D2.S1.1(5). One week L-Arginine supplementation did not improve 200 m swimming time in trained swimmers

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L-arginine (ARG) is semi-essential amino acid and important for the biosynthesis of nitric oxide (NO), an essential substance that increases blood flow (Wu & Meininger, 2000, *The Journal of nutrition, 130*(11), 2626–2629). Research on healthy humans and athletic populations are still inconsistent and no studies exist to date which have examined ARG supplementation on swimmers. Parallel and non-weight-bearing body position in swimming provide more blood pumping to muscles and therefore more effective circulatory system (Maglischo & Brennan, 1985, *Swim for the health of it*. Mayfield). Hence, increased NO level may be more effective on swimming performance. The present study aimed to determine the effect of ARG supplementation on 200 m swimming performance. Ethical approval was obtained from the Faculty of Applied and Health Sciences ethics committee at the University of Chester. All subjects trained a minimum of 3 times per week to maintain their training condition on a regular, planned basis, for health, but not for a specific event. In a randomised, cross-over, double-blind design, eight trained male swimmers firstly performed a baseline time-trial (TT) with no supplements. The next 2 trials, they consumed either: 8 g of ARG or PLA capsules (8 capsules of 1 gram each) over 7-days. Following supplementation period, participant completed a 200-m TT. Blood lactate concentration (BLa) was measured at rest, before and after TT via blood lactate analyser. ARG supplementation had an 80% likely trivial effect (–0.0 ± 0.14 s; d = 0.13) on 200 m TT performance (146.02 ± 10.35 sec; 147.59 ± 10.86 sec in ARG and PLA, respectively), an 82% likely trivial (–0.20 ± 0.24 s; d = 0.04) in first 100 m, and unclear effect (–0.06 ± 0.14 s; d = 0.20) on second 100 m. There was a 78% likely moderate (−1.17 ± 0.68 mmol/L; d = 0.49) increase in BLa (13.13 ± 1.77 mmol/L; 12.15 ± 2.67 mmol/L in ARG and PLA, respectively). ARG supplementation did not provide considerable benefits for 200 m swimming performance. Despite expectation was a decrease, there was a increase in BLa after ARG. This may relate to increase mean power output as per other modes of sprint exercise. Further studies should be performed on longer distance due to its more aerobic condition. ARG-depended pathway requires and uses oxygen for NO synthesis. Therefore, ARG-depended NO pathway may benefit more in more aerobic conditions.