SIMILARITIES IN THE RATE-ALTERING EFFECTS OF WHITE NOISE AND COCAINE. Leonard L. Howell, Larry D. Byrd and M. Jackson Marr. Yerkes Regional Primate Research Center, Emory University.

The effects of white noise and cocaine were examined on lever-pressing by squirrel monkeys trained under a fixed-interval 300-sec stimulus-shock termination schedule. Following intramuscular administration of cocaine or continuous presentation of white noise as a novel stimulus, different rates of responding characteristic of control performance converged toward a common rate and, at an appropriately high dose or intensity, response rate became constant. The constant rate was different for cocaine, for white noise, and for the two presented simultaneously. The results suggested that rate-altering drug effects may, in part, result from drugs functioning as novel, extraneous stimuli.

INSTRUCTIONS AND THE REINFORCING EFFICACY OF NICOTINE: A REPLICATION TEST. Suzy B. Gulliver, John R. Hughes and Gerri Amori. Depts. of Psychology and Psychiatry, University of Vermont.

In a previous study, when abstinent smokers had concurrent access to nicotine and placebo gum instructions controlled whether nicotine was a reinforcer; i.e., self-administered more than placebo. The present study is a replication test in which subjects had access to only one type of gum. Seventy-two abstinent smokers were assigned to a 3×2 factorial crossing instructions (told nicotine gum, told placebo gum or not told) and drug (receive nicotine or receive placebo). Preliminary results indicate nicotine is a reinforcer when smokers believe they received nicotine but a punisher when they believe they received placebo. These results are consistent with our earlier findings.

TIFLUADOM-INDUCED ANALGESIA IN SQUIRREL MONKEYS. Raymond F. Genovese. Dept. of Pharmacology and Toxicology, Medical College of Virginia; and Linda A. Dykstra. University of North Carolina, Chapel Hill.

The analgesic efficacy of the kappa-opioid benzodiazepine, tifluadom, was examined in squirrel monkeys using a combined electric shock titration and tail-immersion procedure. Tifluadom produced dose-dependent increases in the shock intensity that maintained responding under the shock titration schedule without substantially decreasing response rates. Tifluadom also increased the latency of tail-withdrawal from 55°C water. Naloxone attenuated tifluadom's effects under both procedures. These results extend previous reports of tifluadom's analgesic characteristics and suggest that the tail-immersion procedure is a useful analgesic assay in squirrel monkeys.

BIOCHEMICAL EFFECTS OF NICOTINE: RELEVANCE TO NICOTINE/BODY WEIGHT RELATIONSHIP. Neil E. Grunberg, Kathryn A. Popp. Uniformed Services University of the Health Sciences; Deborah J. Bowen. Texas Tech University; Stephanie M. Nespor, Suzan E. Winders and Sharon Eury. Uniformed Services University of the Health Sciences.

The inverse relationship between nicotine and body weight results from changes in consumption of sweet foods and energy utilization. Changes in sweet food consumption may result from changes in glucose availability. Changes in energy utilization may result from nicotine's effects on catecholamines. The present study examined effects of norepinephrine, and epinephrine in 144 rats. Nicotine administration was accompanied by slight increases in glucose, significant decreases in insulin, and increased levels of norepinephrine and epinephrine. These results are discussed in terms of their potential role in the nicotine/body weight relationship.

AMPHETAMINE AND HALOPERIDOL COMPARED IN AN ANIMAL MODEL OF HYPERACTIVITY. Gordon K. Hodge, Elizabeth A. Reyes, Mary R. Wood, Shane Cleveland and Christopher C. Saiz. University of New Mexico.

The DSM-III (1980) currently designates impulsivity, age inappropriate inattention and hyperactivity as the primary symptoms of Attention Deficit Disorder with Hyperactivity (ADDH). Behavioral effects of d-amphetamine and haloperidol following neonatal administration of 6-hydroxydopamine (6-OHDA) were assessed in an animal model of ADDH. To assess the effects of 6-OHDA, rat pups were trained on a modified differential reinforcement for low-rate responding (DRL) schedule and light discrimination task. In terms of errors, 6-OHDA treated animals were significantly more impulsive than controls. Amphetamine treatment attenuated impulsivity, whereas haloperidol made 6-OHDA animals more impulsive, implicating dopamine involvement in ADDH.

ALCOHOL AND HUMAN AGGRESSIVE BEHAVIOR: THE EFFECTS OF PROVOCATION. Thomas H. Kelly. Veterans Administration Medical Center, Shreveport, LA; Don R. Cherek. Dept. of Psychiatry, Louisiana State University Medical Center; and Joel L. Steinberg. Veterans Administration Medical Center, Shreveport, LA.

Effects of quantitative dimensions of provoking stimuli were measured on the relationship between alcohol and human aggressive behavior, defined as the delivery of an aversive stimulus to another person. Four adult males manipulated pushbuttons that produced points (redeemable for money) or ostensibly subtracted points (money) from fictitious persons described as participating in the same study at other locations. During five ten-minute components, frequency and intensity of point subtractions, ostensibly controlled by other persons, were manipulated. Alcohol (0.25, 0.5 and 0.75 g/kg of 95% ethanol) selectively increased highly probable aggressive responding and had little effect on or decreased point-maintained responding.

MAINTENANCE EFFECTS OF CONTINGENCY CONTRACTING WITH METHADONE MAINTENANCE CLIENTS. John L. Black and Michael P. Dolan. Dallas Veterans Administration Medical Center, Dallas, TX.

Maintenance effects of contingency contracting were monitored among 20 methadone maintenance clients. The contracting procedure required the participants to cease their illicit drug use for a 30-day period in order to remain in

methadone treatment. Drug usage was monitored in follow-up by weekly urine surveillance until illicit drug use returned to 50% over a 60-day period. Half of the participants remained abstinent for at least 30 days after completing the contract (M=101.5 days, SD=188.4 days). Latency to relapse was at least 100 days for 13 of the 20 participants (M=230.9 days, SD=213.5 days).

NICOTINE EFFECTS ON HUMAN AVOIDANCE RESPONDING. Don R. Cherek, Joel L. Steinberg. Dept. of Psychiatry, Louisiana State University Medical Center; Thomas H. Kelley. Veterans Administration Medical Center, Shreveport, LA; Neal L. Benowitz. Dept. of Medicine, University of California, San Francisco.

Male subjects were administered nicotine gum or took varying numbers of puffs on research cigarettes which delivered either 0.42 or 2.14 mg of nicotine prior to sessions. During sessions, lever pressing was maintained by avoidance of point loss (1 point=10 cents) on a free-operant avoidance schedule. Nicotine gum (2–8 mg) resulted in no change in avoidance responding in some subjects. Puffs on high nicotine cigarettes produced increased avoidance responding in all subjects. The behavioral effects of nicotine were determined by historical exposure levels and not nicotine blood levels.

BRAIN SITES INVOLVED IN THE BEHAVIORAL EFFECTS ON INTRAVENTRICULARLY ADMINISTERED (−)-NICOTINE. Victor J. DeNoble and Paul C. Mele. Virginia Commonwealth University.

Fifteen hooded rats were trained to lever press for food under a fixed ratio (FR) 32 schedule. All rats were implanted with two cannulae, one in the lateral ventricle (LV) and the second in one of the following brain structures: dorsal hippocampus (DH), locus ceruleus (LC), lateral hypothalamus (LH), reticular formation (RF), or the vestibular nucleus (VN). All rats when infused with 5.0 μg (−)-nicotine (LV) or 0.25 μg in the VN showed an increased latency to complete the first ratio (mean=8.2±1.3 min). When lidocaine (5.0 μg) was applied to the RF the latency to complete the first ratio following 5.0 μg (−)-nicotine infusion into the LV was decreased by 55%. Lidocaine in the VN completely blocked the effect of LV (−)-nicotine. Neither lidocaine nor (−)-nicotine had any effect on responding when applied to the other brain structures.

MEMORY ENHANCEMENT WITH CLONIDINE IN SCHIZOPHRENIA. Robert B. Fields, Jules Rosen, Jeffrey Peters and Daniel P. Van Kammen. Veterans Administration Medical Center, Pittsburgh, PA.

This double-blind study examined the effect of clonidine, a central alpha$_2$ adrenergic agonist, on the memory functioning of hospitalized schizophrenics. Eight patients were tested while drug free and while on stable doses of clonidine (0.8 to 1.4 mg/day) for approximately five weeks. Memory test scores were significantly better during the clonidine trials. This difference could not be explained by changes in general cognitive functioning, sustained attention, or level of psychosis as no significant differences in these indices were found. The present findings are consistent with recent reports which suggest that clonidine may enhance memory functioning only when memory deficits exist.

OBJECTIVE AND SUBJECTIVE AGGRESSION MEASURES: EFFECTS OF ALCOHOL AND DIAZEPAM. Joel L. Steinberg, Don R. Cherek and Thomas H. Kelly. Dept. of Psychiatry, Louisiana State University Medical Center.

Diazepam was administered to nine normal human subjects to determine its acute effects on aggressive behavior in a behavioral laboratory setting. The subjects were adult males who were screened by psychiatric, physical, and laboratory examinations to be in good health and to exclude subjects with mental disorders or substance abuse. Aggressive behavior was defined as the delivery of an aversive stimulus to another person. Specifically, the subject would press a button on an FR 10 schedule which ostensibly subtracted money from a fictitious person with whom the subject was told he was paired. Aggressive responses were provoked by random subtractions of money from the subject which were attributed to the other person. Aggressive responses were maintained by a provocation-free interval (PFI), of 500 sec or 125 sec, according to an escape contingency. A non-aggressive response option was concurrently available by pressing a button to earn points exchangeable for money, on an FR 100 schedule. Diazepam was administered double blind in doses of 0, 2.5, 5, and 10 mg per 70 kg of body weight, in a repeated measures design in which each subject received each dose for three sessions. Eight subjects showed decreases in aggressive responses after 10 mg/70 kg diazepam, and one subject showed increases at this dose. Diazepam produced small and variable effects on non-aggressive, monetary reinforced responding which did not appear to correlate with the rate of aggressive responding, thus indicating a relatively specific effect on aggressive behavior.

At the end of each dose-response determination, the subjects were administered a single dose of 0.5 g/kg of alcohol. The correlation coefficient between the effects of alcohol and diazepam on aggressive responses in 11 subjects from two separate studies was 0.918 ($p<0.001$). The data suggest that subjects who exhibit increases in aggressive responses following alcohol administration appear likely to increase aggressive response following diazepam. Preliminary results also indicate that subjects who had low scores on the Buss-Durkee Hostility Inventory showed decreased aggressive responses after diazepam administration.

PHARMACOLOGICAL CHARACTERIZATION OF SUPERSENSITIVITY TO NALTREXONE IN SQUIRREL MONKEYS. Charles P. France and William H. Morse. Harvard Medical School.

Repeated weekly exposure to naltrexone was examined in squirrel monkeys responding under fixed-ratio schedules of food presentation or stimulus-shock termination. After six weekly naltrexone exposures the food-controlled (F) monkeys were 300- to 1000-fold more sensitive than the shock-controlled (S) monkeys to the rate-suppressing effects of naltrexone. The difference in sensitivity between F and S monkeys was 3- to 10-fold for MR 2266 and WIN 44,441, and at