

intensity of demand for ETOH. Consistent with prior research, at high income levels, saccharin was taken in much greater amounts than ETOH, while at low income levels ETOH was always preferred over saccharin. These results suggest that alternative nondrug reinforcers and income independently alter the demand for a drug.

**COCAINE ACQUISITION IN RATS: EFFECT OF FEEDING CONDITIONS AND PALATIBILITY.** Sylvie T. Lac and Marilyn E. Carroll. University of Minnesota, Minneapolis, MN.

The influence of food deprivation and food palatability on the acquisition of intravenous cocaine (0.2 mg/kg) self-administration was assessed in groups of male Wistar rats. An autoshaping method was used in which 6 h of automatically delivered infusions (10 infusions/hr) were followed by 6 h of self-administration under a fixed-ratio 1 schedule. The criterion for acquisition was an average of 100 infusions per day over 5 consecutive days during the self-administration period. Three groups of rats received daily rations of 10 g, 20 g or ad lib food. Levels of food deprivation were positively correlated with rate of cocaine acquisition. The 10 g group met the acquisition criterion in a mean of 6 days, while the ad lib group met the acquisition criterion in an average of 16.1 days. Three additional groups were tested with the same food conditions, but saccharin (0.2% wt/wt) was added to enhance palatability without changing caloric content. Initial results indicate that deprivation and palatability independently alter patterns of acquisition.

**STRESS AND RELAXATION INCREASE THE REINFORCEMENT VALUE OF NICOTINE.** Yoli G. Quevedo and Frank L. Collins, Jr. Oklahoma State University, Stillwater, OK.

Forty-five dependent smokers were randomly assigned to one of three conditions: Mental Math, Relaxation, and a Neutral Control. Subjects were required to earn either cigarette puffs or money using a concurrent schedule paradigm. The costs associated with puffs increased at a higher rate than the cost associated with money. Subjects were observed for 2 hours wherein they were sequentially exposed to the experimental manipulation (Stress, Relaxation, Neutral Control) and the concurrent schedule. Results indicated that both Stress and Relaxation increased the reinforcement value of nicotine compared to the Control Condition. Thus, activation of an emotional state (either stress or relaxation) may increase the reinforcement value of nicotine.

**MARIJUANA SMOKING: EFFECTS OF PUFF SPACING.** Mark K. Greenwald and Maxine L. Stitzer. Johns Hopkins University, Baltimore, MD.

This study demonstrates that effects of a uniform marijuana dose are related to speed of puffing. Six subjects smoked 10 puffs from marijuana or placebo cigarettes (3.55%, 0.0%  $\Delta^9$ -THC; double-blind), one puff per 30, 60 or 180 s, in six sessions. Plasma THC, CO and HR boost, subjective effects, and psychomotor performance were measured before, during and after smoking. Effects (plasma THC, HR,

subjective "high") differed both in magnitude and time course across conditions, presumably reflecting characteristics of marijuana absorption and redistribution kinetics.

**SEMANTIC/SPATIAL INFORMATION PROCESSING IN ADULT CHILDREN OF ALCOHOLICS.** Steven L. Schandler,\* Connie S. Thomas-Bigney,\* and Michael J. Cohen.† \*Chapman University, Orange, CA. †Veterans Affairs Medical Center, Long Beach, CA.

Adult children of alcoholics display mild deficits in the processing of verbal information and a more significant deficit in visuospatial information processing. This study examined the degree to which the verbal learning of adult children of alcoholics is affected by altering the visual content of the information to be learned. Twenty matched adult children of alcoholics and 20 adult children of nonalcoholic learned the spatial locations of low and high imagery nouns. Overall, the data indicated that adult children of alcoholics experience not only disruptions in visuospatial encoding, but also disruptions in the encoding of semantic information with an imaginal content.

**CIGARETTE MENTHOLATION INCREASES SMOKERS' EXHALED CARBON MONOXIDE LEVELS.** Gregory E. Miller,\* Nicholas H. Caskey,\*† and Murray E. Jarvik.\*† \*University of California, Los Angeles, CA, †Brentwood VAMC, Los Angeles, CA.

Male smokers ( $n = 12$ ) participated in three controlled-dose smoking sessions spaced one week apart. In each session, subjects inhaled a cumulative total of 1200 cc of cigarette smoke. Menthol dosage varied across sessions, such that subjects smoked experimental cigarettes that had been injected with either 0 mg, 4 mg, or 8 mg of menthol. Exhaled carbon monoxide levels increased concomitantly with menthol dosage. There were no differences in smoking topography across the three conditions. Menthol's ability to increase the toxicity of cigarette smoke by raising CO levels is discussed. Results suggest that menthol cigarette preference may account for some of the racial differences in smoking behavior and smoking-related outcomes found in past literature.

**NICOTINE AND CAFFEINE CONSUMPTION IN DETOXIFYING ALCOHOLICS.** Craig P. Weisman and Irving Maltzman. University of California, Los Angeles, CA.

In spite of a lack of research literature regarding the affect of nicotine and caffeine withdrawal in detoxifying alcoholics, there is pressure to develop nicotine and caffeine free treatment facilities. We randomly assigned 40 alcoholics seeking detoxification to one of four caffeine conditions and monitored their nicotine consumption. There was no significant increase in severe withdrawal symptoms associated with the level of caffeine consumed or changes in nicotine consumption. Caffeine use did increase the minor withdrawal symptoms of tremor, anxiety, and agitation. Decreased caffeine consumption led to increase in the severity of headaches reported.