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THE EFFECTS OF DOPAMINE RECEPTOR GENES ON THE TRAJECTORIES OF SPORT PARTICIPATION FROM ADOLESCENCE THROUGH YOUNG ADULTHOOD

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Background: Despite documented benefits of sport participation, attrition rates for organized youth sport programs are surprisingly high. High attrition rates for youth sport programs highlights the need for longitudinal studies to understand how and why sport participation trajectories change during adolescence and young adulthood. Besides psychosocial and environmental factors, genetic variation has been suggested as an important determinant of physical activity-related behaviors. Since neurotransmitter dopamine influences the way humans learn and responsivity of human reward system, this study explored the effects of dopamine receptor genes (i.e., DRD2, DRD4, and DRD5) on sport participation trajectories from adolescence to young adulthood.

Methods: This study used the National Longitudinal Study of Adolescent Health (Add Health) data. Group-based trajectory modeling was utilized to examine the effect of dopamine receptor genes on trajectories of sport participation from adolescence to young adulthood.

Results: A three-group trajectory model best fit sport participation among male participants and a two-group trajectory model best fit sport participation among female participants. In both gender groups, the more individuals possess A1 allele of DRD2, the less likely they are to be in high-decreasing group rather than low-stable group, and this relationship was stronger for women. Another interesting finding is that, in male participants, the more individuals possess A1 allele of DRD2, the more likely they are to be in high-stable group rather than high-decreasing group.

Conclusions: The findings of this study can be contributable to the literature by providing critical information on the effect of DRD2 on sport participation trajectories from adolescence through young adulthood.

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