



CAMPAIGN **RIC** BEST

• PLANNED
• PREPARED
• PERFORMED

AUSTRALIAN
ROWING TEAM
HAND BUILT & CRAFTED IN AUSTRALIA

Information for SIS/SAS Head Coaches, Coaches and Scientists

2012-2016 Ergometer Protocol: Mean Aerobic Power

Version 1.0 (January, 2013)

Version 1.1 (February, 2015)

Compiled by:

Dr Tony Rice

Physiology Lead | Performance Science Coordinator

Australian Institute of Sport | Rowing Australia

Email: Tony.Rice@rowing.ausportnet.com

Background

The Mean Aerobic Power test is very similar to a standard incremental test to exhaustion that is used with many endurance sports. It is an ideal supplement for those rowers that don't have access to a laboratory to undertake the prescribed NRCE 7 x 4 Step Test protocol. When combined with the data from the 30 min Open Rate test a rower and/or coach will get a very good indication of the rower's maximal performance capabilities, anaerobic threshold and the ratio between the two measures. This will enable the coach and rower to review progress and measure the effectiveness of the most recent training cycle.

The test is continuous in nature and progresses until the rower is no longer able to maintain the required power output. The starting work load and 3 min increments are specific to each category and aim to have the test completed in 12-20 mins. Performance (mean aerobic power) is measured by the length of time the rower is able to continue working for and then converted to a corresponding wattage. Every 3 mins the protocol requires a designated increase in power output and the rower is required to maintain the required power output for the entire 3 mins (rating is not capped). When approaching exhaustion the rower should aim to complete a 30 sec block of the prescribed work load. If the rower is unable to complete a full 30 sec block the completion time of the test will be taken as the previous 30 sec block.

Test Administration

Preparation

Equipment Checklist

- Concept IID or IIE rowing ergometer on Concept II sliders
- Heart rate monitor
- Stopwatch
- Lactate Pro analyser (can provide very useful information for some individuals)
- Data recording sheet (see below)

Athletes will be allowed to individualise their warm-up prior to the test but are asked to replicate as closely as possible the same specific warm-up adopted for each distance the next time they undertake the test.

The following list represents the order in which each test should be completed.

1. The rower should weigh-in and report the weight to the supervising coach or scientist
2. Attach a heart rate monitor (mandatory) and ensure it is working correctly and the data is being recorded (minimum of 1 min intervals) on the Concept II work monitor as well as the athletes watch (if possible)
3. Adjust the ergometer drag factor to that appropriate to the category (see Drag Factor Settings table below)
4. Undertake individual warm-up
5. Select 3 min steps on the Concept work monitor (with no recovery interval) and ensure the data is being recorded at 1 min intervals for later analysis
6. Start rowing when ready
7. Begin at the prescribed power output outlined in the table below (there is no rating cap)
8. After 3 mins increment to the next workload and maintain that power for the next 3 mins
9. Continue to increment power until the rower is unable to maintain the required power output for 3 strokes or the required average power (on the Concept II Work Monitor) falls 2 watts below the

required output (Note: at the higher power output or when approaching exhaustion the rower should be encouraged to move to the next power output 2-3 secs prior to completion of the 3 min block. This will avoid having the Concept II Work Monitor display disproportionately low average power values)

10. Record the time when the test was ceased to the most recent 30 sec – i.e when approaching exhaustion the athlete should be encouraged to break the workload into 30 sec increments as MAP and test duration are only calculated using the last completed 30 sec block
11. At the end of the test, the coach or scientist will record the relevant data from the work monitor on the supplied data template
12. An earlobe or fingertip blood sample should be collected and analysed at the completion and 4 min post completion of the test (if available)
13. Mean Aerobic Power is calculated as; power output of last completed 3 min workload + completed watts of the next 3 min block (expressed as % of time completed in the current 3 min power output) i.e. if a Heavyweight male completes a full 3 mins at 410W and then goes 90 secs into 450W then the MAP is 430W $[410 + (0.5 \times 40)]$

Category	Starting Power Output (W)	Increment (W)
Junior Female	175	25
Lightweight Female	175	25
Heavyweight Female	200	30
Junior Male	220	30
Lightweight Male	220	30
Heavyweight Male	250	40

Category	Stationary Ergometer
Heavyweight Men	110 - 140
Lightweight Men	90 - 120
Heavyweight Women	90 - 120
Lightweight Women	70 - 100
Junior Men	90 - 120
Junior Women	70 - 100

Ergometer Drag Factor Settings – Para Rowers

Category	Drag Factor
LTA	90 - 120
AS1X	90 - 120
TA2X	90 - 120

Submission of ergometer test data

The NRCE uses an XL based spread sheet as the *only* way to submit MAP test data. Data is to be submitted to your respective State High Performance Coordinators in a timely manner and they will forward the information onto me. If for any reason an athlete is unable to begin or complete the test this must be recorded on the appropriate medical exemption form and forwarded to the Sports Medicine Coordinator (Larissa.Trease@rowing.ausportnet.com).

Data Template Download

Download the data templates here:

Mean Aerobic Power Data Submission Sheet:

<https://www.box.com/shared/static/lyef5he31spno809lm1i.xls>

Mean Aerobic Power Data Recording Sheet:

<https://www.box.com/shared/static/as29qgg5qxcu3sq5nndl.xls>