

Strength & Conditioning Exercises for Development Level Swimmers

- When:** These exercises are designed to be incorporated into an athlete's training 2-3 sessions per week on non-consecutive days.
- Why:** Strength development is important for both performance and injury prevention. Swimming occurs in a gravity minimised environment and loads some joints unevenly. This can lead to asymmetry and weakness in some muscle groups. The aim is to promote all-round strength development of the major joints.
- How:** Choose between 5 – 8 exercises across each of the different exercise streams from the following pages. Swimming Australia recommends following the Australian Strength and Conditioning Association Guidelines related to the minimum number of repetitions for different age groups. These are as follows:

**Children 6-9 yrs.
15 – 18 repetitions**

**Children 9-12 yrs.
10 – 12 repetitions**

**Youth 12-15 yrs.
8 – 10 repetitions**

**Youth 15-18 yrs.
6 – 8 repetitions**

Progress in steps of 2 repetitions as you are able.

Athletes should begin with 2 sets and progress to an additional set when they are able to perform 6 or more repetitions above the starting repetition range.

Athletes must demonstrate that they can perform the required movement with the required technical execution in order to progress.

Athletes utilising external resistance (either dumbbells, kettlebells or stretch bands) should commence with 2 sets and build to 3 sets as per previous guidelines above. Additional resistance can be progressed after that for further stimulus.

"It is essential to note that athletes who have no previous experience in resistance training should utilize initial repetition ranges of 15 – 18 repetitions upon beginning resistance training for the first time irrespective of age."

Baker D., 2009 The Guide for Methods for Progressing the Difficulty of Body-weight Exercises and Suggested Lesson Plans. ASCA.

- Where:** The aim of the program is that it can be performed in any gym with basic equipment. If a gym is not available, most exercises can be modified to perform on pool deck. Exercises that require pulleys can be modified to utilise stretch bands.
- Who:** The exercises included have been selected for their simplicity and safety. This series of posters is designed to provide some guidance for athletes who are transitioning from using body weight exercises into their first S&C environment. Swimming Australia's recommendation is that athletes who have not yet reached their growth spurt should be doing body weight exercises only. The exercises using weighted resistance in this program are therefore designed for girls older than 13yrs and boys older than 14yrs.

Important:

- The primary focus of any strength and conditioning program for development level swimmers should be injury prevention.*
- Swimmers should display that they are able to execute the required movements competently before progressing load or complexity. There is no value risking injury for a small additional strength increase.*
- Swimming Australia strongly recommends that no athlete under the age of 16 should perform more advanced lifting techniques such as Olympic lifts (or derivatives of Deadlifts, Cleans, Snatches). Furthermore, it is essential that prior to utilising any derivatives of the Olympic Lifting stream, athletes demonstrate mastery of body weight activities, and have been part of a well-structured S&C program for longer than 4 years under the direct supervision of a qualified strength and conditioning coach*
- It is a requirement that any Strength and Conditioning coach working with athletes at the community / club level is at least a Level 1 Coach, accredited with the Australian Strength and Conditioning Association (ASCA).*

Strength & Conditioning Exercises for Development Level Swimmers

Beginner

Intermediate

Advanced

SCAPULAR FUNCTION / STABILITY

1. PRONE W,Y,T

- Draw the shoulder blades towards each other while maintaining the head and neck in a neutral position
- Move the arms out to 90°, then draw the elbows down to make a W shape
- Then move the arms up to make a Y-shape
- Finally come back to 90° to make a T-shape
- Relax the arms to the floor then repeat



2. ALTERNATE PROTRACTION / RETRACTION / DEPRESSION / ELEVATION



- Sit with both arms elevated to parallel with the floor in front of the body
- Slide one hand forward as far away from the body as you can
- Then slide the hand back as far as possible
- The movement comes from the shoulder blade sliding around the chest wall
- The other arm can be doing the opposite movements

- Sit with both arms overhead
- Reach one hand as high as possible by sliding the scapula upwards
- Then lower the hand by sliding the scapula as low as possible
- The other arm can be doing the opposite movement

3. CABLE / BAND PROTRACTION / RETRACTION / ELEVATION / DEPRESSION



- Push your hand away from your chest so that your shoulder blade slides around the chest wall.
- Return back to the start position under control.

- Start with your hand as far away from your body as it can be.
- Draw your shoulder blade back towards your spine without twisting your trunk.
- Return to the start position under control.

- Start with your arms overhead.
- Push your hands towards the ceiling so that your shoulder blade elevates.
- Return to the start position under control.

- Start with your hand as high as it can go, so that your shoulder blade is elevated.
- Draw your shoulder blade down.
- Return to the start position under control.

Strength & Conditioning Exercises for Development Level Swimmers

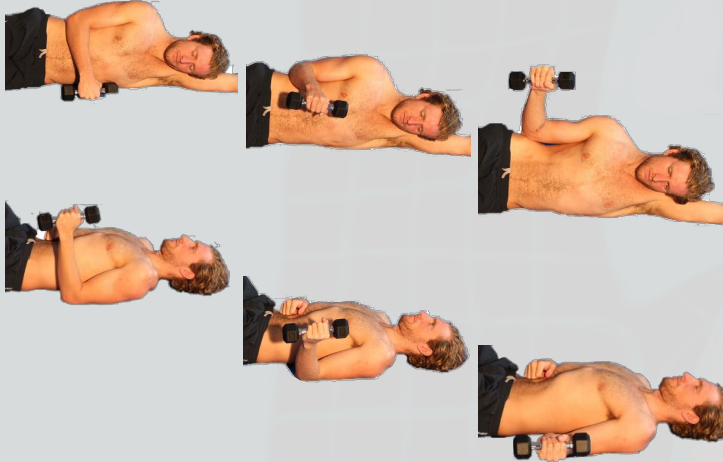
Beginner

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Advanced

GLENOHUMERAL STABILITY

1. DUMBBELL INTERNAL / EXTERNAL ROTATION AT SIDE



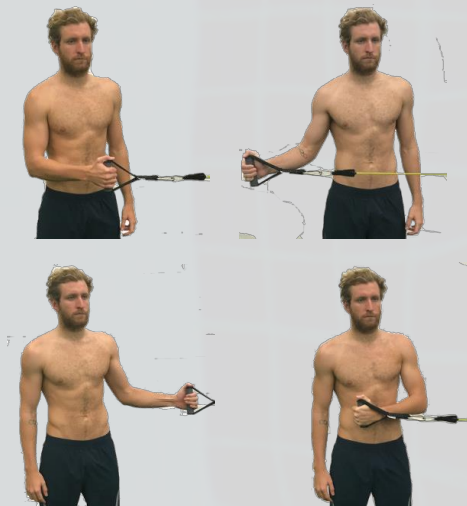
External Rotation

- Lie on side with lower arm stretched out above head.
- Hold the upper arm of your free arm at your side and bend elbow to 90°.
- Slowly internally rotate your arm so that it lowers towards the ground.
- Externally rotate the arm to the starting position.

Internal Rotation

- Lie flat on back.
- Hold upper arm at against your side and bend elbow to 90°.
- Slowly externally rotate the arm outwards and lower dumbbell towards the ground.
- Internally rotate arm to the starting position.

2. THERABAND INTERNAL / EXTERNAL ROTATION AT SIDE



External Rotation

- Standing with arm by your side and elbow bent to 90°.
- The band should be horizontal, perpendicular to the hand.
- Rotate outwards against the band whilst keeping the elbow in one place.
- Return to the start position under control.

Internal Rotation

- Standing with arm by your side and elbow bent to 90°.
- The band should be horizontal, perpendicular to the hand.
- Rotate inwards against the band whilst keeping the elbow in one place.
- Return to the start position under control.

3. THERABAND INTERNAL / EXTERNAL ROTATION AT 90°



Internal Rotation

- Position the theraband behind and above your hand at approximately a 30° angle.
- In a standing position, raise your upper arm to 90°.
- Bend your elbow to 90° so your hand points to the sky.
- Hold theraband and slowly internally rotate the arm until it is parallel to the ground.
- Externally rotate the arm to the starting position in a controlled manner.

External Rotation

- Position theraband in front of and below your hand at approximately a 30° angle.
- In a standing position, raise your upper arm to 90° to the side.
- Bend your elbow to 90° so your hand points forwards.
- Hold the theraband and slowly externally rotate the arm until your hand points to the sky.
- Internally rotate the arm to the starting position in a controlled manner.

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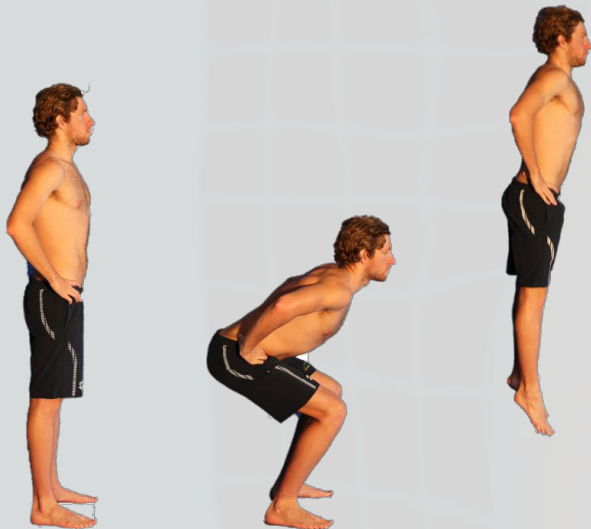
PLYOMETRICS

1. TALL / SHORT



- In a standing position, stand with hands above your head as high as possible.
- In one swift movement, drop down into a crouching position with your arms beside your hips.
- Stop your downwards momentum as quickly as possible.

2. COUNTER MOVEMENT JUMP – HANDS ON HIPS



- Stand upright with hands on hips. Feet should be evenly spaced approximately shoulder width or slightly wider apart.
- Keeping your back straight, crouch down in a controlled manner until your knees are bent to approximately 90°.
- Rapidly change direction and jump as high as possible into the air.
- Make your body as long as possible during the flight phase.
- Land with feet spread apart and bend knees upon landing to absorb the impact.

Variation: Squat Jump

- Hold crouching position for 2 – 3 seconds prior to jumping.

3. SPLIT JUMP TO STREAMLINE



- Stand upright in a split stance (front to back) with hands on hips.
- Keeping your upper body upright, crouch down until both your front and back leg are bent to more than 90°.
- Rapidly change direction and jump as high as possible into the air.
- Extend your hands above your head into the streamline position.
- Land with feet spread apart and bend knees upon landing to absorb the impact.

Variation: Split Squat Jump (with pause)

- Hold crouching position for 1 -2 seconds.

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SQUAT PROGRESSIONS

1. DB / KB / MB GOBLET SQUAT



- Holding either a dumbbell (DB), kettle bell (KB) or medicine ball (MB) in front of the upper chest.
- Squat to thighs vertical maintaining neutral spine.
- Return to the upright position.

2. REAR FOOT ELEVATED (BULGARIAN) SPLIT SQUAT



- Using a chair or low bench, place foot of rear leg on the seat.
- Whilst bracing trunk and maintaining neutral trunk alignment, squat through front leg and lower knee of back leg towards floor.
- The rear knee does not have to touch the floor at the bottom of the squat.
- Return to the upright position.

3. MB SINGLE LEG ECCENTRIC SQUATS



- Hold medicine ball horizontally in front of chest.
- Standing on one leg, lower hips to bench whilst maintaining hips level and trunk in neutral alignment.
- Use two legs to return to the start position.

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LUNGE STREAM

1. BW LUNGE – HANDS IN STREAMLINE



- Start from a standing position with hands above head in a streamline position.
- Maintaining an upright posture, step out to the front. Keep hands in streamline position.
- Bend at the knees until the back knee almost touches the ground. Both front and back knees should be at approximately a 90° angle.
- Push back to starting position.

2. THERABAND RESISTED LUNGE – HANDS IN STREAMLINE



- Attach band behind you at a height just above head height.
- Start from a standing position with hands above head in a streamline position.
- Grasp band.
- Maintaining an upright posture, step out to the front. Keep hands in streamline position.
- Bend at the knees until the back knee almost touches the ground.
- Both front and back knees should be at approximately a 90° angle.
- Push back to starting position.

3. DB / KB STEP UP – SINGLE ARM OVERHEAD



- Position a box in front of your body.
- The box should be of a height that enables the athlete to step up in a controlled manner (mid-shin height is an appropriate starting point).
- Maintaining an upright posture, step up on to the box using your front leg as much as possible. Keep DB or KB directly above head.
- Lift free leg to 90°.
- Slowly lower back to the starting position.

Variation: Lunge

- As per previous variations but with DB or KB held above head in one hand.
- Hold DB or KB above head on the same side as you will be stepping on to.

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HORIZONTAL PULLING PROGRESSIONS

1. INVERTED ROW



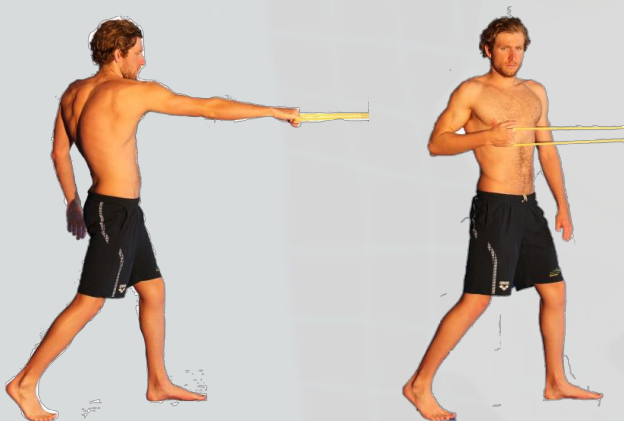
- Hanging under a bar with heels resting on the floor.
- Maintain a straight trunk alignment.
- Pull chest up to bar.
- Return to start under control.

2. DB SINGLE ARM BENT OVER ROW - SUPPORTED



- Draw shoulder blade back as in the “WYT” exercise. Maintain head and neck in a neutral position.
- Keep the shoulder blade still as you draw the weight towards the chest.
- Lower with control.

3. SINGLE ARM CABLE ROW WITH TRUNK ROTATION



- Facing towards the band or cable pulley with the straight arm reaching forward.
- Pull the arm through past the body.
- Incorporate trunk rotation and scapular retraction to maximise length of pull.
- Control back to the start position.

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HORIZONTAL PUSHING PROGRESSIONS

1. PUSH UP WITH PLUS



- Hold a push up position with good trunk, neck and head alignment.
- Keep elbows straight, drop chest towards floor by allowing the shoulder blades to come together.
- Then proceed to do a push up going just deep enough that the upper arm is horizontal.
- Push back up and then lift chest up by pushing shoulder blades away from each other. The chest will push up between the shoulder blades.
- Keep trunk straight while moving up and down.

2. SINGLE ARM CABLE PRESS



- Facing away, but with trunk rotated towards the band or cable pulley.
- Push the arm away as with a single arm bench press.
- Incorporate trunk rotation and scapular protraction to push away.
- Control back to the start position.

3. DUMBBELL PRESS WITH PLUS



- Start with upper arms horizontal (ie elbows in line with shoulders).
- Push weights up to meet each other at full arm extension.
- Add scapular protraction as in "push up with a plus".
- Lower under control back to start position.

* Warning - Do not go lower as this can overload the front of the shoulder.

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VERTICAL PULL PROGRESSIONS

1. 2 PART SINGLE ARM LAT PULLDOWN



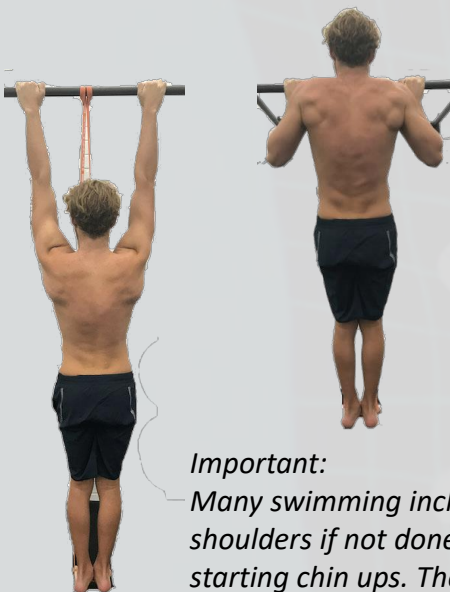
- Grasp handle in two hands above head as high as you can reach. Hands should be facing forwards.
- **Do NOT allow the weight to hang off your shoulders.**
- Initiate movement by setting your shoulder blades down and towards the middle.
- Pull bar downwards in front of your body to chin height.
- Slowly allow the bar to return to the top position whilst maintaining the position of your shoulder blades.
- Slowly allow your shoulder blades to return to the starting position.

2. LAT PULLDOWN



- Grasp handle in two hands above head as high as you can reach. Hands should be facing forwards.
- **Do NOT allow the weight to hang off your shoulders.**
- Initiate movement by setting your shoulder blades down and towards the middle.
- Pull bar downwards in front of your body to chin height.
- Slowly allow the bar to return to the top position whilst maintaining the position of your shoulder blades.
- Slowly allow your shoulder blades to return to the starting position.

3. BAND ASSISTED CHIN UPS



- Secure band to the chin up bar.
- Pull band down and step on it.
- Grasp chin up bar with arms fully extended.
- Set your shoulder blades down and back.
- **Do NOT allow your body weight to hang off your shoulder joint.**
- Pull your chest up to the bar until your chin passes bar height.
- Slowly return to starting position ensuring that you don't hang off the shoulder joint.

Important:

Many swimming include chin ups in their training. This exercise can provide a risk to the shoulders if not done properly. An athlete must be proficient at the 3 exercises above before starting chin ups. They should always be done under control, and never hanging in the bottom position. The use of bands to support a portion of the athletes body weight is a great way to begin incorporating this exercise safely.

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GLUTEAL / LEG PROGRESSIONS

1. DOUBLE LEG HIP RAISE



- Lying on back with hips and knees bent, feet flat on floor.
- Squeeze gluteal muscles and lift hips until the thigh and trunk are in line.
- Hold 2 seconds then lower with control.

2. SINGLE LEG HIP RAISE



- This exercise is a progression from step 1.
- Maintain trunk alignment and control rotation as lifting with one leg.
- Hold 2 seconds then lower with control.

3. BARBELL HIP THRUSTS



- Back of shoulders on edge of bench.
- Weight bar across front of hips.
- Squeeze gluteal muscles and lift hips until the thigh and trunk are in line.
- Hold 2 seconds then lower with control.

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GLUTEAL / HIP ROTATION PROGRESSION (for Breaststroke & IM athletes)

1. CLAMS



- Lie on side with lower arm extended to support your head.
- Place mini band around knees.
- Bend knees and hips to approximately 30°.
- Keep your feet in contact with each other and slowly externally rotate your top hip to pull your knees apart.
- Hold for 2 - 3 seconds.
- Slowly return to starting position.

2. HIP ROTATION IN FOUR POINT KNEEL



- Connect band to an anchor point.
- Kneel on all fours.
- Position body so that the band is in line with your foot.
- Loop band around foot.
- Start with feet together.
- Allow band to slowly rotate foot outwards – resisting against it.
- Pull foot back towards the starting position.

3. BAND CRAB WALK



- Wrap mini bands around lower legs / ankles.
- Stand in a half squat position with hands on hips and back straight.
- Perform a controlled side-step with one foot so that the band is stretched.
- Perform a catch-up step with your other foot whilst maintaining some tension on the band – Do NOT allow feet to come together.

"Athletes looking to progress past the level of this poster should do so only under the guidance of a qualified strength and conditioning coach with specific experience in elite swimming and already aligned with your local Academy or Institute of Sport"

Strength & Conditioning Exercises for Development Level Swimmers

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ABDOMINAL / CORE STRENGTH PROGRESSIONS - DEAD BUG SERIES

1. DEAD BUGS (HEEL TAPS)

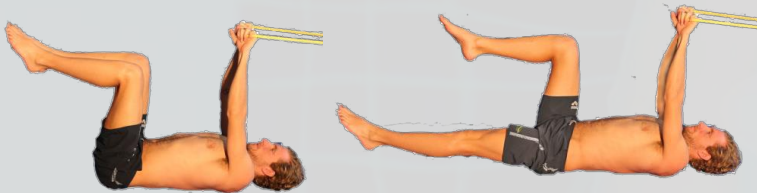


- Lie on back, with arms and thighs vertical. The knees are bent to 90°.
- The stomach is braced with a neutral lumbar spine.
- Extend an alternate arm and leg while maintaining a stationary trunk and spine.

Progressions

- Dumbbells and ankle weights can be added to this exercise to make it more challenging.
- Extend leg fully and tap heel while extending the arm.
- This can be done with opposite arm & leg, or on same side.

2a. DEAD BUG – (ANTI-EXTENSION USING BAND OR CABLE)



- Use a band or cable pulley to add extra load to the trunk.
- Extend alternate legs while bracing arms.

2b. PROGRESSIONS – ANTI-ROTATION USING BAND OR CABLE / ↑ REPS / ↑ BAND OR CABLE RESISTANCE



- Same exercise as above, but with different direction of external load.
- Brace against rotation as extending alternate legs.

3a. DEAD BUG – DOUBLE ARM EXTENSION – MB / DB / KB RESISTED



- Start in dead bug position.
- Maintain trunk alignment.
- Lower med ball to floor with both arms extended.
- Return to vertical.

3b. PROGRESSIONS - SINGLE ARM EXTENSION / ANTI EXTENSION (BAND RESISTED) – DOUBLE ARM / SINGLE ARM



- Same exercise as above.
- Add alternate leg extension to increase trunk load.

Progressions:

- Take arm out to side so that you are resisted a rotational load.
- This could be done against a band or pulley.

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FRONT PLANK PROGRESSIONS

1. FRONT BRIDGE (PLANK) – ELBOWS (30 seconds)



- Support body weight between elbows and toes.
- Brace trunk and maintain perfect trunk alignment.

Progressions:

- Build time to 45, 60, 90 seconds.

2a. 3-POINT FRONT BRIDGE (PLANK) – ELBOWS – LEG UP & DOWN



- Brace trunk and maintain perfect trunk alignment.
- Lift alternate legs.
- Build time to 45, 60, 90 seconds.
- Can add variations with moving non weight-bearing leg in and out, or by lifting your elbows off the floor.

Progressions:

- Move leg in & out / elbows to hands.
- Build time to 45, 60, 90 seconds.

2b. FRONT BRIDGE (PLANK) – HANDS (30 seconds)



- Support body weight between hands and toes.
- Brace trunk and maintain perfect trunk alignment.

Progressions:

- Build time to 45, 60, 90 seconds.
- Can add progressions by sagging and recovering trunk alignment or adding additional resistance (plate or dumbbell).

3. 3-POINT FRONT BRIDGE (PLANK) – HANDS – ALTERNATE HANDS / LEGS



- Brace trunk and maintain perfect trunk alignment.
- Lift alternate legs and arm.

Progressions:

- Build time to 45, 60, 90 seconds.
- Can add variations with moving non weight-bearing leg in and out, or tucking knee to chest, or adding trunk rotation.

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SIDE PLANK PROGRESSIONS

1. SIDE BRIDGE (PLANK) – ELBOWS (30 seconds)



- Support body weight between elbows and feet.
- Brace trunk and maintain perfect trunk alignment.

Progressions:

- Build time to 45, 60, 90 seconds.

2a. SIDE BRIDGE (PLANK) – ELBOWS – LEGS UP & DOWN



- Support body weight between elbows and feet.
- Brace trunk and maintain perfect trunk alignment.
- Lift top leg and hold.

Progressions:

- Build time to 45, 60, 90 seconds.
- Variations can include moving the top leg forwards and backwards.

2b. SIDE BRIDGE (PLANK) – HANDS (30 seconds)



- Support body weight between hand and feet.
- Brace trunk and maintain perfect trunk alignment.

Progressions:

- Build time to 45, 60, 90 seconds.
- Progressions can include sag and recover or moving the top leg forwards and backwards.

3. SIDE BRIDGE (PLANK) – ELBOWS RESISTED (PLATE / DB / KB)



- Support body weight between hand and feet.
- Brace trunk and maintain perfect trunk alignment.

Progressions:

- Build time to 45, 60, 90 seconds.
- Include sag and recover, lifting the top leg and adding top leg movement.

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EXTENSION PROGRESSIONS

1. PRONE SUPERMAN – ISO HOLDS (30 secs)



- Lying on stomach, lift arms and legs, and hold.
- Build hold time to 45, then 60 seconds.
- Progress to alternate arm and leg raising and increase repetitions

2. STABILITY BALL EXTENSIONS



- Lying over a swiss ball with belly button on the top of the ball.
- You may need to have your feet braced or supported.
- Start in a bent position, chin to ball.
- Lift your trunk to the point of straight trunk alignment.
- Build number of repetitions.
- Variations can include adding a twist or lifting one leg.
- Progress to alternate arm and leg raising and increase repetitions.

3a. STABILITY BALL BACK EXTENSIONS – HANDS IN STREAMLINE



- Lying over a swiss ball with belly button on the top of the ball.
- You may need to have your feet braced or supported.
- Start in a bent position, chin to ball with arms in streamline.
- Lift your trunk to the point of streamline position.
- Build number of repetitions.
- Variations can include adding a twist or lifting one leg.
- Progressions can include adding 1kg weight to hands.

3b. BACK EXTENSIONS – HANDS @ HEAD HEIGHT



- Use either a Back Extension machine (horizontal) or a Roman Chair (45°).
 - Start in a bent position with hands on head.
 - Lift trunk to the point of straight trunk alignment.
 - Build number of repetitions.
 - Progressions can include arms in streamline, adding rotation, or using one leg.
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- If done with a straight trunk and hinging at the hips this will bias the gluteal and hamstring muscles.
 - If done by flexing and extending the trunk it will bias the low back muscles.

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ABDOMINAL PROGRESSIONS

1a. BANANA (DISH) HOLDS (30 seconds)



- Lift both legs plus head and shoulders off floor and hold in a dish shape.
- Build to 45, 60, 90 seconds.

Progressions:

- Include hands above head, rocking to adding weights.

1b. CRUNCHES – HANDS TO KNEES



- Lying on floor with knees bent to 90°.
- Curl trunk until hands reach knees.
- Build number of repetitions.

Progressions:

- Include moving to wrist or elbow to knees.
- Using a swiss ball or adding diagonal patterns can also be used for progressions.

1c. SIT UPS



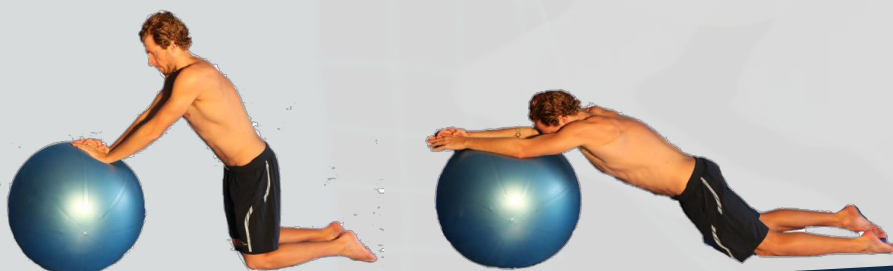
- Crunches and sit ups can be progressed with hands behind heads.
- They can be progressed further with hands above heads or adding additional weight.

2. PALOFF PRESS – BANDS / CABLES



- Standing with hands next to stomach.
- Holding band or cable pulley.
- Extend arms while maintaining trunk alignment and position, bracing against rotation.
- Progressions can include trunk rotations, Russian Twists and Medicine Ball side passes.

3. KNEELING SB ROLLOUTS



- Kneeling with hands on swiss ball.
- Roll out along arms, pivoting upon knees.
- Brace trunk and maintain trunk alignment.
- Return to upright position.
- Progressions can include SB Toe Drags, SB SL Toe drags, Kneeling Abdominal Wheel.