



Athlete Monitoring Program For HP Development Athletes

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New information updated in this version has been highlighted in yellow

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TARGETED ATHLETES

As Rowing Canada Aviron moves forward in developing a systematic development system, it is important to create a testing and monitoring system that better reflects the needs of athletes and coaches on the pathway to High Performance programs.

This document overviews the Athlete Monitoring Program for all Junior, U23, and Senior athletes that are interested in:

- Participating at Regional or National Development opportunities.
- Representing Canada at all domestic and International competition that is overseen by the HP Development Program.

BACKGROUND OF TESTING

To create a stronger development system in Canada we must find ways to better support our developing athletes and coaches. It is important that The National Development System provides a clear systematic pathway for athletes to develop to their maximal capacity. Currently there is a gap between athletes at the National Training Centres and the next group of developing athletes. It is important to recognize that proper development of athletes to the National Training Centres requires a more targeted approach focusing on technical, physiological and mental development, ensuring athletes are ready for their next stage of development.

To better support athlete and coach development, Rowing's HP Development Program will be using RADAR as a form of testing and monitoring athletes.

RADAR was originally developed by Rowing BC under the title BC RADAR. Rowing Canada has since adopted the RADAR program and working with Rowing BC, Row Ontario, and the Canadian Sport Centres has streamlined and evolved the program to a level it can be utilized in RCA's Development System and delivered Canada wide. RADAR will be used by RCA, It's National Development Centres, Talent Development Centres and coaching staff to create an integrated pathway for athlete development in Canada

RADAR is a program established to identify, track and monitor athletes taking a multi layered look at their development. It is a systematic approach to support and help talented athletes, their coaches and their club to develop from a grassroots level through to the National Team. RADAR also allows RCA to compare athletes from across the country to the same standard streamlining invitation to further development opportunities and selection events.

By looking at an athlete with a multi layered approach, the RADAR program can provide a strength and weaknesses assessment identifying the further developmental needs of each athlete. Testing has the ability to show changes to athletes physiology, without the need for laboratory testing, providing coaches and athletes immediate feedback on their recent training period and provide direction for their future training. By maintaining and

building on an athlete's strength and targeting their weaknesses for improvement an athlete can develop to the next level. RADAR provides the roadmap to individual development. This information will also allow HP development coaching staff to determine each athlete's specific improvement as well as benchmark them against traits that are believed to be required to perform at World Championships and Olympic Games.

* further information on RADAR can be found on the RCA RADAR information document.

Advantages of adopting a test battery

- To provide a more representative picture of an athlete's development over the short and long term, as it applies to all aspects of rowing fitness. Currently, testing only looks at one physiological aspect of an athlete's development and doesn't provide a clear picture of where and athlete needs to continue development. Although Laboratory tests are designed to ensuring adequate rowing specific fitness is in place for further training they are rarely used in domestic programming. With the adoption of an ergometer test battery, coaches will gain a greater understanding of each individual's fitness traits and how they change through a training cycle. Coaches will not only be able to adapt training to suit the needs of the individual but identify trends that may have a positive or negative impact on the development of the overall program.
- Athletes will be required to produce maximal efforts over all tests a number of times each year. One of the possible reasons for athlete's inability to produce 'above expectations' performances on the world stage, could be linked to our reluctance to perform maximally on a regular basis. The ergometer tests are difficult to do and require maximal efforts. The more we expose our athletes to the expectation of maximal effort will help to improve our athlete's ability enter a performance state. It will also change the athlete's perceptions on their ability to produce maximal output on a regular basis.
- The more information we can gather about each athlete throughout the year can only serve us better in the future.

EXISTING TALENT VS NEW TALENT

New Talent (NT): New Talent are those athletes new to rowing who have been identified and targeted through RCA's National Talent Identification and Development Program (TID). Athletes who have achieved identified TID standards will be considered Targeted Athletes within the RCA Development System. Athletes will be expected to achieve the following:

- TID – Achieve minimum standards
- Post Confirmation Stage (8-10 weeks after TID) – Achieve targeted standards
- Post 12 month – Achieve minimum of Talent Development Centre (TDC) Standards.

After 3 months of training, New Talent are expected to complete the same battery of RADAR testing as Existing Talent

After 12 months of being considered NT in the National Development System, athletes transition into the ET category.

Existing Talent (ET): Existing Talent are those athletes who are currently or have previously rowed. Existing talent enter the National Development System by participating in the RADAR program. There are four testing periods per year that athletes can submit their RADAR information to be considered for status in the National Development System. Athletes must achieve the following to be part of the National Development system.

- Achieve the minimum requirements needed to become a Talent Development Centre (TDC) athlete.
- Or
- Achieve the minimum requirements needed to become a National Development Centre (NDC) athlete.

TESTING

What tests will be used

The following is an overview of the tests used in RADAR and what each is intended to measure.

- 10 stroke Test (peak power): Peak Watts - Measures Peak Power. Athletes maximum output available to them. Measurement of ATP output.
- 1 Minute test: Measures Anaerobic Power. Power output potential of the anaerobic lactate system. Energy produced without the use of oxygen.
- 1000 Meter Test: Currently we are collecting data on this test. There are a number of physiologists that believe test may be of value to rowers. There may be a close correlation between athletes 1000 meter performance and their 2000 meter performance. It is being used by some countries in their Talent ID system and may have a link to “potential” VO2
- 2000 Meter Test: Race Distance. Approximate VO2 max. Maximal aerobic power.
- 6000 Meter Test: Anaerobic Threshold (cat 4). Point at which the body switches from aerobic to more anaerobic energy metabolism. It is a good indicator of aerobic fitness and efficiency. *Generally this is a slightly higher watts that we see lactate threshold occur at.*
- 60 minute test: Aerobic capacity.
- On water assessment: Allows athletes to demonstrate their technical and boat moving abilities. RCA’s Gold Medal Standards (GMS) will be used. *See enhanced testing*

Breakdown of tests and age categories

The following is a summary of what tests will be used for each development category.

	New talent		Existing Talent			
	TID	T Conf ⁽³⁾	U17	U19	U23	SR
Height	X	X	X	X	X	X
Arm Span	X	X	X	X	X	X
Weight	X	X	X	X	X	X
Shwinn bike ⁽¹⁾	X	X	X	X	X	X
Peak Power (MD)	X	X	X	X	X	X
Peak Power (TD)	X	X	X	X	X	X
1 minute			X	X	X	X
1K		X	X			
2k				X	X	X
6k				X	X	X
60 minute ⁽²⁾			X	X	X	X

⁽¹⁾ RCA will be working to test all Existing Talent on the Schwinn bike once. This information will give us further data to better streamline our testing system.

⁽²⁾ Submissions of this test will only be required twice per testing and monitoring year.

⁽³⁾ Talent Confirmation testing will be completed approx 8-10 weeks post Talent Identification. After this round of testing athletes will follow Existing Talent’s battery of test, **but will be considered New Talent for 12 months from the date of their TID testing.**

WEIGHT REQUIREMENT FOR LWT ROWERS

Athletes seeking consideration as a lightweight must submit a current weight for each of the following tests.

1. On water time trial
2. 2000m ergometer submission

Men: maximum weight 74kg

Women: maximum weight 60.5 kg

*Weigh-in will occur on day of test not less than 1 hour and not more than 2 hours prior to the start of the test.

ENHANCED TESTING

On Water Assessment: RCA's TDC's and NDC's will provide the following opportunities for athletes to be assessed on their boat moving abilities.

- Time trials: TDC's and NDC's will offer regular opportunities for athletes to attend time trials. The results of these time trials will be applied to RCA's Gold Medal Standards to add to athletes RADAR submissions
- Skill assessments: During Camps and time trials Rowing Canada will provide athletes and coaches feedback on their technical abilities as it reflects to RCA's technical principles document.

Sport Science: Rowing Canada's Talent Development Centres and National Development Centres will provide further sport science related testing to athletes who have achieved minimum requirements of these programs. For information on tests available to athletes at a centre near you please contact your National Development Centre Coach.

PROTOCOLS

See TID protocols document for details on set up and delivery of TID testing.

Peak Power

Purpose: Assess the ability to develop peak power at two workloads in a coordinated upper and lower body activity using a rowing specific movement.

Equipment:

- Concept II ergometer - *The CII should be placed on a non-slip surface or held in place by weights or the tester.
- Clipboard
- Pen
- Data sheet

Calibration: The test will be done using two different drag factors (Testing DF and Max DF) as seen in the table below. Calibrate the erg prior to the start of the test. In addition to the drag calibration a piece of black electrical tape should be placed across the rail at the point where the athlete reaches full compression. This will provide the assessor a guide to see if the athlete is rowing full slide.

Warm Up: Warm up is ten minutes of easy ergometer rowing with 2-3 maximal two stroke efforts interspersed through the ten minutes. Maximal stroke efforts should be done at both test loads.

The test: Each athlete will perform two ten stroke trials at each of the resistance settings that is appropriate for their class. The power, in Watts, seen on the monitor for the first stroke and the highest power seen for any of the ten strokes is recorded on the data sheet. At least 90s but not more than 180s rest is provided between each of the trials. This test is best done in groups of 2-3 so that one athlete can be testing while the others are resting for their next trial.

Performance: The ergometer is set for the lower of the class appropriate drag factors. The athlete grasps the erg handle and positions themselves in a full compressed ready position at the catch. The assessor positions himself or herself so that they can see the ergometer display and record the required data. When the athlete is in the ready position the assessor will give the command "READY, GO". At that time the athlete will pull ten strokes as hard as possible, trying to row as close to full slide as they are capable. Because the athletes are likely to be unfamiliar with the rowing stroke, to encourage full slide rowing rate is capped at 40.

Once the trial is completed the athlete will have a 90-180s break before repeating the same procedure again with the Testing Drag and twice with the max drag.

1 minute / 1000m⁽¹⁾ / 2000m / 6000m / 60⁽²⁾ minute tests

Equipment:

- Concept II ergometer, Model C or later - *The CII should be placed on a non-slip surface or held in place by weights or the tester.
- Clipboard
- Pen
- Data sheet

Calibration: The test will be done using Testing Drag Factor (as seen in the table below). Calibrate the erg prior to the start of the test.

Warm Up: Athletes should perform a standard pre race warm up that supports performance at the prescribed testing distance. A recommended warm up is provided in the week of testing section

The test: The athlete will perform each test from the start position. The ergometer monitor should be set in a countdown mode specific to the test being completed. At the completion of each test the following results should be recorded

- Average Watts
- Average split
- Average Stroke rate
- Final time or distance results

Further information can be downloaded for those seeking detailed information on athlete race strategy and tactics. This can be done by setting the recall mode on the monitor to the desired time or distance.

⁽¹⁾ 1000m – this test will have a rate cap of 30 spm.

⁽²⁾ 60 minute test: *This test must be performed at a Max Stroke rate of 22spm*

Drag factors

Category		Testing DF*	Max DF
Junior Women	-	110	190
Lightweight Women	-	110	190
Open Women	-	110	190
Junior Men	-	120	190
Lightweight Men	-	120	190
Open Men	-	130	190

* The Testing Drag Factors should be use for all ergometer submissions other than the dedicated Peak Power testing

WEEK OF TESTING

Overview

For consistency and comparability of testing across the country it is important that the RADAR testing is completed in an identical manner each time. This includes the order the tests are completed in as well as the timing of each test. To ensure that this is consistent Canada wide, Rowing Canada Aviron will be establishing protocols that will include the order of tests, the training undertaken on the days in between ergometer measurements, and the order in which the tests are completed. This procedure will be considered RCA's Week Of Testing. The Week Of Testing will occur within a rest/recovery week and frequency and duration of activities should be programmed accordingly. To further ensure comparability within and across programs the Week Of Testing must be completed within 2 weeks of the posted submission date / deadline. (see RCA's Testing and Monitoring calendar). There will be minimal flexibility on these dates.

Prescribed Week of Testing Schedule:

Day	Time	Event	
Saturday (before Test Week)	Morning	Time Trial 2k (on water) or 16km Cat 5/6 session (if not possible to do on water TT)	
Sunday (before Test Week)	Rest Day	Active Recovery Only	
Monday	Preferably after 9am	Peak Power test (Test DF and Max DF using protocol above)	
	PM	60 minute test (max rate 22)	
Tuesday	AM	14km Category 5/6 row	
	PM	1 minute test	
Wednesday	AM	6000m test (off for U17 athletes)	
	PM	Active Recovery or 2k prep	
Thursday	AM	14km Category 5/6 row	TID tests for Talent Confirmation
	PM	Active Recovery or 2k prep	
Friday	AM	2000m test (1000m for U17 and Talent Confirmation athletes)	
	PM	Active Recovery	
Saturday	AM	*Alternative date for 2k Time Trial on water	

HOW WILL THE RESULTS BE USED

The collection, analysis, and evaluation of the data collected serves RCA's primary goal of better servicing and managing its Targeted Talent.

Assigning performance levels: The information collected will be reviewed by the relevant National Development Coach and High Performance Development Coordinator. Based on athlete's RADAR / Performance score they will be ranked and assigned a level within RCA's High Performance Development Program. Any athlete who achieves the identified performance levels is considered a Targeted Athlete.

These levels are as follows:

- Talent Development Centre Athlete
- National Development Centre Athlete

Invitation to selection events and camps:

Targeted Athletes will be invited to Camps and Selection events based on their ranking within the National Development System.

Athlete development:

Routine dialog will be held between RCA's Development staff, the athlete, and his / her coach on the results of their testing and what is required / expected to progress in the development system. This will ensure all parties are in agreement on how the athletes is progressing as well as establishing potential short term and long-term benchmarks.

Training program monitoring and development: The results of the RADAR submissions will allow RCA programs to work closely with Targeted athlete and their program coaches to individualize training programs.

Program evaluation and review:

The ongoing collection of this data will allow RCA staff, performance partners, and physiologists to re-evaluate the RADAR standards and scoring system.

Testing Dates and Submissions

Testing Dates: Every Fall RCA will establish Testing and monitoring dates for the upcoming year. See appendix (A) for this years submission dates.

Submitting data to Rowing Canada Aviron: Rowing Canada has established an online data base to support the collection of this information. All athletes interested in RCA's National Development System must submit the appropriate information to this on line database. The database will be linked and accessible through the RCA website.

The database will be on line by the November submission

Appendix (A) 2010/11 Testing and Monitoring Dates.

Date	Details	Specifics
November 20 th / 2010	On water assessment *	Open time trial at RCA's Talent Development Centres (TDC's). <i>GMS / Technical assessment opportunity</i>
November 29 th / 2010		Week Of Testing must be completed between November 15 th and November 29 th , 2010
January 22 nd / 2011 January 29 th /2011	On water assessment *	Open time trial at RCA's Talent Development Centres (TDC's). <i>GMS / Technical assessment opportunity</i>
February 7 th / 2011		Week Of Testing must be completed between January 23 rd and February 7 th , 2011
April 30 th /2011	On water assessment *	Open time trial at RCA's Talent Development Centres (TDC's). <i>GMS / Technical assessment opportunity</i>
May 9 th / 2011		Week Of Testing must be completed between April 25 th and May 9 th , 2011
August 20 th / 2011	On water assessment *	Open time trial at RCA's Talent Development Centres (TDC's). <i>GMS / Technical assessment opportunity</i>
August 29 th / 2011		Week Of Testing must be completed between August 15 th and August 29 th , 2011
TBA	National Rowing Championships	

* On water assessment: not all dates may be available in all regions. This is dependant of water availability and seasonal constraints. Other opportunities for on water assessment may be established and linked to regatta's and camps in each region.