

THE EFFECTS OF MOTIVATIONAL SELF-TALK ON ENDURANCE PERFORMANCE AND RATE OF PERCEIVED EXERTION IN DIVISION III ATHLETES

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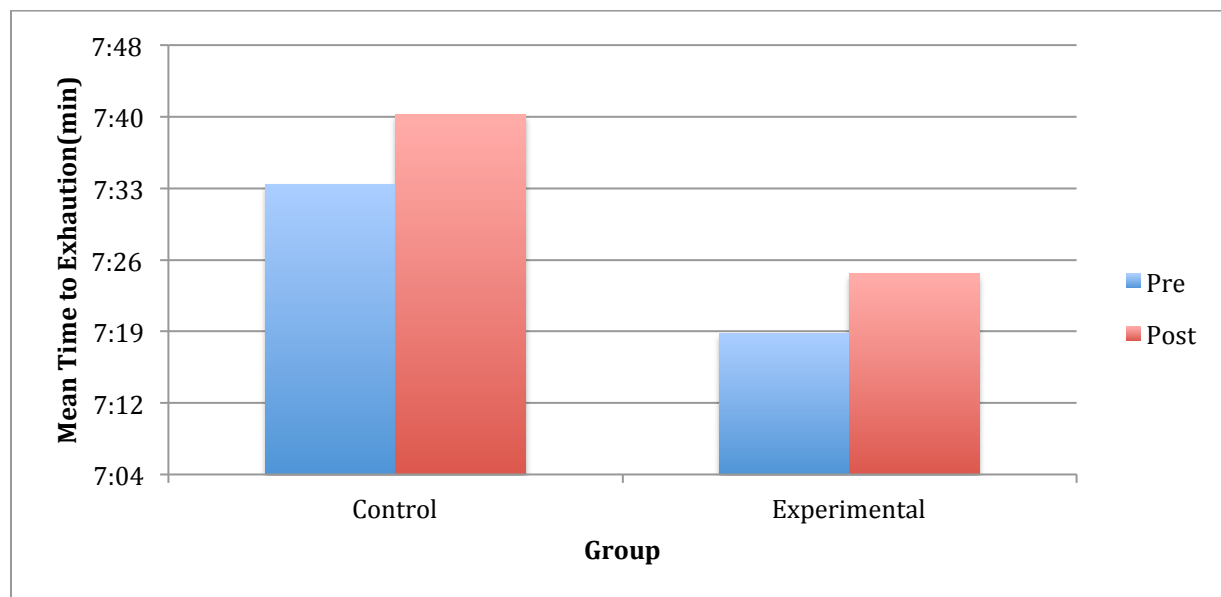
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INTRODUCTION: Self-talk is one of the most commonly used strategies to influence the intensity and duration of physical performance (Hamilton et al., 2007; Diaz-Ocejo et al., 2013). However, it has received little attention as a coping method in the study of perceived effort, particularly in National Collegiate Athletes Association (NCAA) Division III athletes. Previous research examining the use of self-talk to enhance sports performance has provided conflicting results (Van Raalte et al., 1995; Perkos et al., 2002) when tested with anaerobic performance; there is however very limited research with the use of self-talk to enhance aerobic performance (Blanchfield et al., 2014). Due to the limited research in this area, it is important to continue to add to the research that has already been published in order to understand the potential utility of self-talk for endurance athletes. The previous decade has seen a rise in novel self-talk research (Hamilton et al., 2007; Blanchfield et al., 2014) in which the findings of these studies have found motivational has had an effect on the improvement of endurance performance in recreationally trained subjects, though not to the extent that its effect on sport performance has been fully elucidated. Therefore, the purpose of this study was to examine the effect of motivational self-talk on endurance performance and rate of perceived exertion in 16 division III athletes.

METHODS: 16 (control = 7; intervention =9) NCAA division III student-athletes who played rugby, men's soccer, and women's volleyball, performed 3 separate cycle ergometer (Monark cycle ergometer) incremental VO₂ Max tests with a 72 hour rest period between the first and second visit and a one week rest period between the second and third visit. VO₂ max was measured by breath via a computerized metabolic gas analysis system (TrueOne2400 metabolic measurement system, Parvomedics, Sandy, UT) connected to an oro-mask. The device was calibrated before each test using the temperature, humidity, and barometric pressure of the lab. The incremental test started with a 2-minute rest, the output increased by 1 Kilopascal every 2 minutes until volitional exhaustion. Exhaustion was defined as a reduction in cadence on the cycle ergometer below 60 revolutions per minute (rpm) for five consecutive seconds. After the second test, the experimental group was introduced to motivational self-talk. Each participant was given a sheet with three motivational self-talk statements, which they had to use during their team's offseason lifting and conditioning sessions during their two-week rest period, before completing their final test. During the second and third visits, participants were asked every two minutes to point at Borg's Rate of Perceived Exertion Scale in order to measure how much energy they were exerting during the test. After each test, participants were asked to complete the Brunel Mood Scale, the motivational scale of the Dundee State Stress Questionnaire (DSSQ), and the Sport Motivation Scale (SMS-28). IBM SPSS version 19 was used to calculate statistics for this study. A statistical significance level of $p \leq 0.05$ was set for calculating results. Independent t-test was used to assess differences in time to exhaustion and Rate of Perceived exertion.

RESULTS: There was no significant effect of motivational self-talk on time to exhaustion between the control and the experimental group. The difference is shown in Figure 1.

Figure 1: Differences in mean Time to Exhaustion between control and experimental group pre- and post-intervention



The effects of motivational self-talk on rate of perceived exertion was also calculated using Borg’s 20-point Rate of Perceived Exertion Scale. There was no significant difference in the participants’ rate of perceived exertion pre- and post-intervention. This is shown in Table 2.

Table 2. Mean and Standard Deviations of participants RPE score pre- and post-intervention

	2-minute RPE (Pre)	2-minute RPE (Post)	4-minute RPE (Pre)	4-minute RPE (Post)	6-minute RPE (Pre)	6-minute RPE (Post)	8-minute RPE (Pre)	8-minute RPE (Post)
Control	9.71±2.56	10.57±1.62	13.29±1.80	13.86±1.46	16.71±1.70	16.71±1.50	18.33±0.58	18.41±1.41
Experimental	10.44±2.30	11.22±1.30	14.22±0.97	13.89±1.27	16.75±1.67	17.13±1.46	17.75±2.06	18±0.82

DISCUSSION: The purpose of this study was to cross-validate the results of Blanchfield et al. (2014) study examining the effect of motivational self-talk on endurance performance and Rate of Perceived Exertion. This study was designed to look at the effect of motivational self-talk on endurance performance and Rate of Perceived Exertion in Division III athletes. Results showed there was no significant difference in time to exhaustion and rate of perceived exertion between the control and experimental group. These results contradict the findings of Blanchfield et al. (2014) who saw a significant increase in time to exhaustion as well as a reduced RPE in recreationally trained athletes. The results of this study are significant because it brings up an

idea that unlike recreationally trained athletes, Division III athletes already have an innate sense of motivation that pushes them to do their best, which is why it is hard to measure if pre-determined self-talk statements will help improve the performance of an elite athlete. Some of the factors that may have affected the results of this study were the small sample size, participants in the control group having prior exposure to motivational self-talk, adherence to the usage of the self-talk statements given to the athletes to say, and the lack of equipment such as the electronic cycle ergometer used in Blanchfield et al.'s study. This study has important implications for future research. As stated by Blanchfield et al., there is limited research looking at the effect of motivational self-talk on endurance performance. In the future, research can be conducted on the effect of motivational self-talk on endurance performance in NCAA Division I and Division II athletes. The effect of motivational self-talk on RPE using Borg's 20 point scale compared to a session RPE scale should also be looked at to identify which scale is better suited for measuring exertion in an endurance performance. The findings of this study could also be cross-validated in order to enhance debate in this topic.

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