

ANNE MARIJE KAAG



CONTACT INFORMATION

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EDUCATION

2012 – 2016 PhD (Amsterdam University Medical Center, location AMC)
2009 – 2011 Master Brain and Cognitive Science (University of Amsterdam) – graduated with distinction (cum laude)
2006 – 2009 Bachelor Psychobiology (University of Amsterdam) – average grade: 7.5

SPECIALIZED TRAINING

2019 – present University Teaching Qualification (VU Amsterdam)
2019 Erasmus Summer Program: Gender and Health; Gender in Research (Erasmus University Rotterdam)
2016 Article 9 course on Laboratory Animal Science (University of Utrecht)
2012 – 2016 ONWAR Graduate School & AMC Graduate School
2012 & 2016 BROK: Basic course for clinical investigators (Amsterdam University Medical Center)

EMPLOYMENT HISTORY

2019 – present Assistant professor Clinical Neuropsychology - Department of Clinical, Neuro and Developmental Psychology, VU University Amsterdam
2018 – 2019 Postdoctoral researcher - Department of Psychiatry, University Medical Center (location AMC), Amsterdam
Project: Sex differences in the neural working mechanisms of cocaine use disorder
2016 – 2018 Postdoctoral researcher – Department of Developmental Psychology – University of Amsterdam
Project: Disrupting memory reconsolidation to treat alcohol use disorder
2012 – 2016 PhD-candidate - Department of Psychiatry, University Medical Center (location AMC), Amsterdam
Project: Are cocaine users too sensitive? Structural and functional brain abnormalities in regular cocaine users
2011 - 2012 Research assistant – Department of Radiology, University Medical Center (location AMC), Amsterdam
Project: Effects of psychotropic drugs on the developing brain

TEACHING AND MENTORING

VU University, Amsterdam, the Netherlands

2020 – present Coordinator and lecturer International Bachelor Theses
2019 – present Coordinator and lecturer Research Tool Kit, Bsc Psychology
2019 – 2020 Lecturer Psychopharmacology, Bsc Psychology
2019 – present Supervisor Practical Skills for Researchers, Bsc Psychology
2019 – present Supervisor bachelor- and master theses students (Clinical Neuropsychology, Cognitive Neuropsychology)

University of Amsterdam, the Netherlands

2017 – 2020 Supervision (fMRI data-analyses and writing) of a PhD student (A. Kaiser). Department of Radiology, AMC
2012 – 2020 Supervisor of more than 20 bachelor- and master thesis students (Psychobiology, Biomedical science, Brain and Cognition and Clinical Psychology)
2019 - 2020 Guest lecturer "Addiction: Internal motivation, Regulation and Emotion", BSc Psychobiology
2018 – 2019 Career coaching of Master students of Brain and Cognitive Sciences
2018 Guest lecturer "Cognition: Drugs and Addiction", BSc Beta-Gamma
2017 – 2018 Supervision (fMRI data-analyses) of a PhD student (MHJ Schulte). Department of Developmental Psychology
2017 Guest lecturer MSc Advanced Cognitive Neurobiology and Clinical Neurophysiology
2016 – 2017 Guest lecturer "Addiction: Laboratory animals in addiction research", BSc psychobiology
2016 Coordinator and Lecturer "Learning and Memory", BSc Psychology
2013 Guest lecture Drug and addiction, BSc Medicine
2013 Lecturer CSCA Summer School 2013: Genes, the brain and behavior

University of Leiden, the Netherlands

2017-2019 Guest lecturer "The pharmacology of addictive substances", Minor Brain & Cognition

Karolinska Institute, Stockholm, Sweden

2016-2017 Guest lecturer "the Neurobiology of Psychiatric disorders", Psychiatry Graduate School

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DISSERTATION COMMITTEE MEMBER

2020	R.S.S. Schluter - Stimulation of the addicted brain: Magnetic stimulation as add-on treatment for alcohol use disorder
2020	F. Raposo Pereira - Effect of GHB and GHB-induced comas on the brain (guest opponent)
2018	Y. Sun - Animal models on the Yin and Yang of opioids and alcohol

RESEARCH FUNDING, AWARDS AND FELLOWSHIPS (total: €220k)

2020 (€254k)	Stichting Steun VCVGZ (co-PI) Long-term outcomes of ADHD: psychosocial, physical and societal, functioning of adults diagnosed with ADHD in childhood. Targets for optimization of treatment and (secondary) prevention.
2020 (€50k)	ZonMw Gender and Prevention (co-PI) <i>Sex and Gender: a possible key to understand heterogeneity in the risk factors and long-term outcomes in ADHD</i>
2017 (€120k)	Amsterdam Brain And Cognition Talent Grant (PI) <i>Working memory and the sensitivity to emotional and addiction-related cues in heavy cocaine users</i>
2017 (€50k)	Amsterdam Neuroscience Alliance Project Grant (co-PI) <i>Interfering with emotions: targeting emotional dysregulation in adult ADHD</i>

AWARDS AND FELLOWSHIPS

2019 (€8k)	ZonMw Gender in Research Award (collaborator)
2019 (€1.3k)	ZonMw Gender in Health Fellowship (personal)
2018 (€1.5k)	Distinguished Women In Science Travel Fund (personal)
2017 (€0.5k)	Travel Award Research Society on Alcoholism (personal)
2015 (€1.5k)	Travel Award European Foundation of Alcohol Research (personal)
2015 (€0.5k)	Travel Award AUF Spinoza Fund (personal)
2014 (€2.5k)	NWO Stimulation Fund Open Access Conference contribution (collaborator)
2014 (€0.6k)	NGNH Fund for scientific meeting (collaborator)

PUBLICATION HISTORY (SINCE 2013)

Citation-index (according to Google Scholar august 2020)

Number of publications	= 18
Number of citations	= 211

UNGOING PROJECTS

2020 – present	Identifying (Sex and Gender-related) Factors to understand heterogeneity in the long-term outcomes in ADHD.
2020 – present	Sex differences in the neural correlates of cannabis cue reactivity
2019 – present	The relationship between alcohol cue-reactivity and stress-reactivity in at risk drinkers.
2018 – present	Modifying smoking-related memories: a 3D-EMDR intervention for smoking cessation.
2018 – present	The neural correlates of emotional dysregulation in adults with ADHD

INTERNATIONAL ACTIVITIES

International oral presentations

2019	Sex differences in the neuropathology of substance use disorders. <i>Addiction Treatment Center (Beroendecentrum), Stockholm, Sweden</i>
2018	Can we alter stressful-memories involved in the development and persistence of addiction? <i>Annual Meeting Swedish Association for Alcohol and Drug Research, Gothenburg, Sweden</i>
2017	A high working memory load preceding alcohol-exposure reduces the desire for alcohol. <i>40th Annual Research Society on Alcoholism Scientific Meeting, Denver, USA</i>
2015	Hyperresponsiveness of the neural fear network in cocaine use disorder. <i>ECNP Workshop on Neuropsychopharmacology for Junior Scientists, 2015, Nice, France</i>

International poster presentations

2019	Sex Differences in Neural Cue-Reactivity are Moderated by Early Life and Currently Perceived Stress in a Population of Heavy Drinkers <i>74th Annual Meeting Society of Biological Psychiatry</i>
2017	A high working memory load preceding alcohol-exposure reduces the desire for alcohol <i>30th European College for Neuropsychopharmacology Congress, Paris, France</i>
2014	Neural correlates of aversive conditioning in regular cocaine users <i>20th Annual Meeting Organization for Human Brain Mapping, Hamburg, Germany</i>
2013	Differential effects of cocaine use on cortical volume, thickness and surface <i>26th European College for Neuropsychopharmacology Congress, Barcelona, Spain</i>

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Organizing committee member

2017: How to retrieve alcohol/drug-related memories in an experimental or clinical setting, and what to do with it. *Conference symposium, Research Society on Alcoholism, Denver, USA.*

NATIONAL ACTIVITIES

National oral presentations

2019 The neurobiology of addiction: negative emotions, traumatic memories and sex differences
Jellinek Addiction Treatment Centre

2018 Cue reactivity in alcohol and cocaine use disorders; the role of childhood trauma and sex.
Dutch Neuroscience Meeting, Lunteren

2017 The addicted brain: the neurobiology of substance use disorders.
VSPA conference on Addiction, Amsterdam

2015 – 2016 Negative emotions, childhood trauma and problematic cocaine use.
25th Forum on Alcohol and Drug Research, Utrecht

2014 – 2015 Hyperresponsiveness of the neural fear network in cocaine use disorder.
22nd ONWAR Annual Meeting, Woudschoten
28th European College for Neuropsychopharmacology Congress, Amsterdam
24th Forum on Alcohol and Drug Research, Utrecht

National poster presentations

2017 A high working memory load preceding alcohol-exposure reduces the desire for alcohol
2nd Annual Meeting Amsterdam Neuroscience, Amsterdam, the Netherlands

2016 Are cocaine users too sensitive?
1st Annual Meeting Amsterdam Neuroscience, Amsterdam, the Netherlands

2014 Neural correlates of aversive conditioning in regular cocaine users
21st ONWAR Annual Meeting, Woudschoten, the Netherlands

2013 Differential effects of short- and long-term cocaine use on structure
20th ONWAR Annual meeting, Woudschoten, the Netherlands

Organizing committee member

2019 – present Bimonthly Lunch Meeting Department of Clinical, Neuro and Developmental Psychology, VU Amsterdam

2017 What's Cooking? Using Neuroimaging in the field of developmental psychology, Amsterdam

2015 Is addiction a disease? Public symposium, Rotterdam

2015 Is addiction a disease? Public symposium, Amsterdam

2015 What does Amsterdam know about the brain? Symposium, Amsterdam

2014 Annual Meeting Graduate School Neurosciences Amsterdam Rotterdam (ONWAR)

2012-2015 Weekly Brain Imaging Meetings

Media interviews

- Women get to little attention in medical and psychological research (Dutch). Folia website, October 2019
- Sex differences in cocaine use disorder (Dutch). NH Radio, March 2019
- How different is the female cocaine user (Dutch). AMC website, March 2019
- Cocaine Crash, from crash to flash (Dutch). Mainline Magazine, December 2018
- The brain of cocaine users is different (Dutch). AMC Magazine, April 2016
- Coke lovers have a different brain (Dutch). Haarlems Dagblad, May 2016
- Wanted: cocaine users (Dutch). AMC Magazine, February 2013
- Research on cocaine addiction (Dutch). Lef Magazine, October 2013
- Cocaine users wanted (Dutch), Radio Interviews BNR newsradio/AT5/Radio1, February 2013

REFEREED ARTICLES

1. **Kaag, A.M.**,* Khemiri, L.,* Dom, G., Franck, J., Jayaram-Lindström, N., Goudriaan, A.E. (2020). Family History of Alcohol Abuse Predicts Self-rated Impulsivity in Patients with Alcohol Use Disorder: A Multisite Study. *European Addiction Research*; 26: 85-95 *Shared first authorship
2. Chye, Y., Gutman, B., Ching, C., ... **Kaag, A.M.**, ... Conrod, P., Thompson, P., Garavan, H., (2019). Subcortical surface morphometry in substance dependence: An ENIGMA addiction working group study. *Addiction Biology (Online Ahead of Print)*
3. **Kaag, A. M.**, Wiers, R. W., de Vries, T. J., Pattij, T., & Goudriaan, A. E. (2019). Striatal alcohol cue-reactivity is stronger in male than female problem drinkers. *European Journal of Neuroscience*; 50 (3): 2264-2273

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- Schulte, MHJ., **Kaag, A.M.**, Boendermaker, W.J., van den Brink, W., Goudriaan, A.E. & Wiers, R.W. (2019). The effect of N-acetylcysteine and working memory training on neural mechanisms of working memory and cue reactivity in regular cocaine users. *Psychiatry Research: Neuroimaging* 287, 56-59
- Karel, P., Almacellas A., Prijn, J., **Kaag, A.M.**, Reneman, L., Verheij MMM., Homberg, J. (2019). Appetitive to aversive counterconditioning as intervention to reduce reinstatement of reward seeking behavior: the role of the serotonin transporter. *Addiction Biology*; 24 (3), 344-354
- Kaag, A.M.**, Schulte, M., van Wingen, G., Homberg, J., van den Brink, W., Reneman, L., (2018) The relation between gray matter volume and the use of alcohol, tobacco, cocaine and cannabis in male polysubstance users. *Drug and Alcohol Dependence*; 187, 186-194
- Kaag, A.M.**, Homberg, J., Reneman, L., van den Brink, W., van Wingen, G (2018). Enhanced amygdala-striatal functional connectivity during the processing of cocaine cues in male cocaine users with a history of childhood trauma. *Frontiers in Psychiatry*; 9 (70)
- Kaag, A.M.**, Goudriaan, A.E., de Vries, T.J., Pattij, T., Wiers, R.W (2018). A high working memory load preceding alcohol-memory reactivation reduces cue-induced craving for alcohol. *Psychopharmacology*; 235 (3): 695-708
- Schulte, M.H.J., Goudriaan, A.E., **Kaag, A.M.**, Kooi, D.P., van den Brink, W., Wiers, R.W., Schmaal, L. (2017). The effect of N-acetylcysteine on brain glutamate and GABA concentrations and on smoking cessation: a randomized, double-blind, placebo-controlled trial. *The Journal of Psychopharmacology*; 31(10): 1377-1379
- Kaag, A.M.**, Schulte, MHJ., Wiers, R.W., Schmaal, L., van den Brink, W., Reneman, L., Homberg, J., van Wingen, G., Goudriaan, A.E (2017). Prefrontal Glx and GABA concentrations and impulsivity in cigarette smokers and smoking polysubstance users. *Drug and Alcohol Dependence*; 179, 117-123
- Kaag, A.M.**, van Wingen, G., Caan, M.W.A., Homberg, J., van den Brink, W., Reneman, L., (2017). White matter alterations in cocaine users are negatively related to the number of additionally (ab)used substances. *Addiction Biology*; 22 (4): 1048-1056
- Kaag, A.M.**, Levar, N., Woutersen, K., van den Brink, W., Homberg, J., van Wingen, G., Reneman, L. (2016). Hyper-responsiveness of the neural fear network during fear conditioning and extinction learning in male cocaine users. *American Journal of Psychiatry*; 173(10): 1033-1042
- Kaag, A.M.**, R.S. Schluter, J. Homberg, Karel, P., W. van den Brink, L. Reneman, G. van Wingen (2016). Aversive counterconditioning attenuates reward signalling in the ventral striatum. *Frontiers in Human Neuroscience*; 10(418)
- Kaag, A.M.**, Crunelle, C.L., Hanna van den Munkhof, Liesbeth Reneman, Judith R. Homberg, Bernard Sabbe, Wim van den Brink, Guido van Wingen (2015). Dysfunctional amygdala reactivity and amygdala connectivity with the prefrontal cortex in regular cocaine users. *Human Brain Mapping*; 36(10): 4222-4230
- Kaag, A. M.**, Crunelle, C. L., van Wingen, G., Homberg, J., van den Brink, W., & Reneman, L. (2014). Relationship between trait impulsivity and cortical volume, thickness and surface area in male cocaine users and non-drug using controls. *Drug and Alcohol Dependence*; 144, 210-2017
- Kaag, A.M.**, Crunelle, C.L., van Wingen, G., van den Munkhof, H., Homberg, J.R., Reneman, L., van den Brink, W. (2013). Reduced frontal brain volume in non-treatment seeking cocaine dependent individuals: exploring the role of impulsivity, depression and smoking. *Frontiers in Human Neuroscience*; 8(7)
- Schouw, M. L. J., **Kaag, A M.**, Caan, M. W. a, Heijtel, D. F. R., Majoie, C. B. L. M., Nederveen, J., Booij, J., et al (2013). Mapping the hemodynamic response in human subjects to a dopaminergic challenge with dextroamphetamine using ASL-based pharmacological MRI. *NeuroImage*; 72, 1-9
- Schouw, M. L. J., De Ruiter, M. B., **Kaag, A M.**, Van den Brink, W., Lindauer, R. J. L., & Reneman, L. (2013). Dopaminergic dysfunction in abstinent dexamphetamine users: Results from a pharmacological fMRI study using a reward anticipation task and a methylphenidate challenge. *Drug and alcohol dependence*; 130(1-3): 52-60

NON-REFEREED ARTICLES

- Kaag, A.M.**, Levar, N., Woutersen, K., van den Brink, W., Homberg, J., van Wingen, G., Reneman, L. (2016). Zijn cocaïnegebruikers te gevoelig voor negatieve prikkels? *Tijdschrift voor Psychiatrie*, 58

ARTICLES IN PREPERATION

- Kaiser, A., Reneman, L., Lucassen, P.J., de Vries, T.J., Schranter*, A., **Kaag, A.M.***. Targeting emotional dysregulation in adult ADHD. * Shared last authorship (under review)
- The relation between cannabis use, dependence severity and white matter microstructure: A diffusion tensor imaging study. Cousijn, J., Toenders, Y.J., van Velzen, L., **Kaag, A.M.**, (under review)
- Sex-dependent prefrontal cortex alterations in regular cocaine users: a working memory fMRI study. Cousijn, J., Ridderinkhof, R., **Kaag, A.M.** (submitted)
- The association between insula morphometry and craving regular cocaine users. Does sex matter? Malek, A.G., Goudriaan, A.E., **Kaag, A.M.**, (in preparation)

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5. Can addiction-related memories be modified by working memory competition? Werner, R., **Kaag, A.M.**, van der Werf, Y., van der Heuvel, O., van Marle, H., de Vries, T.J., (in preparation)
6. The association between stress-induced changes in GABA and heart rate variability; a 7T 1H-MRS study. Kaiser, A., Reneman, L., Lucassen, P.J., **Kaag, A.M.**, van der Zwaag, W., Jurhar, T., Kirschbaum, C., van den Heuvel, O.A., Hermans, E.J., Tan, H.L., Schranke, A. (in preparation)
7. **Kaag, A.M.**, Cousijn, J. Sex-differences in the neural correlate of cannabis cue reactivity. A prospective fMRI study (in preparation)
8. **Kaag, A.M.**, Goudriaan, A.E. Sex differences in the neural correlates of cocaine cue- and emotional reactivity in regular cocaine users (in preparation)