**Supplementary material File S4.** Reference values from the present study's **backstroke** start and turn trials (n = 22) determined with the nPASS for those variables with acceptable validity or reliability using the 10th to 90th percentiles.

| Variables | Backstroke percentiles [World Aquatics Points] | | | | |
|---|---|---|---|---|---|
| | **10th** [719] | **25th** [755] | **50th** [794] | **75th** [874] | **90th** [905] |
| **Start performance** | | | | | |
| Block time [s] | 0.65 | 0.64 | 0.63 | 0.61 | 0.60 |
| Take off angle [°] | 16.40 | 17.85 | 20.70 | 25.40 | 26.40 |
| Flight time [s] | 0.14 | 0.15 | 0.18 | 0.18 | 0.34 |
| Flight distance [m] | 1.88 | 1.92 | 1.96 | 2.28 | 2.78 |
| Entry angle [°] | 16.80 | 18.70 | 22.60 | 27.05 | 29.10 |
| Kicking rate [bpm] | 149.6 | 150.0 | 156.7 | 171.4 | 179.6 |
| Distance per kick [m] | 0.53 | 0.60 | 0.61 | 0.70 | 0.74 |
| Breakout distance [m] | 11.30 | 11.85 | 12.90 | 13.25 | 13.60 |
| Stroke rate [bpm] | 49.3 | 50.3 | 52.1 | 53.3 | 53.7 |
| Distance per stroke [m] | 1.70 | 1.78 | 1.84 | 1.89 | 1.93 |
| Swimming velocity [$m \cdot s^{-1}$] | 1.49 | 1.49 | 1.51 | 1.68 | 1.72 |
| 5m time [s] | 2.05 | 2.00 | 1.92 | 1.71 | 1.55 |
| 10m time [s] | 5.22 | 5.21 | 5.12 | 4.48 | 3.94 |
| 15m time [s] | 8.51 | 8.45 | 8.41 | 7.27 | 6.57 |
| 25m time [s] | 15.18 | 15.16 | 15.03 | 13.16 | 12.41 |
| **Turn performance** | | | | | |
| 5m-IN [s] | 3.82 | 3.69 | 3.47 | 3.21 | 3.15 |
| 5m-OUT [s] | 2.05 | 2.01 | 1.92 | 1.53 | 1.50 |
| 10m-OUT [s] | 5.44 | 5.43 | 4.97 | 4.27 | 4.15 |
| Total turn time [s] | 9.26 | 9.18 | 8.44 | 7.43 | 7.39 |
| Kicking rate [bpm] | 120.0 | 124.0 | 128.0 | 128.0 | 133.0 |
| Distance per kick [m] | 0.66 | 0.67 | 0.77 | 0.88 | 0.90 |
| Breakout distance [m] | 7.40 | 8.20 | 11.80 | 12.60 | 12.90 |