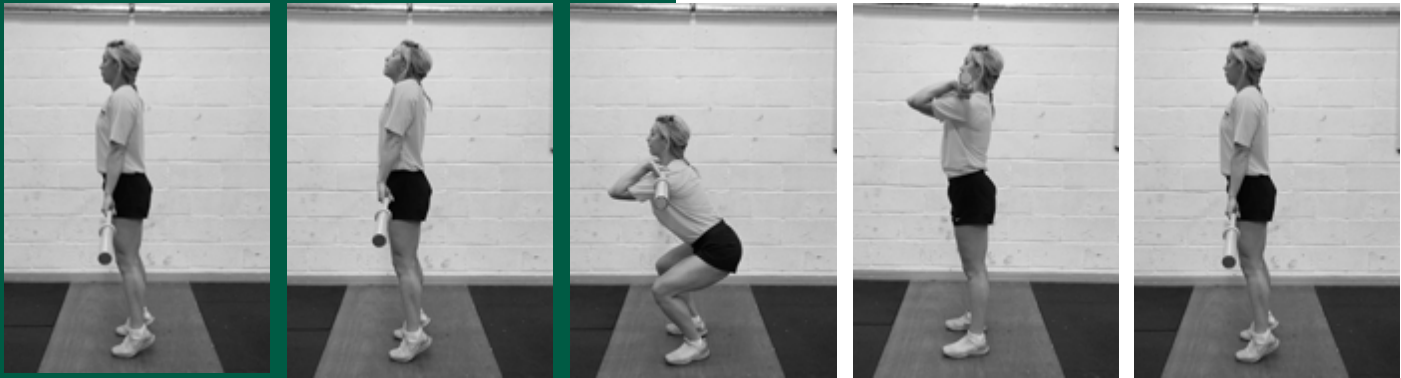
10 Hang Clean / Power Clean



08 High Pull / Power Shrug



09 Flip Clean







# Single Leg Exercises



## SINGLE LEG PROGRESSIONS

- 09 SL Squat
- 08 SL Counter Balance Squat
- 07 Single Leg (SL) Squat to Box
- 06 Lateral Lunge
- 05 Lateral Squat
- 04 Step Up
- 03 Walking Lunge
- 02 Bulgarian Split Squat
- 01 Split Squat

## OVERVIEW

During track and field, there are very few moments where an athlete will have both legs on the ground at one time.

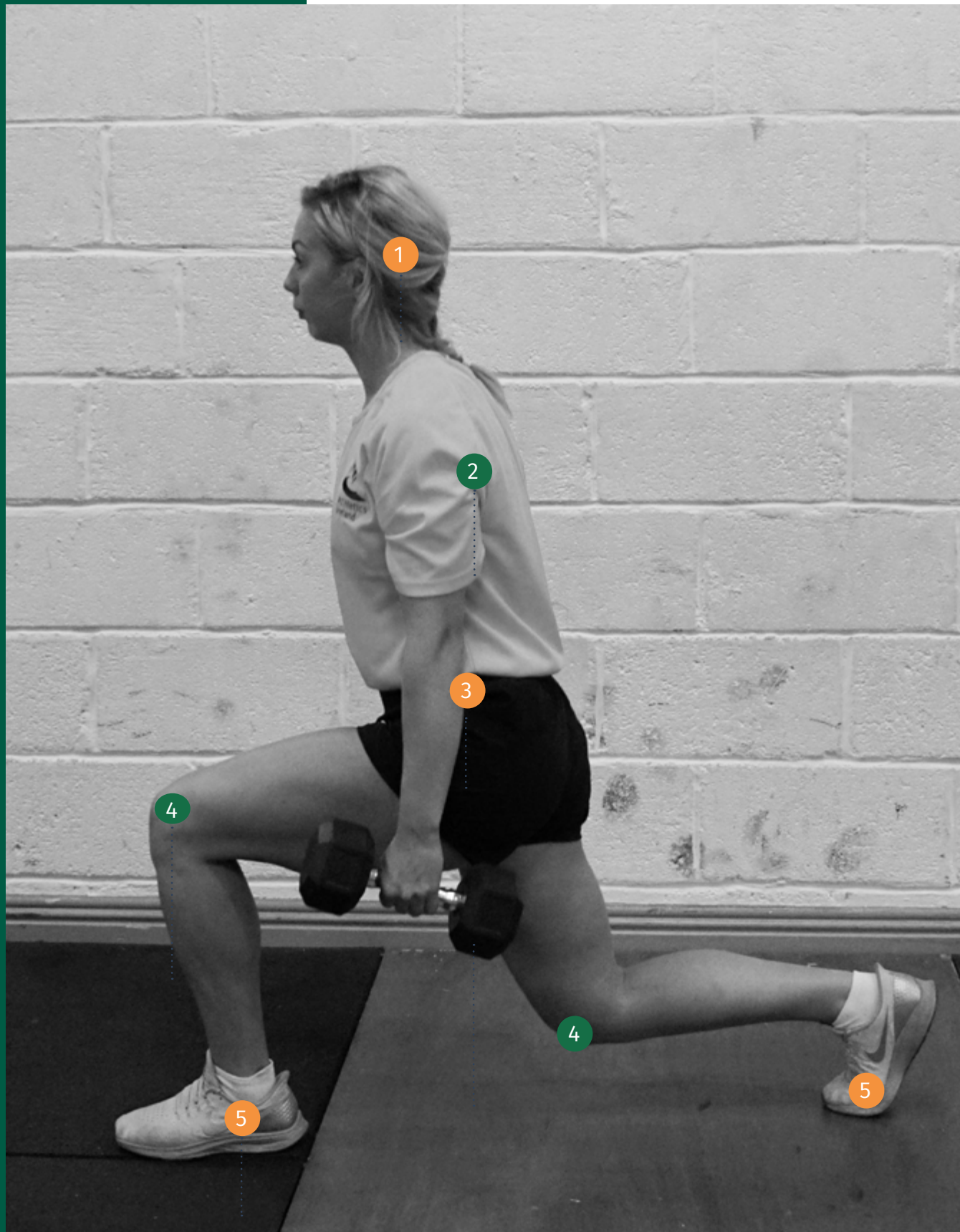
For this reason, it is vital that we develop unilateral leg strength and power.

By implementing unilateral exercises into an athlete's training, it can correct muscle imbalances, improve balance, utilizes core muscles, aids in injury prevention and facilitates rehabilitation.

Unilateral exercises can also mirror sports specific movement patterns.

## MUSCLES INVOLVED

- Biceps Femoris
- Vastus Lateralis
- Gluteus Medius
- Gluteus Maximus
- Adductors
- Sartorius
- Gracilus
- Tensor Fascia Lata
- Rectus Femoris
- Vastus Lateralis
- Vastus Intermedius



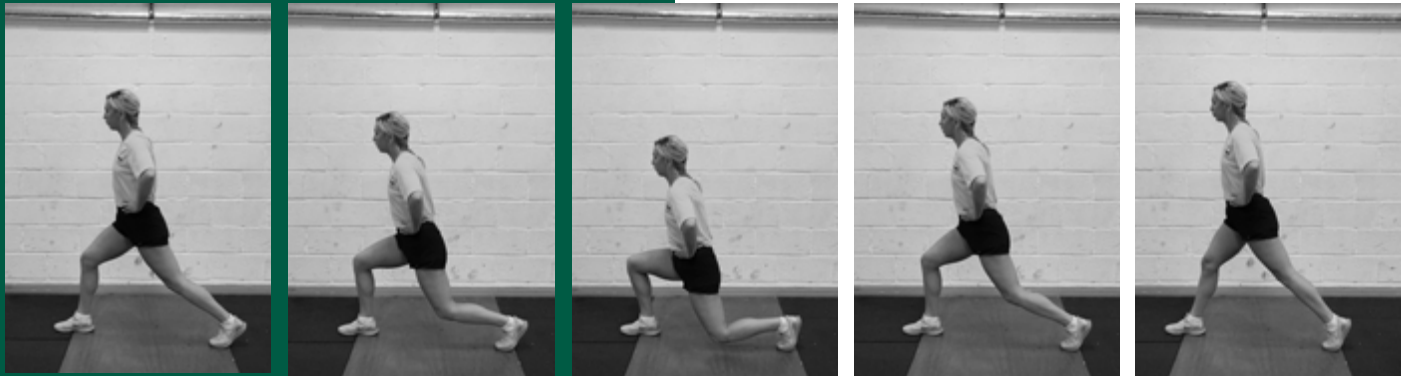
## Key Coaching Considerations

	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	<p>The head should be in a neutral position at all times.</p> <p>There should be no looking up or down.</p>	The head looks up or down.	Encourage the athlete to look straight ahead at all times.
2. Back + Torso	<p>The back should stay straight at all times.</p> <p>Keep the core braced at all times</p> <p>The back can be allowed to slightly flex forward, but not excessively.</p> <p>Look for a big chest at all times - Shoulder blades pulled together.</p>	<p>The back becomes round (hunched).</p>	<p>Encourage the athlete to have big chest. Chest faces the opposite wall not the ground.</p> <p>Keep the torso braced at all times.</p> <p>Squeeze the shoulder blades together.</p> <p>If bar on back then have the hands as close to shoulders as possible and pull the bar down on the back.</p>
3. Hips	<p>Look for the hips of the supporting leg to have a 90 degree angle.</p> <p>If the back position is compromised then depth can be sacrificed</p> <p>The hips and knees should flex (bend) at the same time.</p>	<p>Hips do not go below the level of the knees.</p> <p>Hips and knees do not flex at the same time.</p>	<p>This can be developed over time.</p> <p>Check for ankle range of motion and hip range of motion as these can limit depth.</p> <p>Encourage the athlete to bend the knees and hips at the same time.</p>
4. Knees	<p>The knees should track the toes at all times.</p> <p>Knees should not go in front of the toes.</p>	<p>Knees fall inward.</p> <p>Knees move in front of toes.</p>	<p>Push knees outward and keep in line with toes.</p> <p>Tie tubing/band around the knee and ask athlete to push against the pressure. This can be done in pairs.</p> <p>Encourage athlete to let hips drop straight down and keep the torso in a good position.</p>
5. Feet	<p>Supporting foot should be flat on the ground at all times.</p> <p>Feet should be wide enough to give a good solid base.</p> <p>Feet should be pointing forward at all times.</p> <p>The non-supporting foot does not have to be flat on the ground.</p>	<p>Heels Come off the ground.</p> <p>Feet fall inward.</p>	<p>Push heels into the ground, spread toes, push knees outwards, feel pressure on outside &amp; heel of foot.</p>



# SINGLE LEG PROGRESSIONS

01 Split Squat



02 Bulgarian Split Squat



03 Walking Lunge



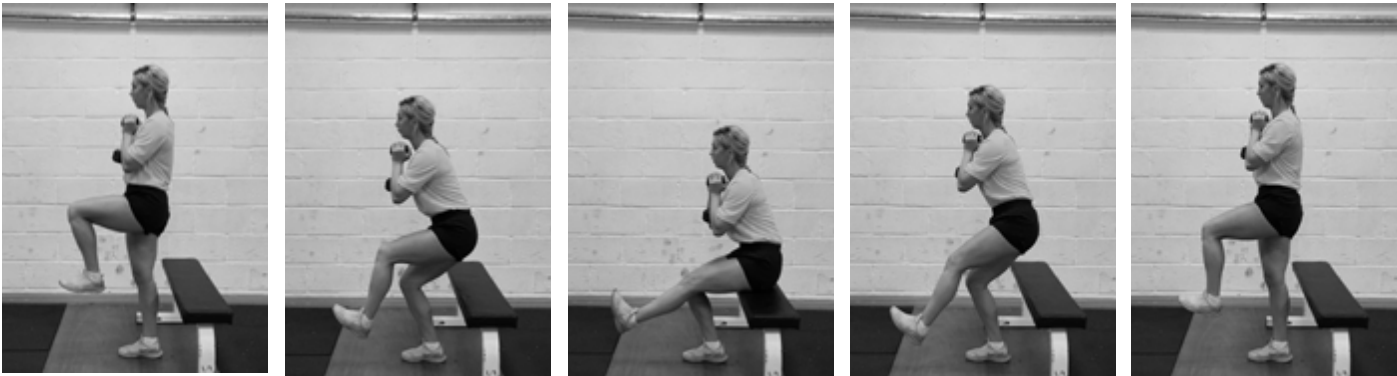
04 Step Ups



05 Lateral Squat



06 Single Leg Squat to Box





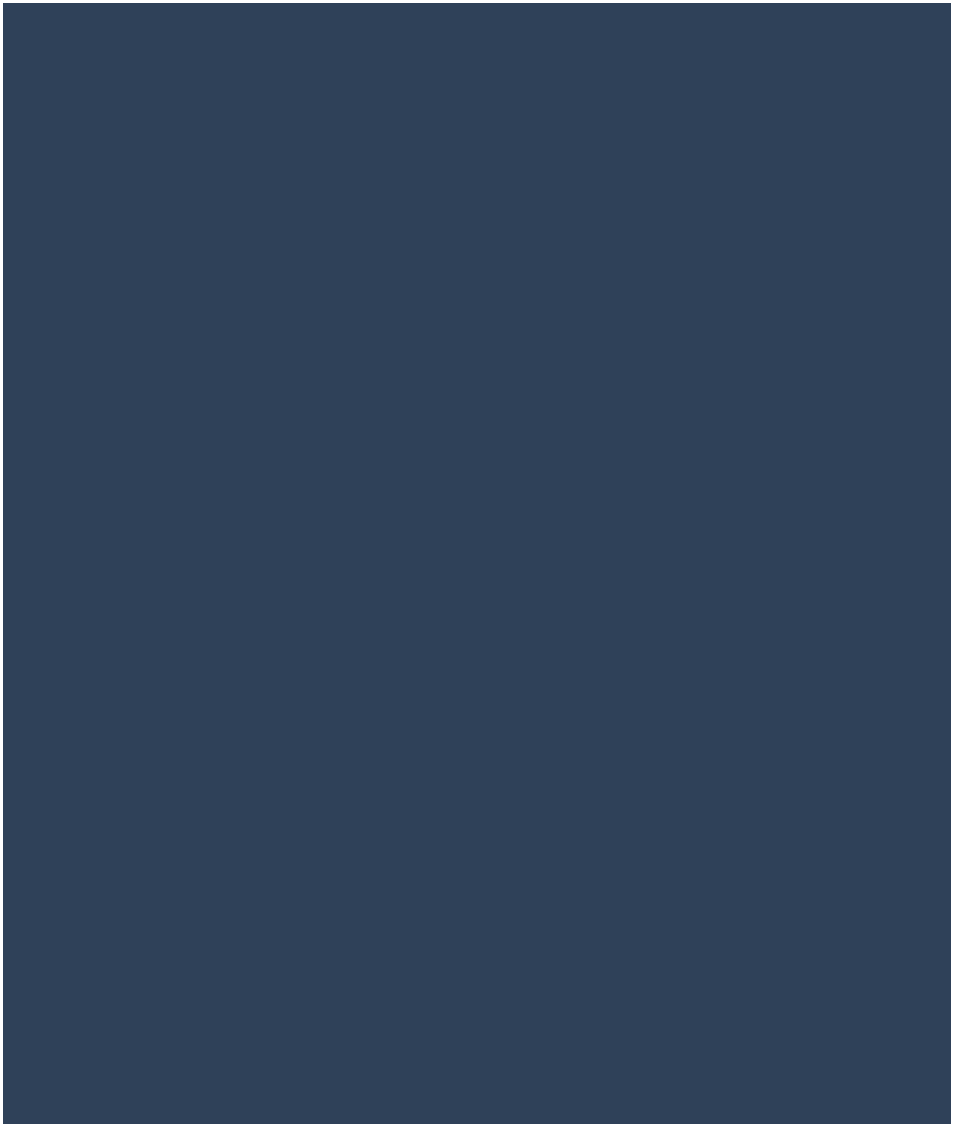
# SINGLE LEG PROGRESSIONS

07 Single Leg Counter Balance Squat



08 Single Leg Squat





# Horizontal Push



## HORIZONTAL PUSH PROGRESSIONS

- 07 Bench Press
- 06 Single Dumbell Bench Press
- 05 Push Ups
- 04 Push Ups on Knees
- 03 Push Ups against Wall
- 02 Single Leg Pallof Press
- 01 Pallof Press

### OVERVIEW

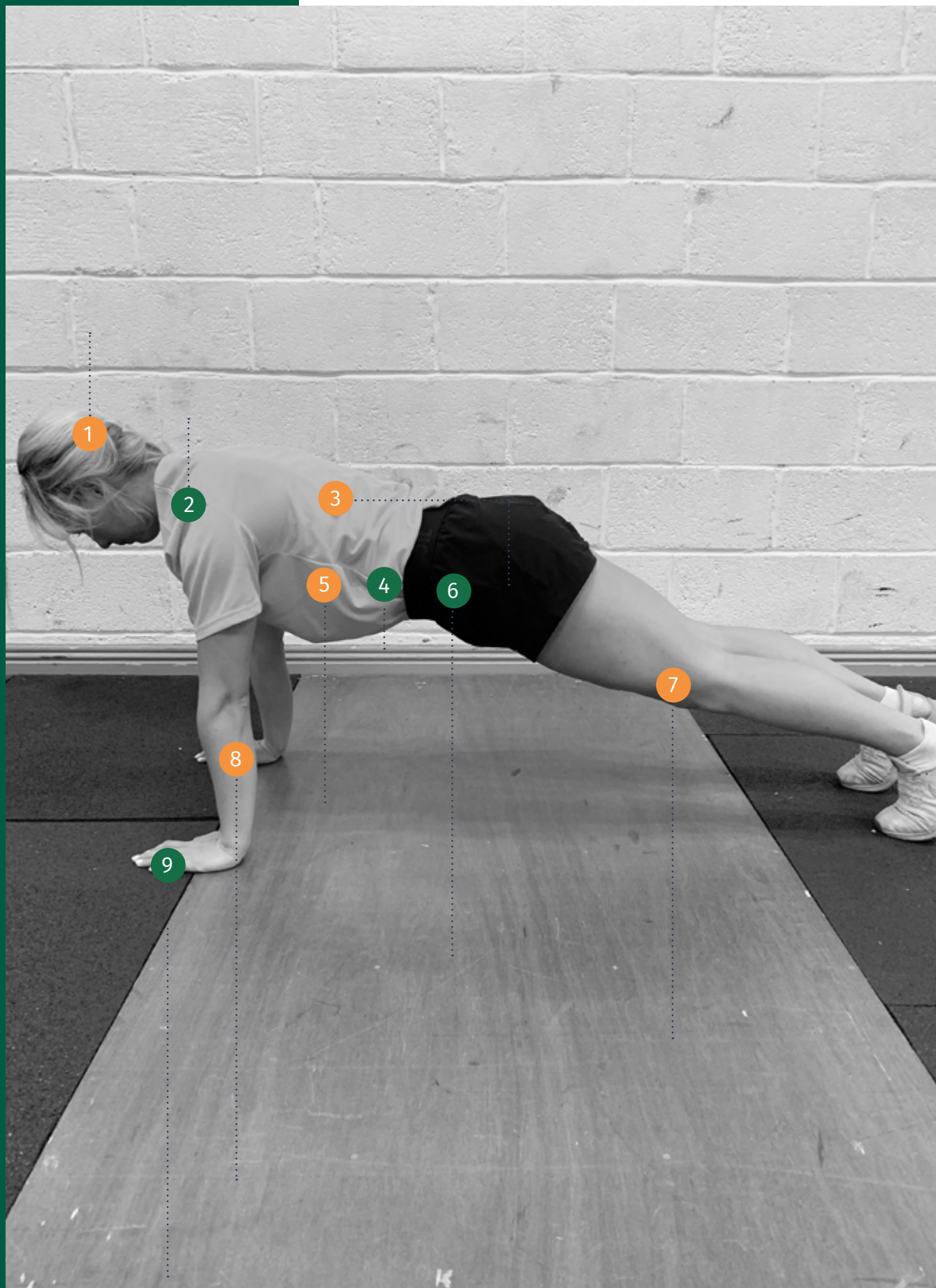
Horizontal push variations promote upper body strength and power.

A push exercise is performed when the muscle pushes weight away from the body during the concentric phase of the movement and then lengthens in the eccentric phase when the weight is moved back toward the body.

If these exercises are performed correctly it will bring about a strong base through the core and back muscles.

### MUSCLES INVOLVED

- Pectoralis Major (Chest)
- Deltoids
- Anterior Triceps Brachii
- Abdominal Muscles



## Key Coaching Considerations

	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	The head should remain in a neutral position. There should be no looking up or down. Eyes focus straight ahead at all times.	Head too far forward. Head looking down too much.	Keep head in a fixed and neutral position.
2. Shoulders	Upon flexion at the elbows, shoulder blades must be pulled back.	Shoulders caving inwards.	Ensure hand stance is wide enough to allow chest to lower down. Ensure shoulder blades are being squeezed.
3. Back	The back should stay straight at all times. Keep the core braced at all times. Arms will be spread slightly wider than shoulder width apart. Elbows must fully extend. Don't allow the back to excessively arch.	Back arching. Back and hips not lowering together.	Ensure that the hips and pelvis are in alignment. Place an object on flat back and do not allow object to fall off. Precise and control movement of the pelvis and hips.
4. Core	Core must be braced for stability. Torso remains rigid.	Torso and back not remaining rigid.	
5. Chest	Big open chest.	Chest not opening up fully. Chest caving in.	If doing a push up, place a small object under chest. Lower chest until it almost hits the particular point. Big breath allows chest to fill up and open out.
6. Hips/Glutes	Hips and knees flex at the same time.	Back and hips not lowering together.	Ensure that the hips and pelvis are in alignment. Place an object on flat back and do not allow object to fall off. Precise and control movement of the pelvis and hips.
7. Knees	Slightly bent.		
8. Arms	Arms are set at shoulder width apart, or slightly more than shoulder width. Flexing from the elbow, arms will be extended fully straight and bend to a 45 degree angle.	Arms not fully extending. Arms collapsing/buckling. Arm compensation.	Resistance band hanging from above, chest lies on band to assist movement (if doing push up)
9. Hands	Hands must be placed straight ahead. Fingers pointing straight ahead or wrapped around dumbbell.	Hands pointing inwards.	Reset hand positioning or move hands more outwards at a 45 degree angle.

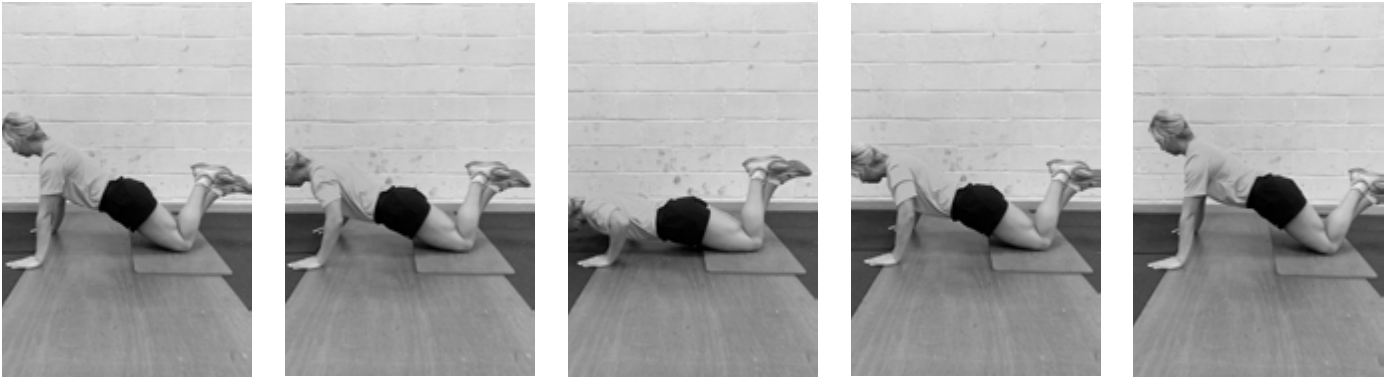


# HORIZONTAL PUSH PROGRESSIONS

01 Pallof Press



04 Push Up On Knees



02 Single Leg Pallof Press



05 Push Up



03 Push Up Against Wall



06 Single Arm Dumbbell Bench Press

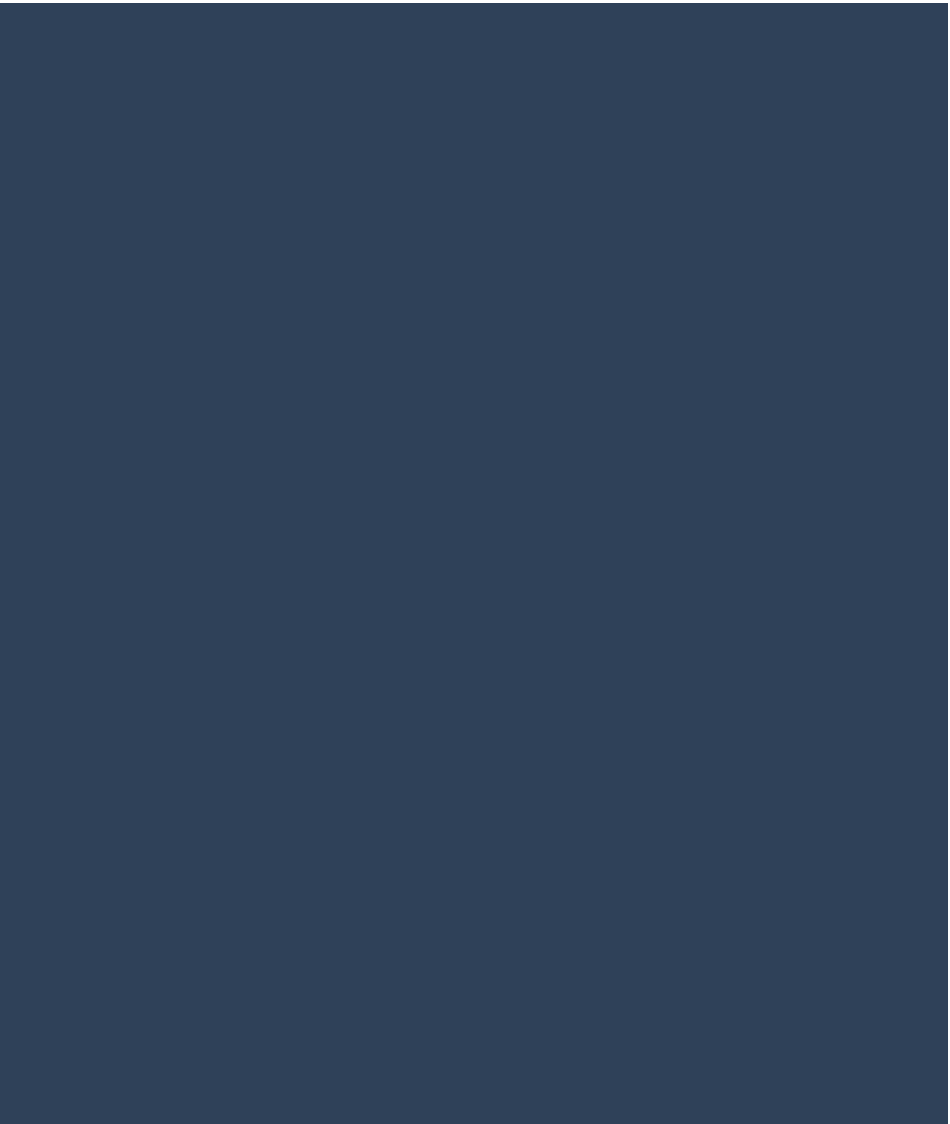


# HORIZONTAL PUSH

## PROGRESSIONS

07 Bench Press





# Horizontal Pull



## HORIZONTAL PULL PROGRESSIONS

- 06 Bent Over Row
- 05 Single Arm Row
- 04 Inverted Row - Straight Legs
- 03 Inverted Row - Knees Bent
- 02 RDL
- 01 Face Pull + Resistance Band

## OVERVIEW

A pull exercise is performed when the muscle pulls weight toward the body during the concentric portion of the movement and then lengthens as the weight moves away from the body during the eccentric portion of the exercise.

Horizontal pulling exercise promotes the development of the posterior chain.

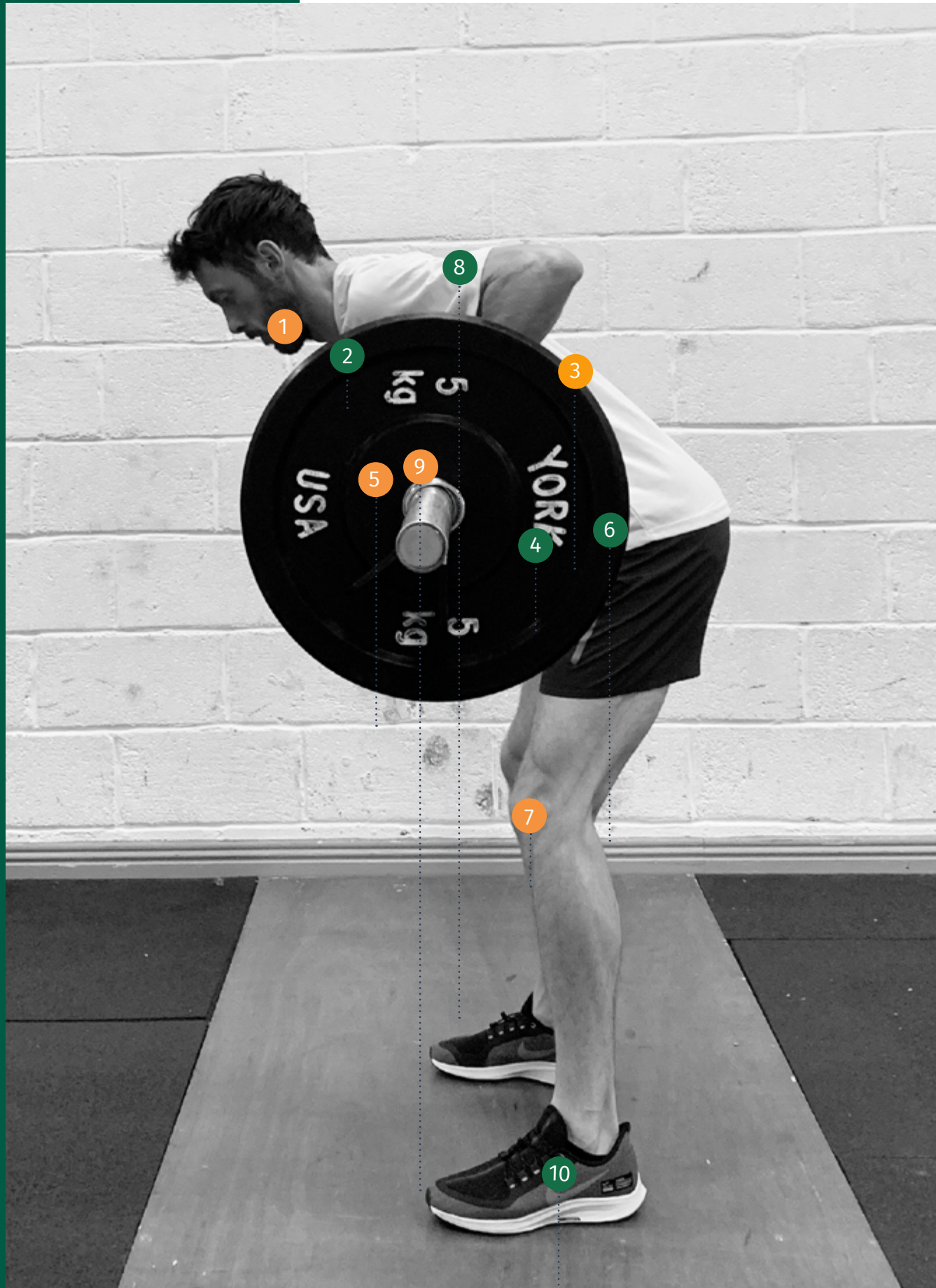
The posterior chain is the primary mover for forward propulsion, including movements such as jumping, pushing, pulling, running, hopping, twisting, walking, and squatting.

These exercises will target our primary movers.

## MUSCLES INVOLVED

- Teres Minor
- Teres Major
- Infraspinatous
- Posteriour Deltoid
- Trapezius
- Latissimus Dorsi
- Rhomboids





## Key Coaching Considerations

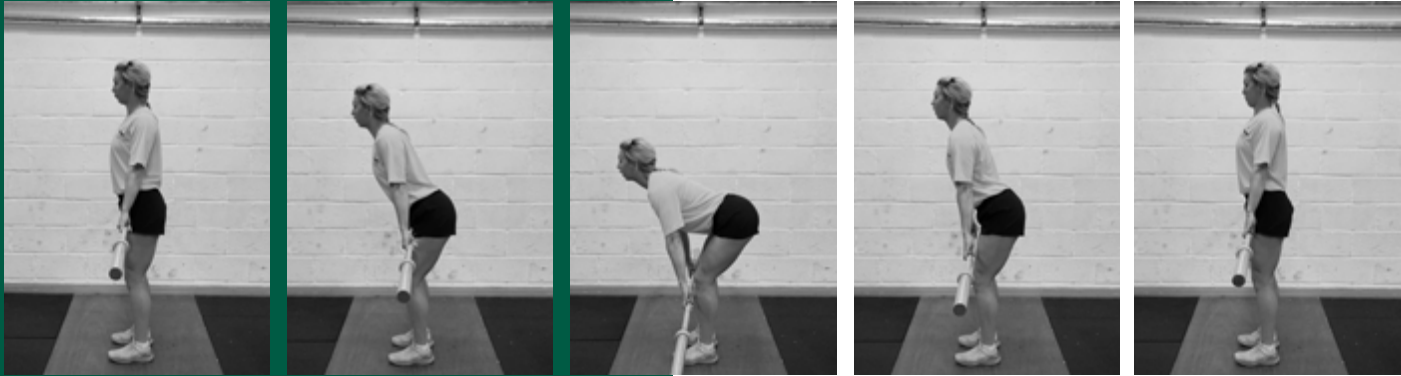
	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	Head remains level. The head should remain in a neutral position. There should be no looking up or down. Eyes focus straight ahead at all times.	Head too far forward/ back.	Relax neck and ensure head remains in a neutral position.
2. Shoulders	Upon flexion at the elbows, shoulder blades must be pulled back.	Shoulders caving inwards.	Widen grip. Ensure chest moves first before arms. Do not allow shoulders to move. Keep tightening shoulder blades.
3. Back	Keep lower back naturally arched. Try and maintain a neutral spine at all times. Keep the core braced at all times. Arms will be spread slightly wider than shoulder width apart. Elbows must fully extend. Don't allow the back to excessively arch.	Back arching too much forward.	Assume the RDL position. Ensure the back is flat and keep forcing them bum back.
4. Core	Core must be braced for stability. Torso remains rigid.	Core not contracting.	Tighten the lower abdominals and lower back to ensure stability.
5. Chest	Big open chest.	Chest too far forward. Chest too far back.	Allow the sternum to meet the bar or resistance band first. Shoulder blades must be continuously forced back to ensure a flat chest.
6. Hips/Glutes	Contract glutes. Don't allow hips to drop. Keep pushing hips as far as possible. Back and hips must move together.	Hips and knees flex at the same time. Hips/glutes/back not in alignment.	Place dowel on back.
7. Knees	Ensure knees are bent slightly.		
8. Arms	Arms are set at shoulder width apart, or slightly more than shoulder width. Flexing from the elbow, arms will be extended fully straight and bend to a 45 degree angle.	Arms not fully extending. Arms collapsing/buckling. Arm compensation.	Regress exercise to maintain form.
9. Hands	Shoulder-width apart or slightly wider. Grip must have both palms facing the lifter. If it is difficult to grip the bar, use a mixed grip which involves one palm facing the lifter and the other palm is facing away from the lifter.	Hands too close/ too far apart.	Ensure grip is shoulder width apart.
10. Feet	Feet must stick close together or shoulder width apart.	Feet must remain firmly planted on the ground. Heels coming off the ground. Feet collapsing inwards.	Sit back and push heels into the ground. Spread toes, push knees, outwards and feel pressure outside and heel of foot.

# HORIZONTAL PULL PROGRESSIONS

01 Face Pull with Band



02 RDL



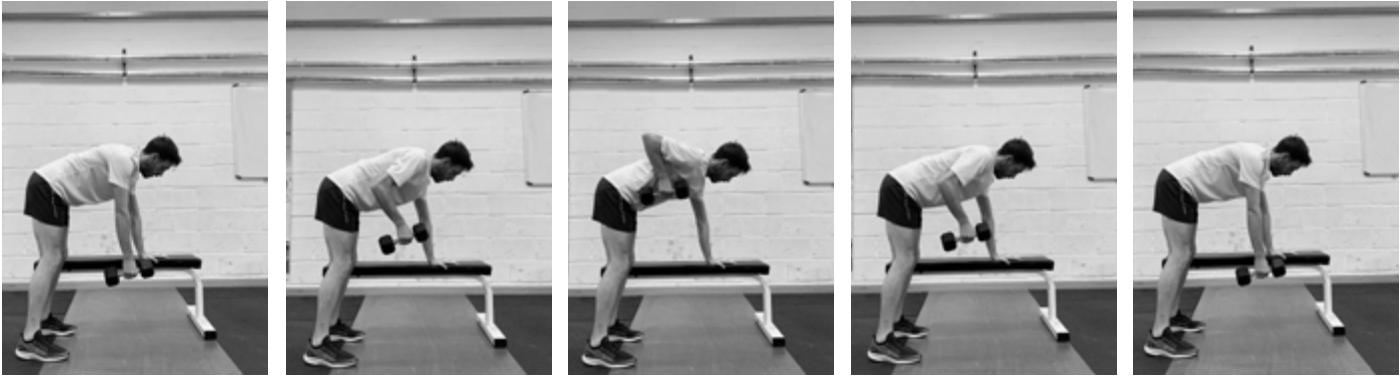
03 Inverted Row with Knees Bent



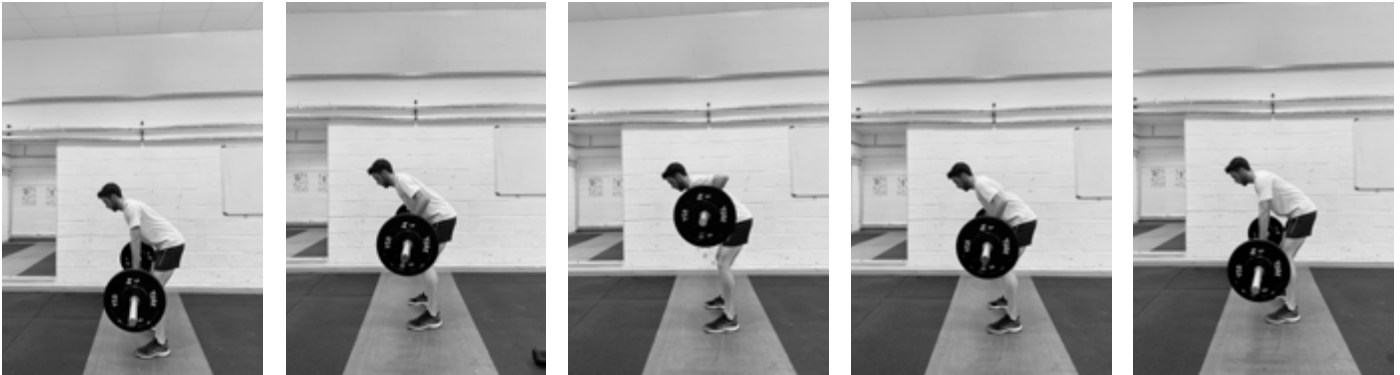
04 Inverted Row with Straight Legs



05 Single Arm Row



06 Bent Over Row







# Vertical Pull



VERTICAL PULL PROGRESSIONS

- 04 Chin Ups
- 03 Pull Ups Assisted
- 02 High Pulls
- 01 Lat Pull with Resistance Band

OVERVIEW

This category of exercises involves moving a load/weight down vertically in relation to the torso.

These exercises usually consist of movements in the sagittal (shoulder extension), frontal, or transverse planes (shoulder adduction).

This means its movements create shoulder extension and/or adduction with elbow flexion (i.e. pulling).

MUSCLES INVOLVED

- Scapular stabilizers
- Teres Minor
- Infraspinatus
- Latissimus Dorsi
- Rhomboids
- Biceps





## Key Coaching Considerations

	CUES:	COMMON FAULTS	CORRECTIONS:
1. Head + Neck	Head is looking straight ahead at all times.	Head too far forward/ back.	Relax neck and ensure head remains in a neutral position.
2. Shoulders	Shoulder blades must be pulled back.  Movement is initiated by pulling shoulders back and down.	Shoulders falling back.	
3. Chest	Big open chest.		
4. Back	Back must remain rigid and straight.	Body and torso swinging.	Body must move as one.
5. Hands	Use an overhand grip beginning-supinated grip.  Progress to supinated grip for chin up- palms facing away from the body.	Hands too close/ too far apart.	Ensure grip is shoulder width apart.
6. Arms	Arms must be placed shoulder width apart.  Full range of motion is our priority.  When pulling, the body must be exactly straight upon full extension.	Cannot get full extension with arms.	Pull shoulders down and back before pulling body towards the bar.  Use strong resistance band for assistance. Wrap around bent knees for support, progress to straight leg with band.
7. Core	Core must be braced for stability.  Torso remains upright	Core not contracting	Tighten the lower abdominals and lower back to ensure stability.

# VERTICAL PULL PROGRESSIONS

01 Lat Pull Down with Resistance Band



02 High Pulls

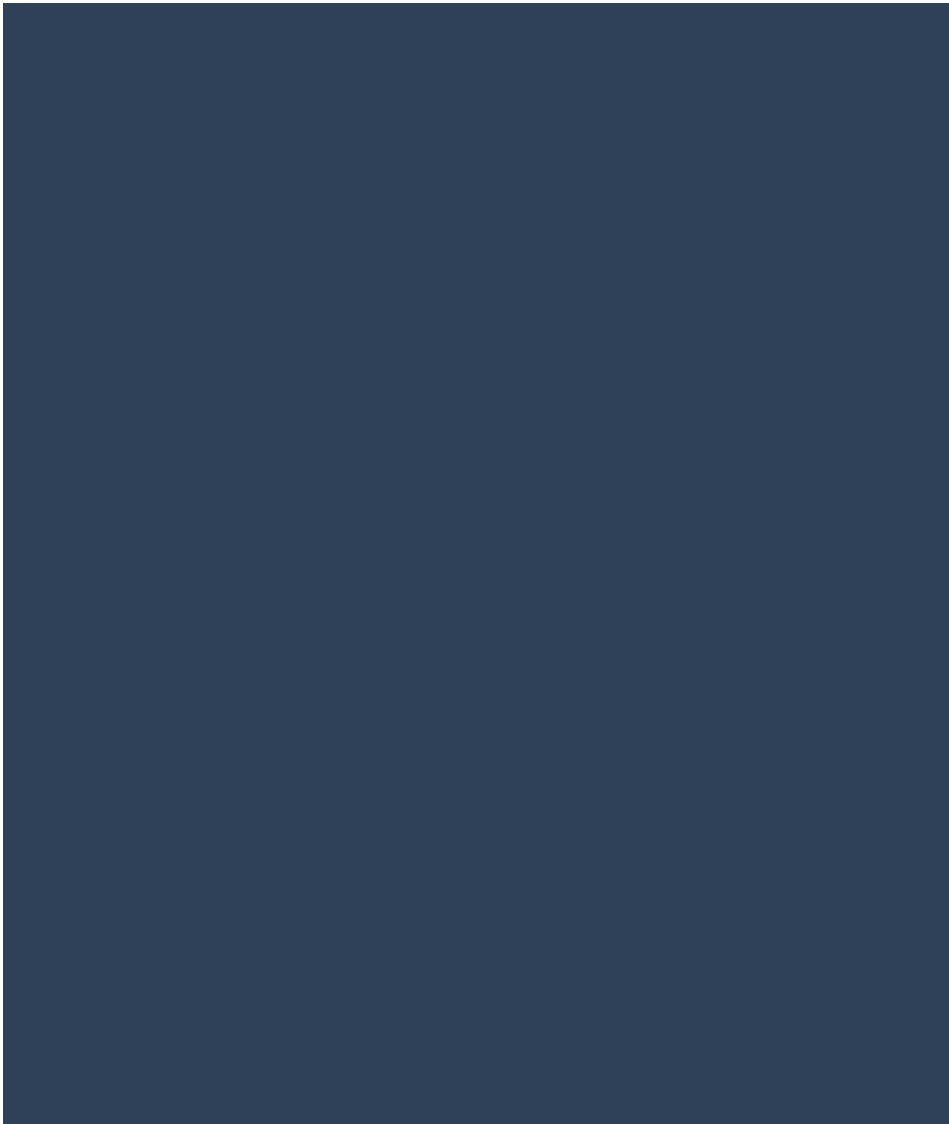


04 Chin Ups



03 Pull Ups - Assisted





SECTION SEVEN

# Vertical Push



OVERVIEW

This category of exercises include all exercises that move the load/weight vertically in relation to the torso, or at least in that direction.

It usually consists of movements in the sagittal plane (shoulder flexion) or frontal planes (shoulder abduction).

These exercises promote a strong and stable base of support for the athlete when performing activities.

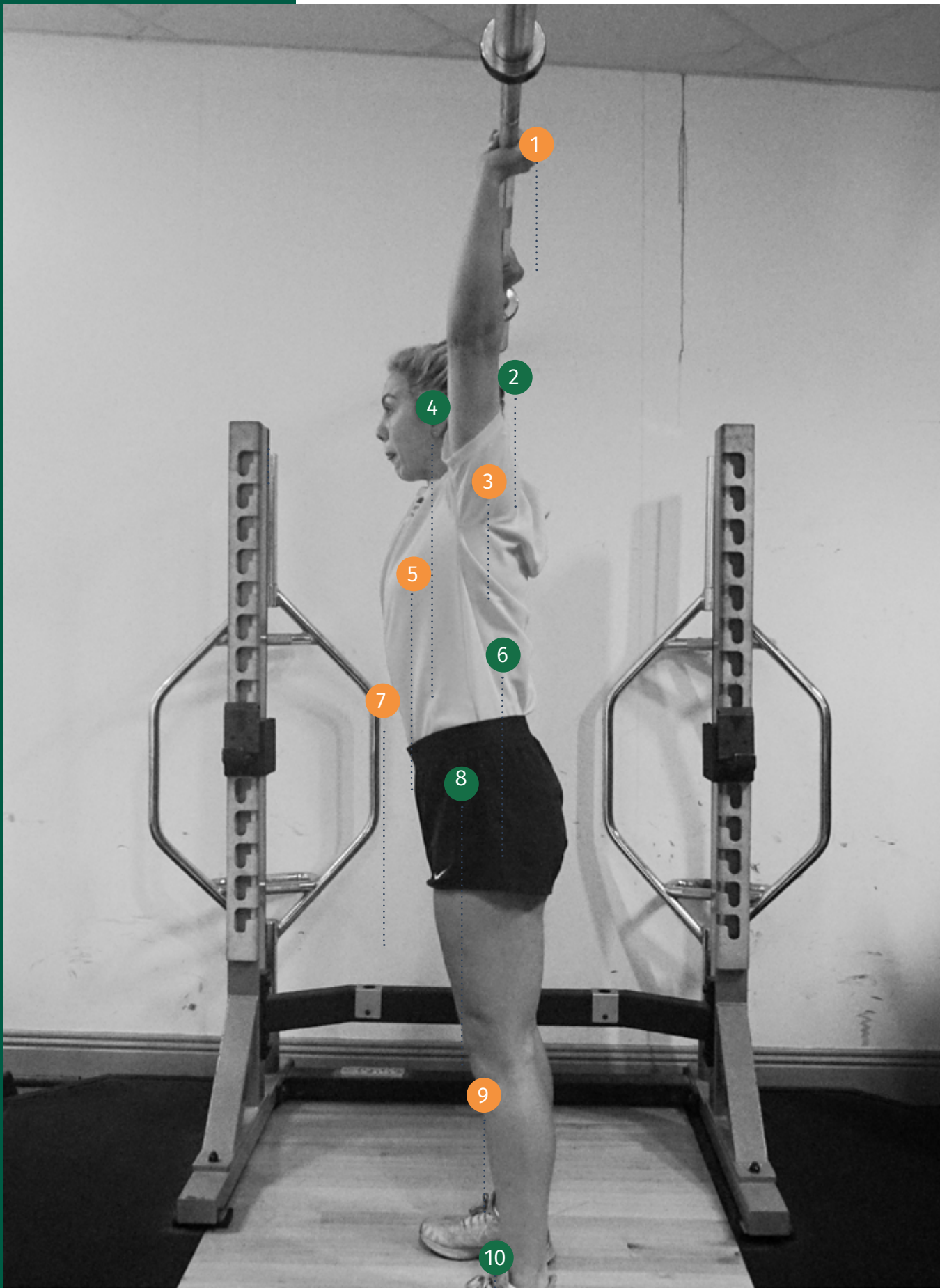
MUSCLES INVOLVED

- Anterior and Lateral Deltoids
- Pectoralis Major
- Triceps Brachii
- Serratus Anterior
- Core Muscles

VERTICAL PUSH PROGRESSIONS

- 03 Overhead Push Press
- 02 Overhead Press
- 01 Kettlebell Press



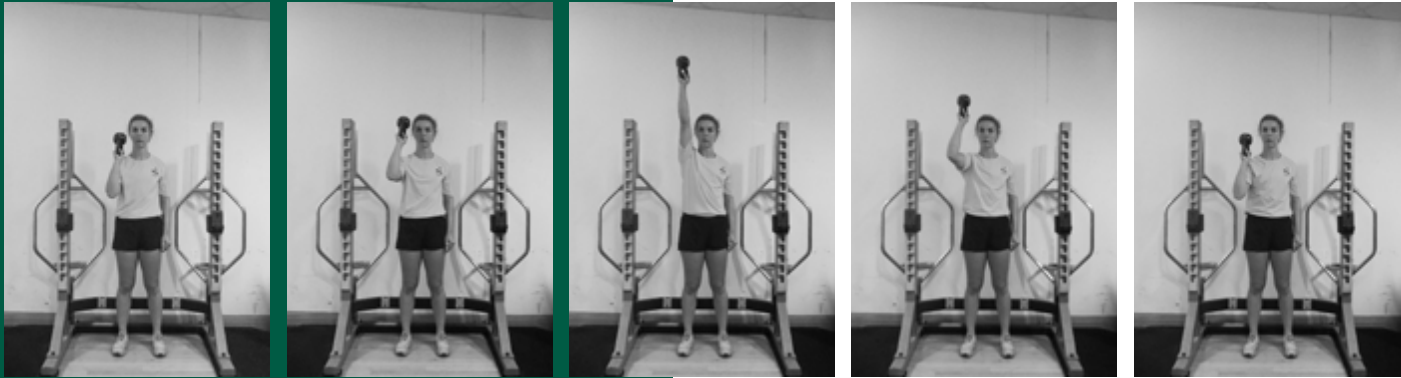


## Key Coaching Considerations

	CUES:	COMMON FAULTS	CORRECTIONS:
1. Hands	Use an overhand grip beginning-supinated grip.	Hands too close/ too far apart.	Ensure grip is shoulder width apart.
2. Arms	Arms must be placed shoulder width apart.  Elbows will begin in a front squat position and will fully straighten out.  Bar/dumbbell will be directly over shoulders.  All movement stems from shoulders and arms.	Arms not fully extending.  Arms collapsing/buckling.  Arm compensation.	If bar becomes too difficult, drop down to using single dumbbell.
3. Shoulders	All movement stems from shoulders.	Shoulders falling back.	Ensure bar is centred over the individuals head.  Avoid hyper extending overhead.
4. Head	Head is looking straight ahead at all times.	Head too far forward/ back.	Relax neck and ensure head remains in a neutral position.
5. Chest	Big open chest.	Chest too far back.	
6. Back	Back must remain rigid and straight.	Back arching too much forward.	Rest back against a wall or use a raised bench.
7. Core	Core must be braced for stability.  Torso remains upright.	Core not contracting.	Tighten the lower abdominals and lower back to ensure stability.
8. Hips/Glutes	Contract glutes.  Don't allow hips to drop.  Back and hips must move together.	Hips/glutes/back not in alignment.	Place a bar behind the individual, ensuring that glutes, hips and back are all moving together.
9. Knees	Slightly bend the knees.  Explosively push through heels, knees and hips to accelerate the bar up (Push press).  Push hips forward.		
10. Feet	Stance should be shoulder width apart.	Heels coming off the ground.  Feet collapsing inwards.	Sit back and push heels into the ground.  Spread toes, push knees, outwards and feel pressure outside and heel of foot.

# VERTICAL PUSH PROGRESSIONS

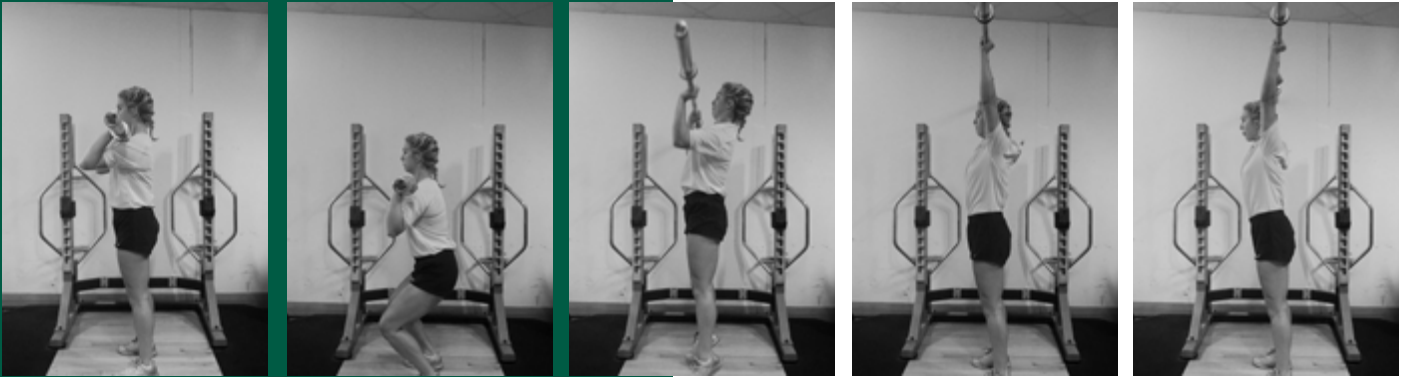
01 Kettle Bell Up Press

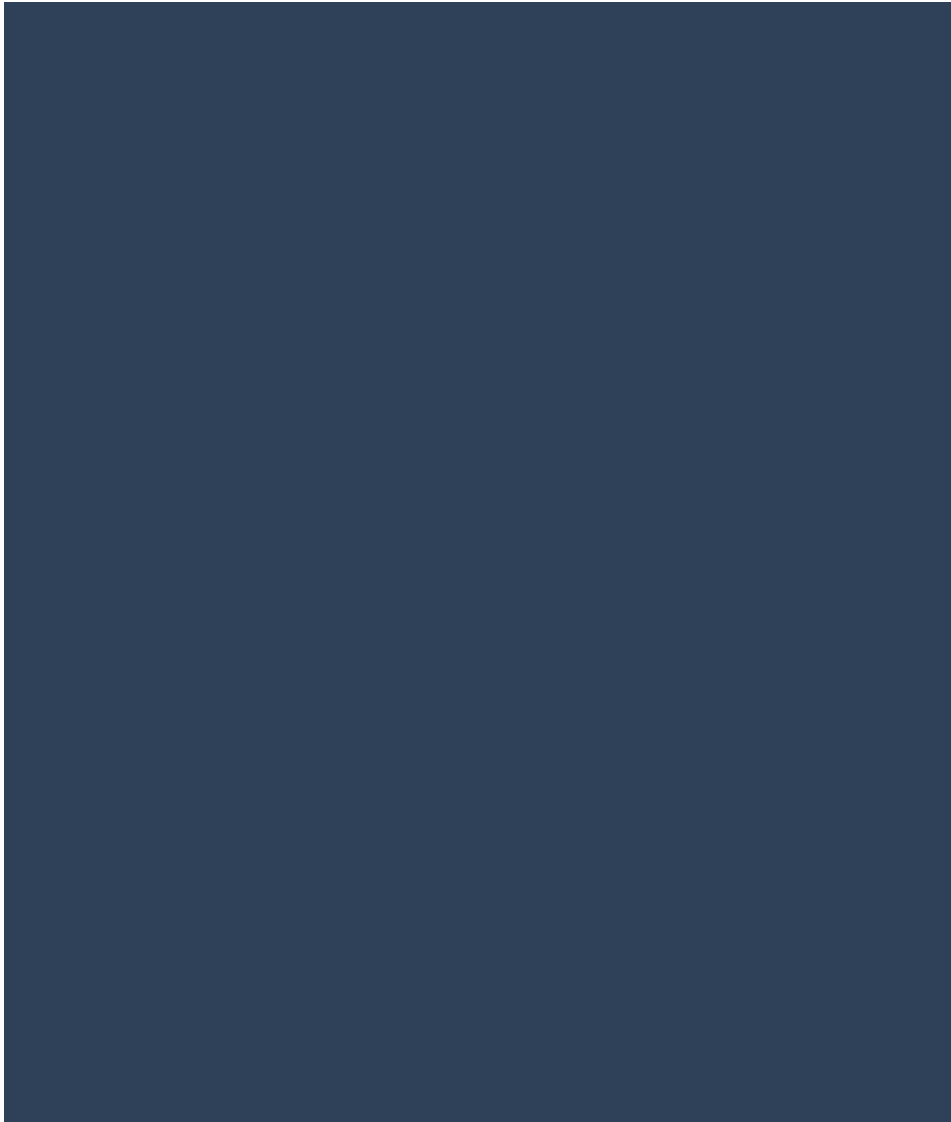


03 Overhead Press



04 Overhead Push Press





# Double Leg Plyometrics



## DOUBLE LEG PLYO PROGRESSIONS

- 09 Depth Jumps
- 08 Double Leg Hops over Hurdle
- 07 Leap Jumps
- 06 Box Jumps
- 05 Tuck Jumps
- 04 Standing Long Jump
- 03 Squat Jumps
- 02 Counter Movement Jump
- 01 Pogo Jump

## OVERVIEW

Plyometrics are a high intensity exercise, which exploits the stretch shortening cycle.

Plyometric style exercises promote high movement speed, type II recruitment and elastic tendon energy release. It predominantly involves performing body weight exercises whilst jumping whilst using the stretch shortening cycle.

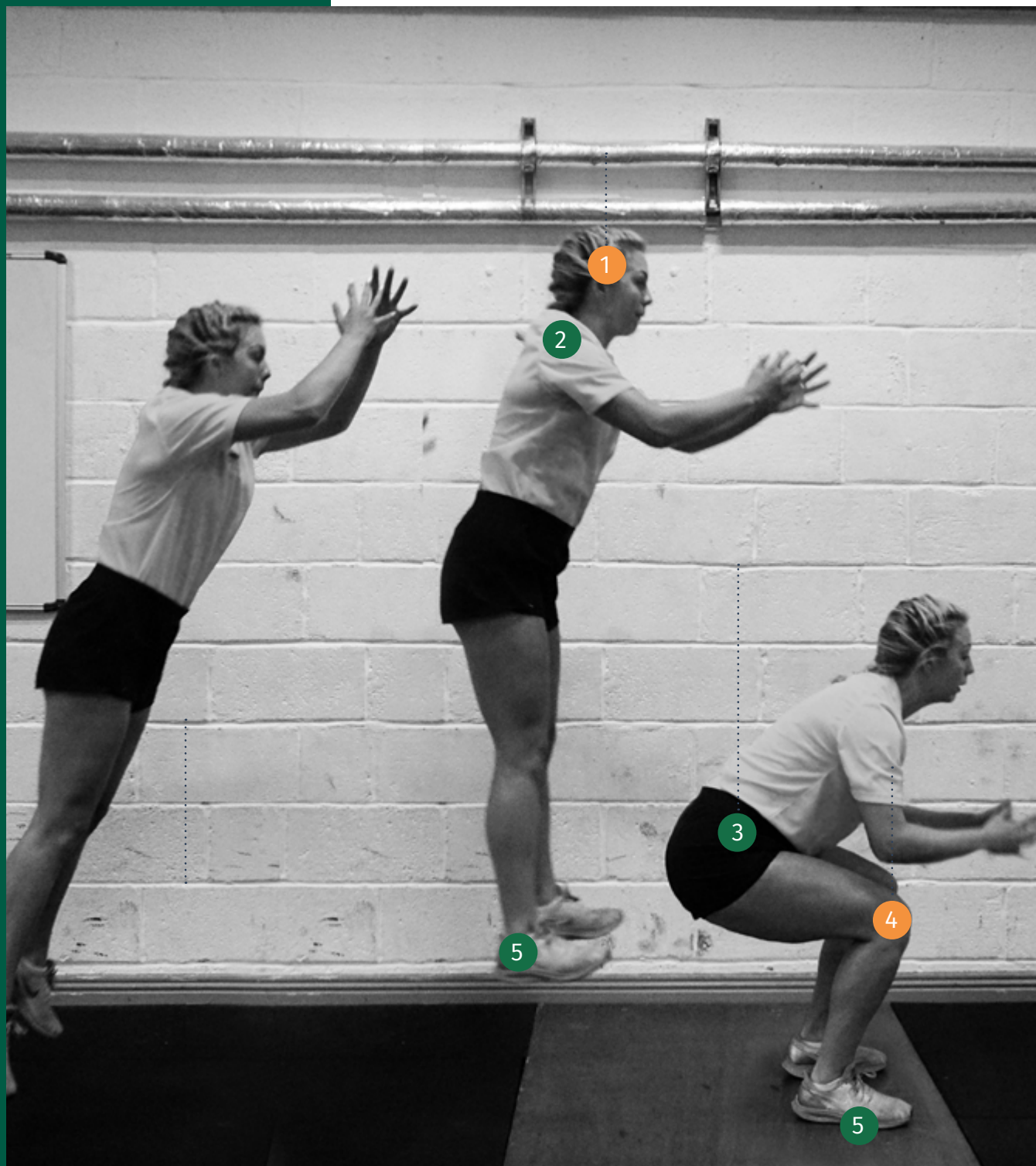
It increases neural production and improves the musculo-tendinous system.

Double leg exercises allow the body to adapt to the exercise demands before moving onto single leg exercises.

## MUSCLES INVOLVED

- Soleus
- Hamstrings
- Glute Medius and Maximus
- Quadriceps
- Erector Spinae
- Deltoids



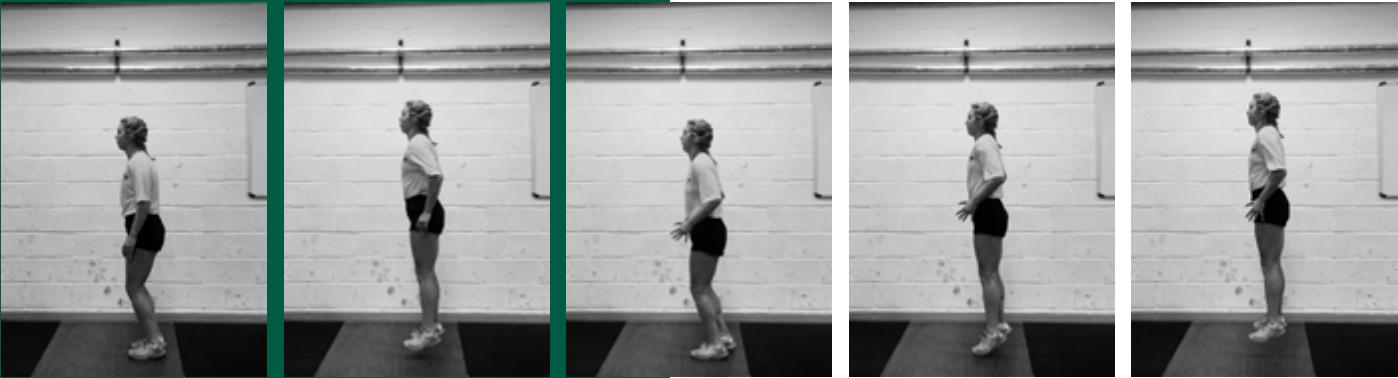


## Key Coaching Considerations

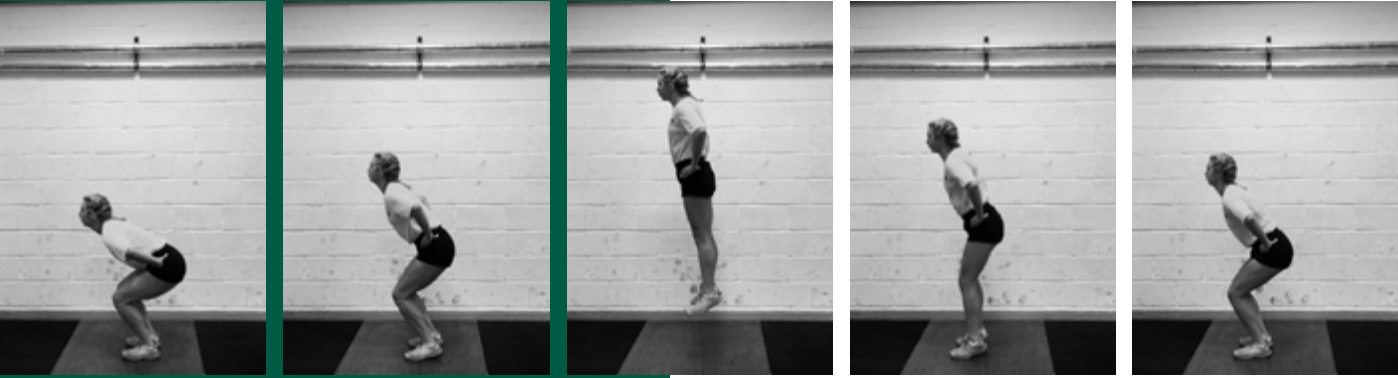
	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	The head should be in a neutral position at all times.	Looking down at the ground.	Eyes must focus straight ahead.
2. Back / Torso	The back should always stay straight. Keep the core braced at all times.	The back becomes round (hunched).	Encourage the athlete to have big chest. Chest faces the opposite wall not the ground. Keep the torso braced at all times .
3. Hips / Knee	The hips and knees should flex (bend) at the same time. Ensure equal weight bearing through the hips. Hips must always stay square. The hips, knees, and ankles should create a straight line when viewed from the front.	Toppling forward when landing. Athlete must shift their weight backwards . Lots of wobbling when landing. Cue - Hop and stick.	Static exercises must be the priority before introducing dynamic movements. Balance and stability exercises should be incorporated to heighten proprioception.
4. Knees	There will be a slight bend in knees upon landing. The knees must not land excessively in front of feet - push back through hips. Ensure good limb alignment – no kissing knees.	Knees fall inward. Knees land too far forward.	Push knees out when landing. Knees and hips in line with toes. Ensure knees are just slightly tracking the toes.
5. Feet	Feet must dorsiflex when in the air. Upon landing, ankle is flexed. Land with a dorsiflexed foot with 2/3s to full foot ground contact upon landing. Keeping weight evenly distributed over the entire foot. Land as softly as possible, making no noise when the feet come in contact with the ground. Minimize time on the ground when landing.	Lack of dorsiflexion. Landing on tip toes. Landing or stamping loudly at ground contact.	Encourage the athlete to have their shoelaces facing the sky at all times. Athlete may have to land with a more flat foot. Land quietly on a full foot and absorb shock by bending the ankle knee and the hip

# DOUBLE LEG PLYO PROGRESSIONS

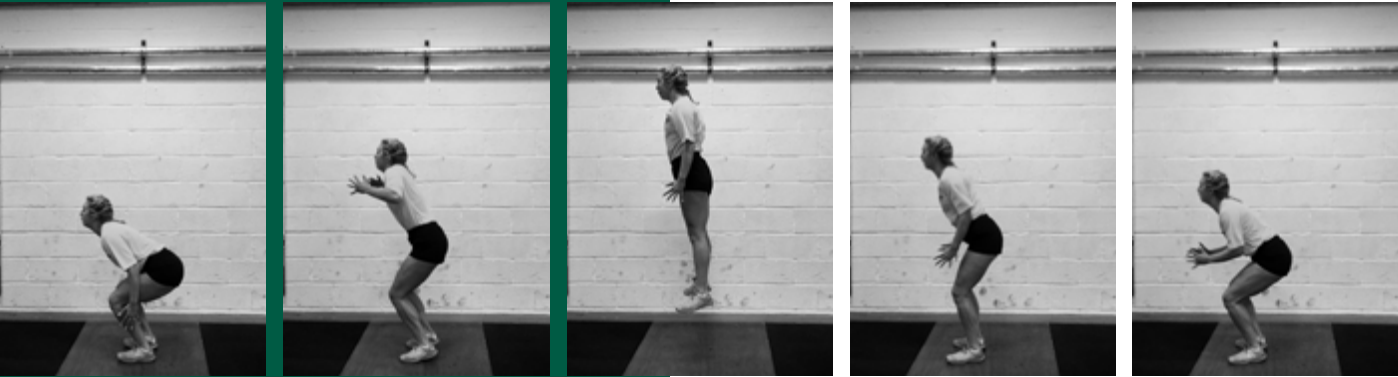
01 Pogo



02 Counter Movement Jump



03 Squat Jumps



04 Standing Long Jump



05 Tuck jumps



06 Box Jumps





# DOUBLE LEG PLYO PROGRESSIONS

07 Leap Jumps



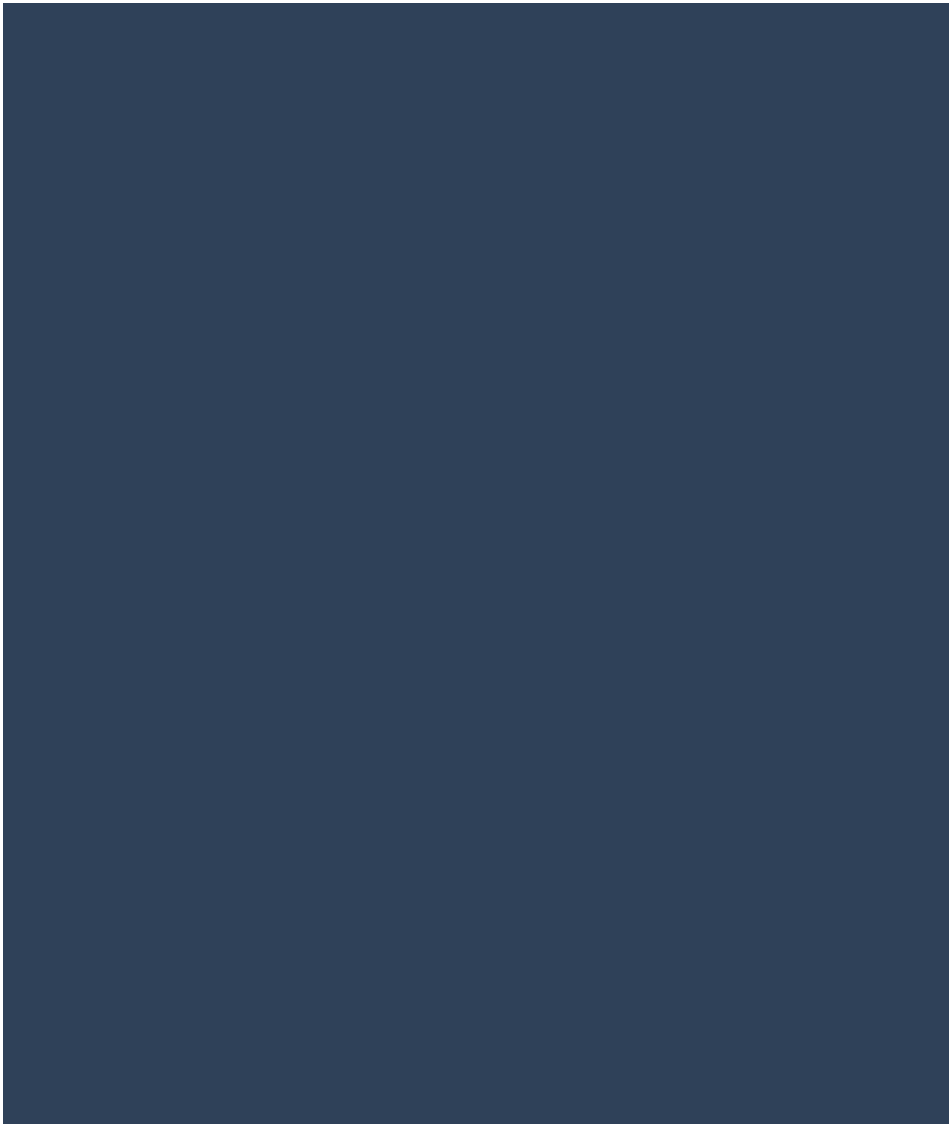
09 Depth Jumps



08 Double Leg Hop Over Hurdle







# Single Leg Plyometrics



## SINGLE LEG PLYO PROGRESSIONS

- 09 Single Leg Box Bounds
- 08 Alternate Leg Bounds
- 07 Single Leg Vertical Bounds
- 06 Split Jumps
- 05 Cycle Hops
- 04 Single Leg Vertical Hop and Stick
- 03 Continuous Single Leg Hop
- 02 Lateral Single Leg Hop
- 01 Single Leg Hop on Spot

## OVERVIEW

Single leg plyometrics improve muscle functioning and improve general balance and proprioception.

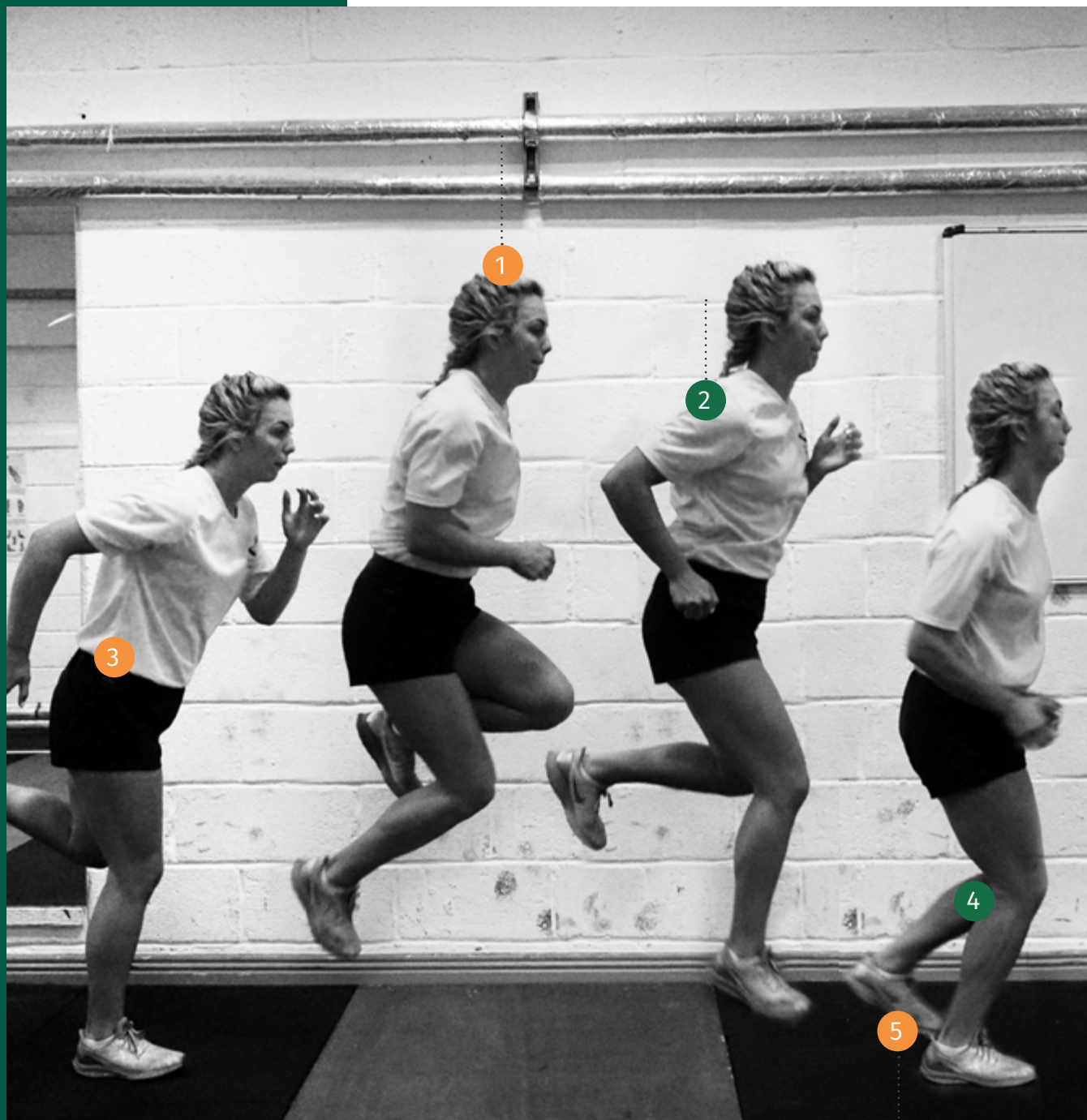
Such exercises eliminate any imbalances that may have developed over time.

Single leg exercises replicate sport specific actions such as jumping, bounding and sprinting.

These exercises promote single leg power, strength and can reduce the incidence of injury if performed correctly.

## MUSCLES INVOLVED

- |                            |                        |
|----------------------------|------------------------|
| - Soleus                   | - Rectus Abdominus     |
| - Hamstrings               | - Obliques             |
| - Glute Medius and Maximus | - Gastrocnemius        |
| - Quadriceps               | - Tensor Fasciae Latae |
| - Erector Spinae           | - Adductors            |
| - Deltoids                 |                        |

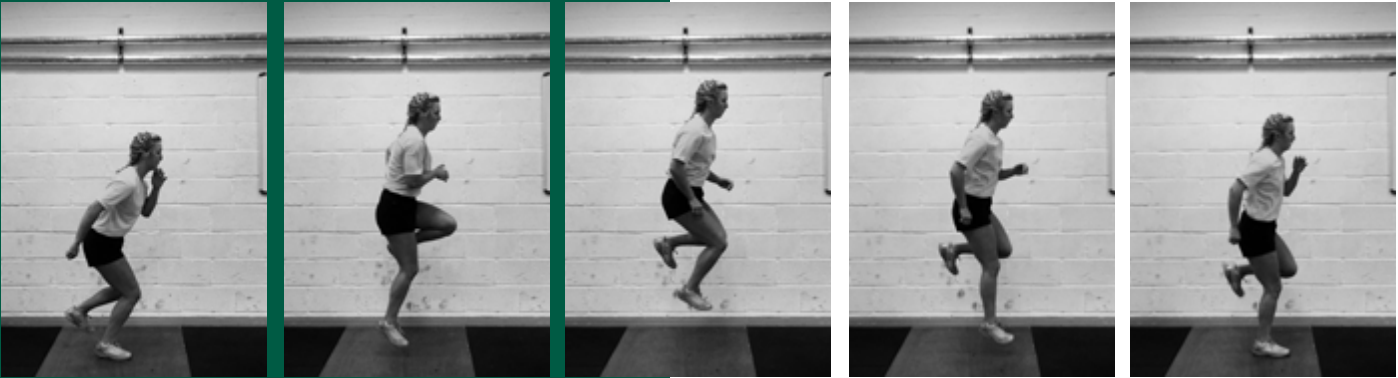


## Key Coaching Considerations

	CUES:	COMMON FAULTS:	CORRECTIONS:
1. Head + Neck	The head should be in a neutral position at all times	Looking down at the ground.	Eyes must focus straight ahead.
2. Back / Torso	Keep the core braced at all times.	The back becomes round (hunched).	Encourage the athlete to have big chest. Chest faces the opposite wall not the ground. Keep the torso braced at all times .
3. Hips / Knees	The hips and knees should flex (bend) at the same time. Ensure equal weight bearing through the hips. Hips must always stay square. The hips, knees, and ankles should create a straight line when viewed from the front.	Pelvis unbalanced- one hip higher than the other. Lots of wobbling upon landing.	Keep hips up, don't allow the body to sink. Ensure knee and hip are pointing in the same direction. Use lines on the ground or masking tape to emphasise proper alignment. Cue- Hop and stick. Static exercises must be the priority before introducing dynamic movements. Balance and stability exercises should be incorporated to heighten proprioception.
4. Knees	There will be a slight bend in knees upon landing. The knees must not land excessively in front of feet - push back through hips. Ensure good limb alignment – hips, knee and ankle must track one and other.	Knees fall inward. Knees land too far forward.	Push knees out when landing. Knees and hips in line with toes. Ensure knees are just slightly tracking the toes.
5. Feet	Feet must dorsiflex when in the air. Upon landing, the ankle is flexed. Land with a dorsiflexed foot with 2/3s to full foot ground contact upon landing. Land as softly as possible, making no noise when the feet come in contact with the ground. Minimize time on the ground when landing.	Lack of dorsiflexion. Landing on tip toes.	Encourage the athlete to have their shoelaces facing the sky at all times. Athlete may have to land with a more flat foot.

# SINGLE LEG PLYO PROGRESSIONS

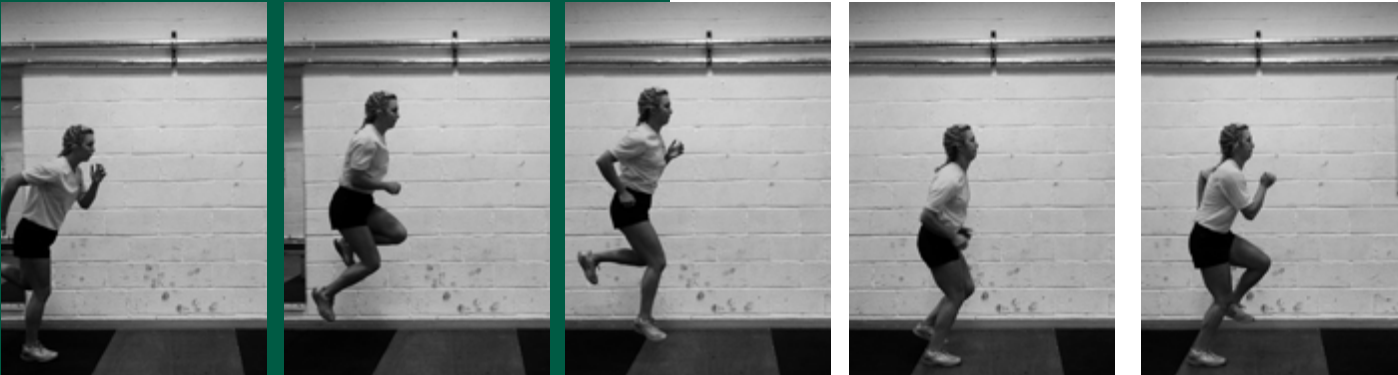
01 Single Leg Hop on the Spot



02 Lateral Single Leg Hop



03 Continuous Single Leg Hop



04 Single Leg Vertical Hop and Stick



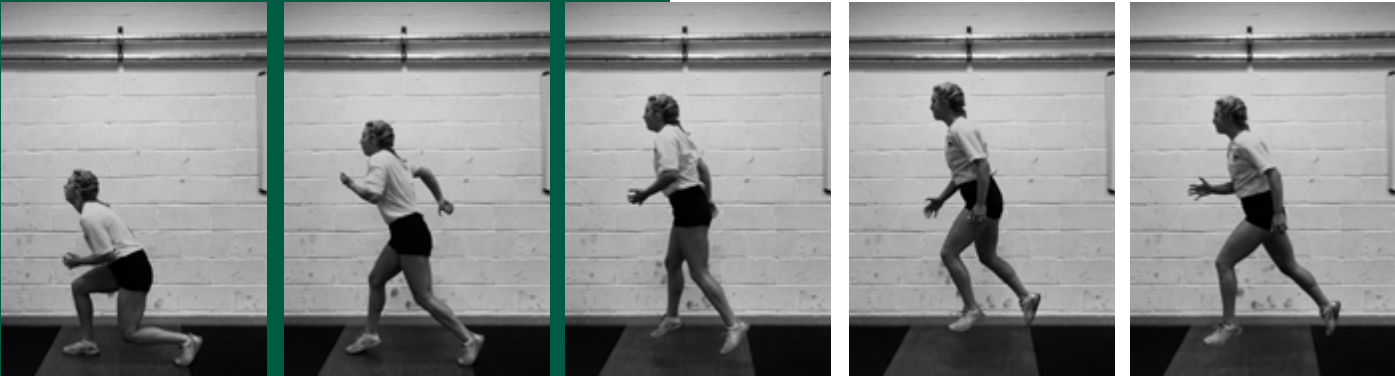
05 Cycle Hops





# SINGLE LEG PLYO PROGRESSIONS

06 Split Jumps



07 Single Leg Vertical Bounds



08 Alternate Leg Bounds



09 Single Leg Box Bounds





An Introduction to Strength & Conditioning  
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**Athlete Demonstrators:** Paul Byrne and Lilly-Ann O'Hora  
**An Introduction to Strength and Conditioning Concept:** Lilly-Ann O'Hora  
**Manual Design:** Emma Prendiville ([www.blankslate.ie](http://www.blankslate.ie))

Athletic Association of Ireland  
Unit 19, Northwood Court,  
Northwood Business Campus,  
Santry, Dublin 9,  
Ireland

T: + 353 (01) 8869933  
E: [admin@athleticsireland.ie](mailto:admin@athleticsireland.ie)  
W: [www.athleticsireland.ie](http://www.athleticsireland.ie)  
@athleticsireland