BOOK OF ABSTRACTS

WCC-PPT Protocol: Talent Identification References Male-Endurance Cyclists per Continent (2013-2016)

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Introduction

World Cycling Centre (UCI-WCC) offers training and development, with three permanent groups in the Olympic disciplines of road, track and BMX, in order to leverage their sporting careers. Human, material, and financial resources could become limiting factors when performing talent identification (TID) programs. Consequently, we have designed a test, World Cycling Centre – Power Profile Test (WCC-PPT), which can provide coaches around the world with relevant information about the physical potential of their cyclists and an initial benchmark thanks to a simple but reliable protocol, might become an asset for the cycling industry (Gonzalez-Tablas et al., 2016). Power Profile Test (PPT) assesses a cyclist's maximum capacity to produce power over durations that are strongly related to physiological capacities required to perform in specific cycling events (Quod et al. 2010; Novak et al. 2017).

Purpose: The aim of this study was to generate new references to help coaches identifying potential talented male-endurance cyclists around the world, creating groups per continent.

Methods

A total of 469, international level endurance male cyclists from 89 countries of Africa, America, Asia, and Europe completed the WCC-PPT. The data used for analysis were collected over a 3-year period (2013-2016), at the UCI-WCC, its Satellite-Centers and its collaborators. WCC-PPT was performed on an air-braked cycle ergometer (WattBike Ltd, Nottingham, UK), that is consider to be reliable and validity for talent identification purposes (Bellinger & Minahan, 2014; Hopker et al., 2010), with the UCI-WCC standardized protocol (Gonzalez-Tablas et al., 2016).

Continuous variables are summarized by mean, 75th and 90th percentiles.

Results

Anthropometrical characteristics and WCC-PPT results for male-endurance cyclists are presented in Table 1.

Table 1 : Anthropometrical characteristics and WCC-PPT results

Variable	Mean*					75th Pctl					90th Pctl				
	World	Africa	America	Asia	Europe	World	Africa	America	Asia	Europe	World	Africa	America	Asia	Europe
Anthropometrical Characteristics															
Age	21±4	42±43	19±2	31±19	18±1	22	22	21	26	19	27	24	22	31	19
Mass	65.51±6.34	64.07±4.68	67.19±5.19	64.44±6.80	70.25±6.75	71.50	66.85	70.80	70.40	75.30	75.60	72.90	76.30	75.52	77.42
Height	1.75±0.05	1.75±0.05	1.75±0.06	1.73±0.05	1.79±0.05	1.79	1.79	1.80	1.78	1.83	1.83	1.83	1.85	1.80	1.89
BMI	21.49±1.50	20.90±0.93	21.94±1.12	21.50±1.71	21.71±1.78	22.73	21.54	22.82	22.94	23.22	23.81	22.37	23.62	24.19	24.27
First Effort (6s)															
PP	1160±171	1124±156	1220±150	1128±181	1258±144	1314	1243	1344	1265	1379	1435	1416	1466	1400	1458
RPP	17.73±2.05	17.51±1.85	18.23±1.57	17.55±2.33	18.12±1.77	19.49	18.95	19.46	19.55	19.84	20.81	20.24	20.84	21.04	20.41
AP	967±155	917±130	1012±130	953±169	1074±133	1092	1038	1124	1082	1181	1206	1084	1209	1209	1251
RAP	14.82±1.77	14.30±1.53	15.05±1.19	14.85±2.15	15.40±1.18	16.32	15.42	15.92	16.78	16.34	17.72	16.36	17.00	18.18	17.11
PC	162±9	166±8	165±6	159±11	166±6	171	171	170	167	171	176	176	174	176	176
2nd Effort (6s)															
PP	1179±172	1120±149	1264±151	1156±177	1244±165	1324	1231	1372	1298	1393	1457	1349	1546	1444	1480
RPP	18.04±2.02	17.44±1.67	18.87±1.61	17.94±2.26	18.16±1.87	19.66	18.82	19.99	19.97	19.62	21.19	19.75	21.95	21.26	20.59
AP	1008±154	960±133	1074±143	986±154	1105±149	1143	1066	1178	1116	1233	1267	1169	1320	1224	1293
RAP	15.43±1.80	14.97±1.60	15.97±1.50	15.33±2.01	15.92±1.34	16.93	16.29	17.23	17.11	16.99	18.21	17.09	18.12	18.55	17.50
PC	160±10	160±10	161±7	159±11	161±9	167	167	167	167	171	171	176	171	171	176
3rd Effort (30s)															
PP	1046±163	1023±124	1124±157	1024±170	1050±170	1179	1129	1248	1171	1190	1304	1242	1339	1302	1296
RPP	15.63±2.44	14.91±2.77	16.76±1.85	15.93±2.32	14.91±2.22	17.67	17.12	18.49	18.00	16.59	19.06	17.91	19.64	19.14	18.41
AP	660±91	648±69	717±85	631±94	706±94	745	712	806	714	796	807	758	834	771	825
RAP	10.09±1.06	10.11±0.76	10.65±0.70	9.82±1.24	10.28±1.10	11.01	10.76	11.31	10.97	11.17	11.56	11.18	11.78	11.63	11.55
4th Effort (4min)															
AP	324±63	339±58	375±58	282±49	392±54	375	389	430	325	438	431	422	467	353	484
RAP	4.95±0.90	5.29±0.87	5.59±0.67	4.41±0.77	5.74±0.69	5.80	6.16	6.15	5.03	6.44	6.32	6.51	6.68	5.62	6.71

*mean±standard deviation
PP: Peak Power
RPP: Relative Peak Power
AP: Average Power
RAP: Relative Average Power
PC: Peak Cadence

Conclusion

The WCC-PPT has been successful to create a large and reliable database, that will allow the cycling community to generate power outputs benchmarks to identify talented male-endurance cyclist all over the world.

It is important to continue working and increase the number of cyclists tested around the world to create relevant references per gender and age groups. Further research will be done to evaluate the reliability and validity of this test for TID purposes as well as to create new databases with more number of cyclists tested.

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