

Title - Caffeine improves anaerobic performance in 30s Wingate test

Presentation Type – Choose one of the following: PowerPoint

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The proposed propensity of caffeine to elicit ergogenic effects among athletes has been widely debated. While some studies have shown evidence of its effectiveness on athletic performance, other reports suggest its impact on exercise is largely negligible.<sup>1,2</sup> This study aims to evaluate the ergogenic effects of caffeine on anaerobic exercise performance. The study was conducted at Liberty University Exercise Science Lab, 13 volunteers (male and female) anaerobic exercise performance was assessed using the 30secs Wingate Test on a Wattbike. Our hypothesis was that caffeine would increase average power and decrease modified fatigue factor. Our results showed that caffeine significantly increased power output in the last 5secs of the test  $t(13) = -3.099$ ,  $p=0.009$ . Modified fatigue factor (%) was significantly decreased with caffeine intake;  $t(13)=2.60$ ,  $p=0.023$ . Total power and Power average over 30 seconds showed no statistically significant increases, but both results showed a trend of increase in the experimental group vs control. Based on this association we can infer that anaerobic athletic performance would improve with caffeine intake. While further investigation is needed with a larger population size, studies into the ergogenic effects of caffeine versus its metabolic half-life could determine how long these effects last and further aid in sports that increase oxygen deficit and require anaerobic respiration.

Caffeine consumption has become increasingly popular, especially among college students. As a former collegiate swimmer at a Christian university my research was driven by the overall effectiveness caffeine had among my fellow athletes. Swimming, as well as other anaerobic exercises, could potentially benefit from conclusions which demonstrate improved anaerobic performance with caffeine. Paul talking to the Corinthians acknowledges that to achieve the prize we must be the best in both our performance and training, he states “Do you not know that in a race all the runner run, but only one gets the prize? Run in such a way to get the prize. Everyone who competes in the games goes through strict training”<sup>3</sup> As athletes but most importantly as Christians our bodies matter in the race. For the athlete the race is flesh and blood. However, for the Christian it encompasses not only our spiritual lives but your physical as well. Ignoring the body leads to an ineffective life for God. Additionally, as physical beings the physical world affects everything about us from our worship to our interaction with others. Therefore, as Paul later states “whatever you eat or drink do all to the glory of God”<sup>3</sup> and also “Do you not know that your bodies are temples of the Holy Spirit, who is in you, whom you have received from God? You are not your own.”<sup>3</sup> From this study and future studies my hope is that not just Christians, but other people will come to a further understanding of the benefits as well as disadvantages of caffeine supplements. Further, with that understanding make educated decisions of what they put in their body.

1. Alamdari K, Kordi M, Choobineh S, Abbasi A. Acute effects of two energy drink on anaerobic power and blood lactate levels in male athletes. *Physical education and sport*. 2007; 5 (No 2.): 153-162.
2. Rahnama N, Gaeini A, Kazemi F. The effectiveness of two energy drinks on selected indices of maximal cardiorespiratory fitness and blood lactate levels in male athletes. *J Res Med Sci*. 2010;15 (3): 127-132.
3. Paul. 1 Corinthians 9:24-23, 10:31, 6:19-20. BibleGateway.