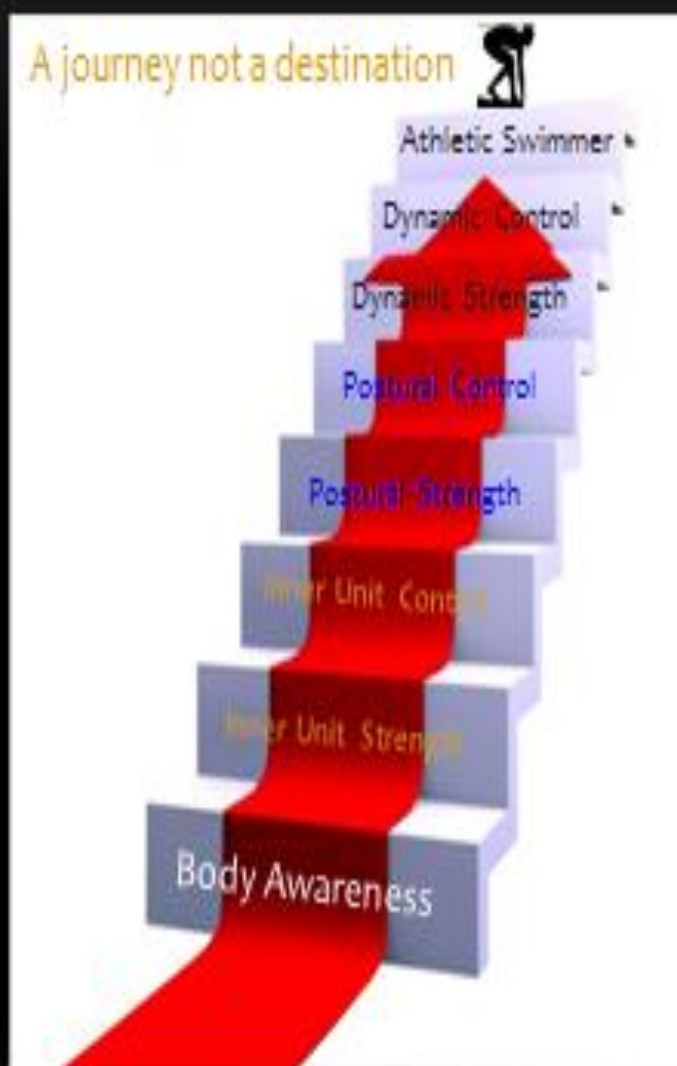






BUILDING A 'ROBUST' SWIMMER

'MAKING THEM ROBUST IS A PROGRESSION NOT A OUTCOME'



What step does your swimmer belong?

CORE and SHOULDER STRENGTH & STABILITY PROGRESSIONS

<u>Movement progression</u>	<u>Exercise and Cues</u>	<u>Poor patterning and control</u> <i>What you are likely to see</i>	<u>Good patterning and control</u> <i>What you should see</i>
<p>Body Awareness</p>	<p>Four point limb raise: Progress from kneeling to balancing on toes</p> <p>Cues: <u>Posture/Spine:</u> long/tall spine. <u>Shoulders:</u> away from ears, set* or in neutral position* <u>Core:</u> braced with belly button pulled in slightly <u>Leg:</u> raise leg using 'butt' or glutes <u>Arm:</u> Raise arm using back of shoulder & upper back muscles to pull shoulder blade back and down</p>	<div style="text-align: center;">  </div> <p>Shoulders: Shoulders elevated, and rotated Thoracic Spine: Excessive T-Spine flexion (rounded) Lumbar and Hips: Flexed and rotated Balance: Poor</p> <div style="text-align: center;">  </div> <p>Shoulders: Shoulders elevated, and winged Thoracic Spine: Excessive T-Spine rotation Lumbar and Hips: Hyper extended and rotated Balance: Poor</p>	<div style="text-align: center;">  </div> <p>Shoulders: Shoulders packed and neutral*, good scapular control throughout movement Thoracic Spine: T-Spine extended and active Lumbar and Hips: Stable and flat Balance: Good</p> <div style="text-align: center;">  </div> <p>Shoulders: Shoulders packed and neutral*, good scapular control Thoracic Spine: T-Spine extended and active Lumbar and Hips: Stable, glutes active throughout movement Balance: Good</p>

Inner Unit Strength

Quadruped alternate arm leg raise (aka Bird Dog):
Progress from knees to feet

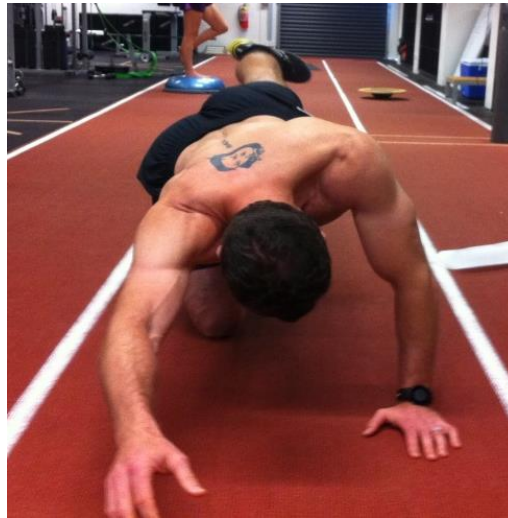
Cues:

Posture/Spine: long/tall spine.

Shoulders: away from ears, set* or in neutral position*

Core: braced with belly button pulled in slightly
Leg: raise leg using glutes. Stabilize hips with lateral hip muscles (glute med) of support leg

Arm: Raise arm using by pulling scapular back and down







Shoulders: Shoulders elevated, scapular winged
Thoracic Spine: Flexed & rotated
Lumbar and Hips: Extension and rotation
Balance: Poor



Shoulders: Shoulders packed and neutral*, good scapular control throughout movement
Thoracic Spine: T-Spine extended and active
Lumbar and Hips: Stable and flat
Balance: Good



<p>Inner Unit Control</p>	<p>Quadruped with cords/bands Progress with thicker bands and/or knees to feet</p> <p>Cues: <i>Posture/Spine:</i> long/tall spine; strong back <i>Shoulders:</i> away from ears, set* or in neutral position* <i>Core:</i> braced with belly button pulled in slightly <i>Leg:</i> raise leg using glutes and push heel back. Stabilize hips with lateral hip muscles (glute med) of support leg <i>Arm:</i> Raise arm using by pulling scapular back and down</p>	 <p>Shoulders: Shoulders elevated, scapular winged Thoracic Spine: Flexed and rotated Lumbar and Hips: Hyper-extension and rotation Balance: Poor</p>	 <p>Shoulders: Shoulders packed and neutral*, good scapular control throughout movement Thoracic Spine: T-Spine extended and active Lumbar and Hips: Stable and flat, back leg/glute strong and active Balance: Good</p>
<p>Postural Control</p>	<p>Crazy carpet body weight superman push up :</p> <p>Cues: <i>Posture/Spine:</i> long/tall spine <i>Shoulders:</i> away from ears, set* or in neutral* <i>Core:</i> braced with belly button pulled in slightly <i>Arms:</i> tuck one elbow in next to ribs; opposite hand slides forward; press up and pull extended arm in at the same time</p>	 <p>Shoulders: Shoulders elevated, scapular winged Thoracic Spine: Flexed and rotated Lumbar and Hips: Flexed Balance: Poor</p>	 <p>Shoulders: Shoulders neutral*, good scapular control throughout movement Thoracic Spine: T-Spine extended and active Lumbar and Hips: Stable and flat Balance: Good</p>

**Crazy carpet body weight
knee drives**

Cues:

Posture/Spine: long/tall
spine

Shoulders: away from ears,
set* or in neutral*

Core: braced with belly
button pulled in slightly.

Hips up



Knees: Drive one knee
towards elbow; drive
opposite heel back,
activating glutes



Shoulders: Shoulders elevated, scapular winged
Thoracic Spine: Flexed and rotated
Lumbar and Hips: Hyper-extension and rotation
Balance: Poor

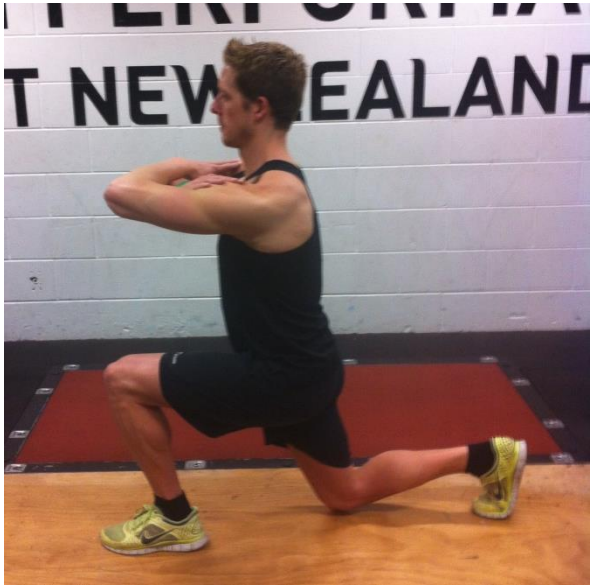


Shoulders: Shoulders packed and neutral*, good scapular
control
Thoracic Spine: T-Spine extended and active
Lumbar and Hips: Stable and flat throughout movement
Balance: Good

<p>Postural Strength</p>	<p>Crazy carpet slides: Progress from bilateral leg support to unilateral leg support</p> <p>Cues: <i>Posture/Spine:</i> long/tall spine <i>Shoulders:</i> away from ears <i>Core:</i> braced with belly button pulled in slightly. Hips up <i>Movement:</i> Use arms to 'walk' forward/backward. Extend arm and pull through lats to move body forward; push back through shoulders to move backwards</p>	 <p>Shoulders: Shoulders elevated, scapular winged, poor control Thoracic Spine: Flexed and rotated Lumbar and Hips: Hyper-extension and rotation Balance: Poor</p>	 <p>Shoulders: Shoulders set and good scapular control through movement Thoracic Spine: T-Spine extended and active Lumbar and Hips: Stable and flat throughout movement Balance: Good</p>
<p>Notes:</p>	<p>*Shoulder packing or setting ensures the shoulder is kept in the proper position to be at its strongest and safest position during all movements. To pack or set the shoulders, the athlete needs to be able to find a 'neutral shoulder position'.</p> <p>Basic cues are to pull the shoulders back and down, while still allowing the scapula to rotate normally.</p> <p>Slow controlled movements are advised throughout for all of the above exercise.</p> <p>Athletes should be able to perform 3 sets of 12-15 repetitions with perfect form and control before progressing to the next level.</p> <p><i>Resource developed by Marissa Downes, HPSNZ Lead Strength and Conditioning Specialist for SNZ, Matt Kritz, Director Strength & Conditioning for HPSNZ & Jordan Salesa, Key Provider Physiotherapy SNZ. For further information please contact Marissa at marissa.downes@hpsnz.org.nz or on 021 807 956</i></p>		

SINGLE LEG PROGRESSIONS

<u>Movement progression</u>	<u>Exercise and Cues</u>	<u>Poor patterning and control</u> <i>What you are likely to see</i>	<u>Good patterning and control</u> <i>What you should see</i>
<p>Body Awareness</p>	<p>Single Leg Hip Bridge Progression:</p> <ul style="list-style-type: none"> - Floor holds/reps - Floor marching - Bench holds/reps - Ball holds/reps <p>Cues: <u>Hips:</u> high and gluts/butt squeezed <u>Free Leg:</u> straight and 'active' <u>Grounded foot:</u> Pushing through the heel <u>Core:</u> braced with belly button pulled in slightly</p>	<p>Hips: Rotated and/or not fully extended Lumbar Spine: Excessive lumbar flexion Balance: Poor</p>	<div> </div> <p>Hips: Horizontal/straight, level with the ground Lumbar Spine: In neutral position Balance: Good</p>

<u>Movement progression</u>	<u>Exercise and Cues</u>	<u>Poor patterning and control</u> <i>What you are likely to see</i>	<u>Good patterning and control</u> <i>What you should see</i>
<p>Inner Unit Strength</p>	<p>Lunges</p> <p>Progression:</p> <ul style="list-style-type: none"> - Reverse (stepping back) - Forward (stepping forward) - Multidirectional (including lateral and diagonal) <p>Cues:</p> <p><u>Feet:</u> Front: Heel pushing into ground; Back; heel up</p> <p><u>Knees:</u> Bent to 90 degrees</p> <p><u>Gluts:</u> Squeezed</p> <p><u>Core:</u> Braced</p> <p><u>Chest:</u> Up</p>	<p>Trunk: Flexed/rounded</p> <p>Lumbar Spine: Excessive lumbar flexion</p> <p>Hips: Rotated and/or tilted</p> <p>Knees: Over toes and/or 'caving' inwards</p> <p>Balance: Poor</p>	 <p>Trunk: Straight and 'active'</p> <p>Lumbar Spine: Neutral</p> <p>Hips: Aligned and straight</p> <p>Knees: both at 90 degrees, front knee over heel</p> <p>Balance: Good</p>

<u>Movement progression</u>	<u>Exercise and Cues</u>	<u>Poor patterning and control</u> <i>What you are likely to see</i>	<u>Good patterning and control</u> <i>What you should see</i>
<p>Inner Unit Control</p>	<p>Single Leg Squat to Box (or assisted) Progression:</p> <ul style="list-style-type: none"> - Squat to box - Squat to box streamline arms <p>Cues: <u>Feet:</u> Heel pushing into ground on the way up <u>Gluts:</u> Squeeze on the way up <u>Hips:</u> Reach hips/butt back to box <u>Core:</u> Braced <u>Chest:</u> Up</p>	<p>Trunk: Flexed/rounded Lumbar Spine: Excessive lumbar flexion Hips: Rotated and/or tilted Knees: Caving inwards Balance: Poor</p>	<div> </div> <p>Trunk: Straight and 'active' Lumbar Spine: Neutral and core braced Hips: Level/straight or 'square' Knees: Track in alignment with toes, over heel Balance: Good</p>

Postural Control

Single Leg Bend (aka SLRDL)

Progressions:

- Assisted/Supported
- Arms in streamline
- Free/Fly Arms in bent position

Cues:

Support Leg: Slightly bent, glut strong/active

Free Leg: Activate glut, drive heel away from body

Core: Braced

Trunk: Chest up/Straight

Trunk: Flexed/rounded

Hips: Rotated

Lumbar Spine: Excessive lumbar flexion

Knees: Caving inwards or locked out

Balance: Poor



Trunk: Long/Straight

Hips: Flat/Parallel to ground

Lumbar Spine: Neutral

Knees: Slightly bent and stable

Balance: Good

Postural
Strength

**Single Leg Squat
(aka Pistol Squat)**

Progression:

- ½ squat
- Full squat
- Squat with streamline arms

Cues:

Feet: Heel pushing into ground on the way up

Gluts: Squeeze on the way up

Hips: Reach hips/butt back

Core: Braced

Chest: Up

Trunk: Flexed/rounded

Lumbar Spine: Excessive lumbar flexion

Hips: Rotated and/or tilted

Knees: Caving inwards

Balance: Poor



Trunk: Upright/Straight

Lumbar Spine: Neutral

Hips: Stable/Even

Knees: Stable

Balance: Good

***Shoulder packing or setting** ensures the shoulder is kept in the proper position to be at its strongest and safest position during all movements. To pack or set the shoulders, the athlete needs to be able to find a '**neutral shoulder position**'.

Basic cues are to pull the shoulders back and down, while still allowing the scapula to rotate normally.

Slow controlled movements are advised throughout for all of the above exercise.

Notes:

Athletes should be able to **perform 3 sets of 12-15 reps** with perfect form and control before progressing to the next level.

Resource developed by Marissa Downes, HPSNZ Lead Strength and Conditioning Specialist for SNZ.

Special thanks to Matt Kritz, Director Strength & Conditioning for HPSNZ & Jordan Salesa, Key Provider Physiotherapy SNZ, Stephen Buckley, HPSNZ Strength & Conditioning Specialist, The Breakers and Steven Kent, HPC SNZ athlete for their time and input into this resource.

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