

A nonprofit group supporting social and physical environments since 1973.



Heavy Adolescent Marijuana Use and IQ Impact

By **Bruce Bomier, MPH, Board Chair**
Environmental Resource Council

It is well understood that teenagers are more susceptible to the effects and risks of alcohol and presumably other forms of intoxication. As neurologist Francis Jensen expressed it, “The teenage brain is not just an adult brain with fewer miles.” It actually functions differently regarding stimulation, pleasure, intoxication and, consequently, behavior.

Understandably, marijuana use in adolescence and its ultimate impact on intelligence has been a primary focus of much responsible research. Some international research indicates a decrease in adult intelligence quotients (IQ) in conjunction with heavy use by adolescents (using five days a week or more). As these heavy users matured, their self-reported heavy use correlated with what appeared to be a reduced IQ of around 8 points. However, subsequent research, initially from Norway, indicated that marijuana use in a semi-chronic pattern did not diminish IQ but that two dynamics were concurrent, i.e. the same conditions creating or allowing youthful heavy use also contributed to a downward shift in intelligence.



In the January 18, 2016, issue of *Science Immunology*, two important studies addressing this issue were reviewed. One involved an analysis of 2,000 British youth, and the other studied identical twins, one who used marijuana heavily and one who abstained. In both studies, it appeared that after taking environmental factors into account, there was, in the words of the article, “no measurable link between marijuana use and IQ.” In the February 2, 2016, issue of *Proceedings of the National Academy of Sciences*,¹ two studies supported the *Science Immunology* findings reporting that “...there was no evidence of a dose-response relationship between

frequency of use and intelligence quotient (IQ) change. After taking all factors into account, in the words of the Academy of Science publication, “...marijuana-using twins failed to show significantly greater IQ decline relative to their abstinent siblings.”

Use, especially heavy, compulsive use among adolescents, should be considered not only problematic in itself, but also and importantly, a signal of other problems.

¹ *Impact of Adolescent Marijuana Use on Intelligence: Results from two longitudinal twin studies* (February 2, 2016). Jackson, Nicholas J.; Isen, Joshua D.; Khoddam, Rubin; Irons, Daniel; Tuvblad, Catherine; Iacono, William G.; McGue, Matt; Raine, Adrian; Baker, Laura A. In: *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 113, No. 5, 02.02.2016, p. E500-E508. 10.1073/pnas.1516648113/-/DCSupplemental.