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Original Research

## The Effects of Mouthpiece Use on Cortisol Levels During an Intense Bout of Resistance Exercise

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### Abstract

Garner, DP, Dudgeon, WD, and McDivitt, EJ. The effects of mouthpiece use on cortisol levels during an intense bout of resistance exercise. *J Strength Cond Res* 25(10): 2866–2871, 2011—Research has suggested mouthpiece use during exercise results in an increase in muscle strength and endurance. However, the research is difficult to replicate, and the methodology suggested measures that were too subjective to determine a mouthpiece effect. Thus, the purpose of this study was to use an objective measure to determine a possible physiological mechanism occurring during and after exercise with mouthpiece use. A within-subjects design was used in which 28 division I football players, aged 18–22 years, performed 2 identical bouts of a 1-hour intense resistance exercise, with each subject being randomly assigned the use of a custom-fit mouthpiece either during the first or second session. During both exercise sessions, saliva was analyzed for cortisol at the following time points: pre-exercise, 25, 45, and 60 minutes of exercise, and 10 minutes postexercise. The results revealed a significant difference in cortisol levels with the use of a mouthpiece vs. no mouthpiece ( $p = 0.019$ ) at 10 minutes postexercise. Additionally, although the expected increase in cortisol levels from pre to 10 minutes postexercise was present in the no-mouthpiece group ( $p = 0.01$ ), no such increase was observed in the mouthpiece group. These observations are most likely because of the decrease in cortisol from post to 10 minutes post ( $p = 0.04$ ) in the mouthpiece group. These data demonstrate that although cortisol continued to increase in the no-mouthpiece session, there was a significant decrease in cortisol in the no-mouthpiece condition 10 minutes postexercise.

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