

The Effects of Resistance Deception on Upper Body Muscular Strength, Muscular Endurance, and Perceived Exertion

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ABSTRACT

Resistance deception during training is lightly researched and is seen as a modification that can potentially act on central control during exercise. Studies that have observed the effects of deception while training has yielded mixed results and the effects of deception on strength, muscular endurance, and perceived exertion are still unclear. **PURPOSE:** The purpose of this study was to determine the effects of resistance deception on upper-body maximal muscular strength, muscular endurance, and perceived exertion in a strength-trained population. **METHODS:** Eight males ($n = 5$) and females ($n = 3$) between the ages of 18 and 26 that had at least two months of consistent resistance training experience, were recruited to participate in this study. The first day of data collection consisted of height and weight measurements, body composition (Dual X-ray absorptiometry (DEXA)), physical activity recall, health history screening, Physical Activity Readiness Questionnaire, 1RM bench press, and repetitions until failure at 60% 1RM bench press. The ensuing three experimental trials consisted of the same bench press tests but in deceived/masked conditions. One trial was a 5% increase in weight (1RMIW) (MEIW), one trial was a 5% decrease in weight (1RMDW) (MEDW), and the third trial consisted of a weight that was equivalent to that of baseline (1RMEW) (MEEW). Repetitions, bar speed, and perceived exertion were monitored during each trial. Data was evaluated using Paired Samples T-test and Wilcoxon Signed-Ranks Test. **RESULTS:** Compared to the unmasked baseline (16.25 ± 5.20 repetitions), MEDW (26.63 ± 4.53 repetitions) and MEEW (23.00 ± 3.85 repetitions) showed a significant increase in repetitions completed ($p < 0.001$, $p = 0.010$ respectively). The MEIW (18.13 ± 4.32 repetitions) did not yield any significant differences in repetitions completed compared to the unmasked baseline ($p = 0.403$) but did elicit significant differences compared to MEEW ($p = 0.004$). Significant decreases were found between the unmasked baseline RPE, ROF, OMNI, and 1RMDW RPE (11.88 ± 2.48 , $p = 0.012$), ROF (4.00 ± 1.60 , $p = 0.011$), and OMNI (4.63 ± 1.77 , $p = 0.012$). A significant difference was found between RPE and OMNI after the masked MEDW trial (15.75 ± 2.05 , 7.25 ± 1.49 respectively) and the unmasked baseline ME test ($p = 0.027$, $p = 0.027$ respectively) but not compared to ROF (7.5 ± 1.51 , 8.88 ± 3.13 respectively, $p = 0.340$). A significant difference was found between the mean bar speed during the baseline unmasked ME test and the mean MEDW trial bar speed (0.40 ± 0.10 and 0.57 ± 0.10 m/s respectively, $p = 0.001$). No differences were found when comparing the baseline 1RM RPE, ROF, and OMNI to the 1RMIW RPE (17.00 ± 1.31 , $p = 0.196$), ROF (7.13 ± 1.39 , $p = 0.096$), and OMNI (8.50 ± 1.07 , $p = 0.666$). **DISCUSSION:** During the deceived equivalent weight trial, participants significantly increased the number of repetitions the mean bar speed during the repetitions to failure test and experienced significantly decreased perceived exertion during the one-rep max lift. These findings indicate deception during training can acutely enhance performance outcomes.