

Abstract Submitted
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Repeatability of arm pull patterns in front crawl swimming

LESTER K. SU, JOHN C. KEGELMAN, Johns Hopkins University — The arm pull in human swimming has seen extensive study, particularly involving the front crawl stroke. This work has primarily been aimed either at clarifying the mechanisms of thrust generation by the arm and hand, or at comparing the relative performance of different canonical pulling patterns. In this work we investigate the degree to which swimmers adjust their arm and hand trajectories in response to instantaneous ambient conditions. Video imaging data from competitive swimmers indicates that there may be wide stroke-to-stroke variations in pull trajectories. This suggests that optimal stroking form may be less about a swimmer's ability to repeat idealized pull patterns, than about the swimmer's ability to respond to local flow conditions, or what is referred to in the swimming vernacular as the “feel” for the water.

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