Although we had a small sample, this study suggests a decrease in muscle soreness for the upper body compared to the lower body musculature after caffeine consumption. We also discovered adverse effects of those who are caffeine sensitive, mainly a reduction in performance. The promising results despite not being statistically significant warrant a closer investigation with a larger sample size.

The findings to date support the theory that caffeine decreases Delayed Onset Muscle Soreness (DOMS).

Athletes can ingest caffeine before exercise to improve their overall performance without being hampered by severe muscle soreness days after exercise.

The significance of this research is that we used a readily available caffeine supplement as well as tested common lifting techniques rather than isokinetic exercises. This research was designed to be translational in nature, thus making it relatable to the average lifter.

This study noted more muscle soreness found in the lower body than the upper body, although not statistically significant. More research with a broader sample size is necessary.

In future research we plan to utilize the study of Creatinine Kinase in the blood as well as focusing on more eccentric exercises. By measuring the amount of Creatinine kinase in the blood we can measure the intensity of the muscle soreness.

Caffeine’s use in aerobic exercise is well documented but the affect of caffeine on muscle soreness and the perception of pain after resistance training exercise is not.

The theory behind caffeine’s effect on muscle soreness suggests that caffeine blocks the Adenosine receptors in the brain while also exciting other neurotransmitters, increasing the heart rate and dilating the blood vessels. Adenosine is a neurotransmitter in the brain and spinal cord that has specific receptors. When Adenosine binds to these receptors the body becomes lethargic and slow. Adenosine is also associated with pain processing. It is hypothesized that when caffeine is consumed it binds to the Adenosine receptors reducing sluggishness and pain, thus increasing energy and performance.

The goal of this study is to primarily determine if a commercially available dose (400 mg, 2 pills) is enough caffeine to elicit a reduction in muscle soreness. Below are secondary questions we hope to answer.

1. Do the caffeine subjects and placebo subjects experience the same level of muscle soreness 1-3 days after exercise.

2. Is there a difference in post exercise muscle soreness between the upper and lower body muscles.

3. Are the Ratings of Perceived Exertion (RPE) lower in caffeine subjects than in placebo subjects.

The Effect of Caffeine on Delayed Onset Muscle Soreness (DOMS)

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