

RACHEL ERIN THAYER, PHD

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EDUCATION

- 08/2011 - 08/2018 University of Colorado Boulder
PhD in Clinical Psychology, August 2018
PhD in Neuroscience, August 2018
- 07/2017 - 06/2018 University of California, San Diego/Veterans Affairs San Diego
Healthcare System Psychology Internship Training Program
APA Accredited Predoctoral Internship
- 09/2005 - 06/2009 University of California, San Diego
Revelle College, Magna cum laude
BS in Psychology with Highest Distinction

RESEARCH

Federal Grant Support

NIDA; 1R36DA040020-01 (Thayer) 09/15/2015 - 08/31/2018

Global Brain Structure and Cognitive Function of Chronic Marijuana Use

Investigated associations among cognitive performance and brain structure among older adult cannabis users and healthy non-using controls. **Role: Principal Investigator**

Peer-Reviewed Publications

1. **Thayer, R.E.**, YorkWilliams, S.L., Hutchison, K.E., & Bryan, A.D. (2019). Preliminary results from a pilot study examining brain structure in older adult cannabis users and nonusers. *Psychiatry Research: Neuroimaging*, 285, 58-63.
2. Bidwell, L.C., Karoly, H.C., **Thayer, R.E.**, Claus, E.D., Bryan, A.D., Weiland, B.J., YorkWilliams, S., & Hutchison, K.E. (2019). DRD2 promoter methylation and measures of alcohol reward: Functional activation of reward circuits and clinical severity. *Addiction Biology*, 24(3), 539-548.
3. Gardiner, C.K., Karoly, H.C., **Thayer, R.E.**, Gillman, A.S., Sabbineni, A., & Bryan, A.D. (2018). Neural activation during delay discounting is associated with 6-month change in risky sexual behavior in adolescents. *Annals of Behavioral Medicine*, 52(5), 356-366.

4. Feldstein Ewing, S.W., Hudson, K.A., Caouette, J., Mayer, A.R., **Thayer, R.E.**, Ryman, S.G., & Bryan, A.D. (2018). Sexual risk-taking and subcortical brain volume in adolescence. *Annals of Behavioral Medicine*, 52(5), 393-405.
5. Hansen, N.S., **Thayer, R.E.**, Feldstein Ewing S.W., Sabbineni, A., & Bryan, A.D. (2018). Neural correlates of risky sex and response inhibition in high-risk adolescents. *Journal of Research on Adolescence*, 28(1), 56-69.
6. **Thayer, R.E.**, YorkWilliams, S., Karoly, H.C., Sabbineni, A., Feldstein Ewing, S.W., Bryan, A.D., & Hutchison, K.E. (2017). Structural neuroimaging correlates of alcohol and marijuana use in adolescents and adults. *Addiction*, 112(12), 2144-2154.
7. Karoly, H.C., **Thayer, R.E.**, Hagerty, S.L., & Hutchison, K.E. (2017). TLR4 methylation moderates the relationship between alcohol use severity and gray matter loss. *Journal of Studies on Alcohol and Drugs*, 78(5), 696-705.
8. **Thayer, R.E.**, Hagerty, S.L., Sabbineni, A., Claus, E.D., Hutchison, K.E., & Weiland, B.J. (2016). Negative and interactive effects of sex, aging, and alcohol abuse on gray matter morphometry. *Human Brain Mapping*, 37(6), 2276-2292.
9. Feldstein Ewing, S.W., Ryman, S.G., Gillman, A., Weiland, B.J., **Thayer, R.E.**, & Bryan, A.D. (2016). Developmental cognitive neuroscience of adolescent sexual risk and alcohol use. *AIDS and Behavior*, 20, 97-108.
10. **Thayer, R.E.**, Feldstein Ewing, S.W., Dodd, A.B., Hansen, N.S., Mayer, A.R., Ling, J.M., & Bryan, A.D. (2015). Functional activation during the Stroop is associated with recent alcohol but not marijuana use among high-risk youth. *Psychiatry Research: Neuroimaging*, 234(1), 130-136.
11. Weiland, B.J., **Thayer, R.E.**, Depue, B.E., Sabbineni, A., Bryan, A.D., & Hutchison, K.E. (2015). Daily marijuana use is not associated with brain morphometric measures in adolescents or adults. *The Journal of Neuroscience*, 35(4), 1505-1512.
12. **Thayer, R.E.** & Weiland, B.J. (2015). Importance of construct validity in functional neuroimaging of craving. *Addiction*, 110(2), 206-207.
13. Hanson, K.L., **Thayer, R.E.**, & Tapert, S.F. (2014). Adolescent marijuana users have elevated risk-taking on the balloon analog risk task. *Journal of Pharmacology*, 28(11), 1080-1087.
14. **Thayer, R.E.**, Montanaro, E., Weiland, B.J., Callahan, T.J., & Bryan, A.D. (2014). Exploring the relationship of functional network connectivity to latent trajectories of alcohol use and risky sex. *Current HIV Research*, 12(4), 293-300.
15. Monnig, M.A., **Thayer, R.E.**, Caprihan, A., Yeo, R.A., Claus, E.D., Bryan, A.D., Calhoun, V.D., Thoma, R.J., & Hutchison, K.E. (2014). White matter integrity is associated with cue reactivity in individuals with alcohol use disorders. *Brain and Behavior*, 4(2), 158-170.
16. Harlaar, N., Bryan, A.D., **Thayer, R.E.**, Karoly, H.C., Oien, N., & Hutchison, K.E. (2014). Methylation of a CpG site near the ALDH1A2 gene is associated with loss of control over drinking and related phenotypes. *Alcoholism: Clinical and Experimental Research*, 38(3), 713-721.
17. **Thayer, R.E.**, Callahan, T.J., Weiland, B.J., Hutchison, K.E., & Bryan, A.D. (2013). Associations between fractional anisotropy and problematic alcohol use in juvenile justice-involved adolescents. *The American Journal of Drug and Alcohol Abuse*, 39(6), 365-371.

18. Karoly, H.C., Stevens, C.J., **Thayer, R.E.**, Magnan, R.E., Bryan, A.D., & Hutchison, K.E. (2013). Aerobic exercise moderates the effect of heavy alcohol consumption on white matter damage. *Alcoholism: Clinical and Experimental Research*, 37(9), 1508-1515.
19. Callahan, T.J., Caldwell Hooper, A.E., **Thayer, R.E.**, Magnan, R.E., & Bryan, A.D. (2013). Relationships between marijuana dependence and condom use intentions and behavior among justice-involved adolescents. *AIDS and Behavior*, 17(8), 2715-2724.
20. **Thayer, R.E.** & Hutchison, K.E. (2013). Neuroimaging in clinical studies of craving: Importance of reward and control networks. *Psychology of Addictive Behaviors*, 27(2), 543-546.
21. Jacobus, J., **Thayer, R.E.**, Trim, R.S., Bava, S., Frank, L.R., & Tapert, S.F. (2013). White matter integrity, substance use, and risk taking in adolescence. *Psychology of Addictive Behaviors*, 27(2), 431-442.
22. Lisdahl, K.M., **Thayer, R.**, Squeglia, L.M., McQueeney, T.M., & Tapert, S.F. (2013). Recent binge drinking predicts smaller cerebellar volumes in adolescents. *Psychiatry Research: Neuroimaging*, 211(1), 17-23.
23. Bava, S., Jacobus, J., **Thayer, R.E.**, & Tapert, S.F. (2013). Longitudinal changes in white matter integrity among adolescent substance users. *Alcoholism: Clinical and Experimental Research*, 37 Suppl 1, E181-189.
24. **Thayer, R.E.**, Crotwell, S.M., Callahan, T.J., Hutchison, K.E., & Bryan, A.D. (2012). Nucleus accumbens volume is associated with frequency of alcohol use among juvenile justice-involved adolescents. *Brain Sciences*, 2(4), 605-618.
25. Mahmood, O.M., Goldenberg, D., **Thayer, R.**, Migliorini, R., Simmons, A.N., & Tapert, S.F. (2012). Adolescents' fMRI activation to a response inhibition task predicts future substance use. *Addictive Behaviors*, 38(1), 1435-1441.
26. Simmons, A.N., **Thayer, R.E.**, Spadoni, A.D., Matthews, S.C., Strigo, I.A., & Tapert, S.F. (2012). The parametric, psychological, neuropsychological, and neuroanatomical properties of self and world evaluation. *PLoS One*, 7(2), e31509.
27. **Thayer, R.E.** & Hutchison, K.E. (2012). Improving accuracy of adolescents' substance use reports via text messaging. *Addiction*, 107(5), 1015-1016.
28. Bava, S., Boucquey, V., Goldenberg, D., **Thayer, R.E.**, Ward, M., Jacobus, J., & Tapert, S.F. (2011). Sex differences in adolescent white matter architecture. *Brain Research*, 1375, 41-48.
29. Bava, S., **Thayer, R.**, Jacobus, J., Ward, M., Jernigan, T.L., & Tapert, S.F. (2010). Longitudinal characterization of white matter maturation during adolescence. *Brain Research*, 1327, 38-46.

Book Chapters

1. **Thayer, R.E.** & Feldstein Ewing, S.W. (2016). Adolescent Psychotherapy for Addiction Medicine: From Brain Development to Neurocognitive Treatment Mechanisms. In H. Ehktari & M. Paulus (Eds.), *Progress in Brain Research* (First Edit, Vol. 224, pp. 305-322).
2. **Thayer, R.E.** & Hutchison, K.E. (2013). Substance Use Disorders: Using fMRI to Develop Intermediate Phenotypes. In J. MacKillop & M. Munafò (Eds.), *Genetic Influences on Addiction: An Intermediate Phenotype Approach*.

Manuscripts Under Review or In Preparation

1. **Thayer, R.E.** (in preparation). Characteristics of a pilot sample of older adult cannabis users.
2. **Thayer, R.E.**, Hansen, N.S., Prashad, S., Karoly, H.C., Filbey, F., Bryan, A.D., & Feldstein Ewing, S.W. (under review). Recent tobacco use has stronger associations with adolescent brain structure compared to cannabis and alcohol use.

Presentations

1. Cummins, P., Weigand, A., **Thayer, R.E.**, Simone, S., Mikhael, T., Solders, S., Frank, L.R., Granholm, G, Bondi, M.W. (2019). Locus coeruleus integrity is associated with age and memory performance in older adults. Poster presented at the 99th Annual Convention of the Western Psychological Association. Pasadena, CA.
2. **Thayer, R.E.**, Hutchison, K.E., & Bryan, A.D. (2018). Marijuana use in an aging population: Global brain structure and cognitive function. Poster presented at the 13th Annual Lewis L. Judd Young Investigators Symposium, UCSD School of Medicine, Department of Psychiatry. San Diego, CA.
3. **Thayer, R.E.**, YorkWilliams, S., Feldstein Ewing, S., Bryan, A.D., & Hutchison, K.E. (2016). White and gray matter associations with alcohol problems among high-risk youth. Poster presented at the first World Congress on Alcohol and Alcoholism (ISBRA/ESBRA). Berlin, Germany.
4. Karoly, H.C., **Thayer, R.E.**, Hagerty, S.L., & Hutchison, K.E. (2016). TLR4 methylation moderates the relationship between alcohol use severity and gray matter. Poster presented at the first World Congress on Alcohol and Alcoholism (ISBRA/ESBRA). Berlin, Germany.
5. YorkWilliams, S., **Thayer, R.E.**, Hagerty, S.L., Bidwell, L.C., & Hutchison, K.E. (2016). Distinct neural correlates of risk-taking and heavy alcohol use in emerging adulthood. Poster presented at the first World Congress on Alcohol and Alcoholism (ISBRA/ESBRA). Berlin, Germany.
6. Gardiner, C.K., **Thayer, R.E.**, Sabbineni, A., Karoly, H.C., Gillman, A.S., Clause, E.W., Hutchison, K.E., & Bryan, A.D. (2016). Neural activity in reward and control regions during intertemporal monetary choices is associated with alcohol use and sexual risk. Poster presented at the first World Congress on Alcohol and Alcoholism (ISBRA/ESBRA). Berlin, Germany.
7. **Thayer, R.E.**, YorkWilliams, S., Sabbineni, A., & Hutchison, K.E. (2016). Negligible effect sizes of recent marijuana use on structural and functional brain measures. Poster presented at the 22nd annual meeting of the Organization for Human Brain Mapping. Geneva, Switzerland.
8. Gardiner, C., **Thayer, R.E.**, Feldstein Ewing, S.W., Magnan, R.E., & Bryan, A.D. (2016). White matter integrity predicts 3-month change in risky sexual behavior. Poster presented at the 22nd annual meeting of the Organization for Human Brain Mapping. Geneva, Switzerland.
9. YorkWilliams, S., **Thayer, R.E.**, Bidwell, L.C., Hagerty, S.L., & Hutchison, K.E. (2016). Distinct neural correlates of risk-taking in emerging adulthood. Poster presented at the 22nd annual meeting of the Organization for Human Brain Mapping. Geneva, Switzerland.

10. **Thayer, R.E.**, YorkWilliams, S., Sabbineni, A., Feldstein Ewing, S.W., Bryan, A.D., & Hutchison, K.E. (2016). Multimodal neuroimaging correlates of recent marijuana use frequency. Poster presented at Marijuana and Cannabinoids: A Neuroscience Research Summit. National Institutes of Health, Bethesda, MD.
11. **Thayer, R.E.**, Filbey, F., Bryan, A.D., & Feldstein Ewing, S.W. (2015). Differences in fractional anisotropy between tobacco-using and combined marijuana- and tobacco-using high-risk youth. Poster presented at the 3rd annual meeting of the Flux Congress. Leiden, Netherlands.
12. **Thayer, R.E.**, Hagerty, S.L., Sabbineni, A., Hutchison, K.E., & Weiland, B.J. (2015). Interactive associations between heavy alcohol use and aging with gray matter atrophy of cortical regions. Poster presented at the 38th annual meeting of the Research Society on Alcoholism. San Antonio, TX.
13. **Thayer, R.E.**, Bryan, A.D., Mayer, A.R., Dodd, A., Ling, J., & Feldstein Ewing, S.W. (2014). Functional differences in Stroop response for alcohol- and marijuana-using high-risk youth. Poster presented at the 2nd annual meeting of the Flux Congress. Los Angeles, CA.
14. Feldstein Ewing, S.W., **Thayer, R.E.**, Houck, J., Yezhuvath, U., Karoly, H., & Filbey, F. (2014). How therapist language influences the developing brain: A look at adolescent binge drinkers. Poster presented at the 2nd annual meeting of the Flux Congress. Los Angeles, CA.
15. **Thayer, R.E.**, Hutchison, K.E., & Bryan, A.D. (2014). Associations between structural connectivity and alcohol problems among high-risk adolescents vary by white matter index. Poster presented at the 37th annual meeting of the Research Society on Alcoholism. Bellevue, WA.
16. Weiland, B.J., Sabbineni, A., **Thayer, R.E.**, Calhoun, V.D., Welsh, R.C., Bryan, A.D., & Hutchison, K.E. (2014). Reduced cortical volumes associated with functional connectivity dysfunction and alcohol use severity. Poster presented at the 20th annual meeting of the Organization for Human Brain Mapping. Hamburg, Germany.
17. Bryan, A.D., **Thayer, R.E.**, Weiland, B.J., Montanaro, E., & Hutchison, K.E. (2013). Network connectivity in adolescents: Associations with alcohol use, marijuana use, and risky sexual behavior. Poster presented at the 14th annual meeting of the European Society for Biomedical Research on Alcoholism. Warsaw, Poland.
18. **Thayer, R.E.**, Callahan, T.J., Weiland, B.J., Hutchison, K.E., & Bryan, A.D. (2013). Problematic alcohol use is associated with fractional anisotropy among justice-involved adolescents. Poster presented at the 19th annual meeting of the Organization for Human Brain Mapping. Seattle, WA.
19. Bryan, A.D., **Thayer, R.E.**, Magnan, R.E., Claus, E.D., & Hutchison, K.E. (2013). Integrative model of genetic, neurocognitive, and psychosocial correlates of adolescent alcohol-related sexual risk behavior. Poster presented at the 15th annual meeting of the International Behavioural and Neural Genetics Society. Leuven, Belgium.
20. Monnig, M.A., Caprihan, A., **Thayer, R.E.**, Claus, E.D., Yeo, R.A., & Hutchison, K.E. (2013). Lower white matter integrity in treatment-seeking versus treatment-naïve individuals with alcohol use disorders. Poster presented at the 25th annual meeting of the Association for Psychological Science. Washington, DC.

21. Bryan, A.D., Magnan, R.E., Claus, E.W., **Thayer, R.E.**, & Hutchison, K.E. (2012). Alcohol use and risky sex: Associations with genetic factors and neurocognitive activation on the BART. Talk presented at the 35th annual meeting of the Research Society on Alcoholism. San Francisco, CA.
22. Magnan, R.E., **Thayer, R.E.**, Hutchison, K.E., Claus, E.D., & Bryan, A.D. (2012). Neurocognitive activation moderates six-month alcohol use outcomes of a group MET among juvenile justice youth. Poster presented at the 35th annual meeting of the Research Society on Alcoholism. San Francisco, CA.
23. Karoly, H.C., Monnig, M., Harlaar, N., **Thayer, R.E.**, & Hutchison, K.E. (2012). Genetic variation in HTR2A and PTPRB is associated with alcohol dependence and white matter integrity in the posterior thalamic radiata. Poster presented at the 35th annual meeting of the Research Society on Alcoholism. San Francisco, CA.
24. Mahmood, O., Goldenberg, D., **Thayer, R.**, & Tapert, S. (2010). fMRI activation during a response inhibition task predicts future alcohol and drug use in adolescents. Poster presented at the 33rd annual meeting of the Research Society on Alcoholism. San Antonio, TX.

HONORS & PROFESSIONAL ACTIVITIES

2019	Review Editor, <i>Frontiers in Aging Psychiatry</i>
2018	Co-Organizer, UCSD/VASDHS Clinical Neuropsychology Seminar
2017	Dozier/Muenzinger Award for Outstanding Contribution to Basic Research
2016	Abstract Merit Award, Organization for Human Brain Mapping
2015	Student Merit Award, Research Society on Alcoholism
2013	Honorable Mention, National Science Foundation Graduate Research Fellowship Program
2008	The Phi Beta Kappa Society