The risk-taking and novelty seeking behaviors of adolescents is believed to underlie elevated binge-drinking (increased amount of alcohol consumed during a single exposure period) in this age group. Adolescents may consume more alcohol than adults because they are less sensitive to alcohol’s aversive properties. However, the role of genetics in age-specific sensitivity to alcohol, in particular aversive sensitivity, has not been investigated, despite a numerous studies suggesting genetic factors influence adult alcohol sensitivity. We will examine the aversive effects of alcohol (ethanol) across adolescents (PD 30) and adults (PD75) in 3 genetically distinct mouse strains (C57BL/6J, DBA/2J, and BTBR T+tf/tf). To test these effects, we will assess the development of an ethanol-conditioned taste aversion to 4 different doses of ethanol (vehicle, 1.5, 2.25, and 3.0 g/kg). Based on previous findings, we predict that adolescents will generally demonstrate a lower aversion to ethanol than adults; however, we expect that the nature of this age-dependent effect will depend on genotype (mouse strain). Data has so far shown that the C57BL/6J strain exhibits the lowest aversion to ethanol, while the DBA/2J strain exhibits the strongest aversion to ethanol. Interestingly, across all three genotypes, adolescents demonstrate less aversion to ethanol than adults. The data obtained from this study will help illustrate the role of genetics in determining age-specific development of alcohol aversion, and ultimately aid the development of effective treatment strategies for adolescent alcohol use and abuse.

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