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Psychological Effects of Pre-Workout Supplement vs. Placebo on Strength Training

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Extensive research on sports supplements has shown the impact that taking pre-workout has on performance, but little research has been done to determine if the positive results could be due to the placebo effect. Past research has shown that exercise influences mood, but it is less clear if a placebo affects those results. **PURPOSE:** The purpose of this study is to test how pre-workout and a placebo affects performance and the mood of participants. **METHODS:** Nineteen college students (21.47 ± 1.47 yrs), 9 male and 10 female, were recruited for this study. Students came in for a baseline test day, and two other test days in which they consumed either a pre-workout supplement or a placebo. Mood was assessed by using the Positive and Negative Affect Schedule (PANAS) and Felt Arousal Scale before and after participants performed knee extensions until failure at a predetermined weight. Prior to testing, subjects consumed 8 ounces of a pre-workout solution or a placebo. A repeated-measures ANOVA was used to assess performance data, while factorial ANOVAs were used to assess arousal and mood. **RESULTS:** Subjects performed significantly more reps ($F(2,36)=8.48, p<.01$) after consuming a placebo (13.58 ± 2.27) and after consuming pre-workout (12.63 ± 2.81) compared to their baseline day (11.32 ± 2.83). There was a main effect for arousal ($F(1,54)=140.88, p<.001$), such that post-exercise arousal was higher (4.33 ± 0.91) compared to pre-exercise arousal (3.00 ± 1.28). Similarly, there was a main effect for positive affect ($F(1,54)=38.48, p<.001$), with post-exercise positive affect (33.11 ± 10.92) being higher than pre-exercise positive affect (29.95 ± 10.67). There were no significant interaction or main effects for negative affect. **CONCLUSION:** Results showed increases when both pre-workout supplements and a placebo were consumed, increasing their max repetitions from their baseline day. This shows that consumption of pre-workout supplements does not significantly increase performance. This raises the question of whether or not pre-workout supplements actually increase performance, or just the belief that it will increase performance. Subjects' arousal and positive affect increased from beginning to end but was not influenced by the pre-workout or placebo. Exercise was the cause of the significant main effects for time.