

nonfear (85.4% correctly classified) subjects. The psychometric properties of this scale along with information on its factor structure and clinical usefulness are discussed.

CHANGES IN DRUG ABUSERS' HIV-1 RISK BEHAVIOR. Lawrence Greenfield, Robert K. Brooner and George E. Bigelow. The Johns Hopkins University School of Medicine, Baltimore, MD.

Assessment of changes in HIV risk behavior over time was conducted using self-report (subjective) and urinalysis (objective) measures. IVDUs in treatment reported significantly fewer injections and needle shares, less cocaine and more sedative use than did untreated IVDUs ($p < 0.00$). IVDUs reported reductions in numbers of injections, shares and cocaine use over time ($p < 0.00$), but no reductions in drug use over time were found through urinalysis. Questions were raised about the validity of the self-reported reductions.

EFFECT OF NICOTINE ON COGNITIVE AND PSYCHOMOTOR PERFORMANCE IN NONSMOKERS. Stephen J. Heishman, Laura M. Richards and Jack E. Henningfield. NIDA Addiction Research Center, Baltimore, MD.

This study examined the effects of repeated nicotine administration in nonsmokers. Seven male volunteers, who reported never smoking less than five cigarettes, lived on an inpatient research unit and participated in 10 consecutive experimental days in which they were administered various doses of nicotine polacrilex gum (Nicorette®) four times each day. Before and after each dose, cognitive and psychomotor performance was assessed. On days 1 and 2, only placebo was given. On days 3–10, four doses were administered each day in this order: 0, 2, 4, and 8 mg. Accuracy on two cognitive tasks (digit recall and logical reasoning) and psychomotor performance on a circular lights task were significantly impaired by nicotine. Nicotine did not enhance performance on any task.

CHRONIC ADMINISTRATION OF D₂-SELECTIVE DOPAMINE ANTAGONISTS ENHANCES SENSITIVITY TO COCAINE. Leonard L. Howell and Larry D. Byrd. Yerkes Regional Primate Research Center, Emory University, Atlanta, GA.

The behavioral effects of cocaine (0.03–3.0 mg/kg IV) were determined in squirrel monkeys (*Saimiri sciureus*) trained to lever-press under a fixed-interval (FI) 300-s stimulus-termination schedule. A session consisted of 13 consecutive FI components, each followed by a 60-s timeout. Graded doses of cocaine were injected during selected timeout periods (cumulative dosing). Subsequently, two D₂-selective antagonists, spiperone and raclopride, were administered chronically for two-week periods. Spiperone was administered IM twice per week, and raclopride was infused continuously via osmotic minipump. Both antagonists markedly suppressed responding during the two-week periods. When the effects of cocaine were redetermined three days after chronic drug administration was terminated, there was a parallel leftward shift in the dose-effect curve, indicating enhanced sensitivity to cocaine. One week later, sensitivity to cocaine had changed and was similar to that obtained prior to chronic drug administration. Chronic treatment with spiperone did not alter sensitivity to nisoxetine, a norepinephrine uptake inhibitor, or quipazine, a serotonin agonist. The results indicate that the enhanced sensitivity to cocaine is linked to its dopaminergic activ-

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REINFORCING EFFECTS OF CAFFEINE VIA COLA. William K. Hunt and Rose Orozco. Claremont McKenna College, Claremont, CA.

Five moderate cola drinkers (3 cans per day) were tested to see if caffeine in their colas could function as a reinforcer when ingested in a cola over a 6-week period. Caffeine in cola is reported to be 46 mg (0.13 mg per ml). Caffeine at that level in cola functioned as a reinforcer in 2 of the 5 subjects. Further withdrawal was noted in 4 of the 5 subjects. These results replicate earlier findings that low doses (<100 mg) can serve as a reinforcer. Also this study is the first to show that caffeine in sodas can function as a reinforcer. Reasons are also postulated why caffeine failed to be a reinforcer in more subjects.

ALCOHOL, INSTRUCTIONS AND AGGRESSIVE BEHAVIOR: ACUTE AND CUMULATIVE DOSE EFFECTS. T. H. Kelley, R. W. Foltin and M. W. Fischman. The Johns Hopkins University School of Medicine, Baltimore, MD.

The influence of social instructions on the relationship between both acute and cumulative alcohol dose administration and human aggressive behavior was investigated. Sixteen healthy adult males were divided into two groups and instructed that the study either contained or did not contain a social dimension (free-operant aggressive behavior instructions). Session contingencies were identical for all subjects. Four from each group received acute alcohol doses (0, 0.25, 0.50, 0.75 or 1.0 g/kg) prior to single daily sessions, and four received 0.25 g/kg doses once per hour prior to four daily sessions. Regardless of administration conditions, alcohol increased responding only in those subjects receiving social-dimension instructions.

ALCOHOL INTAKE AND ALCOHOL SENSITIVITY: U-SHAPED CURVE FOR ETHNIC GROUPS. Julia A. Lee. The Marin Institute for the Prevention of Alcohol and Other Drug Problems, San Rafael, CA.

An earlier study found an inverse relationship between self-reported alcohol sensitivity and alcohol intake for five ethnic groups. In this study, similar analyses were carried out for a wider range of ethnic/religious groups. Group alcohol sensitivity ranked from lowest to highest as follows: Black, Jewish, White Protestant, Irish Catholic, Other Asian, Japanese, Chinese. Group alcohol intake as a function of alcohol sensitivity formed an inverted U-shaped curve, which peaked for the Irish Catholic group. Group alcohol sensitivity could be a measure of alcohol's pharmacological potency, which may have influenced the evolution of ethnic group norms and customs controlling alcohol intake.

ALCOHOL EXPECTANCIES, IMAGINED AND IN VIVO SITUATIONS: RELATIONSHIP TO DRINKING PATTERNS. Brian Levine and Mark S. Goldman. University of South Florida.

An extensive series of studies has demonstrated the utility of the construct of expectancies for the understanding and prediction of alcohol use and alcoholism. Variation in expectancies has

been studied across imagined drinking situations, but researchers have not systematically investigated this process in *in vivo* situations. In this study, the Expectancy/Context Questionnaire (ECQ) was utilized in three imagined and two *in vivo* situations. Expectancies as measured by the ECQ were found to be sensitive to contextual variation as well as drinking behavior.

ETHANOL AS A FORAGEABLE COMMODITY: EFFECTS OF SEARCH COST. Anthony Liguori. Boston University.

Four rats searched on an FR schedule for any of six available commodity opportunities (low- or high-procurement-cost food, water, or ethanol), each of which could be subsequently obtained by responding 5 times (low-cost) or 50 times (high-cost) on the commodity's associated lever. As search cost rose from 5 to 400, high-cost acceptance rates rose for all three commodities; low-cost acceptance rates rose slightly from their previous high levels. Ethanol consumption increased slightly while food and water consumption decreased. Results show that rats behave toward ethanol, water, and food as they do toward food alone when search costs increase.

RELATIONSHIP OF ANXIETY, DEPRESSION, AND DRUG USE TO HIV RISK BEHAVIOR. Robert M. Malow,*† Tanya M. Bannister,* Sheila A. Corrigan,*† A. Mark Calkins* and Jose M. Pena.*† *Veterans Affairs Medical Center, †Department of Psychiatry and Neurology, Tulane University of Medicine, New Orleans, LA.

This study extends prior investigations of risk behaviors for acquiring and transmitting HIV among treatment-seeking drug abusers by analyzing the relationship of HIV risk behavior to drug use and psychopathology variables. The Beck Depression Inventory, State-Trait Anxiety Inventory and measures of AIDS-related knowledge were administered to 112 inpatient admissions to a VA Drug Dependence Treatment Unit. Subjects with high anxiety and depression scores reported engaging in significantly more HIV drug risk behaviors than other subjects. Polydrug users also reported being at greater risk than subjects solely abusing cocaine. However, groups did not differ in HIV sexual risk behavior. The clinical implications of these findings are discussed.

PSYCHOPATHOLOGY DIFFERENCES BETWEEN COCAINE AND SPEEDBALL USERS. Robert M. Malow, Jeffrey A. West, Sheila A. Corrigan, Jose M. Pena and W. Criss Lott. VA Medical Center, New Orleans; Department of Psychiatry and Neurology, Tulane University Medical Center.

Affective distress and related psychopathology symptoms associated with coinjected cocaine and opioid ("speedball") use are incompletely explored, and the extent to which they diverge from problems shown by cocaine abusers who do not prefer opioids is unknown. This investigation compared groups of speedball and nonspeedball cocaine users on global measures of depression and anxiety and modal groupings of personality characteristics measured by the MMPI. Compared to men who use cocaine without opioids, compulsive speedball users evidenced significantly greater problems with depression, trait anxiety, and related symptomatology, and were more uniformly characterized by modal profiles reflecting severe psychopathology and maladjustment. These results agree with descriptions of severe pathology associated with speedball use.

CAFFEINE AND TIME OF DAY EFFECTS ON HUMAN PHYSIOLOGICAL TREMOR. L. Stephen Miller, Charles P. Stroble, James D. Griffin, Elizabeth A. Jenkins, Suzanne Haseltine, Thomas W. Lombardo and Stephen C. Fowler. University of Mississippi, University, MS.

We tested the effects of consumptive levels of caffeine and time of day on physiological tremor of male university students. We found that caffeine significantly affected physiological tremor at moderate doses (3 mg caffeine/kg body wt.) but not at low doses (1 mg caffeine/kg body wt.). Physiological tremor was not affected by time of day or the interaction of caffeine and time of day. Our findings suggest that the ingestion of moderate levels of caffeine results in measurable changes in physiological functioning, and that physiological tremor may be a sensitive measure of physiological change due to drug effects. However, our results suggest that it may not reliably detect time of day changes in functioning.

FAMILY HISTORY AND ALCOHOL PROBLEMS IN IMPULSIVE AND NONIMPULSIVE INDIVIDUALS. Carolyn L. Morse and Vincent J. Adesso. The University of Wisconsin-Milwaukee, Milwaukee, WI.

Impulsive and nonimpulsive young, male, heavy drinkers were compared in their report of problems resulting from their drinking, their family history of alcohol problems, and personality variables. Impulsives had a higher score on the alcohol symptom checklist and a marginally higher global score reflecting family history of alcohol problems. The family history and symptom checklist scores were highly correlated. Of the personality variables, a measure of adult conduct problems was found to be the best predictor of both family history and alcohol symptoms. Individual symptoms and symptom categories as they relate to impulsivity and family history were also studied.

SCRATCHING INDUCED BY DOPAMINE D-2 AGONISTS IN SQUIRREL MONKEYS. Richardo Pellon and Jonathan L. Katz. NIDA Addiction Research Center, Baltimore, MD.

Four squirrel monkeys were tested under a cumulative dosing procedure to evaluate the ability of dopamine D-2 receptor agonists to produce scratching. Quinpirole and propylorapomorphine produced dose-related increases in scratching; sensitivity to these drugs increased after initial observations. Propylorapomorphine was always more potent than quinpirole in producing scratching. Dopamine D-1 receptor agonists, SKF 38393 and SKF 75760, as well as morphine, cocaine and *d*-amphetamine failed to produce dose-dependent increases in persistent and excessive scratching behavior. Scratching in squirrel monkeys appears to differentiate the behavioral effects produced by dopamine D-1 and D-2 receptor agonists, and may result in an important behavioral tool to investigate further compounds with different affinities for dopamine D-1 and D-2 receptors.

CAFFEINE EFFECTS ON ALERTNESS AND PERFORMANCE FOLLOWING SLEEP DEPRIVATION. D. M. Penetar, D. R. Thorne, U. D. McCann, J. B. Fertig, A. S. Schelling, M. L. Thomas, H. C. Sing and G. L. Belenky. Walter Reed Army Institute of Research, Washington, DC.

Caffeine (150, 300 or 600 mg/70 kg) or placebo was administered orally to 50 male volunteers following 49 hours of sleep