

# Start Marijuana Use Prevention Efforts Early

BY DAMIAN McNAMARA

Miami Bureau

MIAMI — Intervene to prevent marijuana use in children as young as 8 years, a National Institute on Drug Abuse researcher suggested at the annual conference of the American Society for Addiction Medicine.

"Addiction is a developmental disease—it starts in adolescence and childhood with tobacco, THC [tetrahydrocannabinol], and alcohol," said Jag H. Khalsa, Ph.D.

Physicians first can help children and their parents overcome the common misperception that marijuana carries much lower health risks, compared with other substances, Dr. Khalsa said.

"Young people think this drug is innocuous and does not do much harm. Drug use goes up with this perception and down with the perception that it is dangerous."

Almost 20% of high school seniors smoke marijuana. Overall, 15 million Americans 12 years and older have used marijuana at least once in their lifetime, and there are 2-3 million new users each year, Dr. Khalsa said. He is chief of the medical consequences branch, division of pharmacotherapies and medical consequences of drug abuse, National Institute on Drug Abuse, Bethesda, Md. "Marijuana continues to remain the third most commonly used drug mentioned in the ER—so the consequences are significant," Dr. Khalsa said.

Among the most important adverse effects of marijuana use are the cognitive effects: impairment in cognition, short-term memory loss, and executive dysfunction. These deficits can be dose-related and can persist up to 15 days, according to a NIDA-funded study (Neurology 2002;59:1337-43). College students who abused marijuana demonstrated impairment in cognitive function and ability to remember simple tasks at baseline. Effects were still observed after 7 days and 15 days of abstinence. However, deficits were no longer seen at day 28. "This

suggests people recovered from the chronic effects of marijuana." A more sophisticated follow-up study will use PET MRI to assess residual effects, Dr. Khalsa said.

Chronic marijuana use also may be associated with major depression, attention-deficit/hyperactivity disorder, and aggressive behaviors in drug-dependent adolescents.

Acute increases in heart rate, increased blood pressure, and cardiac output alterations are among the cardiovascular effects. Endocrine effects in humans include lower testosterone levels, decreased luteinizing hormone levels, infertility, and gynecomastia. "There are inconsistent reports, however, in the literature" regarding endocrine alterations, Dr. Khalsa said.

The immune effects are significant, he said.

THC suppresses macrophages, natural killer cells, and

T lymphocytes, mediated through CB2 receptors on leukocytes. "Suppression of antitumor activity makes a person more susceptible to cancer," he said. "Squamous cell carcinomas have been reported in the mouths of marijuana users."

Marijuana smoke contains approximately 50% more carcinogenic compounds than tobacco smoke. However, "sometimes it is difficult to tease out effects between the people who smoke both tobacco and marijuana over the long term," Dr. Khalsa said.

THC also can cause modest short-term bronchodilation. In addition, regular marijuana smoking leads to chronic cough and increased sputum production, he said. ■

For more information on the clinical effects of marijuana and research developments, visit [www.nida.nih.gov](http://www.nida.nih.gov).

**Help children and their parents overcome the common misperception that marijuana carries lower health risks than other substances.**

## In Utero Exposure May Have Lasting Effects

Marijuana exposure in utero might spur neurologic changes associated with long-term memory impairment, Dr. Khalsa said.

For example, functional MRI (fMRI) demonstrated that young adults who had been exposed to marijuana prenatally had altered neural activity during visuospatial working memory tasks (Neurotoxicol. Teratol. 2006;28:286-95).

Researchers assessed 31 participants aged 18-22 years, including 16 exposed prenatally to marijuana and 15 others with no such exposure. They controlled for current drug use. The participants performed a visuospatial task while neural activity

was imaged with fMRI.

As the amount of prenatal marijuana exposure increased, imaging showed significantly more neural activity in the left inferior and middle frontal gyri, left parahippocampal gyrus, left middle occipital gyrus, and left cerebellum. At the same time, the imaging demonstrated significantly less activity in right inferior and middle frontal gyri. The authors wrote that they "interpret the results to suggest that prenatal marijuana exposure alters neural functioning during visuospatial working memory processing in young adulthood."

# Teen Girls Who Start Dieting Twice as Likely to Smoke

BY ROBERT FINN

San Francisco Bureau

Adolescent girls who begin dieting are twice as likely to begin smoking cigarettes regularly, according to a longitudinal study.

Among teenage boys, on the other hand, inactive dieters are significantly more likely to begin regular smoking, according to the study by Mildred M. Mal-

donado-Molina, Ph.D., of the University of Florida, Gainesville, and her colleagues (Am. J. Health Promot. 2007;22:25-32).

"It is important to consider dieting and its relation with other risk-taking behaviors in adolescents, such as smoking," the investigators wrote. "Studies targeting the prevention and reduction of smoking ... [also] need to acknowledge the initiation of dieting practices, the incidence of dieting and smoking during the same period

of time, and how these two behaviors vary by gender."

The study involved a subanalysis of data from the National Longitudinal Study of Adolescent Health, a school-based study of the health-related behaviors of adolescents in grades 7-12. A total of 9,632 students were interviewed between April 1994 and December 1995, and then reinterviewed a year later. Their mean age was 15.2 years at the first interview.

Investigators excluded 1,837 students who reported having already tried cigarettes regularly at the first interview, leaving 7,795 non-Hispanic whites and non-Hispanic blacks as the study population. The investigators excluded Hispanic students because of previous research indicating that smoking behaviors differ by ethnicity, and because the term "Hispanic" is broad, comprising several distinct ethnicities.

Of the students included in the study, 3,522 reported having tried cigarettes (although not regularly) at the first interview. These students were excluded from analyses of trying smoking but not from analyses of initiating regular smoking, which the investigators defined as at least one cigarette per day for 30 days.

Girls had a much higher prevalence of dieting than boys, 55% vs. 25%. After controlling for several covariates such as age, ethnicity, overweight, false perception about weight, and availability of cigarettes

in the home, the investigators found several other important differences between boys and girls.

Among girls there was no significant association between dieting status or other covariates and trying smoking, but among boys those who were not overweight and those who had cigarettes available to them at home were both about 50% more likely to try smoking.

There were significant associations between dieting status and the initiation of regular smoking in both genders. Among girls, whites were three times as likely to begin regular smoking as blacks, those with cigarettes available in the home were 55% more likely to begin regular smoking than those without availability, and those who initiated dieting (that is, those who reported not dieting at the first interview but reported that they were at the second) were 94% more likely to start regular smoking than nondieters.

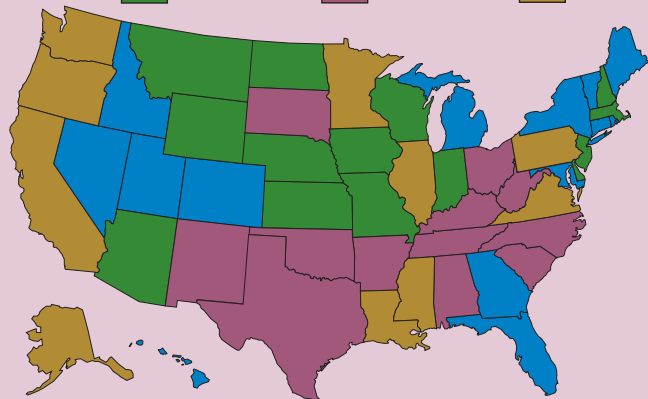
Among boys, whites were 74% more likely to begin regular smoking than blacks, those with cigarettes available in the home were 39% more likely to begin regular smoking than those without availability, and inactive dieters (those who reported dieting at the first interview but not the second) were 74% more likely to begin regular smoking than nondieters.

The study was supported by the National Institute on Drug Abuse. Investigators reported no conflicts of interest. ■

## DATA WATCH

### Percentage of High School Students Who Smoke

7.4%-19.0% 19.1%-23.0% 23.1%-28.6% Data unavailable



Note: Based on 2005 data from the Youth Risk Behavior Surveillance System for high school students who smoked cigarettes on 1 or more of the 30 days preceding the survey. Source: American Cancer Society