



## **ARU Strength & Conditioning for Adolescent Rugby Players**

### **Guidelines for Coaches, Strength & Conditioning Personnel and Players**

Players require an athletic and robust body in order to handle the demands of rugby. This will enable players to respond positively to high training loads and maintain an injury free body.

The ARU have developed a Long-term player development (LTPD) strength and conditioning curriculum to provide guidance to strength and conditioning coaches in the development and implementation of training programs for Australian rugby players. The aim of this curriculum is to provide a pathway in athletic development for players from the introductory level through to the highest level of international competition.

Within this pathway, athletes progress through levels of development and stages of learning. Consideration of an athlete's level of development is essential when developing and implementing strength and conditioning activities to ensure optimum development.

The objective of this curriculum is to provide a systematic approach to athletic development in each trainable physical quality:

- Strength
- Speed
- Endurance
- Flexibility

## **Strength Development Guidelines**

Strength training of the lower and upper body is a vital physical quality essential for rugby, in order to withstand internal and external forces associated with the game. It is strongly recommended that players achieve mastery of bodyweight strength training movements before progressing to programs incorporating the use of barbells and other external load implements.

The following pages provide the ARU movement screen and examples of strength training programs appropriate for rugby players at the introductory and learning levels of physical development.

For optimal development players should develop mastery of each program before progressing towards more advanced programs. Movement competency exercises should be mastered prior to progressing to more traditional lifting programs.

Depending upon physical ability players may spend between 6 and 26 weeks developing mastery of bodyweight exercises before progressing to the use of external load implements such as barbells and dumbbells.







# MOVEMENT SCREEN EXERCISES AND CRITERIA



Exercise	Instructions	Key Components	Score - 0	Score - 1	Score - 2
<b>Broomstick OH Squat (5 Reps)</b>	<ul style="list-style-type: none"> <li>• Head is centred</li> <li>• Movement is initiated through hips</li> <li>• Elbow s locked, bar aligned w/ih midfoot</li> <li>• Lumbar spine maintains a neutral position</li> <li>• Thighs attain parallel position</li> <li>• Heels remain on the ground</li> </ul>	Bar Alignment/Thoracic Spine	Bar aligned over midfoot	Hyperflexion - Bar behind ears	Bar in front of ears
		Squat Depth	<90°	90°-135°	135°+
		Lumbar	Neutral	Flat	Lordotic
		Movement Initiation	Hips	Hips/Knees	Knees & or Lumbar
		Knees	Aligned over 2nd toe	Unilateral misalignment	Bilateral misalignment
<b>Broomstick RDL (5 Reps)</b>	<ul style="list-style-type: none"> <li>• Head is centred</li> <li>• Trunk is straight, scapulae set, chest up</li> <li>• Bend occurs at hips not the lumbar spine</li> <li>• Knees maintain a slightly bent position</li> </ul>	Heels	Grounded	Grounded + inversion or Eversion	Lifting
		Shoulder's/Thoracic/Chest	Shoulder's held back & down, Chest up	Neutral	Shoulders elevated, thoracic kyphotic
		Lumbar	Neutral	Flat	Lordotic
		Movement Initiation	Hip	Hip/Knees	Lumbar
		Knee Bend	5°-10°	15°-30°	31°+
<b>Single Leg Squat (Bench) (5 Reps each side)</b>	<ul style="list-style-type: none"> <li>• Movement is initiated through hips</li> <li>• Lumbar spine maintains a neutral position</li> <li>• Knees aligned over 2nd toe</li> <li>• Pelvis remains parallel</li> <li>• Lower until buttocks touch bench</li> <li>• Heels remain on the ground</li> <li>• Trunk integrity maintained throughout</li> </ul>	Depth	Mild Shin and below	Below Knees	Above Knees
		Shoulder's/Thoracic/Chest	Shoulder's held back & down, Chest up	Neutral	Shoulders elevated, thoracic kyphotic
		Lumbar	Neutral	Flat	Lordotic
		Movement Initiation	Hips	Hips/Knees	Knees &/or Lumbar
		Knee Alignment	Aligned over 2nd toe	Mild misalignment	Major misalignment
<b>A-Lunge with Twist (3 Reps each side)</b>	<ul style="list-style-type: none"> <li>• Arms held across shoulders elbow s up</li> <li>• Static 'A' position to lunge</li> <li>• Stride length equates 90°/90° front &amp; back legs</li> <li>• Front knee behind line of toes</li> <li>• Back foot positioned on forefoot</li> <li>• Head centred, trunk stable</li> <li>• Rotate towards front leg through thoracic spine</li> <li>• Lumbar neutral - resisting rotation</li> <li>• Balance is maintained throughout movement</li> </ul>	Heel	Grounded	Grounded + inversion or Eversion	Lifting
		Hip Alignment	Parallel	Mild Hip Drop	Major Hip Drop
		Shoulder's/Thoracic/Trunk	Shoulder's held down & back - Trunk upright - Rotation occurs at Thoracic	Shoulder's held down & back - Trunk upright - Rotation occurs at Thoracic	Poor shoulder/thoracic control - Loss of trunk alignment
		Lumbar	Neutral - resisting rotation	Neutral - slight rotation	Poor Lumbar control
		Hips	Horizontally aligned & resisting rotation	Horizontally aligned w/ih slight rotation	Poor hip control
<b>Feet</b>	<ul style="list-style-type: none"> <li>• Balance maintained for both sides</li> <li>• Lead thigh parallel w/ih around - both sides</li> <li>• High on A-Stance - Aligned w/ih hips and feet - both</li> <li>• Front foot flat on floor - trail foot balanced on forefoot - Both sides</li> </ul>	Balance	Balanced maintained for both sides	Balanced maintained on one side but not the other	Balance lost on both sides
		Depth	Lead thigh parallel w/ih around - both sides	Lead thigh parallel w/ih around - one side only	Neither lead thigh parallel w/ih around
		Knees	High on A-Stance - Aligned w/ih hips and feet - both	High on A-Stance - Aligned w/ih hips and feet - one	Poor height on A-stance and alignment - bilaterally
		Feet	Front foot flat on floor - trail foot balanced on forefoot - Both sides	Front foot flat on floor - trail foot balanced on forefoot - One side only	Poor foot control - both sides

## MOVEMENT SCREEN EXERCISES AND CRITERIA



Exercise	Instructions	Key Components		Score - 0	Score - 1	
<b>Single Leg Calf Raise (Max Reps each side)</b>   	<ul style="list-style-type: none"> <li>Standing upright, edge of box/step</li> <li>Heel down n, leg straight</li> <li>1 sec down n, 1 sec up</li> <li>Full controlled range</li> <li>Pelvis remains parallel</li> </ul>	<b>Range</b>	Full Controlled Range	Reduced Range		
		<b>Knee</b>	Knee Straight	Knee Bent		
		<b>Head, Hip, Knee, Ankle Alignment</b>	Aligned	Not Aligned		
		<b>Hips</b>	Parallel	Hip Drop		
		<b>Reps</b>	5+	<5		
<b>Push Up (5 Reps)</b>   	<ul style="list-style-type: none"> <li>Head centred and held stable</li> <li>Shoulders held down n and aw ay from the ears</li> <li>Elbow s at 90° at bottom position</li> <li>Lumbar spine in neutral position</li> <li>Obvious scapulae control</li> <li>Gluteals activated</li> <li>Legs straight &amp; stable</li> </ul>	<b>Head</b>	Centred	Not Centred		
		<b>Shoulders/Thoracic</b>	Shoulders down & back - Scapulae moving in balanced & rhythmic motion	Shoulders elevated &/or poor scap control		
		<b>Lumbar</b>	Neutral & Stable	Lordotic &/or unstable		
		<b>Hps, Knees, Ankes, Feet Alignment</b>	Aligned	Not Aligned		
		<b>Range and Reps</b>	Chest to Floor (10+)	Chest off floor &/or <10		
<b>45° Pull Up (5 Reps)</b>   	<ul style="list-style-type: none"> <li>Head centred &amp; held stable</li> <li>Shoulders held down n &amp; aw ay from the ears</li> <li>Head, shoulders, hips &amp; feet maintain alignment</li> <li>Lumbar spine in neutral position</li> <li>Elbow s approx 90° at top, bar to nipple line</li> <li>Obvious scapulae control</li> <li>Pull Up and lower in a controlled manner</li> </ul>	<b>Head</b>	Centred	Not Centred		
		<b>Shoulders/Thoracic</b>	Shoulders down & back - Scapulae moving in balanced & rhythmic motion	Shoulders elevated &/or poor scap control		
		<b>Lumbar</b>	Neutral & Stable	Lordotic &/or unstable		
		<b>Hps, Knees, Ankes, Feet Alignment</b>	Aligned	Not Aligned		
		<b>Range and Reps</b>	Chest to Bar (10+)	Chest not to bar &/or <10		
<b>Static Holds - Prone and Side (60s each)</b>	<ul style="list-style-type: none"> <li>From forearms &amp; toes (Prone)</li> <li>Head centred - looking down n</li> <li>Shoulders held down n &amp; aw ay from the ears</li> <li>Lumbar spine neutral &amp; gluteals activated</li> <li>Body in line</li> <li>From forearms &amp; feet (Side)</li> <li>Free arm in line with body</li> <li>Body in line</li> <li>Shoulders held down n &amp; aw ay from ears</li> <li>Support arm at 90° to the body</li> <li>Lumbar spine neutral and gluteals activated</li> </ul>	<b>PRONE</b>				
		<b>Head</b>	Neutral - looking down n	Not Aligned		
		<b>Shoulders/Thoracic</b>	Shoulders down & back	Shoulder elevated &/or kyphotic thoracic spine		
		<b>Lumbar</b>	Neutral	Lorditic		
		<b>Hips</b>	Aligned	Rotated		
		<b>Head-Trunk-Hips-Legs-Feet Alignment</b>	Aligned	Not Aligned		
		<b>SIDE</b>				
		<b>Head</b>	Centred	Not Aligned		
		<b>Shoulders/Thoracic</b>	Shoulders down & back	Shoulder elevated &/or kyphotic thoracic spine		
		<b>Head-Trunk-Hips-Legs-Feet Alignment</b>	Aligned	Not Aligned		
		<b>Trunk-Pelvis-Legs Rotation</b>	Perpendicular	Rotated		

# BODY WEIGHT STRENGTH & POWER DEVELOPMENT CIRCUITS

## SESSION 1

	Exercise	Repetitions/Sets
A1	Standing Long Jump- 2 foot take off, jump as far as you can, emphasise soft landing	5 jumps X 3 sets
A2	Clap push-ups- Start from knees emphasising quick ground contact time. Progress to toes	5 push-ups X 3 sets

**Perform 1 set of each exercise straight after one another then have 60s recovery. Repeat for the 3 sets**

B1	Push-ups- Vary hand positions (close/wide/medium)	Max X 3-5 sets
B2	Walking lunge	10 each leg X 3-5 sets
B3	Seated straight arm explosive rotation	15 rotations each side X 3-5 sets
C1	Chin-ups- vary between reverse grip & overhand grip	Max X 3-5 sets
C2	Deep body weight squats	20 X 3-5 sets
C3	Front Bridge- on hands	60s hold X 3-5 sets

Perform B1, B2 & B3 1 after the other with no recovery. Have 60s recovery then repeat for the 3-5 sets on each exercise. Do the same for C1, C2 & C3

## SESSION 2

	Exercise	Repetitions/Sets
A1	Rebound Jumps- Complete 5 jumps in a row emphasis on jumping as high as possible each jump & minimising ground contact time. "Spring off the ground"	5 jumps X 3 sets
A2	Lateral Line Jumps- Hop side to side across a line emphasis on minimising ground contact time. "Spring off the ground"	5 contacts each leg X 3 sets

**Perform 1 set of each exercise straight after one another then have 60s recovery. Repeat for the 3 sets**

B1	Burpees- Chest to ground then max effort jump for height	6 burpees X 3-5 sets
B2	Full sit-ups- Hug your knees	10 X 3-5 sets
B3	Push-up then jump to chins	2 push-ups then jump to 2 chins 4 X 3-5 sets
B4	Seated arm swings- Full relaxed arm swings	20 swings each arm X 3-5 sets
B5	Power skips- Explosive skips with focus on "spring off the ground"	8 contacts each leg X 3-5 sets
B6	Side bridge- on hands	45s holds X 3-5 sets

Complete B1-B6 one after the other moving between each exercise with no recovery. Once you have completed B6, have 60s recovery then start again. Repeat this until you have completed 3-5 sets on each exercise

## NOTES

Perform the exercises with the same letters together 1 after the other

Complete the warm-up exercises outlined on the previous page prior to these sessions

Complete 3-5 sets on each exercise, depending on how you are feeling each day you train

When you start to feel stronger doing each exercise increase the number of repetitions you do- eg: increase from 10 to 15 repetitions

Emphasis should be on correct technique each and every rep- Don't get lazy with technique, especially when you start to fatigue

Complete the flexibility exercises outlined on the next page after each training session

## 2 day/week strength program

### Session 1

Exercise	Repetitions/Sets
<b>A1</b> DB Squat Jump - hold 5-15kg DBs in hands, 2 foot take off, jump as high as you can, emphasise soft landing	5 jumps X 3 sets
<b>A2</b> Rear foot elevated split squat (rear foot up on a box)	6 each leg X 3 sets

Perform 1 set of each exercise straight after one another then have 60s recovery. Repeat for 3 sets

<b>B1</b> Front Squat - Emphasise technique - Chest & elbows up, Depth focus - hips below knees	4-6 reps X 4-5 sets
<b>C1</b> Bench Press	6-8 reps X 3-4 sets
<b>C2</b> Bench Pull or Bent over row	6-8 reps X 3-4 sets
<b>D1</b> Feet elevated push up	10-15 reps X 3 sets
<b>D2</b> Feet elevated lying pull up	10-15 reps X 3 sets
<b>D3</b> Side Bridge	60s each side X 3 sets

Perform B1 on its own with 90s recovery between sets. Perform C1 & C2 after the other with no recovery. Have 60s recovery then repeat for 3-4 sets. Do the same for D1, D2 & D3

Perform the exercises with the same letters together one after the other

Complete a thorough warm up prior to these sessions

When you start to feel stronger doing each exercise increase the number of repetitions you do - eg: increase from 10 to 15 repetitions

Emphasis should be on correct technique each and every rep - Don't get lazy with technique, especially when you start to fatigue

Complete the flexibility exercises outlined in this booklet after each training session

### Session 2

Exercise	Repetitions/Sets
<b>A1</b> Standing long jumps (2 fwd, 1 back, 1 fwd), 2 foot take off, jump as far as you can, emphasise soft landing.	4 jumps (one series) X 3 sets
<b>A2</b> Front loaded Side Lunge - hold 10-15kg DBs in rack position, exaggerated step sideways, push hip back	6 each leg X 3 sets

Perform 1 set of each exercise straight after one another then have 60s recovery. Repeat for 3 sets

<b>B1</b> Deadlift	4-6 reps X 4-5 sets
<b>C1</b> Military Press	6-8 reps X 3-4 sets
<b>C2</b> Chin ups	6-8 reps X 3-4 sets
<b>D1</b> Hamstring Bridge (feet on bench)	10-15 reps X 3 sets
<b>D2</b> Push up + rotation	6-8 reps each side X 3 sets
<b>D3</b> Alternate Arm-Leg raises - on hands and knees - lift one arm & opposite leg off the floor, return to floor and repeat with opposite arm & leg	60s each side X 3 sets

Perform B1 on its own with 90s recovery between sets. Perform C1 & C2 after the other with no recovery. Have 60s recovery then repeat for 3-4 sets. Do the same for D1, D2 & D3

# Speed & Agility Development Guidelines

The ability to be fast and agile is a skill and relies heavily on the ability of the individual to produce efficient and effective muscular actions. Adolescent rugby players require consistent and frequent exposure to speed and agility practice in order to develop this skill. An effective way to implement this is multiple short speed sessions per week. These sessions can be short in duration (< 20mins) and should focus on quality of movement rather than quantity. For example performing 4 sprints over 20 metres in a minimally fatigued state, where full effort can be given, will be more effective for developing acceleration speed than performing 8 sprints in a fatigued state.

## Acceleration & Maximum Velocity Sessions

### WARM UP

- Before you begin any of these sessions it is important that you spend at least 10-minutes warming up and getting your body ready to work at the intensity required during these sessions
- Training to improve your acceleration and speed requires you to perform each effort during the session at a maximal intensity, therefore your body needs to be prepared to operate at this level to ensure you do not suffer any injuries
- You should complete a warm-up along the same structure that is used prior to our usual trainings. Examples include:

**Easy jog & skip 300m** - Alternate efforts of 50m skipping and jogging up and back a rugby field

**A-Skips over 20m** - Complete 3 X 20m with an easy low skip back to the start each time. Concentrate on keeping upper body up right (tall posture), relaxed full arm swing from the shoulders, punching your feet into the ground, big split between legs each skip

**Carioca over 20m** - Running sideways concentrating on accelerating rear knee through with each stride and getting separation between torso and lower body

**High knee runs over 20m** - Complete 3 X 20m with an easy skip back to the start line each time - Focus on keeping upper body up right (tall posture), relaxed arm drive with the swing coming from the shoulders, powerful foot contact with the ground, quick foot contact with the ground, toe up on foot contact with the ground

**Butt kick runs over 20m** - Complete 3 X 20m with an easy skip back to the start line each time - Focus points as outlined above but this time kicking heels back up towards butt

**Walking lunges** - Complete 5 walking lunges each leg - Focus on keeping upper body upright, feeling a stretch in the hip flexor and quadriceps in your back leg and the hamstring in your front leg each lunge, hold the bottom lunge position for 2 seconds each time



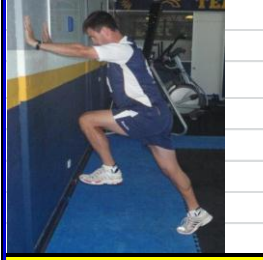
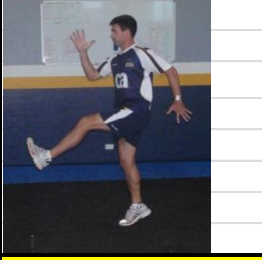

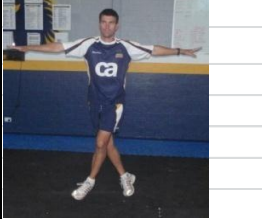
**Frankenstein marches** - Complete 5 marches each leg - Focus on keeping upper body upright while kicking 1 leg out in front of you. Don't kick too high each time, just high enough that you can feel a stretch in the hamstring of the leg you are kicking out

### **Sub maximal accelerations**

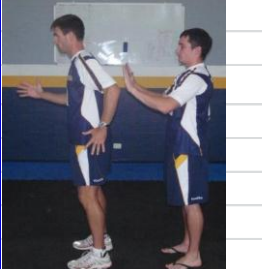
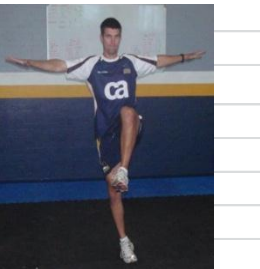



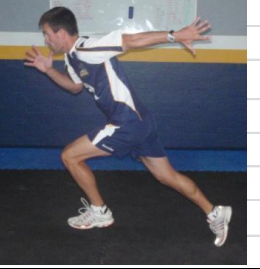

- Perform **2 X 20m** accelerations at approximately 80-90% of your maximum speed with an easy skip back to the start line each time
- Perform **2 X 30m** accelerations at approximately 80-90% of your maximum speed with an easy skip back to the start line each time
- Perform **2 X 40m** accelerations at approximately 80-90% of your maximum speed with an easy skip back to the start line each time

**Stretch-** Have a final stretch of each of the major muscle groups of the lower body - Glutes, hamstrings, quadriceps, hip flexors, inner thighs (groin), calves.

## Speed Tech Warm Up

Leg Cycles	<i>Description - key points</i>	A Skip	<i>Description - key points</i>
	<p><i>Pull heel straight up</i>  <i>Toe up, Knee up</i>  <i>Tight trunk position</i>  <i>Look forward</i>  <i>Cycle leg thru</i>  <i>Aggressive pull thru</i>                      Do x 10 each leg</p>		<p><i>Lean and posture</i>  <i>Arm action</i>  <i>Slow to fast ground strike</i>  <i>Maintain space</i>  <u><i>Rythm</i></u>                      2 x15m - walk back</p>
Wall Static A	<i>Description - key points</i>	Russian March	<i>Description - key points</i>
	<p><i>Triple extension - ankle,knee,hip</i>  <i>Toe up, Knee up</i>  <i>Tight trunk position</i>  <i>Look forward</i>  <i>Maintain space</i>  <i>Quick change of support</i>                      Do x 10 each leg</p>		<p><i>Straight legs</i>  <i>Contact with ball of foot</i>  <i>Strong arm action</i>  <i>Maintain space</i>                      2 x15m - walk back</p>
Seated Arm Action	<i>Description - key points</i>	Low Carioca	<i>Description - key points</i>
	<p><i>Elbows at 90 deg</i>  <i>Back drive as important as front</i>  <i>Sit tall</i>  <i>Head up</i>  <i>Hand should brush floor</i>                      3 x 15sec increase tempo</p>		<p><i>Shoulders Square</i>  <i>Quick feet in and out</i>  <i>Stay on toes</i>  <i>Rotate pelvis using trunk muscles</i>                      2 x15m es - walk back</p>



Elbow Boxing	Description - key points	High Knee Carioca	Description - key points
	<p>Rear drive action emphasis Set posture tall Head up Relax shoulders No trunk rotation</p> <p>3 x 15sec increase tempo</p>		<p>Sit tall Leg drive up Snap the knee down Maintain space</p> <p>2 x15m es - walk back</p>
Toe March	Description - key points	Tall Falls	Description - key points
	<p>Toe up Dorsi flex to Triple extension Arm mechanics</p> <p>2 x10m - walk back</p>		<p>Stand Tall Rise up on the balls of the feet Fall to 45 Maintain Triple extension Maintain space &amp; posture Do x 10</p>
Stiff Leg Run	Description - key points	Split Stance Starts	Description - key points
	<p>Toe up Dorsi flex to Triple extension Activate from Glutes Stay tall Balls of feet</p> <p>2 x10m - walk back</p>		<p>As for Falls Aggressive arm drive First step quicknes Long first step under body</p> <p>4x10m - walk back</p>
Low Skip	Description - key points	<p><b>It is recommended that you complete this session prior to any running sessions e.g. speed, plyometrics, conditioning, skills</b></p>	
	<p>Toe up Dorsi flex to Triple extension Stay tall Aggressive ground strike Rythym</p> <p>2 x10m - walk back</p>		

## **SESSION 1 - ACCELERATION**

Pace out and place a marker at **10m/15m/20m**

### **Rolling start efforts -**

- Here each effort begins with an easy 5m jog to the start line
- When you hit the start line accelerate as hard as you can through to the 10m marker
- Make sure you run past the marker each time and come to a gradual stop rather than trying to slow down as quickly as you can
- Have an easy walk back recovery between each effort
- Remember each effort must be performed at a maximal intensity so run as fast as you can each time. Focus on a fast powerful arm drive during the efforts as leg speed is dictated by your arm speed. Keep your torso strong each time and keep shoulders relaxed. Make sure arm drive is not across your body, keep it linear
- Complete 5 efforts at each distance - **225m**

3-minute recovery/drink

### **Standing start efforts -**

- This time you will begin each effort with a standing start
- Complete 5 efforts at each distance- **225m**

**Total session distance (excluding warm-up) - 450m**

At the completion of the session make sure you have a very good stretch of all the major muscle groups of the lower body. Spend at least 10-minutes going through these stretches.

## **SESSION 2 – MAXIMUM VELOCITY**

### **Warm-up**

- As outlined above

Pace out and place markers at **40m/50m/60m**

### **Rolling start efforts -**

- As above each effort begins with an easy 5m jog to the start line
- When you hit the start line accelerate as hard as you can through to the 40m marker
- Make sure you run past the marker each time and come to a gradual stop rather than trying to slow down as quickly as you can
- Have an easy walk back recovery between each effort
- With these longer efforts you will need to concentrate on maintaining your sprint form throughout the duration of each effort. When you begin to fatigue you will tend to get lazy with your technique and this will cause you to run slower
- Complete 3 efforts at each distance - **450m**

3-minute recovery/drink

### **Standing start efforts -**

- This time you will begin each effort with a standing start
- Complete 3 efforts at each distance - **450m**

**Total session distance (excluding warm-up) - 900m**

As above, take 10-minutes and have a good stretch of all the major muscle groups of the lower body.

## **SESSION 3 – ACCELERATION & CHANGE OF DIRECTION**

### Warm-up

- As outlined above

Place markers at **5m/10m/20m**

### **Forwards/Backwards change of direction –**

- Starting on the try line on your stomach, get up as quickly as you can and accelerate through to the 5m line
- Stop as quickly as you can once you pass the 5m line- When training to stop quickly focus on dropping your hips and taking short, quick strides
- Accelerate backwards to the try line as quickly as you can
- Once you reach the try line accelerate forwards as fast as you can to the 20m marker
- The idea of this drill is to cover the total distance as quickly as you can - Distance of each effort is **30m**
- Easy walk back to the start - Repeat X 5- **150m**
- Start from different body positions for each effort- stomach, back, sitting, kneeling, standing  
3-minute recovery/drink
- Repeat X 5 efforts - **150m**

### **Acceleration + Left/Right Change of Direction**

- With a 5m rolling start accelerate hard through to 10m
- At the 10m marker cut hard to either the left or right and continue to accelerate as hard as you can for 5m
- When you change direction concentrate on maintaining stride rate (don't slow down)
- Plant your outside foot hard and drive off
- Keep arm drive fast and strong
- Distance of each effort is **15m**
- Easy walk back recovery between each effort- Repeat X 5 - **75m**  
3-minute recovery/drink
- Repeat X 5 efforts - **75m**

**Total session distance (excluding warm-up) - 450m**

As above, take 10-minutes and have a good stretch of all the major muscle groups of the lower body.

## Energy Systems Development

Rugby is a sport which requires a multi-faceted approach to energy systems development. A comprehensive energy systems development program should include running activities, players getting up and down off the ground, wrestling/competing for the ball, and game-like situations. This will allow players to develop an energy systems profile suitable for performing the required tasks during a game.

Consideration of rugby game demands and the level of athlete you are working with will ensure the specificity of energy system development and transfer to game environments.

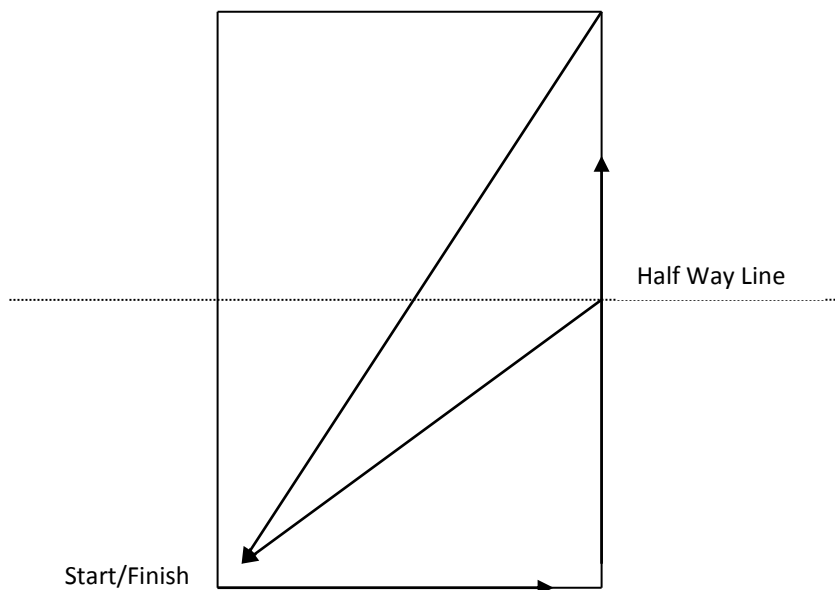
# Energy Systems Development Sessions

## WARM UP

- Always complete at least a 10-minute warm-up prior to beginning your session
- Running of gradually increasing intensity as well as dynamic stretching such as –
  - Roll to hamstring stretch X 10
  - Lying rotations- 5 each side on your back then rolling onto your stomach for 5 each side
  - Hamstring/Hip flexor stretch- 5 each leg holding for 2s in each position
  - 10 ½ push-ups- keeping hips and legs on ground while pushing your upper body up
  - 10 leg swings each side gradually increasing force of swing
  - 5 walking lunges each side
  - 5 walking leg kicks each side

## SESSION 1

**Big/Small Triangles**



- For the first set of intervals you are completing 1 field width-1 full field length-1 diagonal back to the start. This adds up to **292m**
- Complete **5 X 292m** intervals
- Run each interval hard while concentrating on holding good form right through each effort

Begin each new interval on:

**Props/Hookers/Locks- 2min30sec**

**Backrow/Backs- 2min**

**3 minute recovery/drink**

For the next 10 intervals you are completing 1 field width-1/2 a length- 1 diagonal back to the start. This adds up to **206m**

Complete **10 X 206m** intervals

Begin each new interval on:

**Props/Hookers/Locks- 1min45sec**

**Backrow/Backs- 1min15sec**

**Session total - 3520m**

## SESSION 2

### **Set 1 - 10 X 100m**

Beginning each interval on 60s

Aim to complete each interval in -

**Props/Hookers - 20-25s**

**Locks/Backrow/backs - 16-18s**

2 minute recovery/drink

Repeat 10 X 100m

2 minute recovery/drink

### **Set 2 - 10 X 50m**

Beginning each interval on 30s

Aim to complete each interval in -

**Props/Hookers/Locks - Under 10s**

**Backrow/Backs - Under 8s**

90 second recovery/drink

Repeat 10 X 50m

**Session total - 3000m**

## SESSION 3

### **Set 1 - 10m drill**

Start on the 10m line

Sprint to the ½ way line & back to the 10m

Sprint to the far 10m - drop to the ground touching your chest to the line - sprint back to the start

The distance you are sprinting each time is **60m**

Complete each sprint in the fastest speed possible each time

Repeat 5 repetitions starting each new interval on 45s

90 second recovery/drink

Repeat 3 sets of 5 repetitions with 90s recovery between each set of 5

2 minute recovery/drink

### **Set 2 - 22m sprint repeats**

6 X 22m starting each interval on 20s

90 seconds recovery

4 X 22m starting each interval on 20s

90 seconds recovery

6 X 22m starting each interval on 20s

2 minute recovery/drink

**Repeat Set 1**

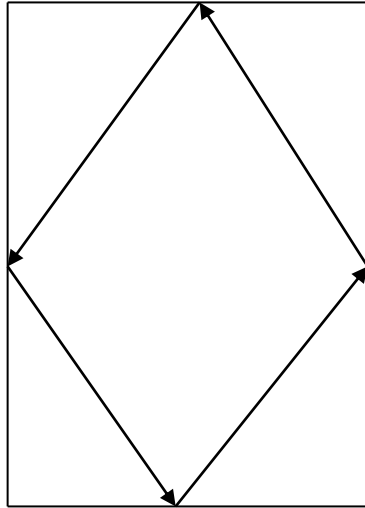
**Session total - 2152m**

## SESSION 4

### **Diamond run**

Starting under the goal posts at 1 end

The course is a diagonal run from centre field under the posts out to a cone at the intersection of the  $\frac{1}{2}$  way line and the side line, diagonal into the centre under the goals posts at the other end, diagonal out to a cone at the intersection of the  $\frac{1}{2}$  way line and the side line then back to your start position under the goal posts.



Follow the arrows in the diagram above

**Each round is 244m**

Complete 5 diamonds

Begin each new interval on:

**Props/Hookers/Locks- 2min15sec**

**Backrow/Backs- 1min45sec**

Complete each interval as fast as you can each time, aiming to minimise the decrement over the 5 repetitions

3 minute recovery/drink

**Repeat 5 diamonds**

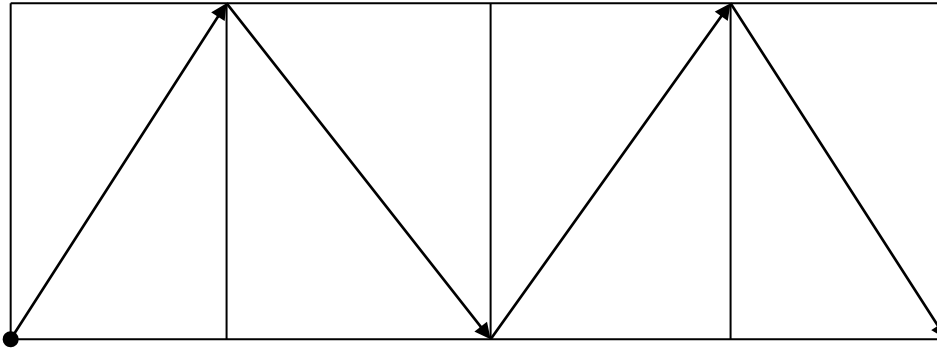
3 minute recovery/drink

**Repeat 5 diamonds**

**Session total - 3660m**

## SESSION 5

### Full field Zig-Zag



Follow the arrows in the diagram above

Place markers of some type at each change of direction as in the above diagram (try line/22m line/1/2 way line/22m line/try line)

Begin in 1 corner of the field

Follow the lined arrows as in the diagram above, covering the distance as quickly as you can

Aim to accelerate hard out of each corner

**Each full field zig-zag is 296m**

Complete **5 X 296m** with **90s recovery** between each effort

**3 minute recovery/drink**

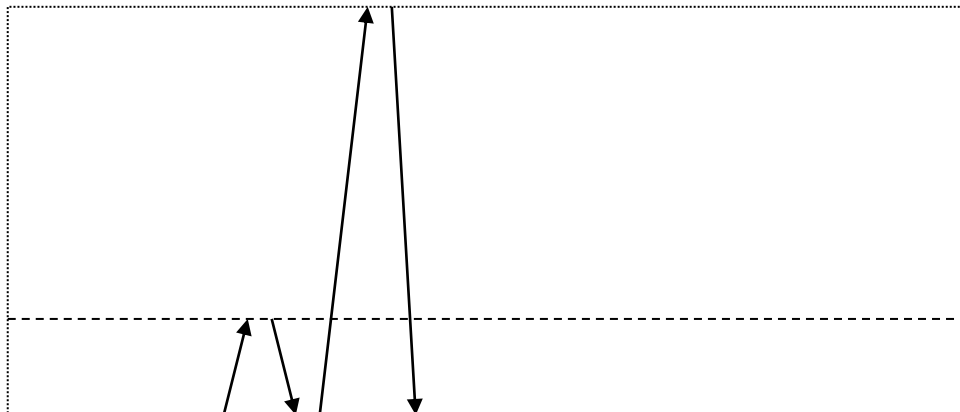
Repeat **5 X 296m** with **90s recovery** between each effort

**Session total - 2960m**



## SESSION 6

### Width shuttle



Follow the arrows in the diagram above

Begin on the side line

Sprint to the 15m line and drop to the ground

Perform a push-up then get up as quickly as you can and sprint back to the sideline

Perform a push-up then get up as quickly as you can and sprint to the far sideline

Accelerate as fast as you can out of the turn and sprint back to the start

Each repetition is **170m**

Complete **5 X 170m** beginning each new effort on 90s

**90 second recovery**

Repeat **3 sets of 5 X 170m** efforts (so in total for the session you will complete **15 X 170m**)

Have **90 seconds recovery** between each set of 5 X 170m

**Session total - 2550m**

## **SESSION 7**

**400m effort** (4 lengths of the field)

Begin next effort on 4-minutes

**400m effort**

Begin next effort on 4-minutes

**300m effort** (6 X 50m)

Begin next effort on 3-minutes

**300m effort**

Begin next effort on 3-minutes

**200m effort** (2 lengths of the field)

Begin next effort on 2-minutes

**200m effort**

Begin next effort on 2-minutes

**100m effort** (50m up & back)

Begin next effort on 60s

**100m effort**

**3-minute recovery/drink**

**Repeat**

Aim is to run each effort as hard as you can - recoveries are set at a time that should allow you to maintain leg speed throughout each effort

**Session total - 4000m**

## **SESSION 8**

**5 X 200m efforts**

Alternate between 50m up & back repeats and 100m up & back repeats

Begin each new effort on 2-minutes

**90s recovery/drink**

**5 X 200m efforts**

Begin each new effort on 90s

**90s recovery/drink**

**5 X 200m efforts**

Begin each new effort on 2-minutes

**Session total - 3000m**

## Flexibility

There are a number of reasons for the maintenance of positive flexibility to achieve optimal performance. These reasons are:

1. Joint range of movement and integrity
2. Muscle suppleness and prevention of negative muscle tightness
3. Postural awareness and understanding of segment and muscle interaction
4. Injury prevention
5. Recovery/ cool-down
6. Warm up (neural activation)









In order to achieve this, a number of techniques are used:

1. Static
2. Dynamic
3. Neural
4. Massage

## FLEXIBILITY 1 - "GO TO" STATIC





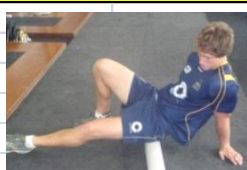
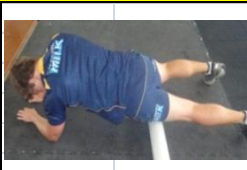



Low Back/Glute	Description - key points	Calf - straight leg	Description - key points
	<p>Legs crossed Push head to the floor Reach forward with arms Cross legs opposite way</p>		<p>Push Up position Straight leg Heel on the ground Straight back</p>
Hamstring	Description - key points	Calf - bent leg	Description - key points
	<p>Straight leg Other leg bent into the side Push chest towards the toe Keep back flat</p>		<p>Foot in line with opposite knee Weight over knee Push knee forward Keep heel flat on ground Lift toes for extra stretch</p>
Glute/Hip flexor	Description - key points	Hip flexor/Quad	Description - key points
	<p>Pull knee to chest Head down Opposite leg straight to floor Toe pointed back</p>		<p>Front knee at 90 deg Tilt hips under Push hips forward Reach high with arm</p>
Hamstring	Description - key points	Lats	Description - key points
	<p>Neural glides Straighten and relax hamstring Shoulders &amp; head back <u>Do not</u> hold at end point</p>		<p>Reach out long with arms Back flat Push arm pits to the ground Don't sit back</p>
Low Back	Description - key points	Pecs	Description - key points
	<p>Pull straight leg across body Other leg straight Shoulders and head back Opposite arm out to side</p>		<p>Reach out to the side Look under other arm Push arm pit to the ground Don't sit back</p>
Low Back	Description - key points	Upper back	Description - key points
	<p>Neural glides Hands under shoulders Straighten arms Hips stay on the ground <u>Do not</u> hold at end point</p>		<p>Reach under other arm Look under other arm Push arm pit back &amp; down Don't sit back</p>

## FLEXIBILITY 2 - STRETCH BANDS

Hamstring	<i>Description - key points</i>	Hip flexor/Quad	<i>Description - key points</i>
	<p><i>Band over foot</i></p> <p><i>Hold band in 2 hands</i></p> <p><i>Pull elbows to floor</i></p> <p><i>Pull foot towards head</i></p>		<p><i>Front knee at 90 deg</i></p> <p><i>Tilt hips under</i></p> <p><i>Push hips forward</i></p> <p><i>Pull band tight over shoulder</i></p>
Adductor	<i>Description - key points</i>	Lats	<i>Description - key points</i>
	<p><i>Slide same hand along band</i></p> <p><i>Other leg straight</i></p> <p><i>Keep hips down</i></p> <p><i>Pull leg up towards ear</i></p>		<p><i>Reach out long with arms</i></p> <p><i>Band around pole</i></p> <p><i>Sit back to squat</i></p> <p><i>Keep back flat</i></p>
Glute/Low back	<i>Description - key points</i>	Pecs	<i>Description - key points</i>
	<p><i>Slide same hand along band</i></p> <p><i>Pull the leg across body</i></p> <p><i>Keep shoulders down</i></p> <p><i>Pull leg up towards ear</i></p>		<p><i>Band around pole</i></p> <p><i>Arms stretched back behind</i></p> <p><i>keep body log and strong</i></p> <p><i>Lean forward into stretch</i></p>
Hamstring	<i>Description - key points</i>	Should/Lats	<i>Description - key points</i>
	<p><i>Neural stretch</i></p> <p><i>Legs straight</i></p> <p><i>Chin to chest</i></p> <p><i><u>Do not</u> hold at end point</i></p>		<p><i>Band on high bar</i></p> <p><i>Pull band with straight arms</i></p> <p><i>Arms above head</i></p> <p><i>Lean forward into stretch</i></p>

Players should hold each stretch for 6-8 breaths  
 Players should aim to increase their range of stretch with each exhalation

## FLEXIBILITY 3 - PIPES

<b>Calves</b>	<i>Description - key points</i>	<b>Thoracic Spine</b>	<i>Description - key points</i>
	Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work the length of the calf		Breath out as you roll Roll 4-6 times Stretch above head with arms Move from ribs through shoulder Rock using legs
<b>Hamstring</b>	<i>Description - key points</i>	<b>Hip flexor/Quad</b>	<i>Description - key points</i>
	Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work from knee to glute Support weight on hands		Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work right thru the hip Support weight on hands
<b>Glute</b>	<i>Description - key points</i>	<b>Quad</b>	<i>Description - key points</i>
	Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Lean to one side Support weight on hands		Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work hip thru to knee Support weight on hands
<b>Low back</b>	<i>Description - key points</i>	<b>ITB</b>	<i>Description - key points</i>
	Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work from glute to ribs Rock using legs		Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work the length of the ITB Support on arm and bent knee
<b>Upper back</b>	<i>Description - key points</i>	<b>Pecs</b>	<i>Description - key points</i>
	Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work from ribs to should blades Rock using legs		Firm roll towards the heart Roll 4-6 times Concentrate on tight areas Work from elbow to arm pit

# Recovery Toolbox

In order to maximise your gains from training it is important that you are doing all that you can to allow your body to recover during, after and between training. This following describes some different recovery options for you to try to incorporate into your training

## Recovery Non-Negotiables:

1. **Athlete Diet**
2. **Sleep - aim for 8+ hours per night**
3. **Post-Training Snack** - Good options include: Lite Yoghurt, Bananas, Up & Go, Protein Shake
4. **Hydration**

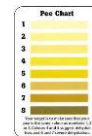


- Have 1-2 glasses of water with breakfast and continue to drink fluids around meals
- Waking urine should be pale and plenty

## TOOLS:

### Diet/Hydration:

- Pre and Post training snacks
- Weigh in pre and post training - drink 1.5x body weight lost in sweat over the next few hours
- Maintain eating/hydration plan on weekends or holidays when out of normal routine



### Compression Tights/Socks:

- Wear after training (rather than during) for at least 2 hours
- Wear to bed if possible
- Wear during any travel greater than 2 hours in duration



### Contrast or Hot/Cold Shower Options:

1. 1min Hot / 1min Cold x 5-7
2. 30s Hot / 30s Cold x 7-10
3. 2min Hot / 2min Cold x 3
4. 3min Cold / 1min Warm / 3min Cold
5. 5min Cold



### Ice Bath Options:

1. 10mins Full Body immersion
2. 1min Ice Bath / 1min Warm Shower x8-10
3. 1min Warm Shower / 3min Ice Bath x3-4
4. 2min Ice Bath / 2min Warm Shower / 5min Ice Bath x2
5. 2min Warm Shower / 2 min Cold Shower x 3



### Water Recovery Sessions:

15-20mins of light aerobic activity (eg. water running or swimming) plus dynamic and static stretching

### Massage:

- Sports Massage
- Daily Self Management - Foam Roller, Golf/Tennis Ball Triggers



### Static Stretching:

- Go To Static
- Go To Band



### Daily Monitoring of Well-Being and Training:

Keep note of each session completed and general well-being/injury status. Remember to fill in your Well-Being Sheet and send it in each week.



### Sleep:

Aim for 8hours + each night. Power Naps only if sleeping during the day (Max 30mins). Try to maintain common wake time each day, even on weekends.

### Alcohol:

Limit/avoid alcohol consumption. Full Stop. Even a couple of standard drinks can affect recovery for the next 1-2 days. Heavy consumption affects food intake, hydration status, sleep quality, hormone status (reduces testosterone = muscle building/repairing hormone) and cancels out a lot of the good work put in during the training week.