

sules This was followed by a 6 week single-blind clinical trial of carbamazepine and after this period, subjects returned to a 7 day placebo washout The results of the study revealed that carbamazepine may be an important antipsychotic agent in the treatment of refractory schizophrenia

SITUATIONAL, TEMPORAL AND SUBJECTIVE CONTROL OF SMOKELESS TOBACCO USE Dorothy K Hatsukami, Robert M Keenan and Deborah J Anton University of Minnesota, Minneapolis

The present study is concerned with determining if situational, temporal and subjective factors are associated with smokeless tobacco use In this sample, approximately 72 percent of the chews were associated with feelings of relaxation, boredom, tiredness and/or happiness, whereas 66 percent of the onset of chewing behavior occurred in the situations of after a meal, socializing, driving and/or watching TV or relaxing The temporal pattern of smokeless use showed a positively-accelerating rate of use associated with the morning hours, a constant high-rate of use associated with the afternoon and evening followed by a sharp decline in use at around bedtime These data support the notion that there appear to be situational, subjective and temporal factors associated with the use of smokeless tobacco

THE SELECTIVE EFFECTS OF ALCOHOL ON COGNITIVE PROCESSES Jill Fischer Cleveland Clinic Foundation, Timothy B Baker and Arthur M Glenberg University of Wisconsin-Madison

We report on two experiments designed to identify the locus of alcohol's effects on information processing stages, using the Sternberg (1969a,b) short-term memory search task and its long-term memory search modification (Atkinson and Juola, 1974) Free recall and coding tasks were included for comparative purposes in Experiment 1, Daneman and Carpenter's (1980) word/reading span task was included in Experiment 2 to examine alcohol's effects on "working memory" We replicated previous reports of alcohol-induced disruption in long-term free recall and coding but found that alcohol did not affect short-term or long-term memory search or "working memory"

PIRACETAM EFFECTS ON READING ACHIEVEMENT AND EVOKED POTENTIALS IN DYSLEXICS C Keith Connors Behavioral Medicine, Childrens Hospital National Medical Center, DC, Mark Reade Johns Hopkins University School of Medicine, Colin Wilsher British Siclac Ltd, Watford, England

Piracetam, a nootropic which is structurally similar to gamma-aminobutyric acid, has been shown to enhance learning, particularly for linguistically-based tasks In the present poster, two studies which evaluated the efficacy of piracetam on reading achievement and/or visual event related potentials will be presented In the first study, 225 dyslexic children were randomly assigned to the medication or placebo group for a 36 week trial period Monthly physical exams and achievement testing was conducted Results indicated that piracetam led to significantly greater academic gains as measured on several standardized tests of reading

achievements Evoked potentials conducted on 29 children at one site indicated that piracetam improved cognitive performance on a task of attention/short-term memory and that differences in ERPs were noted, particularly in the left hemisphere for later components In the second study, children received 1 of 4 dosages of piracetam or placebo over 5 days of testing On each day, a baseline ERP session and 3 additional sessions were conducted A principal components analysis will be conducted to evaluate the impact of piracetam on the ERP data

PHARMACOLOGIC MANIPULATION OF VISUAL VIGILANCE IN THE NON-HUMAN PRIMATE EXTRAPOLATION TO MAN J Dean Taylor Institute of Environmental Medicine, New York University Medical Center (Sponsor Hugh L Evans)

A forced-choice visual discrimination task was developed and tested in both human and non-human primates Dependent measures were directly comparable between the two species and included sensory discriminability (A'), bias (B''), response time, response probability, and hit rate as a function of interfering stimuli Monkeys were treated with scopolamine, physostigmine, aniracetam, and scopolamine plus aniracetam Scopolamine injections degraded performance, while physostigmine and aniracetam enhanced some measures of performance Aniracetam offset the decrement induced by scopolamine This model is capable of assessing chemically-induced alterations in higher cognitive function, the results from which can be directly extrapolated to man

MOTOR EFFECTS OF PIMOZIDE ON DISCRIMINATED LEVER RELEASE IN RATS Stephen C Fowler and Paul Skjoldager The University of Mississippi, University, MS 38677

This experiment examined the effects of pimozide (0.125, 0.25, and 0.5 mg/kg) on a discriminated lever release task which required the rat to wait with the lever depressed through one of five randomly selected foreperiods (2-6 sec in duration), and release the lever within 0.5 sec of a signalled payoff band to receive food or water reinforcement Results indicate that pimozide produced a dose-dependent increase in the proportions of both anticipatory (premature lever release) and extended (lever release after payoff band) responses The increased proportions of extended responses were hypothesized to parallel the motor disruption observed in the discriminated active avoidance paradigm, while increases in proportions of anticipatory responses were thought to be analogous to akathisia

THE EFFECTS OF CHRONIC DIAZEPAM ON REPEATED ACQUISITION IN HUMANS Warren K Bickel Albert Einstein College of Medicine, Stephen T Higgins University of Vermont College of Medicine, Roland R Griffiths Johns Hopkins University College of Medicine

The present study examined the effects of chronic-high doses of diazepam on the acquisition and performance of response chains in humans Diazepam (80 mg) was administered on three consecutive days The effects of diazepam on the acquisition and performance of behavioral chains was

assessed 1, 2, 3, 4, 6, 8, 12 and 23 hours after drug administration. Tolerance to the error producing effects of diazepam developed to a greater extent in the performance than the acquisition performance. Recovery (return to placebo levels) was also quicker in the performance component. Response rate in the acquisition component showed greater tolerance and quicker recovery to the rate decreasing effects of diazepam than the performance component. Overall, the effects of chronic effects of diazepam in humans are consistent with the effects obtained in non-human studies examining the effects of chronic dosing on the repeated acquisition of behavioral chains.

DIURNAL RHYTHM OF HOMECAGE ACTIVITY IN THE MACAQUE MONKEY AFTER TRIMETHYLTYN
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Trimethyltin's (TMT) effects on activity have been reported for nocturnal species such as the rodent, but its effects in diurnal species have not been reported. Homecage diurnal activity of individually housed adult female cynomolgus monkeys was continuously monitored following an acute dose (1 mg/kg, PO) of TMT. A 12 hr light dark cycle was automatically maintained. At 2-3 days post-TMT hyperactivity was observed during the light portion of the diurnal cycle, little activity change was seen during the dark phase. Activity was below baseline 7-8 days post-TMT during both light and dark. TMT also altered the diurnal pattern of activity. These results indicate that (1) acute TMT alters the amount and pattern of homecage activity in a time-dependent manner, and (2) while these changes occur homecage behavior remains under control of the environmental lighting schedule.

ADAPTIVE MECHANISMS PRODUCE HYPERPHAGIA FOLLOWING AMPHETAMINE-INDUCED ANOREXIA
James R Jones Vanderbilt University, William F Caul Department of Psychology, Vanderbilt University

Evidence is accumulating, that suggests that the time course of psychoactive drugs on behavior is biphasic—initially reflecting the drug's primary effect but later reflecting the presence of adaptive responses. The effect of three doses of amphetamine on eating during the first, third, fifth, and seventh postinjection hours was examined for twelve consecutive treatment days. The results clearly show that the time course of the drug's effect is biphasic, i.e., anorexia followed by hyperphagia, and demonstrate that increases in the adaptive response over repeated drug exposure account for the pharmacodynamic tolerance observed.

NICOTINE, BODY WEIGHT, FOOD CONSUMPTION, AND BODY COMPOSITION IN RATS
Suzan E Winder and Neil E Grunberg Uniformed Services, University of the Health Sciences, Bethesda, MD

The present study examined the effects of nicotine administration and cessation on body weight, food consumption and body composition in rats. Administration of nicotine was associated with attenuated body weight gains and cessation was associated with increased body weight gains. Changes in body weight were paralleled by changes in percentages of total body fat and protein. There were no consistent differ-

ences in percentages of total body water between groups or across time. Changes in food consumption paralleled changes in body weight in the high nicotine group only. These results suggest that nicotine administration may adversely effect body composition.

NEUROBEHAVIORAL CONSEQUENCES OF FLUOXETINE ADMINISTRATION TO NEONATAL PUPS
Maria S McLean Thomas Moore College

Fluoxetine is an experimental serotonin re-uptake inhibitor currently undergoing clinical trials as an antidepressant agent. This experiment determined the behavioral effects on neonatal rat pups of several doses of Fluoxetine (0.025 mg/10 g, 0.05 mg/10 g, 0.10 mg/10 g) administered alone and in conjunction with PCPA from PN-3 to PN-21. A battery of behavioral tests were administered during this period to assess physical growth and maturation, reflex ontogeny, neuromuscular development, and sensorimotor functioning. Levels of amino acids in blood and in brain and levels of neurotransmitters in brain were also measured. In most instances, animals receiving Fluoxetine alone did not differ behaviorally from Saline controls. Most animals receiving Fluoxetine injections, however, exhibited dose related weight loss. It was recommended that behavioral teratological studies be conducted with the drug, since it may soon become available as a clinical antidepressant. The combined weight loss effects of Fluoxetine plus PCPA appeared to be greater than that of either drug alone. It was suggested that with chronic administration of Fluoxetine a negative feedback mechanism may operate which further diminishes the level of 5-HT.

THE B-VITAMIN, PANTOTHENIC ACID CAN REVERSE THE MOTOR EFFECTS OF ETHANOL IN SQUIRREL MONKEYS
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Pantothenic acid, a B vitamin, is the precursor to Coenzyme A, which, in turn, is a precursor to acetylcholine. Recent work in our laboratory suggests that the motor impairment induced by ethanol can be blocked by pre-administration of pantothenic acid. These effects are critically dependent upon the route of administration and timing. For example, pantothenic acid administered orally is ineffective at all doses tested but when administered IV it reverses the acute effects of ethanol. Interactions of these two substances were studied in a preparation that allows monitoring of both operant behavior and tremor in squirrel monkeys. The subjects were trained to maintain a lever in a specified position for 8 sec for fruit juice reward. A transducer coupled to the lever provided a precise measure of displacement. Ethanol altered the tremor spectrum by decreasing high frequencies at low doses and all frequencies at higher doses. When pantothenic acid was administered IV before ethanol dosing, response rate and many features of tremor returned to control levels. (Supported by AA05188 and ES01247)

INFLUENCES OF ALCOHOL CONSUMPTION ON CIGARETTE SMOKING TOPOGRAPHY
Robert M Keenan, Dorothy K Hatsukami and Roy W Pickens University of Minnesota, Minneapolis and The National Institute of Drug Abuse

This study examined several durational and frequency