THE EFFECT OF INCREASED COCAINE USE ON DRUG TREATMENT. John L. Black, Michael P. Dolan, Walter E. Penk, Ralph Robinowitz and Horace A. DeFord. Veterans Administration Medical Center, Dallas, TX.

Trends in illicit drug use were monitored in a methadone maintenance program over a 6-year period, along with primary drug use in an inpatient treatment program over a 9.5-year period. Cocaine was found to be the illicit drug used most frequently by methadone maintenance patients, and its use was found to have a very disruptive effect on methadone treatment. The percentage of cocaine users admitted for inpatient treatment showed a dramatic increase over the past 2-year period, while no other drugs showed an increase. Implications for treatment are discussed.

ACUTE DRUG EFFECTS ON SPEAKING IN ISOLATED HUMANS. Stephen T. Higgins, Maxine L. Stitzer and David K. O'Leary. Johns Hopkins School of Medicine and Francis Scott Key Medical Center, Baltimore, MD.

Drugs of abuse often facilitate human social interaction as is suggested by our cultural drug-use practices and has been demonstrated in controlled laboratory studies. The pharmacological and behavioral mechanisms controlling these effects, however, remain unclear. The present study examined the importance of a social context for obtaining drug-produced increases in human speech by studying the acute effects of ethanol, secobarbital, and diazepam on the amount of speech emitted by normal adult subjects who were producing spoken monologues in a socially isolated context. Secobarbital and ethanol produced dose-related increases in the total seconds of speech emitted, whereas diazepam produced decreases. These results suggest that a social context is not a necessary condition for drug-produced increases in human speech to occur. Additionally, the differences between drugs that were found should provide an important base for experimentally analyzing the controlling pharmacological and behavioral properties in drug-produced changes in human speech.

METHADONE EFFECTS ON BRIEF STIMULUS PREFERENCE BY PIGEONS. Thomas H. Kelly, Veterans Administration Medical Center, Shreveport. LA., and Travis Thompson, University of Minnesota, Minneapolis, MN.

Effects of methadone on the operant performance generated by a three component multiple schedule in pigeons were investigated. During two components (presented on separate keys), key pecks maintained by food presentation were supplemented with brief stimuli paired with or independent of food presentation. During the third component, twelve responses on either key (simultaneously illuminated) nonreversibly produced contingencies appropriate to the selected key. Drug effects on behavior were modified by both key position preference and current stimulus conditions during all components. Methadone increased preference for paired brief-stimulus schedules in a dose dependent manner when paired brief stimuli altered key preference.

TRANSREINFORCER BLOCKING OF LITHIUM- AND APOMORPHINE-BASED CONDITIONED FLAVOR AVOIDANCE. Linda A. Parker. University of New Brunswick, Fredericton (New Brunswick).

Prior conditioning of coffee avoidance based on a drug US (Phase 1) partially blocked the establishment of saccharin avoidance based on the same drug US (Phase 2) or one based on a different drug US when lithium and apomorphine served as the two US agents. The basic blocking effect and the transreinforcer blocking effect were demonstrated whether lithium (Experiment 1) or apomorphine (Experiment 2) served as the Phase 2 US agent. The results provide evidence that the US mechanisms responsible for lithium-based flavor avoidance and apomorphine-based flavor avoidance are similar.

NEGATIVE AFFECT AND HEROIN-ASSOCIATED STIMULI: EFFECTS ON WITHDRAWAL AND CRAVING. Jack Edward Sherman, University of Wisconsin, and Michael Zinser and Steven Sideroff, University of California, Los Angeles, CA.

The relative contribution of negative affect and heroin-associated stimuli on withdrawal symptoms and drug craving were studied in 35 male, drug-free, heroin addicts. All subjects were exposed to three classes of stimuli: heroin-related (H), anxiety-provoking (A), and boring (B). In response to H, subjects reported significantly increased drug craving, withdrawal sickness and negative affect (e.g., decreased pleasure, increased anxiety and arousal). Although A elicited comparable mood changes to that of H, neither withdrawal nor craving were elicited; B did not elicit them either. Increases in craving were unaccompanied by increases in withdrawal sickness for nearly half of the subjects.

NICOTINE AND STRESS: IS CIGARETTE SMOKING REALLY RELAXING? David E. Morse. University of Connecticut Health Center, Framington, CT.

Habitual smokers frequently report that when they are stressed smoking helps them to relax. One explanation is that smoking (nicotine administration) may decrease sympathetic activity associated with stress. Rabbits, chronically exposed to nicotine, were used to examine the effect of nicotine on catecholamine and corticosterone responses to stress. Catecholamines and corticosterone are recognized indices of the stress response in humans and animals. Restraint stress without nicotine significantly increased plasma catecholamine and corticosterone concentrations. Nicotine administration during stress further increased catecholamine and corticosterone responses. Results suggest stress amelioration associated with smoking is *not* due to a reduction in peripheral sympathetic activity.

METHADONE DOSE PREFERENCES IN A CHOICE PARADIGM. Warren K. Bickel, Stephen T. Higgins and Maxine L. Stitzer. Johns Hopkins University School of Medicine, Baltimore, MD.

The present study describes a methodology for conducting abuse liability studies in opiate dependent subjects. A

choice procedure was used to examine preference for higher versus lower methadone doses. Five methadone maintenance research volunteers were given forced exposures to two coded drugs (regular versus a higher methadone dose) and then given six opportunities to select one of the two alternatives. Percent selection of the higher doses (60, 75 and 100 mg) over 50 mg of methadone increased in a dose related fashion.

CHANGES IN PSYCHOPHYSIOLOGICAL AND CONDITIONING VARIABLES DURING ETHANOL WITHDRAWAL. Michael Wang. University Hospital of South Manchester, United Kingdom.

A study was undertaken to investigate the psychophysiology of ethanol withdrawal with particular reference to changes in vulnerability to aversive Pavlovian conditioning. In addition, the effect of the sedative preparation chlormethiazole on these variables was examined. Seventy withdrawing subjects were examined at varying time-intervals after the last ethanol-containing drink in groups of 10, 4 groups receiving chlormethiazole, and 3 groups unmedicated. In addition, abstinent alcoholic and 'normal' control groups were included. The results suggested increasing autonomic activity in unmedicated subjects, whilst chlormethiazole produced reduced indices in medicated subjects. Unmedicated subjects 5–6 days after their last drink were significantly more vulnerable to aversive conditioning than their medicated counterparts.

EXCITATORY AND INHIBITORY CONDITIONING FROM REPEATED ADMINISTRATIONS OF NALOXONE. Janet D. Greeley, Howard Cappell and Constantine X. Poulos. Department of Psychology, University of Toronto, and Clinical Institute, Addiction Research Foundation, Toronto (Ontario).

A discrimination design was used in which one group of rats received repeated injections of naloxone (5 mg/kg) in one environment (A+) and saline injections in another (B−). A control group received saline injections in both. Hot-plate analgesia developed over repeated naloxone injections. In a test for conditional control, this analgesia was displayed only in A+. Subsequently, half the animals in each group were tested with morphine (5 mg/kg) in either A+ or B−. In A+, naloxone-experienced rats showed significantly *enhanced analgesia* to morphine relative to saline controls. In b−, naloxone-experienced rats showed significantly *reduced analgesia* to morphine compared to controls. These findings provide clear evidence for conditioned inhibitory and conditioned excitatory effects.

ENKEPHALIN HYDROLYSING ACTIVITY AND SYMPATHETIC AROUSAL IN CHRONIC ALCOHOLICS. Larry J. Benoit, Synergon, Inc., Lafayette, LA., and E. H. Harrell and P. L. Jones, North Texas State University, and J. L. Caffrey, Texas College of Osteopathic Medicine, Ft. Worth, TX.

This study was concerned with enkephalin hydrolysing activity (EHA) in chronic alcoholism as well as the relationship of enkephalin degradation to voluntary relaxation. Chronic alcoholics (N=20), recovering alcoholics (N=20), and abstinent controls (N=20) were compared for EHA, EMG, and peripheral skin temperature. The relationship between these variables and alcohol use (recency and average daily intake) and abuse (time abstinent since last abuse) were also analyzed. Alcohol use was found to be significantly related to EMG and temperature but not EHA. EHA was significantly related to EMG and temperature. EMG was negatively correlated with temperature. Training effects were demonstrated. Total enkephalin hydrolysing enzyme activity was ruled out as a regulator of circulating enkephalins in alcoholics. EHA was proposed as a significant variable in performance of a relaxation task.

CHARACTERIZATION OF THE PROCESSING SYSTEM FOR DRUG-INDUCED INTEROCEPTIVE STIMULI. David V. Gauvin and Alice M. Young. Wayne State University, Detroit, MI.

Morphine (MS) and *d*-amphetamine (AMP) interactions were examined with a three-choice discrimination procedure in pigeons. MS (3.2 mg/kg), saline (SAL), and AMP (1.8 mg/kg) were established as discriminative stimuli for food-maintained responding within 65 sessions. Subthreshold doses of either drug engendered *only* SAL-appropriate responding. At higher doses, each drug occasioned responding only to its own appropriate key. Tests of drug combinations suggested (1) that such combinations retained features of the original training stimuli, and (2) that MS overrode even the training dose of AMP. While the AMP training dose continued to evoke AMP-key responses when combined with subthreshold MS doses, it evoked only MS-key responses when combined with higher MS doses. In contrast, the MS training dose evoked MS-key responses in the presence of all AMP doses.

RATE-DEPENDENT EFFECTS OF AMPHETAMINE AND CHLORDIAZEPOXIDE ON SCHEDULE-CONTROLLED RESPONDING. Paul C. Mele, Department of Psychology, Adelphi University, Garden City, NY, Joy D. Mele, Virginia Commonwealth University and Victor J. DeNoble, Ayerst Laboratories, Princeton, NJ.

The rate-dependent effects of amphetamine (0.25–3.0 mg/kg) and chlordiazepoxide (2.5–20 mg/kg) were compared in rats responding under a multiple FI 120 sec DRL 18 sec schedule of sweetened milk presentation. Rate-dependent effects were evaluated by examining (1) increases in overall rates of responding maintained by each component schedule, (2) changes in local FI response rates using slopes, y-intercepts and correlation coefficients of least square linear regression lines, (3) whether the observed changes in DRL response rates fell on the regression lines for local FI response rates, (4) changes in local FI response rates when local rates after drug administration were expressed in absolute (actual rates) or relative (drug rates as percentage of control rates) terms.