EVALUATION OF THE DISCRIMINATIVE STIMULUS EFFECTS OF TWO MIDAZOLAM DOSES. Christine A. Sannerud* and Nancy A. Ator.† *NIDA-Addiction Research Center, Baltimore, MD, †Johns Hopkins University, Baltimore, MD.

In drug discrimination studies, training drug dose can be an important variable in generalization profiles obtained. Rats were trained to discriminate two doses of the benzodiazepine (BZ)-receptor agonist midazolam (MDZ) (0.32 mg/kg and 3.2 mg/kg MDZ, SC) from no-drug (ND), in daily sessions consisting of multiple 20 min trials. MDZ occasioned dose-dependent increases in 0.32 and 3.2 MDZ lever responding. Pentobarbital dose-dependently occasioned only 0.32 MDZ lever responding. The muscle relaxant methocarbamol and drugs that are not sedatives or anxiolytics (morphine, caffeine, *d*-amphetamine, cocaine) did not substitute fully for either MDZ training dose. These data suggest that the DS effects of 3.2 MDZ are fully BZ-like and not a function of general sedative or muscle-relaxant effects. The DS effects of the 0.32 mg/kg MDZ training dose appeared less specific than those of 3.2 mg/kg MDZ and showed a generalization profile that differs from that seen in animals trained to discriminate midazolam in two-lever tasks. The generalization profiles suggest qualitative differences between the training stimuli that may not reflect simple quantitative dose magnitude differences.

STRESS, PREDICTABILITY, AND FENTANYL SELF-ADMINISTRATION IN MALE AND FEMALE RATS. Laura C. Klein, Eric J. Popke, and Neil E. Grunberg. Uniformed Services University of the Health Sciences, Bethesda, MD.

Effects of mild predictable and unpredictable foot shock stress on oral opioid consumption were examined in male and female rats. Fentanyl (50 μg/ml) self-administration (SA) was initiated in operant chambers under a partial water deprivation schedule. Animals were tested for lever pressing for fentanyl under a progressive-ratio (PR; dwell = 2) schedule of reinforcement for 30 min/day under stress (predictable or unpredictable) and no-stress control conditions. Animals under predictable stress consumed more fentanyl than did animals under unpredictable stress. Female rats self-administered more fentanyl than did male rats. Potential clinical relevance will be discussed.

NICOTINE, STRESS, AND ACOUSTIC STARTLE RESPONSES OF RATS. E. Jon Popke,* Jane B. Acri,† and Neil E. Grunberg.* *Uniformed Services University of Health Sciences, Bethesda, MD, †NIDA Addiction Research Center, Baltimore, MD.

Nicotine alters the acoustic startle response and prepulse inhibition in male and female rats. These responses are believed to index attention and sensory gating. The present experiment examined the effects of nicotine and stress on ASR and PPI in male and female rats. Nicotine had an inverted U-shaped dose-effect on ASR and PPI for both males and females with greater effects among females. Stress attenuated these effects among females but not among males. These findings are consistent with reports of greater sensitivity to nicotine among females. Implications of these findings to explain why people smoke under stress will be discussed.

PHENOBARBITAL THRESHOLD DOSAGE PRODUCING STATE DEPENDENT LEARNING AND DRUG DISCRIMINATIONS. Donald A. Overton, Gregg D. Standwood, Sreenivasa R. Pragada, Haoli Chai, and M. Kathleen Gordon. Temple University, Philadelphia, PA.

Two experiments used rats to determine the lowest doses of phenobarbital that could control a drug discrimination (DD) and produce state dependent learning (SDL), respectively. DD threshold was determined by drug vs. no drug (D vs. N) DD training in a 2-lever operant task using a dosage titration paradigm which changed dosage every 18 sessions. In the SDL study, rats were (1) trained in one drug state (D or N) to press one lever, (2) tested for SDL, (3) trained in the other drug state to press the 2nd lever, (4) tested for SDL, (5) reversal trained to eliminate both responses. This was repeated with several dosages. Mean DD threshold was 2.5 mg/kg. SDL was partially asymmetrical and threshold ranged from 2.7 to 11.2 mg/kg depending on the immediately preceeding training conditions. The SDL thresholds after drug training (2.7 and 3.1) were approximately equal to the threshold for discriminative control. This has several theoretical consequences.

BUPRENORPHINE AND NONDRUG REINFORCERS: COMBINED EFFECTS ON DRUG SELF-ADMINISTRATION. Joyce M. Rawleigh, Joshua S. Rodefer, Sandra D. Comer, Sylvie T. Lac, Laura K. Curtis, Jeffrey J. Hanson and Marilyn E. Carroll. University of Minnesota, Minneapolis, MN.

Male rats trained to self-administer 0.4 mg/kg IV cocaine were given 0.1 mg/kg buprenorphine injections on three consecutive days, with either glucose and saccharin solution (G + S) or water concurrently available. Combined G + S and buprenorphine treatment suppressed responding for cocaine to a greater extent than when water was available. Male monkeys trained to respond for orally delivered 0.25 mg/ml phencyclidine (PCP), 0.03 or 0.3 wt/vol saccharin (SACC) were given intramuscular injections of 0.005 mg/kg buprenorphine on 5 consecutive days. Buprenorphine lowered responding for PCP and SACC similarly, with a greater percentage of reduction at higher FR's.

EFFECTS OF INCOME ON A CHOICE BETWEEN ETHANOL AND SACCHARIN. Joshua S. Rodefer, Joyce M. Rawleigh and Marilyn E. Carroll. University of Minnesota, Minneapolis, MN.

The effects of income (duration of access—20, 60 and 180 minutes) on the choice between orally delivered ethanol and saccharin were investigated. In addition, the demand for ethanol (consumption × price) was evaluated by increasing the ethanol FR (price) from 4 to 8, 16, 32, 64, and 128 under all three income conditions. Eight rhesus monkeys self-administered ETOH (FR 4-128) and either water or saccharin (FR 32) under concurrent schedules in the three income conditions (20, 60 and 180 min sessions). The concurrent availability of saccharin as an alternative reinforcer always shifted the demand curve for ETOH downward, indicating a decreased