

noncontingent stimulation. Simultaneous determination of dopamine, norepinephrine and serotonin turnover rates in the same groups of animals also showed that, despite the identical electrical stimulation, dopamine and serotonin turnover in the nucleus accumbens and ventral tegmental area was different in animals receiving stimulation contingency vs. those receiving it noncontingently. These differences in glucose utilization and neurotransmitter turnover rates serve to emphasize the significance of the behavioral context of stimulus presentation in determining the neurochemical effects of a stimulus.

TOXIC CONSEQUENCES OF CONTINGENT AND NONCONTINGENT COCAINE ADMINISTRATION. Steven I. Dworkin. Wake Forest University, Bowman Gray School of Medicine, Winston-Salem, NC.

(Abstract not available)

PATIENT CONTROLLED DRUG DELIVERY: IMPLICATIONS FOR SUBSTANCE ABUSE ISSUES. James E. Smith. Wake Forest University, Bowman Gray School of Medicine, Winston-Salem, NC.

One of the defining features of substance abuse is the compulsion to repeatedly self-administer a drug to the detriment of both social and occupational functioning. Significant advances in understanding the etiology of drug abuse resulted from laboratory studies using the self-administration paradigm to investigate this component of drug abuse. Research in this area has elucidated behavioral, pharmacological and neurobiological factors related to engendering and maintaining compulsive drug taking. Nonetheless, several apparent anomalies have been observed in nonlaboratory settings. For example, iatrogenic drug use rarely leads to a substance abuse problem. In the past, several important procedural differences between the laboratory and clinical situation may have contributed to this differential effect. However, the advent of patient controlled analgesia (PCA) has provided the opportunity to more fully understand conditions resulting in drug abuse. Research on the use of PCA has indicated that patients use less drug over the course of treatment and discontinue drug use sooner when given control over dosing, as compared to traditional procedures. Thus, the contingent self-administration appears to result in a more evocative analgesic action and/or an attenuated reinforcing effect of these drugs. Evaluations of the behavioral and neurobiological mechanisms related to this enhanced therapeutic effect may increase our understanding of factors related to both drug abuse and more effective analgesic treatment.

SYMPOSIUM

Drug Use and Job Performance Indicators

Chair: *Steven W. Gust*, Office of Workplace Initiatives, National Institute on Drug Abuse, Rockville, MD

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INTRODUCTION. Steven W. Gust. Office of Workplace Initiatives, National Institute on Drug Abuse, Rockville, MD.

Among the consequences of taking a drug are behavioral effects which result in impaired job performance. While there are a variety of physiological, pharmacological, and psychological variables that may affect an individual's response to a drug, generalizations regarding drug effects on performance have been established

concerning effects of dose, task complexity, task novelty, and task/duration interactions. Such generalizations, while certainly limiting the specificity with which one can predict whether a particular individual is capable of performing under a particular set of circumstances, nevertheless suggest that group and individual performance may be adversely affected by drug use. This group of papers focuses on recent research relevant to the impact of drug use on job performance. Such data is important because research data provides an empirical base for the development of effective workplace drug abuse policy and programming. These studies represent several perspectives, and use several experimental approaches, but all address an aspect of behavior relevant to worker performance. Data is presented from a field study of job performance indicators and drug use in the U.S. Postal Service, from a longitudinal survey of drug use and its correlates in a sample of young adults followed for 12 years, from a laboratory simulation of the effects of alcohol on management decision making, and from laboratory studies of drug effects on basic psychomotor and cognitive skills with implications for on-site performance assessment. An attempt has been made to bring together research from basic and applied areas bearing on this important issue in order to update the research community on recent research, help identify limitations of such data and additional research needs, and hopefully foster increased interest within the basic and applied research communities to address these important issues.

THE RELATIONSHIP BETWEEN DRUG TEST RESULTS AND JOB PERFORMANCE INDICATORS. Jacques Normand. Office of Selection and Evaluation, United States Postal Service, Washington, DC.

Drug test results were obtained from 5,465 job applicants as part of a blind, longitudinal study of preemployment drug testing. All job applicants who applied for a permanent position with the Postal Service and had their preemployment examinations performed by a Postal Service Medical Officer in one of 21 sites across the country submitted urine samples at the time of their medical examinations. A total of 4,375 job applicants were eventually hired and made up the study sample. This interim report summarizes information regarding the prevalence rate of positive drug test results and data relating to the strength of the relationship between drug test results, turnover, and absenteeism. When these interim analyses were performed, the average tenure of participating employees who had not separated was 8.2 months. Of all the eligible job applicants, 10 percent tested positive for drugs at the time of their medical examinations. The positive rate for new career hires was slightly lower than applicants. The overall positive rate of new hires was 8.8 percent. Thirty-one percent of the eligible job applicants who tested positive for drugs were not hired compared to 22 percent of those who tested negative. This suggests that those eligible applicants who tested positive for drugs were screened out either during the employment suitability process (i.e., the medical and personal check of suitability) or refused career appointments at a higher rate than those who tested negative. An analysis of prevalence rates by race, sex, and age group revealed that the odds of being positive were higher for Blacks, males, and people between the ages of 25 and 35. Those who tested positive were found to have an absence rate 41% greater than those who tested negative. A significant difference in involuntary turnover between the positive and negative groups was detected. The observed difference in involuntary turnover rates reveals that employees who tested positive had a 38.5% higher rate of involuntary separation than those who tested negative. When separate analyses were performed by individual drug types,