

Prevention program helps teens override a gene linked to risky behavior

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A family-based prevention program designed to help adolescents avoid substance use and other risky behavior proved especially effective for a group of young teens with a genetic risk factor contributing toward such behavior, according to a new study by researchers at the University of Georgia. The National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA), components of the National Institutes of Health, supported the study, which appears in the May/June issue of *Child Development*.

For two-and-a-half years, investigators monitored the progress of 11-year-olds enrolled in a family-centered prevention program called Strong African American Families (SAAF), and a comparison group. A DNA analysis showed some youths carried the short allele form of 5-HTTLPR. This fairly [common genetic variation](#), found in over 40 percent of people, is known from previous studies to be associated with impulsivity, low self-control, [binge drinking](#), and substance use.

The researchers found that adolescents with this gene who participated in the SAAF program were no more likely than their counterparts without the gene to have engaged in drinking, marijuana smoking, and sexual activity. Moreover, youths with the gene in the comparison group were twice as likely to have engaged in these risky behaviors as those in the prevention group.

"The findings underscore that 'nurture' can influence 'nature' during adolescence, a pivotal time when delaying the start of [alcohol](#)

[consumption](#) and other risky behaviors can have a significant impact on healthy child development," says NIAAA Acting Director Kenneth R. Warren, Ph.D. "This study is one of the first to combine prevention research with a gene-environment study design."

"This study is an excellent example of how we can target prevention interventions based on a person's genetic make-up to reduce their substance abuse risk," says NIDA Director Nora Volkow, M.D.

The research team recruited 641 families in rural Georgia with similar demographic characteristics. They were divided randomly into two groups: 291 were assigned to a control group that received three mailings of health-related information, and 350 were assigned to the SAAF program, in which parents and children participated in seven consecutive weeks of two-hour prevention sessions. The parents learned about effective caregiving strategies that included monitoring, emotional support, family communication, and handling racial discrimination, which can contribute to substance abuse. The children were taught how to set and attain positive goals, deal with peer pressure and stress, and avoid risky activities.

Researchers conducted home visits with the families when the children were ages 11, 12, and 14 and collected data on parent-child relationships, peer relationships, youth goals for the future, and youth risk behavior. Two years later, the scientists collected DNA from saliva samples provided by the adolescents to determine whether they carried the short allele of 5HTTLPR. The results confirmed that the adolescents carrying this risk gene who were in the control group engaged in risky behaviors at a rate double that of their peers in the SAAF program.

"We found that the prevention program proved especially beneficial for children with a [genetic risk](#) factor tied to risky behaviors," says the lead author, Gene H. Brody, Ph.D., Regents Professor and Director of the

Center for Family Research at the University of Georgia. "The results emphasize the important role of parents, caregivers, and family-centered prevention programs in promoting healthy development during adolescence, especially when children have a biological makeup that may pose a challenge."

Dr. Brody also notes that much of the protective influence of SAAF results from enhancing parenting practices. "The ability of effective parenting to override genetic predispositions to [risky behaviors](#) demonstrates the capacity of family-centered prevention programs to benefit developing adolescents," he says. The study team, which included researchers from the University of Iowa and Vanderbilt University, concluded that the results validate the use of randomized, controlled prevention trials to test hypotheses about the ways in which genes and environments interact.

Source: NIH/National Institute on Alcohol Abuse and Alcoholism

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