



STATS SHEET TESTS SPRINT

Dr Pierre SAMOZINO
Dr Jean-Benoit MORIN
Laboratoire de Physiologie de l'Exercice (EA4338)
CONTACT

SPAIN · Collaborator - Dr. Pedro JIMÉNEZ-REYES
peterjr49@hotmail.com



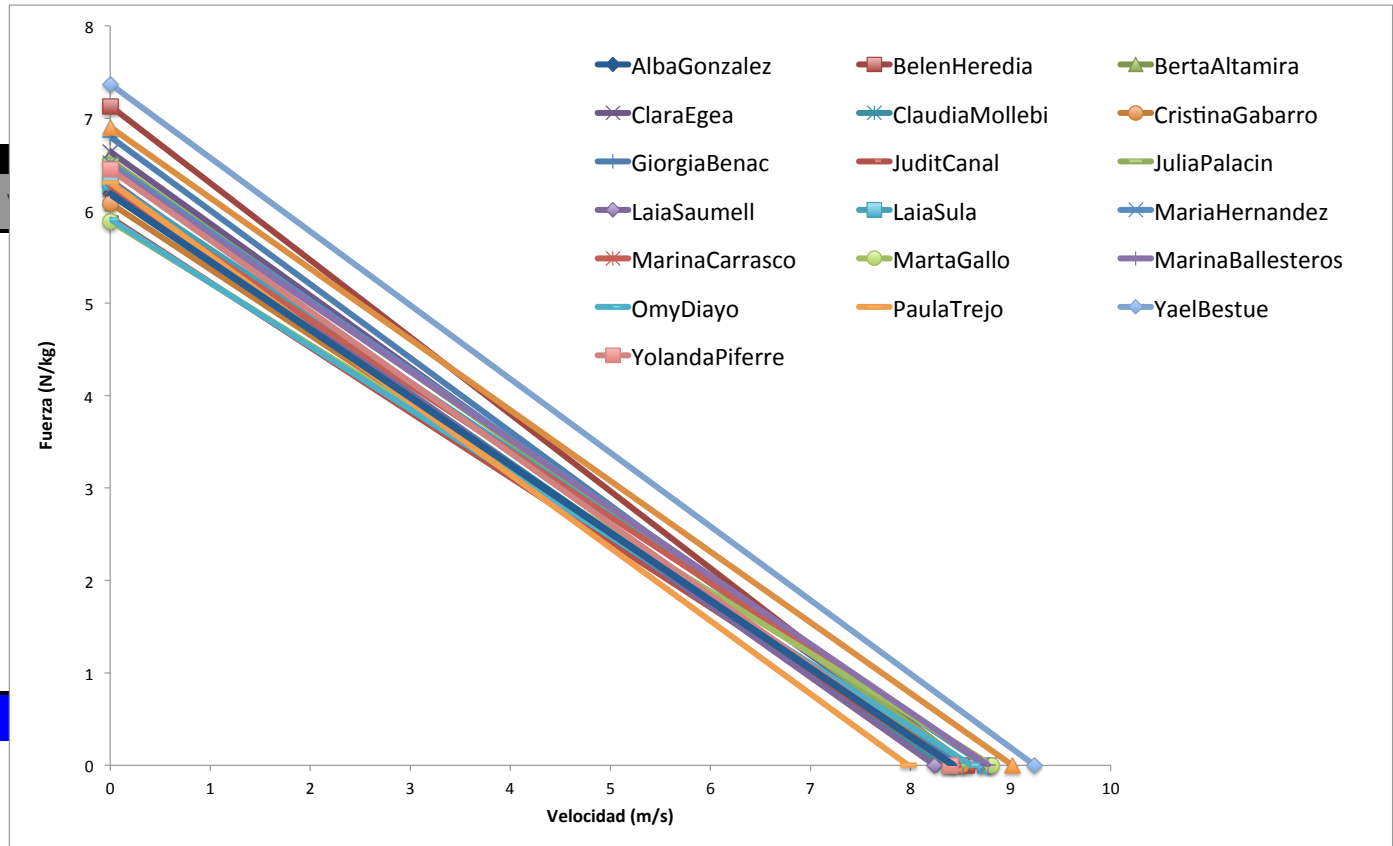
NAME	Mass (kg)	Physical qualities evaluated during the acceleration						Mechanical effectiveness			Performance parameters						
		Vmax theoretical V0 (m/s)	Fmax theoretical F0 (N)	Fmax theoretical F0 (N/kg)	Pmax (W)	Horizontal Power Pmax (W/kg)	Force-Velocity profile	mean RF on 10m	RFpeak	DRF	Time @ 5 m (s)	Time @ 10 m (s)	Time @ 15 m (s)	Time @ 20 m (s)	Time @ 25 m (s)	Time @ 30 m (s)	Distance in 2 s (m)
AlbaGonzalez	51	8,43	315,36	6,18	660,15	12,94	-37,42	0,27	0,41	-6,82%	1,51	2,29	3,02	3,68	4,32	4,96	7,92
BelenHeredia	52	8,56	370,96	7,13	787,63	15,15	-43,36	0,31	0,49	-7,51%	1,41	2,18	2,86	3,50	4,14	4,76	8,59
BertaAltamira	54	8,38	356,02	6,59	740,65	13,72	-42,47	0,29	0,47	-7,13%	1,45	2,26	2,95	3,63	4,27	4,89	8,15
ClaraEgea	55	8,53	365,06	6,64	773,51	14,06	-42,80	0,28	0,43	-7,18%	1,44	2,23	2,94	3,58	4,22	4,83	8,32
ClaudiaMollebi	48	8,34	301,97	6,29	625,88	13,04	-36,21	0,26	0,39	-7,07%	1,49	2,30	3,00	3,69	4,33	4,97	7,88
CristinaGabarro	49	8,51	297,96	6,08	629,62	12,85	-35,01	0,27	0,41	-6,62%	1,50	2,31	3,02	3,68	4,34	4,96	7,86
GiorgiaBenac	56	8,52	380,78	6,80	806,40	14,40	-44,67	0,28	0,44	-7,35%	1,44	2,21	2,92	3,56	4,20	4,81	8,44
JuditCanal	48	8,43	284,46	5,93	595,07	12,40	-33,76	0,27	0,40	-6,55%	1,52	2,35	3,05	3,74	4,38	5,02	7,66
JuliaPalacin	50	8,59	327,31	6,55	697,62	13,95	-38,11	0,29	0,44	-7,00%	1,45	2,24	2,95	3,59	4,23	4,85	8,20
LaiaSaumell	64	8,24	405,16	6,33	829,51	12,96	-49,17	0,27	0,42	-7,12%	1,48	2,29	3,02	3,68	4,34	4,98	7,96
LaiaSula	52	8,74	327,81	6,30	711,76	13,69	-37,49	0,28	0,42	-6,68%	1,48	2,27	2,95	3,61	4,23	4,85	8,08
MariaHernandez	48	8,75	312,56	6,51	678,81	14,14	-35,72	0,29	0,44	-6,82%	1,45	2,24	2,92	3,56	4,20	4,80	8,22
MarinaCarrasco	55	8,78	343,02	6,24	747,01	13,58	-39,08	0,29	0,45	-6,48%	1,48	2,27	2,97	3,61	4,25	4,85	8,03
MartaGallo	48	8,81	282,51	5,89	619,65	12,91	-32,06	0,25	0,35	-6,35%	1,51	2,32	3,02	3,66	4,30	4,92	7,72
MarinaBallesteros	55	8,77	355,86	6,47	775,41	14,10	-40,56	0,29	0,43	-6,80%	1,45	2,24	2,92	3,56	4,20	4,80	8,19
OmyDlazo	58	8,60	342,60	5,91	732,07	12,62	-39,82	0,27	0,40	-6,39%	1,52	2,33	3,04	3,70	4,34	4,98	7,73
PaulaTrejo	45,7	7,97	288,11	6,30	570,83	12,49	-36,13	0,26	0,41	-7,39%	1,49	2,32	3,05	3,75	4,41	5,08	7,76
YaelBestue	56	9,24	412,75	7,37	946,54	16,90	-44,68	0,32	0,48	-7,17%	1,37	2,11	2,75	3,37	3,95	4,52	9,06
YolandaPiferre	53	8,40	341,61	6,45	712,56	13,44	-40,66	0,28	0,43	-7,07%	1,47	2,26	2,97	3,65	4,29	4,93	8,05
52,51		8,56	337,47	6,42	717,93	13,65	-39,43	0,28	0,43	-0,07	1,47	2,27	2,96	3,62	4,26	4,88	8,10
4,45		0,27	38,84	0,39	92,30	1,07	4,34	0,02	0,03	0,00	0,04	0,06	0,07	0,09	0,10	0,12	0,34

Maximal power and force-velocity profile in sprint running

Performance during the sprint acceleration phase depends on the mechanical power in the horizontal direction an athlete is able to produce. Thus, the maximal power (Pmax) of the athlete is the main physical quality. However, power is the product of horizontal force and velocity. Mechanical power output depends on force capability (being able to develop very high levels of force, which is represented by the theoretical maximal force F0), and on the velocity capabilities (being able to run at high velocity, which is represented by the theoretical maximal velocity V0). The latter variable V0 represents the sprint running velocity an athlete would be able to produce, should no external constraint (air friction for instance) be present. Force and velocity capabilities are very important in the first 10-15 m of the sprint, whereas velocity capabilities are essential between 25 and 40-m or more. Last, the force-velocity profile (which is represented by the absolute value of the slope of the linear force-velocity relationship) allows to quantify and describe the balance between the two capabilities. The higher the absolute value of the slope, the more force-oriented the profile, and vice versa.



Parameters during the acceleration				
Distance in 4 s (m)	Distance in 6 s (m)	Top speed (m/s)	Moment Top speed (m)	Pico Velocidad (m/s)
22,22	38,05	8,01	39,41	8,69
23,75	40,04	8,21	41,97	9,00
22,80	38,69	8,06	51,21	8,53
23,03		8,14	39,17	8,86
22,27		7,89	33,58	8,44
22,34	38,09	8,10	44,64	8,69
23,24		8,12	35,08	8,72
21,91		7,91	32,90	8,83
23,05		8,16	38,87	8,94
22,31	37,76	7,91	42,31	9,08
22,98	39,35	8,30	42,00	9,22
23,25	39,69	8,33	44,66	8,81
22,93		8,30	38,29	9,25
22,37	38,67	8,31	43,45	9,00
23,24	39,73	8,35	41,33	9,25
22,20	38,06	8,15	41,02	8,81
21,70		7,59	33,55	8,39
25,24		8,79	38,04	9,72
22,62	38,48	8,03	43,95	8,50
22,81	38,78	8,14	40,29	8,88
0,79	0,79	0,25	4,58	0,33



tal force applied onto the
to keep on producing force
ce) applied to him. Force
hip) differs for each athlete,