doses above 0.3 mg/kg and tended to decrease heart rate. In both humans and monkeys, there were doses of cocaine which maintained self-administration and which had negligible effects on cardiovascular function. Nevertheless, significant cardiovascular effects were seen within the range of doses which maintained self-administration.

THE EFFECTS OF CHRONIC COCAINE ADMINISTRATION ON BRAIN NEUROTRANSMITTER RECEPTORS. Nick E. Goeders. Louisiana State University School of Medicine, Shreveport, LA.

Experiments were designed to investigate the neurobiological consequences of chronic cocaine administration using a multidisciplinary approach involving behavioral pharmacology, neurochemistry and neuroanatomy. The marriage of these traditionally independent fields of study results in a better understanding of the neuropathology of chronic cocaine intoxication. Twenty-four rats were trained to respond on a variable-interval 90 sec (VI90) schedule of food reinforcement, and dose-response curves for acute cocaine administration were determined in each animal. The rats were then randomly divided into four treatment conditions: (1) cocaine before; (2) cocaine after; (3) saline before; or (4) saline after. During the next six weeks, the animals received daily injections of cocaine (10 mg/kg, IP) or saline (1 ml/kg, IP) five days per week immediately before or after the behavioral session. Cocaine dose-response curves were again determined in each rat over an additional six weeks on Tuesdays and Fridays while the animals remained on their chronic dosing schedules. Chronic injections of saline both before and after the behavioral session or cocaine after the session did not alter the effects of cocaine on rates of responding on the VI90 schedule of food reinforcement. However, the effects of cocaine on response rates were significantly increased in all six animals that received chronic injections of the drug immediately prior to the behavioral session. Light microscopic quantitative autoradiography was used to visualize various receptor binding sites in serial sections through the brain of each rat for the precise localization of discrete changes in receptor number and densities that may have resulted from the different treatment conditions. The contingencies described in these experiments permit direct comparisons between animals that exhibit disparate behavioral effects following an identical number of chronic cocaine injections and may, therefore, identify specific brain loci and receptor systems sensitive to the complex behavioral effects of cocaine. (Supported in part by USPHS Grant DA 04293.)

POSTER SESSION

Drugs and Behavior

Co-Chairs: *Leonard L. Howell,* Yerkes Regional Primate Research Center, Emory University, Atlanta, GA; and *Charles P. France,* University of Michigan School of Medicine, Ann Arbor, MI

DRINKING RESTRAINT AND DIFFERENTIAL RESPONSIVENESS TO BEER TASTE CUES. Lillian S. Bensley. University of Washington, Seattle, WA.

This study examined the possible role of heightened external responsiveness in restrained drinking, a style of social drinking control which is characterized by considerable effortful self-restraint, alternating with overconsumption. Fifty-nine social drinkers, classified on the basis of a pretest as restrained or unrestrained and as heavy or light drinkers, were given access to three brands of beer which had been previously identified as that individual's most preferred, least preferred and moderately preferred beer. The most preferred beer yielded the only difference, and restrained drinkers drank significantly more than unrestrained drinkers, providing evidence that heightened responsiveness to external cues (taste) may be related to a problematic style of social drinking control.

THE EFFECT OF SUCCESSFUL DRINKING RESTRAINT ON SUBSEQUENT ALCOHOL CONSUMPTION. Lillian S. Bensley. University of Washington, Seattle. WA.

A period of successful self-restraint of drinking behavior may predispose some individuals to subsequent overconsumption. Habitually light and heavy drinkers were randomly assigned to a two-week period of either abstinence from all alcoholic beverages or normal drinking. Following abstinence, heavy-drinking males (for whom, presumably, achieving abstinence required considerable effortful restraint) showed heightened alcohol consumption compared to otherwise similar individuals who were assigned to normal drinking. There was no such effect among light drinkers. The results suggest that a period of circumstantially initiated drinking reduction may lead to heightened subsequent alcohol consumption, providing evidence for a restraint model of problematic drinking control.

COGNITIVE FUNCTIONING AND THE INHERITED RISK FOR ALCOHOLISM. Jordan B. Peterson, Robert O. Pihl and Peter R. Finn. McGill University, Montreal, Quebec, Canada.

A battery of neuropsychological tests designed to assess cognitive impairment was administered to 11 sober and 11 alcohol-intoxicated multigenerational sons of alcoholics and to 2 groups of 11 demographically-matched controls. Analysis of the results of the test battery demonstrated that multigenerational sons of alcoholics manifested deficits in those cognitive functions associated with the prefrontal cortex. Eighteen of the high-risk subjects had previously participated in a study that demonstrated their cardiac hyperreactivity to stimulation. Post hoc analysis of the combined results of these two studies indicated a highly significant relationship between cognitive impairment and cardiac hyperreactivity. The data have theoretical and practical implications for inheritance of risk for alcoholism.

THE RELATIONSHIP BETWEEN ADULT ALCOHOL CONSUMPTION AND DEVIANT CHILD BEHAVIOR. William E. Pelham, Jr. Western Psychiatric Institute and Clinic, University of Pittsburgh School of Medicine, Pittsburgh, PA; Alan R. Lang. Florida State University, Tallahassee, FL; Debra A. Murphy. Western Psychiatric Institute and Clinic, University of Pittsburgh School of Medicine; and Beverly Atkeson. Florida State University, Tallahassee, FL.

Ninety-six adult subjects who were parents of attention deficit disordered/conduct disordered (ADD/CD) children were recruited to participate in a study in which the effects of

alcohol on adult-child interactions were to be studied. All of the subjects participated in a 20-minute interaction with a child whom they thought had been similarly recruited for the study but who was actually a child actor. In half of the conditions, the child actor enacted a role characteristic of an ADD/CD child, and in half, the child enacted a normal child role. Prior to the interaction, half of the adults drank a sufficient amount of ethanol to raise their BAL to 0.05 and half drank a nonalcoholic beverage. The interactions were videotaped and scored to examine the nature of the strategies that the adults used to control the child's behavior. In addition, individual characteristics of the adults were examined to predict the nature of their interactions with the children.

RISK FOR ALCOHOLISM: PSYCHOPHYSIOLOGICAL HYPERREACTIVITY TO AVERSIVE AND NONAVERSIVE STIMULATION. Peter R. Finn, Jordan B. Peterson and Robert O. Pihl. McGill University, Montreal, Quebec, Canada.

Previous research has shown that men with multigenerational family histories (MFH) of alcoholism are autonomically hyperreactive to unavoidable shock and more sensitive to the reactivity dampening effects of alcohol when compared to controls. The present study was designed to test the hypothesis that MFH men are hyperreactive to stimulation in general, reflected in their reactivity to avoidable and unavoidable aversive stimulation and nonaversive 'orienting' tones. The electrodermal orienting response to tones and the autonomic (cardiovascular, electrodermal and muscle tension) response to a shock delivery procedure was measured under alcohol and no alcohol consumption conditions in MFH men and family history negative (FH−) men. The results showed a consistent pattern of autonomic hyperreactivity to all stimulus conditions, and a consistent pattern of reactivity dampening in MFH men only. The MFH men's hyperreactivity to stimulation is hypothesized to reflect a centrally mediated dysfunction in the modulation of sensory responsivity. The effect of alcohol in MFH men may reinforce drinking as a way to normalize responsivity, and this may promote excessive alcohol intake.

MANIPULATING EXPECTANCIES AS A MEANS OF ALTERING ALCOHOL CONSUMPTION. Renelle F. Massey and Mark S. Goldman. University of South Florida, Tampa, FL.

Researchers report a close relationship between alcohol expectancies (i.e., beliefs that alcohol makes people sociable, brave, sexy, etc.) and levels of alcohol use/abuse. To test experimentally the theoretical utility of expectancy as an intervening variable, a program designed to alter expectancies was developed which included a drinking experience. Reduction of alcohol consumption as a result of this program was compared with a state-of-the-art program and no treatment. Alcohol consumption significantly decreased in the month following participation in the expectancy program, but not in the control and traditional alcohol abuse prevention programs. Expectancy theory may have significant potential for alcohol abuse prevention.

EFFECT OF THE WAITING LIST ON ADMISSION TO DRUG TREATMENT. John L. Black and Michael P. Dolan. Dallas VA Medical Center; Hugh Tenison. Terrell State Hospital, Terrell, TX; and Jan Blumentrit. North Texas State University, Denton, TX.

Although drug abuse is a growing problem with increasing demand for drug treatment, limited treatment resources necessitate that clients wait for admission. This study assessed the effect of waiting for drug treatment. Applicants to a drug abuse treatment program were monitored over a 12-month period. Of the 587 applicants, 58.6% were admitted. The most common reason for nonadmission was inability to reach the applicant (19.4%), followed by the applicant not reporting for the scheduled screening (11.6%). Procedures designed to increase treatment admissions from waiting lists were identified.

THE USE OF MULTIPLE DEPENDENT VARIABLES TO CHARACTERIZE DRUG EFFECTS. Adelbert W. Price, Richard R. McKnight, Judy M. Plaisance and Reginald V. Fant. Nicholls State University, Thibodaux, LA.

Response rate, force of response, and an index of response chain performance were employed in an assessment of the effects of a stimulant (*d*-amphetamine), a depressant (pentobarbital), and a neuroleptic drug (pimozide). While all three drugs produced significant ($p \leq 0.05$) dose-related decrements in responding, the use of the additional behavioral measures allowed for a clear discrimination among the effects of these drugs. Pentobarbital and pimozide, but not *d*-amphetamine, produced significant ($p \leq 0.05$) alterations of the chaining index. Only pentobarbital significantly ($p \leq 0.05$) altered the force of responses. These data clearly support the use of multiple behavioral measures to characterize the effects of psychoactive drugs.

HALOPERIDOL BLOCKS REACQUISITION OF AN OPERANT DURING ONE-TRIAL LEARNING. Joseph H. Porter, Jenny L. Wiley and William R. Faw. Virginia Commonwealth University, Richmond, VA.

After acquisition training to traverse a straight runway for ten 45 mg food pellets (single trial/day), food-deprived rats (n=8/group) were tested without food reward until running latencies met an extinction criterion. Then, a single priming trial with food reward was conducted with four groups receiving 0.03, 0.10 or 0.30 mg/kg haloperidol or vehicle (V+F) injections. A fifth group received vehicle but no food reward (V+E). The food prime resulted in reacquisition of operant running on the following test day for the V+F group; however, haloperidol blocked this effect. Thus, haloperidol blocked the incentive motivational properties of the food reinforcement.

HOW HALOPERIDOL SLOWS FIXED-RATIO RESPONDING: A QUANTITATIVE TOUR DE FORCE. Stephen C. Fowler and Ruey-Ming Liao. University of Mississippi, University, MS.

Hungry rats were trained to grasp and pull a wire ball attached to a force transducer, and after response rates had stabilized on a fixed-ratio 20 schedule of liquid-food reinforcement, effects of low doses of haloperidol (0.04, 0.08, 0.16 mg/kg) were evaluated. A combination of quantitative methods, including a new procedure for quantifying key attributes of cumulative records, revealed that haloperidol reduced rate of response in three ways (in increasing order of importance): it slowed the high-speed contractions of the forelimb that occur during the ratio run; it lengthened the postreinforcement time; and it caused an abrupt cessation in responding before the session ended. All three effects were