It is believed that ingestion of caffeine may exacerbate overactive bladder symptoms. However, clinical studies investigating the effect of caffeine on bladder function have had disparate results and the question: “Does caffeine lead to bladder overactivity?” has yet to be definitively answered. We designed this study to evaluate the effects of caffeine on bladder function in a mouse model. In a chronic study one group of animals was administered 0.1cc of 10mg/kg of caffeine by gavage daily for two weeks. The sham control group was administered 0.1cc of vehiculum. Before and after the treatment, animals were placed in a metabolic cage with free access to food and water for 12 hours to determine their micturition frequency and average voided volume. The acute effects of caffeine on bladder function were evaluated in a separate group of animals using bladder pressure measurements during filling. Here, the time was recorded while infusing 0.9% NaCl followed by an equal time interval infusing 10μg/ml of caffeine diluted in a 0.9% saline solution. In another study group baseline bladder pressure measurement was recorded before and one hour following oral administration of 10mg/kg of caffeine. During the chronic study, the average voided volume in animals fed caffeine decreased, and no statistically significant difference was noted in the sham treatment group. Physiological studies confirmed reduced bladder capacity and occurrence of bladder irritation. No such effects on bladder activity were seen following an intravesicle caffeine infusion. Our behavioral and cystometric data showed that a clinically relevant dose of caffeine delivered orally causes bladder overactivity. However, caffeine infused directly into the bladder did not result in bladder irritation. This shows that a caffeine metabolite, excreted in the urine, or some systemic effect are responsible. Further studies are required to determine the exact mechanism of this effect.