NIDA
NATIONAL INS I

October 16, 2001

News Scan

NIDA ADDICTION RESEARCH NEWS

NEWS UPDATE

RESEARCH NEWS

Scientists Show Marijuana Use Affects Learning, Other Memory Skills

Researchers at the McLean Hospital/Harvard Medical School have found that heavy, long-term marijuana use produces memory impairment for days or even weeks after users stop smoking.

To ascertain the effects of marijuana use on memory and other cognitive skills, the Harvard research team recruited 180 individuals between the ages of 30 and 55. About one-third of the subjects were current heavy users who had smoked marijuana at least 5,000 times in their lives (equivalent to using the drug at least once a week for 13 or more years) and who were smoking daily at the time they entered the study; another third were former heavy users. Individuals in the control group had used marijuana at least once but fewer than 50 times in their lives.

All of the subjects were asked to abstain from marijuana for 28 days, and their drug abstinence was confirmed by urine samples. They were administered a battery of tests to assess general intellectual function, abstraction ability, attention span, verbal fluency, and ability to learn and to recall new verbal and visuospatial information just before and then on the 1st, 7th, and 28th days of abstinence. At days 0, 1, and 7, current heavy users of marijuana scored significantly lower than the control subjects on recall of word lists, but by day 28, there were virtually no differences among the groups on any of the tests.

Cognitive deficits were detectable at least 7 days after heavy marijuana use, but these changes appeared to dissipate within a few weeks, after THC (tetrahydrocannabinol), the active ingredient of marijuana, and its metabolites have cleared the body.

- **WHAT IT MEANS:** This study clearly points out that marijuana is not a benign substance. By impairing memory and other cognitive functions, smoking marijuana can negatively affect academic achievement and other life skills.

Lead investigator Dr. Harrison G. Pope, Jr. published the study in the October 2001 issue of *Archives of General Psychiatry*.

Early Age at First Drink May Reflect Genetic Risk For Later Substance Abuse

The age at which an individual takes his/her first drink is strongly predictive of a broad range of future problem behaviors, including alcoholism, abuse of illicit drugs, conduct and antisocial personality disorders, nicotine addiction, underachievement in school, and poor impulse control, according to researchers from the University of Minnesota.

The head of the Minnesota research team, Dr. Matt McGue, says the team's findings indicate that there may be a common genetic basis for a number of behavioral problems, and an early age for the first use of alcohol could be a "marker" for a genetic risk for these problems.

The researchers also found that early use of alcohol tends to run in families, and, at least in males, it is an inheritable trait. There were significantly more conduct disorders and other behavioral problems in the sons than in the daughters of parents whose age at first drink came before age 15. For girls, shared environmental factors, rather than age at first drink, appeared to be more of a determining factor.

more...

- **WHAT IT MEANS:** Age at first drink may prove to be helpful in identifying teens who are at risk for future substance abuse and other problems, permitting them to be targeted for early, intensive prevention and intervention programs.

The research is published as two separate papers in the August 15, 2001 issue of *Alcoholism: Clinical and Experimental Research*.

Adult Male Mice Exposed to Methamphetamine In Utero Have Increased Neurotoxicity Risk

Researchers at the University of Chicago, in experiments with mice, have found that prenatal exposure to methamphetamine increases response to the toxic effects of the drug in adult males. Some effects of prenatal methamphetamine exposure were observed in female offspring, but were much less than those seen in the males.

The investigators say these findings may raise concerns for male methamphetamine abusers whose mothers used the drug while pregnant. The neurotoxic risk from using methamphetamine as adults may be greater for men who were exposed prenatally. Methamphetamine toxicity is characterized by persistent decreases in the levels of dopamine and serotonin in certain brain regions. It is known that in humans, dopamine deficits are associated with symptoms of Parkinson's disease.

- **WHAT IT MEANS:** This finding, coupled with the increasing use of club drugs, such as methamphetamine, by women of childbearing age, makes this issue a potential public health concern.

The researchers, led by Dr. Alfred Heller, published their findings in the August 2001 issue of the *Journal of Pharmacology and Experimental Therapeutics*.

EEG Shown to Reliably Predict Drug and Alcohol Relapse Potential

A University of Connecticut School of Medicine researcher has found that use of quantitative electroencephalography (EEG) is a reliable tool to predict which patients with histories of abuse of alcohol, cocaine, cocaine and alcohol, or opioid dependence are prone to relapse.

EEGs were given to 107 substance-dependent patients enrolled in a treatment program and to 22 controls with no history of substance abuse. An electroencephalogram was administered when the patients had been free of alcohol or drug use for an average of 3 months. The patients were then monitored for the next 6 months to see if they resumed alcohol or drug use.

The researcher observed that the 48 patients who relapsed to substance abuse shared a similar characteristic– their EEGs showed an increased amount of high-frequency activity, compared to the 59 patients who maintained abstinence and to the 22 control subjects. This high-frequency activity on the EEGs was found to far outweigh clinical and demographic variables as a predictor of relapse.

- **WHAT IT MEANS:** EEGs may prove to be a sensitive and specific screening test that can be used to identify those substance abuse patients with the highest risk for relapse. This would be an important advance for treatment planning because it would permit prevention and treatment efforts to be directed toward those at the highest risk for relapse. EEG technology is more practical and affordable than other neuroimaging technologies, including fMRI, PET, or SPECT, and it can be realistically implemented into a variety of treatment settings.

The study by Dr. Lance Bauer, Professor of Psychiatry and Director of the Neural Dynamics Laboratory at the University of Connecticut, was published in the July 2001 issue of the journal *Neuropsychopharmacology*.

more...

Study Finds Combination Therapy May Help Those With a History of Recurrent Depression to Quit Smoking

Researchers at the Brown University School of Medicine have found that smokers with a history of recurrent major depressive disorder (MDD) who received standard treatment for smoking cessation–combined with behavioral coping therapy for depression–were more likely to be successful in quitting than those receiving standard treatment alone. Interestingly, heavy smokers also benefited from the inclusion of therapy for depression in their stop-smoking treatment regimen, regardless of their history of depression.

The researchers recruited 179 smokers, more than half of whom were women, between the ages of 18 and 70. All had a history of MDD; some had experienced a single episode, while others had experienced recurrent bouts of depression. Participants were currently smoking an average of 27 cigarettes per day and on average had been smokers for more than 27 years.

A year after a 6-week treatment program, 24.7 percent of the standard therapy group–compared to 32.5 percent of the combination therapy group–had stopped smoking. The study found that individuals with a history of recurrent episodes of depression had poorer treatment outcomes than did those with only a single episode of depression.

- **WHAT IT MEANS:** This study indicates that incorporating treatment for depression into standard smoking cessation therapy may be beneficial for smokers with a history of recurrent MDD and for those who smoke heavily.

The study, led by Dr. Richard Brown of the Brown University School of Medicine, appears in the May 2001 issue of *Journal of Clinical and Consulting Psychology*.

NEW PUBLICATIONS

Two New Research Reports Added to Series

Two publications have been added to NIDA's popular Research Reports Series. ***Prescription Drugs: Abuse and Addiction*** is a new publication developed to support NIDA's initiative to increase public awareness about the nonmedical use or abuse of prescription drugs. It is available in both English and Spanish. ***Nicotine Addiction***, first published in 1998, has been updated to reflect the most recent science-based information about nicotine addiction and its treatment. It is only available in English.

An estimated 9 million people over the age of 12 used prescription drugs for nonmedical reasons in 1999. In April 2001, NIDA launched a public awareness campaign focusing on recent trends in the misuse and abuse of prescription drugs in the United States, and the Research Report on ***Prescription Drugs: Abuse and Addiction*** was developed as part of that campaign.

The publication answers questions about the consequences of abusing commonly prescribed medications and provides information on how certain medications affect the brain and body; the publication also discusses treatment options.

The revised Research Report on ***Nicotine Addiction*** discusses the extent and impact of tobacco use and provides information on medications and behavioral treatment for nicotine addiction; the risks of smoking during pregnancy; the medical consequences of nicotine use; and the differences between men and women in their smoking behaviors and sensitivity to nicotine.

Both publications can be ordered free of charge by calling the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686.

more...

UPCOMING EVENTS

- March 14-15, 2002: Research to Practice, New York, New York.

  Watch upcoming issues of NewsScan for more information on this event, or call NIDA at 301-443-6245.

For more information about any item in this NewsScan:

- **Reporters,** call **Michelle Muth**, NIDA Press Office, at 301-443-6245
- **Congressional staffers**, call **Mary Mayhew**, NIDA Office of Science Policy and Communications, at 301-443-6071.

The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports more than 85 percent of the world's research on the health aspects of drug abuse and addiction. The Institute carries out a large variety of programs to ensure the rapid dissemination of research information and its implementation in policy and practice. Fact sheets on the health effects of drugs of abuse and other topics can be ordered free of charge in English and Spanish by calling NIDA Infofax at 1-888-NIH-NIDA (644-6432) or 1-888-TTY-NIDA (889-6432) for the deaf. These fact sheets and further information on NIDA research and other activities can be found on the NIDA home page at *http://www.drugabuse.gov.*