



STATS SHEET TESTS SPRINT

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| NAME | Mass (kg) | Physical qualities evaluated during the acceleration | | | | | Mechanical effectiveness | | | | Performance pa | | | | | | |
|-------------------|-----------|--|-------------------------|----------------------------|----------|------------------------------|--------------------------|----------------|--------|--------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|---------------------|
| | | 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 | 8,30 | 315,64 | 6,19 | 650,89 | 12,76 | -38,02 | 0,27 | 0,41 | -6,93% | 1,51 | 2,32 | 3,02 | 3,70 | 4,37 | 5,01 | 7,89 |
| BelenHeredia | 52 | 8,52 | 366,40 | 7,05 | 775,44 | 14,91 | -42,98 | 0,30 | 0,47 | -7,52% | 1,42 | 2,19 | 2,87 | 3,53 | 4,15 | 4,77 | 8,61 |
| BertaAltamira | 54 | 8,34 | 359,70 | 6,66 | 744,49 | 13,79 | -43,13 | 0,29 | 0,47 | -7,23% | 1,45 | 2,24 | 2,94 | 3,63 | 4,27 | | 8,16 |
| ClaraEgea | 55 | 8,41 | 364,55 | 6,63 | 761,50 | 13,85 | -43,34 | 0,29 | 0,45 | -7,23% | 1,45 | 2,24 | 2,95 | 3,61 | 4,25 | 4,89 | 8,19 |
| ClaudiaMollebi | 48 | 8,35 | 285,00 | 5,94 | 591,38 | 12,32 | -34,13 | 0,26 | 0,38 | -6,69% | 1,53 | 2,34 | 3,06 | 3,74 | 4,41 | 5,05 | 7,70 |
| CristinaGabarro | 49 | 8,53 | 327,17 | 6,68 | 692,63 | 14,14 | -38,37 | 0,28 | 0,44 | -7,21% | 1,45 | 2,24 | 2,92 | 3,58 | 4,22 | 4,84 | 8,26 |
| GiorgiaBenac | 56 | 8,28 | 400,21 | 7,15 | 823,67 | 14,71 | -48,31 | 0,29 | 0,46 | -7,89% | 1,41 | 2,20 | 2,88 | 3,54 | 4,21 | 4,82 | 8,51 |
| JuditCanal | 48 | 8,51 | 271,77 | 5,66 | 574,59 | 11,97 | -31,93 | 0,25 | 0,37 | -6,27% | 1,55 | 2,36 | 3,09 | 3,77 | 4,41 | | 7,44 |
| JuliaPalacin | 50 | 8,67 | 323,49 | 6,47 | 696,57 | 13,93 | -37,31 | 0,28 | 0,41 | -6,93% | 1,46 | 2,25 | 2,93 | 3,59 | 4,21 | 4,85 | 8,22 |
| LailaSaumell | 64 | 8,27 | 390,75 | 6,11 | 802,17 | 12,53 | -47,27 | 0,27 | 0,43 | -6,81% | 1,50 | 2,34 | 3,04 | 3,72 | 4,38 | 5,02 | 7,79 |
| LailaSula | 52 | 8,65 | 338,17 | 6,50 | 726,22 | 13,97 | -39,11 | 0,28 | 0,42 | -6,97% | 1,46 | 2,25 | 2,93 | 3,59 | 4,21 | 4,85 | 8,21 |
| MariaHernandez | 48 | 8,87 | 330,70 | 6,89 | 728,72 | 15,18 | -37,26 | 0,29 | 0,44 | -7,13% | 1,42 | 2,19 | 2,85 | 3,49 | 4,11 | 4,71 | 8,64 |
| MarinaCarrasco | 55 | 8,39 | 372,52 | 6,77 | 776,00 | 14,11 | -44,42 | 0,28 | 0,44 | -7,43% | 1,44 | 2,23 | 2,93 | 3,60 | 4,24 | 4,85 | 8,35 |
| MartaGallo | 48 | 8,64 | 305,30 | 6,36 | 654,54 | 13,64 | -35,35 | 0,28 | 0,42 | -6,80% | 1,46 | 2,25 | 2,96 | 3,62 | 4,26 | 4,88 | 8,15 |
| MarinaBallesteros | 55 | 8,63 | 364,16 | 6,62 | 781,34 | 14,21 | -42,18 | 0,28 | 0,42 | -7,11% | 1,45 | 2,24 | 2,92 | 3,56 | 4,20 | 4,82 | 8,24 |
| OmyDiayo | 58 | 8,50 | 334,90 | 5,77 | 706,98 | 12,19 | -39,38 | 0,27 | 0,42 | -6,28% | 1,53 | 2,36 | 3,06 | 3,75 | 4,39 | 5,03 | 7,62 |
| PaulaTrejo | 45,7 | 7,98 | 287,42 | 6,29 | 568,96 | 12,45 | -36,03 | 0,28 | 0,45 | -7,22% | 1,51 | 2,32 | 3,06 | 3,75 | 4,43 | 5,09 | 7,83 |
| YaelBestue | 56 | 9,30 | 384,11 | 6,86 | 887,02 | 15,84 | -41,29 | 0,31 | 0,45 | -6,71% | 1,41 | 2,16 | 2,82 | 3,44 | 4,01 | 4,61 | 8,69 |
| YolandaPiferre | 53 | 8,08 | 350,09 | 6,61 | 701,89 | 13,24 | -43,35 | 0,28 | 0,46 | -7,48% | 1,47 | 2,28 | 3,00 | 3,68 | 4,35 | 4,99 | 8,11 |
| | 52,51 | 8,49 | 340,63 | 6,48 | 718,16 | 13,67 | -40,17 | 0,28 | 0,43 | -0,07 | 1,47 | 2,26 | 2,96 | 3,63 | 4,27 | 4,89 | 8,14 |
| | 4,45 | 0,29 | 36,79 | 0,41 | 84,69 | 1,09 | 4,39 | 0,01 | 0,03 | 0,00 | 0,04 | 0,06 | 0,08 | 0,10 | 0,11 | 0,13 | 0,35 |

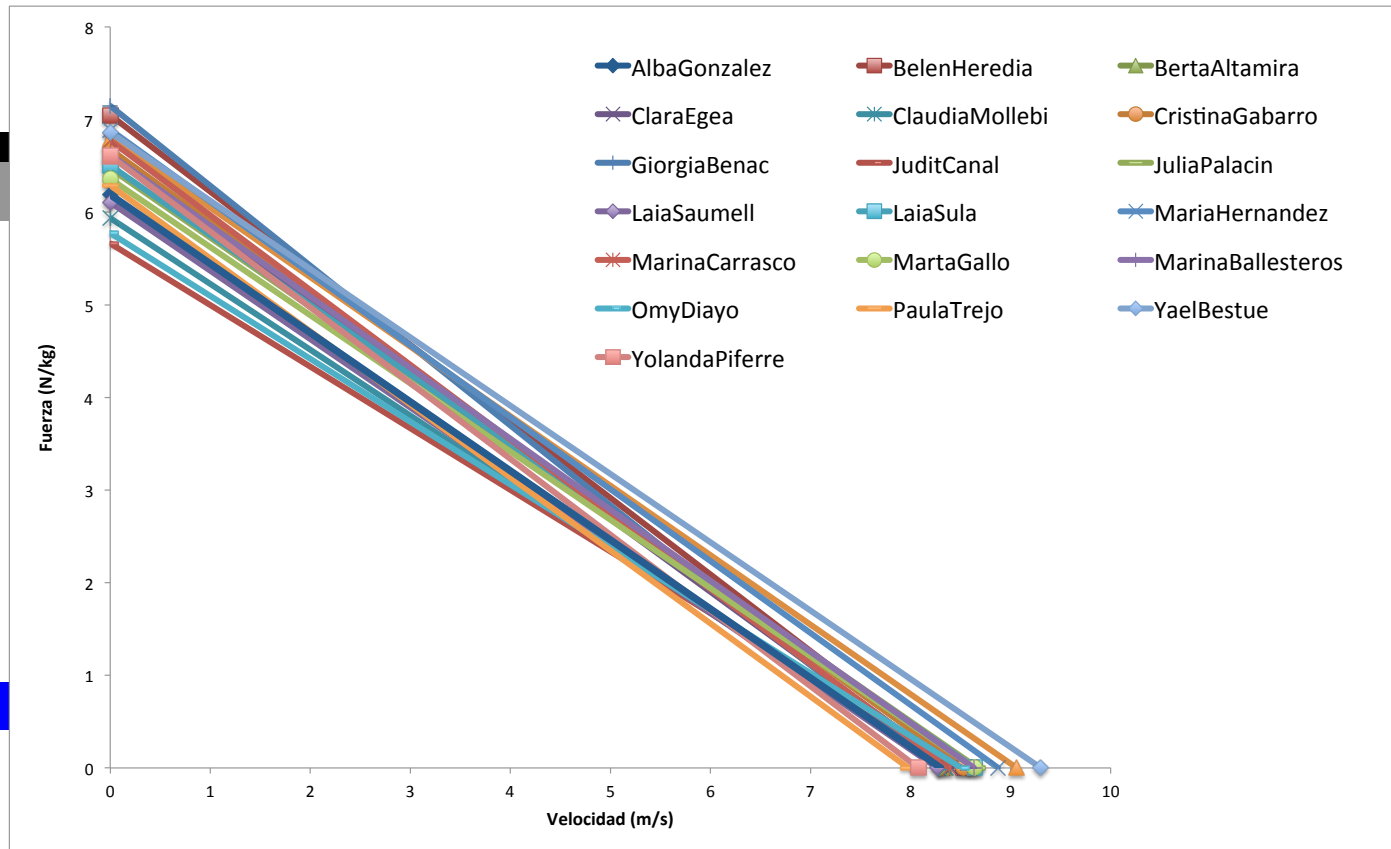
Maximal power and force-velocity profile in sprint running

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 displacement velocity of the overall body. 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 as fast as possible, 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-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) |
|---------------------|---------------------|-----------------|----------------------|----------------------|
| 22,04 | 37,68 | 7,93 | 42,41 | 8,75 |
| 23,52 | | 8,15 | 36,61 | 8,89 |
| 22,79 | | 7,89 | 29,13 | 8,56 |
| 22,90 | | 7,97 | 30,99 | 8,72 |
| 21,73 | 37,34 | 7,93 | 41,39 | 8,56 |
| 23,11 | | 8,12 | 37,67 | 8,58 |
| 23,33 | 39,18 | 7,97 | 39,52 | 8,81 |
| 21,57 | | 7,85 | 28,02 | 8,44 |
| 23,13 | | 8,21 | 38,18 | 8,97 |
| 22,03 | 37,47 | 7,89 | 37,81 | 8,86 |
| 23,13 | 39,23 | 8,23 | 42,04 | 9,14 |
| 23,90 | | 8,40 | 35,95 | 9,25 |
| 22,94 | 38,87 | 8,04 | 41,61 | 8,89 |
| 22,79 | | 8,19 | 38,30 | 9,11 |
| 23,21 | 39,52 | 8,24 | 41,45 | 9,14 |
| 21,73 | | 7,95 | 31,08 | 8,78 |
| 21,63 | 36,74 | 7,64 | 40,32 | 8,25 |
| 24,64 | | 8,76 | 35,35 | 9,75 |
| 22,22 | 37,58 | 7,75 | 41,38 | 8,50 |
| 22,75 | 38,18 | 8,06 | 37,33 | 8,84 |
| 0,83 | 1,02 | 0,25 | 4,54 | 0,35 |



total force applied onto the athlete to keep on producing force. Force applied to him. Force applied to his hip differs for each athlete,