

Managing the impact of racing at Aon Maadi Cup

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Underpinning any training program is specificity. That is, how does a training program meet the specific demands of an activity for the athletes it is designed for? For example, a 2km race and been able to produce your best performance in the final. There are two key factors here, been able to race the distance, but more importantly been physically prepared to peak for the final event; and the opportunity to be a national champion. The latter point is the hardest to achieve, as there are multiple factors that influence this. Namely the training completed preceding the regatta, but of more of an influence during the regatta its self, is how well recovered an athlete is so to have an opportunity to produce their best performance. It is well known that key to any training program is recovery from training, thus to allow an adaption effect in order to improve. This means at key times recovery is, and if not more important than the training its self, in order for an athlete to produce their best performance. Again, there are multiple factors that influence the quality of recovery, like nutrition, hydration and physical rest. While the 1st two points are more easily influenced with good planning, there is no short cut around the body's need to recovery between training sessions and this is even more crucial between maximal efforts of exercise; as the body will perform worse with inadequate recovery.

With these recovery points in mind, the authors have analyzed the physical demands of the different events in the Maadi Cup program in order to help support coaches/managers and rowers make informed decisions about how much racing is required to win a national championship. Coaches have always had to juggle which events to enter based on event order, number and type of boats available and also the number of rowers and their age. However, given all of these factors, there are key decisions that need to be made based on the event chosen, as each event has a different set of physical demands over 5-6 days of racing. The aim here is to not tell coaches which events to enter, but rather help make an informed choice on event entries based on the athletes they have and the recovery time needed to produce a best performance in the final race of the season – surely a goal of all rowers and coaches.

Data analysis. The data presented in table 1 shows all the Maadi cup events from the 2018 regatta. For each event the number of boats entered in each progression is listed, and the minimum and maximum of races required to make the final is seen. However, from the numbers listed we have calculated the *average number of races* required to make the final; that is not all boats go to the recharge, but a certain ratio do and this influences the number of races required to make the final. The average number of races is then multiplied by the 'A final' winning time to give an *average time of racing* for each event, as well as a *maximum time of racing*, based on going via the recharge. Obviously, the average time of racing will be higher as not each race is completed in the time of the winner of the 'A final'.

Data presentation. The data has been colored coded with higher values for *average number of races* and *average time of racing* in red and lower values in green. A discussion of these colors' is presented below table 1.

Table 1: Maadi Cup data 2018. Split into Male and Female Events

Event #	Event Name	Heat	Rep	1/4	Semi	Final	WINNING TIME	Average # of races	Average time of racing	Max time of Racing	Event #	Event Name	Heat	Rep	1/4	Semi	Final	WINNING TIME	Average # of races	Average time of racing	Max time of Racing
Event9	B N18 2X	34	24		16	22	07:33.4	3.71	28:02.1	30:13.6	Event32	G N18 2X	40	15	32	16	29	07:58.5	4.38	34:55.8	39:52.5
Event46	B N18 4+	22	16			16	07:03.2	2.73	19:15.3	21:09.6	Event45	G N18 4+	23	19		16	16	07:48.6	3.83	29:54.6	31:14.2
Event36E	B N18 4X+	16	14			8	06:59.2	2.88	20:07.4	20:57.7	Event35E	G N18 4X+	27	23		16	16	07:48.9	3.85	30:05.1	31:15.5
Event19	B N18 8+	11	7			8	06:27.6	2.64	17:03.4	19:22.9	Event10	G N18 8+	14	12			13	07:28.6	1.86	13:54.5	22:25.9
Event3	B U15 2X	32	24		16	16	07:39.6	3.75	28:43.5	30:38.4	Event31	G U15 2X	32	24		16	16	07:58.2	3.75	29:53.4	31:52.9
Event42	B U15 4+	26	22		16	18	07:11.4	3.85	27:41.0	28:45.7	Event14	G U15 4+	24	20		16	15	07:58.0	3.83	30:30.6	31:51.8
Event32	B U15 4X+	31	23		16	20	06:59.6	3.74	26:09.3	27:58.4	Event4	G U15 4X+	42	12	32	16	31	07:57.0	4.29	34:06.1	39:44.7
Event23	B U15 8+	10	8			8	06:32.1	2.8	18:17.9	19:36.3	Event41	G U15 8+	14	12			8	07:10.4	2.86	20:30.9	21:31.1
Event50	B U15 8X+	12	8			8	06:25.3	2.66	17:04.8	19:15.8	Event47	G U15 8X+	12	8			8	07:13.3	2.67	19:17.0	21:40.0
Event49	B U16 1X	49	14	32	16	38	07:38.7	4.29	32:48.0	38:13.7	Event8	G U16 1X	56	21	32	16	35	08:37.9	4.38	37:48.3	43:09.3
Event28	B U16 2X	50	15	32	16	39	07:04.7	4.3	30:26.4	35:23.7	Event48	G U16 2X	56	21	32	16	35	07:53.9	4.38	34:35.5	39:29.2
Event17	B U16 4+	29	21		16	16	07:58.2	3.72	29:39.0	31:52.9	Event37	G U16 4+	23	19		16	16	07:35.4	3.83	29:04.3	30:21.8
Event7	B U16 4X+	36	21		16	22	06:55.2	3.58	24:46.4	27:40.8	Event27	G U16 4X+	41	11	32	16	31	07:32.8	4.27	32:13.5	37:44.0
Event38	B U16 8+	20	14			16	06:16.8	2.7	16:57.4	18:50.5	Event18	G U16 8+	16	14			8	07:03.1	2.88	20:18.4	21:09.2
Event1	B U17 1X	51	16	32	16	40	07:57.7	4.31	34:18.7	39:48.3	Event22	G U17 1X	63	31	32	16	47	08:23.4	4.49	37:40.2	41:56.9
Event21	B U17 2X	39	24		16	22	07:07.4	3.62	25:47.3	28:29.8	Event43	G U17 2X	56	21	32	16	35	07:46.2	4.38	34:02.0	38:51.1
Event34	B U17 4+	19	11			16	06:46.8	2.58	17:29.6	20:20.5	Event2	G U17 4+	28	24		16	16	07:46.7	3.86	30:01.4	31:06.8
Event44	B U17 4X+	28	23		16	16	06:37.7	3.82	25:19.1	26:30.7	Event12	G U17 4X+	41	11	34	16	32	07:48.0	4.27	33:18.4	39:00.1
Event11	B U17 8+	10	8			8	06:22.4	2.80	17:50.6	19:07.1	Event33	G U17 8+	12	8			9	06:59.4	2.67	18:39.7	20:58.1
Event30	B U18 1X	55	21	32	18	35	07:37.6	4.38	33:24.1	38:07.7	Event29	G U18 1X	39	24		16	22	08:08.4	3.62	29:28.0	32:33.6
Event5	B U18 2-	25	21		16	16	07:18.5	3.84	28:03.8	29:14.0	Event16	G U18 2-	16	14			16	07:58.2	2.88	22:57.3	23:54.7
Event25	B U18 4+	20	14			18	06:36.6	2.7	17:50.8	27:50.4	Event6	G U18 2X	38	24		26	25	07:50.6	3.63	28:28.3	31:22.4
Event15	B U18 4X+	27	23		16	16	06:41.8	3.85	25:47.0	19:49.7	Event26	G U18 4+	14	12			13	07:30.7	2.86	21:29.0	22:32.1
Event52	B U18 8+	14	12			14	06:01.9	2.86	17:14.0	26:47.3	Event39	G U18 4X+	28	24		16	16	07:19.5	3.86	28:16.5	29:18.0
Event40	B U18 2X	39	24		16	21	06:57.6	3.62	25:11.7	18:05.7	Event51	G U18 8+	13	11			12	06:55.1	2.84	19:38.9	20:45.3

Observations from table 1, above:

1. It can be quickly seen that the number of races required and therefore the total racing time varies between events. For example, the 8's have less racing than the doubles and this should not be a surprise. However, there are large differences in the number of races and therefore the race time required between events and this would have an impact on the training program designed with these different outcomes needed. For instance, an U18 8's event might have about 17mins (min 12mins) of racing in 6 days, but a U16 1x would have on average 37mins (max 43mins) of racing over the same time period. These large differences would impact the specificity of the training program designed.
2. The physical demands of racing over a week vary between boys and girls. That is, there is twice the number of events for girls that require at least 4 (up to 5) races than there is for boys, from the 2018 data. To make this worse, there are certain age groups this is worse for than others. In particular U16 girls compared to U17 boys (specific examples looked at below).
3. There is a phase of the program where over a space of 9 events (Events 22-30) there are 5 which have very high numbers; esp smaller and novice boats on the water and this is a heightened risk in bad weather or a shortened program.

The demands of Maadi Cup vary for the rowers depending on ultimately the number of events entered (Rowing NZ suggests 2-3) per rower and which events these are. The following illustrates a couple of examples of how the racing demands vary between the number and the event choices.

One rower in the **G U17 4x+**, **G U17 2x** & **G U17 4+** would on average have 12.51 (max 14) races in a week which is on average 97 mins (max 108mins) of maximal racing in a week. Whereas, one rower in the **B U16 4x+**, **B U16 4+** & **B U15 4+** would on average have 11.15 (max 12) races in a week which is on average 82 mins (max 98mins) of maximal racing in a week. These are enormous racing loads which can bring with it other factors to consider like fatigue or injury.

Compared to a rower who is in the **B U17 8+** & **B U17 4+** who would on average have 5.38 (max 6) races in a week which is on average 35 mins (max 39mins) of maximal racing in a week. Or a rower who is in the **G U15 2x** & **G U15 4+** who would on average have 7.13 (max 8) races in a week which is on average 60 mins (max 69mins) of maximal racing in a week.

In summary, the data presented here highlights important physical differences between events for the rowers and thus impact on the training required to be able to be entered into multiple events, it is also here to help coaches make informed choices for the upcoming Maadi cup regatta. With increasing numbers entering Maadi Cup than in the previous years, this does have a direct impact on the requirements of rowers in terms of the numbers of races required to make the final and thus the total time of maximal racing required to be a national champion. These changes in race number and times does have an impact on the training required to be able to complete some of the racing loads. It is worth noting that some loads i.e. more than 12 maximal races (i.e. 2 per day) would not be recommended for a youth athlete over a short number of days, if the aim is to produce to a best performance at the end of the week and also avoid injury.