

| Variables | Arm | gdl | F | p-value | η^2p |
|-----------------------------------|-------------------------|-------|------|---------|-----------|
| | Right | 9,99 | 23.3 | < .001 | 0.680 |
| Total Area Under the Curve | Left | 9,99 | 22.7 | < .001 | 0.660 |
| | Right vs Left | 1,22 | 0.2 | 0.644 | 0.010 |
| | Time × side interaction | 9,198 | 0.3 | 0.968 | 0.014 |
| | | | | | |
| | Right | 9,99 | 1.9 | 0.062 | 0.146 |
| Area of the First Halves | Left | 9,99 | 5.2 | < .001 | 0.321 |
| | Right vs Left | 1,22 | 2.2 | 0.152 | 0.092 |
| | Time × side interaction | 9,198 | 0.9 | 0.533 | 0.039 |
| | | | | | |
| | Right | 9,99 | 35.0 | < .001 | 0.761 |
| Area of the Second Halves | Left | 9,99 | 39.0 | < .001 | 0.785 |
| | Right vs Left | 1,22 | 0.4 | 0.527 | 0.021 |
| | Time × side interaction | 9,198 | 0.6 | 0.828 | 0.030 |
| | | | | | |
| | Right | 9,99 | 31.9 | < .001 | 0.744 |
| Peak Force | Left | 9,99 | 64.0 | < .001 | 0.859 |
| | Right vs Left | 1,22 | 0.3 | 0.622 | 0.011 |
| | Time × side interaction | 9,198 | 0.5 | 0.899 | 0.022 |
| | | | | | |
| | Right | 9,99 | 0.9 | 0.552 | 0.076 |
| Peak Index | Left | 9,99 | 0.5 | 0.841 | 0.043 |
| | Right vs Left | 1,22 | 1.2 | 0.283 | 0.052 |
| | Time × side interaction | 9,198 | 0.3 | 0.965 | 0.013 |
| | | | | | |
| | Right | 9,99 | 23.4 | < .001 | 0.688 |
| Mean Force | Left | 9,99 | 22.7 | < .001 | 0.677 |
| | Right vs Left | 1,22 | 0.2 | 0.642 | 0.011 |
| | Time × side interaction | 9,198 | 0.3 | 0.968 | 0.015 |
| | | | | | |
| | Right | 9,99 | 4.4 | < .001 | 0.398 |
| Force Centroid | Left | 9,99 | 2.3 | 0.024 | 0.171 |
| | Right vs Left | 1,22 | 3.71 | 0.067 | 0.144 |

| | | | | | |
|--------------------------------|-------------------------|-------|------|--------|-------|
| | Time × side interaction | 9,198 | 1.2 | 0.319 | 0.059 |
| | | | | | |
| | Right | 9,99 | 5.0 | < .001 | 0.314 |
| Asymmetry Index | Left | 9,99 | 3.8 | < .001 | 0.264 |
| | Right vs Left | 1,22 | 3.9 | 0.062 | 0.016 |
| | Time × side interaction | 9,198 | 0.9 | 0.539 | 0.044 |
| | | | | | |
| Stroke Frequency | – | 9,99 | 40.1 | < .001 | 0.785 |
| | | | | | |
| Stroke Efficiency Index | – | 9,99 | 39.5 | < .001 | 0.782 |

Supplementary Table 1. A summary of the ANOVA results for each variable, comparing the right and left arms.

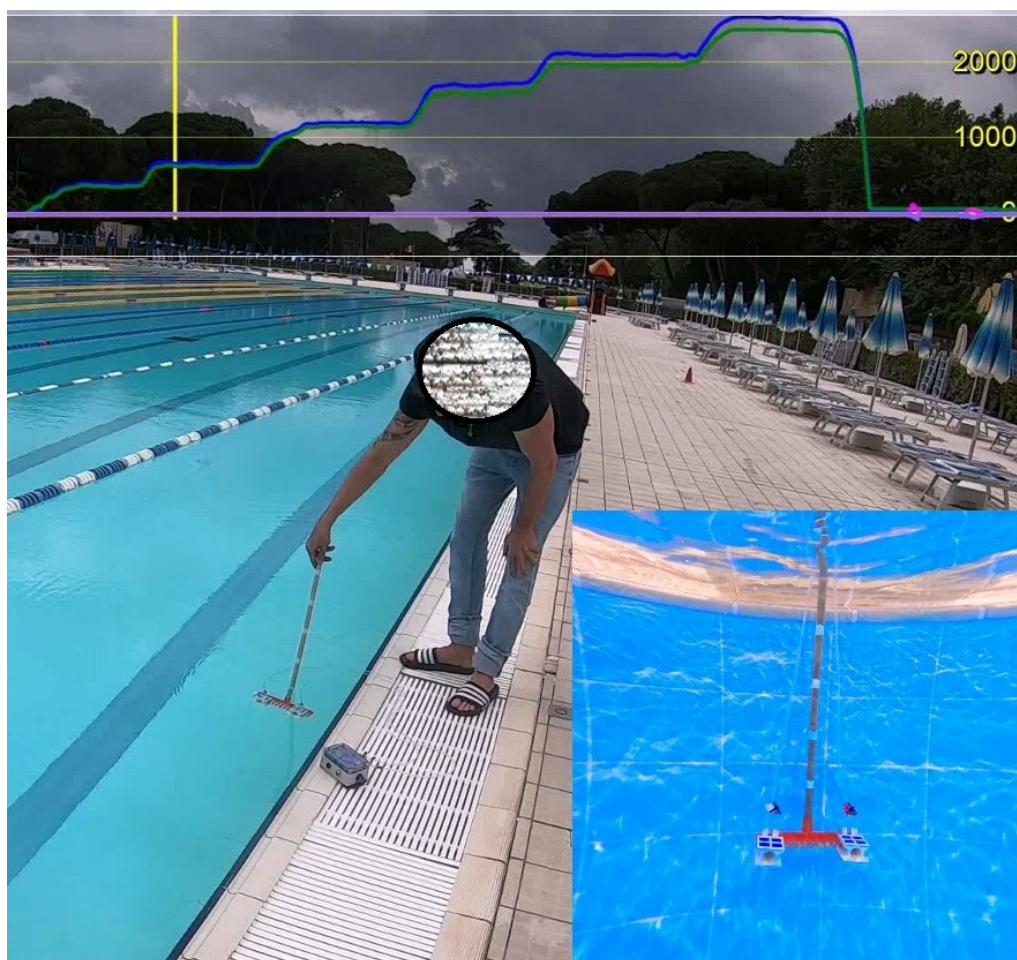


Figure S1. Paddles calibration setup and graph of hydrostatic pressure measured by right (blue line) and left (green line) paddles.

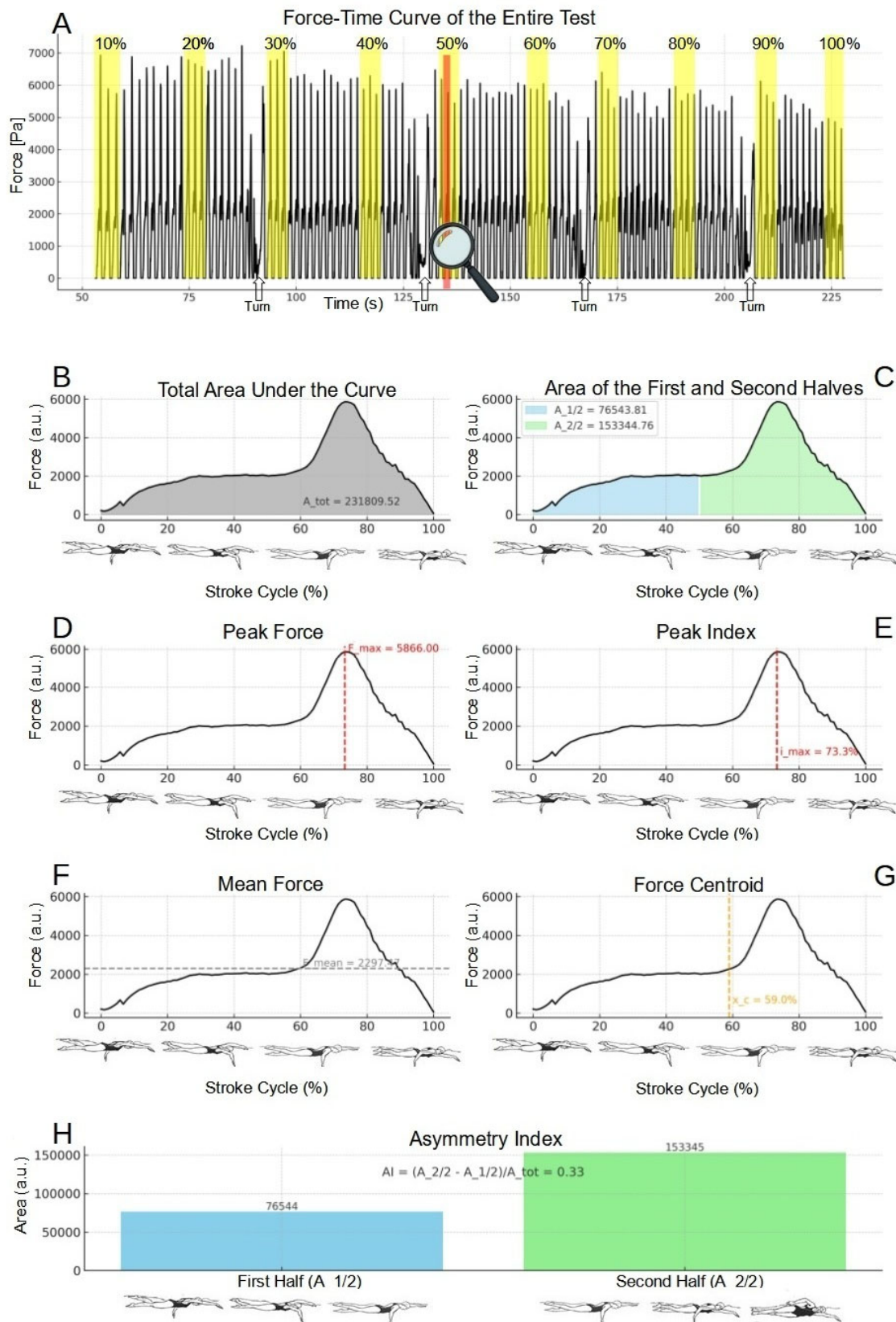


Figure S2. Force curve analysis method. Panel A shows the force–time curve of the entire test for the right arm of a representative swimmer. For each of the 10 time points (from 10% to 100% of the trial duration), three consecutive stroke cycles were selected, excluding those near turns and avoiding the

first stroke of each lap. These were resampled at 101 points and averaged to obtain a single representative curve per time point. Panels B–G illustrate the stroke-by-stroke force variables extracted from each averaged curve: B) Total Area Under the Curve, C) Force Area of the First and Second Halves, D) Peak Force, E) Peak Index, F) Mean Force, G) Force Centroid. Panel H displays the Asymmetry Index, calculated as the normalized difference between the second and first half areas. These variables quantify the intensity, timing, and distribution of propulsive force during the stroke.