



BRITISHROWING

# Performance Talent Profiling, Benchmarking and tracking: Testing Protocols

Updated: September 2020

TEAMWORK | OPEN TO ALL | COMMITMENT



## Contents

September 2020 update.....	0
1. Introduction .....	2
2. Uploading data.....	3
3. Tests to be performed .....	4
3.1 Performance.....	4
3.1.1 2km and 5km performance tests .....	4
3.2 Anthropometry .....	5
3.3 Endurance Capacity.....	5
3.3.1 30 Minute Ergo (Rate 20) .....	5
3.4 Power Capacity .....	6
3.4.1 250m Performance Test.....	6
3.4.2 7 Power Stroke Assessment.....	6
3.5 Strength Capacity.....	7
3.5.1 Press Up Max.....	7
3.5.2 Supine Pull Max .....	9
3.6 Body Conditioning.....	11
3.6.1 Core Activation assessment .....	11
3.7 Movement Patterns.....	13
3.7.1 Squat Assessment .....	13
3.7.2 Hip Hinge Assessment.....	14
3.8 Flexibility .....	14
3.8.1 Catch Position Test.....	14
3.8.2 Thomas Test .....	16
4. Performant Talent - Record Sheet.....	19



## 1. Introduction

The information provided in this document will enable you to perform the tests required to complete a '[Rower Report](#)'. The report generated will give you a visual representation of your development, where you currently stand on ergo performance and areas of potential improvement. The results and the information given in the report should be used as an aid to help conversations between rowers and coaches about what areas you may wish to focus on.

**Figure 1.** The attributes and tests that are included in the Performance Talent Rower Report.

Performance	<ul style="list-style-type: none"><li>• 2km Ergo at Free Rate</li><li>• 5km Ergo at Free Rate</li></ul>
Anthropometry	<ul style="list-style-type: none"><li>• Height, weight and arm span</li></ul>
Endurance Capacity	<ul style="list-style-type: none"><li>• 30 minute ergo (Rate 20)</li></ul>
Power Capacity	<ul style="list-style-type: none"><li>• 250m Ergo at Free Rate</li><li>• 7 Power Stroke Assessment</li></ul>
Strength Capacity	<ul style="list-style-type: none"><li>• Press up Max</li><li>• Supine Pull Max</li></ul>
Body Conditioning	<ul style="list-style-type: none"><li>• Core Activation assessment</li></ul>
Movement Patterns	<ul style="list-style-type: none"><li>• Squat assessment</li><li>• Hip Hinge Assessment</li></ul>
Flexibility	<ul style="list-style-type: none"><li>• Catch Position test</li><li>• Thomas Test</li></ul>



The '[Rower Report](#)' focuses on the performance data for a rowers development in the early stages of the performance pathway. For documentation to assist the development of the whole rower please refer to the '[Rower Development Guide](#)' as well as '[How Much How Often](#)'

To ensure that the report contains accurate reflections of a rower's development, it is important that the data collected is of a high quality. Following the procedures provided in this booklet will ensure the collection of high-quality data, however, the quality can be compromised if the rowers do not follow the instructions below:

- **Rowers cannot be tested in a fatigued state.** It is recommended that rowers do not undertake any moderate - strenuous exercise 24 hours prior to the testing. This includes activities like heavy lifting through such activities as DIY and gardening, as well as exercises performed in the gym.
- **Two hours (approx.) before testing,** the rower should have a light meal (e.g. cereal, toast or sandwiches) and at least a litre of water. If several tests are taking place throughout a day, the rower should ensure they bring some lunch/snacks and plenty of water with them, so they are sufficiently fuelled and hydrated to perform maximally in each test.
- **The rower should refrain from alcohol 24 hours** before a testing day.

## 2. Uploading data

The '[Rower Report](#)' is only available to those who have taken part in [Performance Talent](#) activity. A link to upload data will be sent prior to the dates shown below. Data should be uploaded four times a year at the following times for each specific period.

- September 1<sup>st</sup> – 15<sup>th</sup> - Baseline Scores
- December 15<sup>th</sup> – 31<sup>st</sup> for the September - December period.
- April 1<sup>st</sup> – 15<sup>th</sup> for the January - March period.
- July 10<sup>th</sup> - 20<sup>th</sup> for the April - July period.

### General

- Upload as much data as accurately as possible that you have available to make the report as accurate and helpful as possible.
- Perform the tests to a high standard. Judge harshly but fairly in each test. If you cut corners on a test valuable information about your ability and where to place focus may be missed.

### Performance and Endurance Data

- For the following tests, the result you upload should be as the table shown below.
- These can be performed at any time during that period allowing these tests to fit in with your training schedule.
- It is important that you upload scores only performed in that period even if this is not as good as your personal best. The report should reflect your current ability, not historical.

Test	September (Baseline)	December	April	July
2km	Best score from the previous season	Best score from September to December	Best score from January to April	Best score from Apr – July
5km				N/A
30 Minute	Performed no more than 2 weeks prior to upload.			

### Anthropometry, Power Capacity, Strength Capacity, Body Conditioning, Movement Patterns and Flexibility Data

- These tests should be performed no more than two weeks prior to the upload date.

## 3. Tests to be performed

- **Notes on 'Actions to Improve'.**
  - *The results of these tests should be used to help aid the conversation between the rower and the coach.*
  - *Each piece of advice assumes that the specific test is your area in most need of improvement relative to all other testing. It suggests a method that is likely to improve your ability in that area.*
  - *There are many reasons a specific test may not be as good as you expect it to be, and many ways to improve.*
  - *These should not be used as quick fixes and any changes made to training should be thought about for the long-term benefit of the rower.*

## 3.1 Performance

### 3.1.1 2km and 5km performance tests

- Aim
  - 2K: To test your power at VO2 Max
  - 5K: To test your Anaerobic Threshold Capacity.
- Testing procedures:
  - Using a Concept 2 rowing machine.
  - From a standing start complete 2 or 5km in the fastest time possible.



- Record time taken. (MM:SS.0)
- *Actions to improve:*
  - *Focus on shorter distance ergo pieces with short rests.*
  - *By performing multiple intervals with rest time, you can spend more time practising your technique at race pace.*
  - *Examples include:*
    - *2k: 8 Weeks twice a week 6x500m 1' rest on 2k Pace.*
    - *5k: 8 Weeks twice a week 6x1km 2' rest on 2k Pace.*

## 3.2 Anthropometry

- Height
  - Recorded in CM
  - Wearing no shoes on a flat surfaced measured to the top of your head.
- Weight
  - Recorded in KG
  - Wearing an all-in-one and no shoes.
- Arm span
  - Recorded in CM
  - Measured from fingertip to fingertip along your back. Keep your back/arms as flat as possible preferably along a wall.
- *Notes for measurements.*
  - *It is best to aim to get these measurements at the same time of day. E.g. Morning.*

## 3.3 Endurance Capacity

### 3.3.1 30 Minute Ergo (Rate 20)

- Aim
  - To test your aerobic capacity
- Testing Procedure
  - Using a Concept 2 rowing machine.
  - In the single time workout menu set:
    - Time to 30 minutes
    - Split length set to 30s
  - Row for 30 minutes at the lowest split possible. The split should be a split that the rower can hold for the whole 30 minutes.
  - Record distance, 500m split, watts and average stroke rate.
  - The final average rate must be rate 20.



- *Actions to Improve:*
  - *The focus should be on ensuring you are maintaining a high-quality, high intensity work at Rate 20.*
  - *Example:*
    - *6x5' at Rate 20. 1:30 rest which can be done once a week.*
    - *If the quality of the movement falls below what is expected you should move to other cross training activity.*
  - *Performing other cross training activity (e.g. swimming, cycling or running) over a minimum of 60 minutes at a low intensity (UT2 see Rower Development Guide) can also be done to improve your overall aerobic capacity.*

### **3.4 Power Capacity**

- **Aim:**
  - To test your maximum power output.

#### **3.4.1 250m Performance Test**

- **Testing procedures:**
  - Using a Concept 2 rowing machine.
  - From a standing start complete 250m in the fastest time possible.
  - Record time taken. (MM:SS.0)
  - All strokes must be full length.
- *Actions to Improve:*
  - *Practising your technique over speed is helpful for developing max power production.*
  - *Example:*
    - *100m max effort ergo. Performed once or twice per week for 12 weeks.*

#### **3.4.2 7 Power Stroke Assessment**

- **Testing Procedure**
  - Using a Concept 2 rowing machine.
  - Before starting the test, the rower is requested to ensure that their technique is as close as possible to what they would do on the water.
  - If you have the facility, filming the test will help the coach and athlete decide if their on-water technique is maintained throughout the test.
  - The rower then rows two build up strokes followed by five consecutive strokes at maximal effort. The rower must maintain a consistent SR of 34 ( $\pm 1$ ).



- For the last 5 strokes, record the following measurements 'live' for each stroke: Stroke Power (Watts) (or 500m split if you can't change the units to power), SR and distance if you can. The largest power achieved at R34 ( $\pm 1$ ) is recorded as their best performance.
- To ensure that the rower is able to produce a power capped at a SR of 34 this test is conducted twice.
- *Actions to Improve:*
  - *Power is about producing high force at high speed. Practise putting yourself in strong positions and moving fast.*
  - *This can be done through weight training with high bar speed, a high technical quality and a high load with a low number of reps.*
    - *Refer to Level 3 Athleticism of the Rower Development Guide for examples on exercise to focus on to improve power output.*

## 3.5 Strength Capacity

### 3.5.1 Press Up Max

- Aim
  - To test the loading capacity of the anterior shoulder girdle.
- Equipment
  - The following equipment is required for the Press Up Max testing:
    - Flat surface.
    - X 15kg weight plates (or use weight platform with edge to place hands on).
- Testing procedure
  - Adopt a lying prone position with feet hip width apart and ankles dorsi-flexed.
  - Place hands on ledge shoulder width apart or very slightly wider than shoulder width.
  - With fingers placed over the ledge and the thumbs lining the top of the edge, point elbows up towards the ceiling.
  - The rower braces the shoulders, hip and trunk whilst simultaneously lifting the knees from the floor so that the legs are fully extended.
  - Press up to start position maintaining alignment with the head in the neutral position.
  - Lower the body under control until the chest touches the ground
  - Press back to the start position fully extending the elbows.



- Test rules
  - Ankles, knees, shoulders, and hips should remain inline throughout the movement. Head must remain in neutral position.
  - The chest must touch the floor and elbows return to full extension.
  - No resting at the top or bottom position.
  - Rower must adopt a rhythmical and controlled movement throughout the whole test.
  - Coach the rower into the correct position for the first 1-3 reps.
  - Warnings are given if the rower deviates from correct position. If not corrected the test is terminated.
  - The test is also terminated if two gross movements occur that deviate from the correct position. Gross movements include: Hips sagging, hips piking, back arching, elbows not fully extended, and no chest touch.
  - Count the number of reps completed by the rower which comply with the correct position.

Figure 2. Press up max set up, procedure (A & B) and common faults (C & D)

A)



B)



C)



D)





### 3.5.2 Supine Pull Max

- Aim
  - To test the loading capacity of the posterior shoulder girdle.
- Equipment
  - The following equipment is required for the Supine Pull Max testing:
    - Flat surface
    - TRX or similar suspension system with handles. If not, available use Olympic bar placed at a height where rower can adopt a similar position as shown in figure A (i.e. bar placed at waist height, so knees are bent and feet flat securely on the floor).
- Testing Procedures
  - Adopt a lying supine position underneath the suspension system which is vertical and in line with the shoulders.
  - Arms are positioned in a vertical position, so the fingers can touch the back of the handles. Palms of the hands are pronated, and the shoulders protracted (shoulders are lifted from the floor with the upper back still in contact).
  - Heels should be brought tight into the hips.
  - The athlete grips the handles with a pronated (overhand) grip
  - Retract the scapula to lift shoulders from the ground and simultaneously brace and lift the hips.
  - Raise the body under control bringing the handles tight into their side, hands in line with lower chest.
  - Hands must be in a hammer grip position with palms facing each other at all times.
  - The athlete extends the elbows back to the start position whilst maintaining body alignment.
- Test rules
  - Maintain body alignment with head held in neutral position throughout
  - A rep will only count if full range of movement is executed (i.e. full extension of the elbow to hands in line with lower chest and return to full extension). See figure 9 A.
  - Rower must adopt a rhythmical and controlled movement throughout the whole test.
  - Coach the rower into the correct position for the first 1-3 reps.
  - Warnings are given if the rower deviates from correct position if not corrected the test is terminated.
  - The test is also terminated if two gross movements occur that deviate from the correct position. Gross movements include: Hips sagging, throwing hips into the movement, elbows not fully extending and hands in final position.

- Count the number of reps completed by the rower which comply with the correct position.

**Figure 3.** Supine Pull max set up procedure (A & B) and common faults (C & D)

A)



B)



C)



D)



- *Actions to Improve*
  - *Strength is about producing high amounts of force. It is important you ensure you are in a strong position.*
  - *This can be done through weight training with a high technical quality, a high load and a low number of reps.*
    - *Refer to Level 3 Athleticism of the Rower Development Guide for examples on exercise to focus on to improve power output.*



## 3.6 Body Conditioning

### 3.6.1 Core Activation assessment

- Aim
  - This exercise is designed to assess a rower's ability to maintain a posture associated with the trunk, pelvis and lumbar spine, by activating and/or engaging their core/trunk.
  - The procedure requires the rower to use their abdominal wall/trunk to control the position of their spine and pelvis whilst at the same time maintaining a normal breathing pattern. This is further testing by lowering one leg then the other and ultimately both legs.
  
- Equipment
  - Flat surface, exercise mat if required.
  
- Testing procedures
  - Rower lies on their back with hips bent to approx. 45° and knees flexed to approx. 90°.
  - The lumbar spine should be neutral (i.e. not arched or forced into the floor).
  - The tester will need to be at the side of the rower at the level of their hips to be able to detect any changes in breathing or pelvic posture. Look closely at the pelvis, especially as the rower starts each movement. A hand (belonging to the rower or the tester) under the lumbar spine helps to check arching.
  - The following movements should be done slowly for the best effect and easiest assessment.
  
- Movement 1
  - The rower is asked to engage their lower abdominals. To help them do this advise them to draw pelvic floor in and up as if stopping the flow of urine/lift testicles.
  - To pass this test the rower must be able to engage their lower abdominals whilst continuing to breathe. Also, there should not be any compensatory movements around the shoulders/head/arms.
  - To check if the rower has engaged their lower abdominals, with the rower's permission, place your hands on the lower abdominals.
  
- Movement 2a
  - The rower lifts the left foot of the ground whilst the knees are still at approximately at 90° and the hip moves to 90°, then lowers the left foot again.
  - To pass this test the rower must be able to engage their lower abdominals whilst continuing to breathe. The rowers pelvis must stay still.
  - To check if the rowers has engaged their lower abdominals, with the rower's permission, place your hands on the lower abdominals.



- Movement 2b
  - The rower repeats Movement 2a but with the right leg.
- Movement 3
  - The rower repeats Movement 2a, but with both legs. Once one hip has been lifted and at 90°, the other hip can be lifted to 90°.
  - The criteria of passing this test is similar to movements 2a and b.
- Rating movements
  - Each movement is rated **red** (fail: requires referral), **amber** (requires input), or **green** (pass). To rate each movement the following needs to be recorded.

- Movement 1

Does the rower engage their lower abdominals?

Yes/No

Does the rower continue breathing?

Yes/No

Are there any compensatory movements around the shoulders/head/arms?

Yes/No

- If the answer is no to all questions the rower is rated **red**
- If the answer is no to one of the questions the rower is rated **amber**
- If the answer is yes all questions the rower is rated **green**

- Movements 2 and 3.

Pelvis shift sideways or rotates?

Stable/Shifts

Is the back stable?

Stable/Arches/Pushed into floor

Does the rower continue breathing?

Yes/No

Are there any compensatory movements around the shoulders/head/arms?

Yes/No

- If the answer is negative to all questions the rower is rated **red**
- If the answer is negative to one of the questions the rower is rated **amber**
- If the answer is positive to all questions the rower is rated **green**



- *Actions to Improve*
  - *Make sure to keep it simple*
    - *Fix your pelvis at all times in a neutral position.*
    - *Maintain relaxed stomach/abdominals.*
    - *Maintain relaxed breathing*
    - *Allow your feet to rest on the floor under their own weight when they are down.*

## 3.7 Movement Patterns

### 3.7.1 Squat Assessment

- **Aim**
  - This is a test to assess the ability of a rower to achieve the positions required to row powerfully and safely on an ergo or in a boat.
- **Equipment**
  - The following equipment is required for the squat assessment.
    - Flat surface
- **Testing Procedures**
  - Start by standing with your feet shoulder width apart with toes pointed slightly outwards.
  - Hands linked together behind the head (prisoner squat position).
  - Your body should be upright with the shoulder blades retracted and the chest open.
  - Pushing the hips backwards, descend by flexing the hips and knees.
  - Maintain a natural curvature of the spine and open chest at all times.
  - Keep the heels on the floor with the knees aligned over the feet.
  - Continue to flex the knees and hips until the thighs are parallel to the floor.
- **Test rules**
  - Head and shoulders must remain in place.
  - The lumbar spine should maintain normal curvature of the spine.
  - The pelvis and the lumbar spine should remain aligned.
  - Your thigh must reach a parallel position with the floor.
  - Record pass or fail.
- *Actions to Improve*
  - *Practise your movement in a mirror. Use your fingers on your lumbar spine to check this remains stationary as you lower down into the squat.*
  - *Try some of the following examples to help focus on good movement.*
    - *Squatting against a wall with a swiss ball.*
    - *Performing a Goblet Squat with a dumbbell.*



- *Tip: At home you can use a door frame and broom handle to check your path.*

### 3.7.2 Hip Hinge Assessment

- Aim
  - To test the movement of the rock over can be achieved effectively.
- Equipment
  - The following equipment is required for the hip hinge assessment.
    - Flat surface
- Testing Procedures
  - Start by standing with your feet – shoulder width apart with toes pointed slightly outwards.
  - Your body should remain straight with a neutral spine the shoulder blades retracted and the chest open.
  - Your knees may be slightly bent to start the exercise.
  - Start by rocking over from the hips until you reach 90 degrees or until your upper body is parallel with the floor.
  - Your hips should move backwards while maintaining the same angle at the knees.
- Test rules
  - Head and shoulders must remain in place.
  - The lumbar spine should remain straight.
  - The pelvis and the lumbar spine should remain aligned.
  - You must reach 90 degrees or until your upper body is parallel with the floor.
  - Record pass or fail.
- *Actions to Improve*
  - *Practise your movement in a mirror. Use your fingers on your lumbar spine to check this remains stationary as the hips move.*

## 3.8 Flexibility

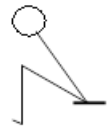




### 3.8.1 Catch Position Test

- Aim
  - To provide an easy field test that can reliably monitor rowing specific hip flexion mobility.
- Equipment
  - The following equipment is required for the catch position test.
    - Concept 2 Ergometer



- Seat pad (if normally used)
- Testing Procedures
  - Set heel height at the rower's normal position.
  - If a seat pad is normally used while using an ergo, the same seat pad should be used for this test.
  - Ask the rower to move to the catch position or fully forward and hold with no assistance.
- Recording
  - A guide to hip or pelvic rotation in the rowing movement can be observed at the catch position on a scale of 1 to 5 (see below). This is a rough guide to flexibility and core strength on the rowing position and should not necessarily be used as a selection tool but as a development guide to prevent injury from training in poor positions.
  - A photograph taken at this position could be valuable for later analysis by trained medical and physiotherapy staff.

**Figure 4.** Catch Position Test

Score	1	2	3	4	5
Rotation of Pelvis	Significant anterior tilt of pelvis	Some anterior tilt of pelvis	Pelvis vertical	Some posterior tilt of pelvis	Significant posterior tilt of pelvis
Lumbar spine/core strength:	Excellent lumbar/core strength position	Slight cure of lumbar spine	Some curve of lumbar spine	Obvious curve of lumbar spine	Pronounced curve of lumbar spine
					

**Note:** Set heel height at the rower's normal position.

- Actions to Improve
  - *Most people who find themselves in positions 3-5 will have poor hamstring flexibility. Make sure to actively stretch your hamstrings.*
  - *The Thomas test may inform you of other muscles that could be causing a restricted position in this test.*



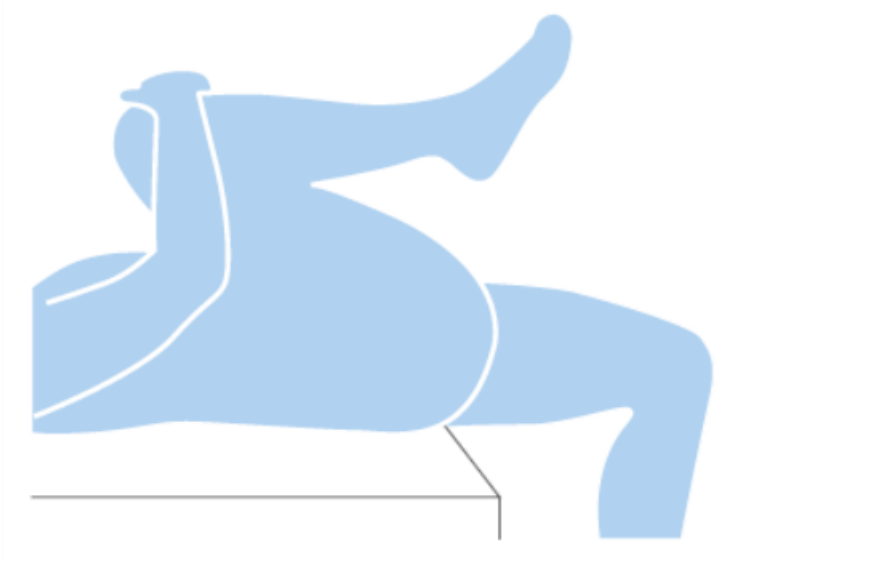


### 3.8.2 Thomas Test

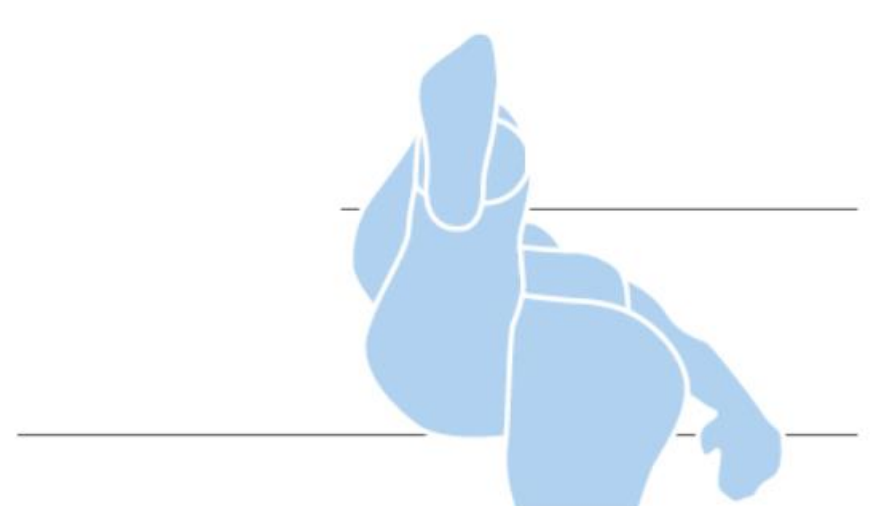
- Aim
  - To test the flexibility of the iliopsoas, rectus femoris and iliotibial band to assess hip flexor flexibility.
- Equipment
  - The following equipment is required for the hamstring testing.
    - Table (strong enough to take body weight)
- Testing Procedures
  - Lie (supine) on a table/plinth/bar/etc. Bottom just perched on the end. (Easiest to start with both legs bent up against the chest.)
  - Hold one leg against the chest (with both hands) but keep the lower back in neutral, i.e. don't roll up the pelvis.
  - Relax the other leg and let it down, without changing the lower back posture.
  - Be aware of neural tension, i.e. tingles, numbness or pins and needles, and **DO NOT** force into this tension.

- Ideal Position






**Figure 5.** The thigh remains in line with the body whilst the knee bends to 90 degrees.



**Figure 6.** Check the angle of the thigh to body. It should be in line.



- Test Results
  - Use the chart below and record your observation.

Observation	Looks Like	Means	Action
<b>Observe from the side</b>			
Thigh remains in line with the body and knee bends to 90 degrees.		Iliopsoas & Rectus femoris length - Good	Continue with the current regime – it's obviously working.
Thigh remains in line with body, but lower leg is at an oblique angle.		Iliopsoas length – Good Rectus femoris length - Shortened	Stretch rectus femoris.
Thigh is raised higher than the line of the body, and knee is bent to 90 degrees.		Iliopsoas length – Shortened Rectus femoris length - Good	Stretch iliopsoas.
Thigh is raised high than the line of the body and lower leg makes an oblique angle to the thigh.		Iliopsoas & Rectus femoris length shortened	Stretch both iliopsoas & rectus femoris.
<b>Observe from above</b>			
The knee deviates outwards from the line of the body.		Iliotibial band (ITB) - Tight	Use foam roller over the IT bands



## 4. Performant Talent - Record Sheet

<b>First Name</b>		<b>Surname</b>	
<b>Gender</b>	Male / Female	<b>Date of Birth</b>	
<b>Rower ID Number</b> (The last 7 digits of your British Rowing membership number)			
<b>Rowing Club</b> (3 letter club code)			
<b>Disciplines</b>	Strokeside / Bowside / Sculling		
<b>Project</b>	Women's Training Days / DiSE / J16 Camp / BUCS Camp / England Team – HIR / Other		
<b>2km Free Rate</b> (MM:SS.0)			
<b>5km Free Rate</b> (MM:SS.0)			
<b>Height</b> (CM)			
<b>Arm Span</b> (CM)			
<b>Body Mass (Weight)</b> (KG)			
<b>30 Minute at Rate 20</b> (Distance in M)			
<b>7 Power Stroke Assessment at Rate 34</b> (Watts)			
<b>250m Free Rate</b> (MM:SS.0)			
<b>Press Ups Max</b> (Completed number of Reps)			
<b>Supine Pull Max</b> (Completed number of Reps)			
<b>Core Activation Assessment</b>	<b>Movement 1</b>	Green / Amber / Red	
	<b>Movement 2a</b>	Green / Amber / Red	
	<b>Movement 2b</b>	Green / Amber / Red	
	<b>Movement 3</b>	Green / Amber / Red	
<b>Squat Assessment</b>	Pass / Fail		
<b>Hip Hinge Assessment</b>	Pass / Fail		
<b>Catch Position Test</b>	1 / 2 / 3 / 4 / 5		
<b>Thomas Test</b>		Left Leg	Right Leg
	<b>(Iliopsoas Length)</b>	Good / Tight	Good / Tight
	<b>(Rectus Remoris Length)</b>	Good / Tight	Good / Tight
	<b>(Iliotibial Band)</b>	Good / Tight	Good / Tight

*This sheet is for personal use only to help record information from the Performance Talent testing protocols document.*