Dose Response Effect of Caffeine on Appetite Sensations and Mood

Caffeine is the most widely used psychoactive substance in the world. The known mechanisms and effects of caffeine consumption and metabolism suggest oral caffeine administration may affect appetite sensations and mood. Potential confounding factors that alter caffeine's effects on appetite sensations and mood include caffeine dose, gender, BMI, and withdrawal reversal. Early studies have shown moderate doses (~3 mg/kg) of caffeine have equivocal effects while high doses (>3 mg/kg) have deleterious effects on appetite sensations and mood. No studies have evaluated the effect of acute oral caffeine administration at low (1 mg/kg) and moderate (3 mg/kg) doses on appetite sensations and mood. It is hypothesized appetite sensations, e.g. Hunger, will decrease, positive mood, e.g. Liveliness, will increase, and negative mood, e.g. Sadness, will decrease with low dose caffeine; however, these effects will be mediated by gender, BMI and/or withdrawal reversal. To test our hypothesis, we had 18-50 y old adults abstain from all forms of caffeine 24-h prior to each laboratory session. At that time, they were given a relative (0, 1, or 3 mg/kg) dose of caffeine in a 350-mL beverage. Appetite sensations and mood were assessed prior to beverage administration and again 30-min later. Low dose caffeine significantly decreased Nervousness ($p=0.023$) and increased Strong ($p=0.021$) compared to placebo and moderate dose. Males only significantly decreased Sadness at the low caffeine dose compared to placebo or moderate dose ($p=0.0110$). Findings suggest the amount of caffeine ingested significantly affects mood and emotions at a low caffeine dose, but this effect may be mediated by gender.

Keywords: caffeine, appetite, mood, affect, withdrawal reversal, emotions, gender