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Effects of Progressive Fatigue and Expertise on Self-Talk Content in Running: An Ambulatory Assessment Approach Arne Nieuwenhuys (1)\*, Laurens J. Veltman (2), Louise M.A. Braakman-Jansen (2), & Paul A. Davis (3) (1) Behavioural Science Institute, Radboud University Nijmegen, The Netherlands (2) Institute for Behavioral Research, Twente University, The Netherlands (3) Department of Sport Development, Northumbria University, United Kingdom Introduction In this study we investigated how progressive fatigue differentially affects self-talk use (nr. of statements) and content (instructional, motivational, positive, negative) in recreational and competitive runners, by using a new ambulatory assessment method called "PsyqRun" – a smartphone application that enables online assessment of psychological states and variables (e.g. self-perceived exertion, self-talk) during exercise. Methods 42 participants (20 recreational runners, 22 competitive runners) performed a strenuous running exercise in which they attempted to reach a maximal distance over eight 2-minute intervals. Self-perceived exertion (RPE) and self-talk were assessed at the end of every interval by using the PsyqRun application. Heart rate was measured continuously with a heart rate monitor. Results RPE scores and heart rate measurement confirmed that fatigue systematically increased as a function of exercise interval. Under high levels of fatigue (i.e., at later intervals) participants generally reported more self-talk statements than under low levels of fatigue (i.e., at earlier intervals). More specifically, with increasing fatigue, participants' use of positive and motivational self-talk strongly increased at the cost of instructional self-talk, which strongly decreased. Finally, a marginally significant effect of expertise ( $p = .058$ ) indicated that competitive runners used more instructional self-talk than recreational runners – also under high levels of fatigue. Discussion Using modern smartphone technology, the current study was the first to provide an online assessment of fatigue and self-talk in running. Findings indicated that participants actively focused on their running technique at the start of the exercise (e.g., "keep running smoothly") but shifted to self-motivation and perseverance during later intervals, when they became more fatigued (e.g., "just one more interval!"). These results are consistent with research on fatigue and attentional focus and indicate that – with increasing fatigue – runners' thoughts and attention are automatically drawn inwards towards the monitoring of internal states and processes. Finally, it is suggested that by using more instructional self-talk, competitive runners may be able to

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maintain a more efficient running technique, also under high levels of fatigue. Further development of the PsyqRun application should clarify this matter, by relating the assessment of self-talk to objective measures of running technique and performance.

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