

Name **Annette Horstmann**

Date of Birth 27 May 1977 in Hamburg, Germany

Gender Female

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Current position Head of Junior Research Group
‘Decision-making in Obesity: Neurobiology, Behaviour & Plasticity’

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<http://www.o-brain-project.de/en/team/wissenschaftliche-leiter/dr-rer-nat-annette-horstmann/>

Education & Qualifications

2004 – 2008 **Ph.D. in Neuroscience** [*magna cum laude*]
International Graduate School Biosciences, Faculty of Biology and Biotechnology, Ruhr-University Bochum
PhD thesis: ‘*Sensorimotor Integration in Human Eye-Hand Coordination: Neural Correlates and Characteristics of the System*’

2003 **Diploma of Biology**
Ruhr-University Bochum, Advisors: Prof Klaus-Peter Hoffmann, Prof Gregor Schön

1997 – 2003 Undergraduate and Graduate **Studies of Biology**, Ruhr-University Bochum (Major subjects: Neurobiology, Zoology; minor subjects: Biomechanics, Biophysics)

1996 **High-school certificate** (equivalent to A-levels)
Franz-Haniel-Gymnasium Duisburg-Homberg, Germany

Professional Experience

since 11/2013 **Head of Junior Research Group**
‘Decision making in Obesity: Neurobiology, Behaviour and Plasticity’, IFB AdiposityDiseases, Leipzig University Medical Centre

since 1/2013 **Principal Investigator**
CRC 1052 ‘Obesity Mechanisms’, Project A5 ‘Neurocognitive models of Obesity’

- 8/2010 - 10/2013 **Research Fellow**
 Leipzig University Medical Centre, IFB AdiposityDiseases (Prof Arno Villringer) & Group Leader, Department Neurology, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig
- 4/2008 – 7/2010 **Post-doctoral Research Fellow**
 Department Neurology, Max Planck Institute for Human Cognitive and Brain Sciences (Prof B Pleger, Prof A Villringer)
- 1/2007 – 3/2008 **Visiting Research Scientist**
 ‘Attention & Awareness’ Fellow Group, Max Planck Institute for Human Cognitive & Brain Sciences, Leipzig (Prof JD Haynes)
- 4/2004 – 12/2008 **Ph.D. Student / Research Fellow**
 International Graduate School Biosciences, Faculty of Biology and Biotechnology, Ruhr-University Bochum (Prof KP Hoffmann)

Teaching

- 2014 **Lecturer: Neuroplasticity.** Lecture Series, International Max Planck Research School NeuroCom, Leipzig
Lecturer: Anatomy of a Decision: Neuroanatomy and Neurophysiology. Lecture Series, Mind and Brain Institute, Berlin.
- 2010 – 2014 **Lecturer & Organizer: Cognition and obesity.** Weekly seminar. Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany.
Lecturer & Organizer: Brain and obesity: Discussion of structural and functional correlates. Weekly seminar. Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany.

Reviewer Activities for Scientific Journals [selected]

- **Neuroscience/Psychology journals:**
Biological Psychiatry [9.3], *Neurology* [IF 8.3], *Human Brain Mapping* [IF 6.8], *NeuroImage* [IF 6.3], *PLoS ONE* [IF 3.7], *Neuropsychologia* [IF 3.5], *Drug and Alcohol Dependence* [IF 3.1]
- **Obesity-related journals:**
Trends in Endocrinology and Metabolism [IF 8.9], *DiabetesCare* [IF 8.1], *Diabetes* [IF 8.3], *International Journal of Obesity* [IF 5.2]

Scientific Activities & Memberships

- Organization of 1st *Leipzig International Meeting for Interdisciplinary Obesity Research (LIMIOR)*, to be held September 6–10, 2015
- Organization of Symposium ‘*The body in the mind: Neural mechanisms of “embodiment” – Evidence from basic research and its relevance for psychopathology*’ (B Herbert, A Horstmann), 2nd Meeting of the Society for Cognitive and Affective Neuroscience, Dortmund, Germany, May 2014
- Organization of Symposium “*Obesity & the Brain*” (A Horstmann, B Pleger), 57th Annual meeting of the German section of the International Federation of Clinical Neurophysiology, Leipzig, Germany, March 2013

- Member of the *Society for Neuroscience*
- Member of the *Organization for Human Brain Mapping*

Grants

- 05/2015 – 10/2018 Junior Research Group ‘Decision-making in obesity: Neurobiology, behaviour & plasticity’, funded by the Federal Ministry for Education and Research (BMBF), **€259.039**
- ‘Neurobiology of Conditioning to Primary Reinforcers and its Role in Obesity’, ADI-K783, project grant, BMBF, **€170.892**
- ‘Retraining Automatic Action Tendencies in Obesity’, ADI-K784, project grant, BMBF, **€179.108**
- 01/2013 – 12/2016 Collaborative Research Centre 1052, subproject A5: ‘Neurocognitive Models of Behavioural Control in Obesity’, **Horstmann A & Neumann J**, funded by the German Research Foundation (DFG), **€510.600**
- 11/2013 – 04/2015 Junior Research Group ‘Decision-making in obesity: Neurobiology, behaviour & plasticity’, funded by the Federal Ministry for Education and Research (BMBF), **€102.000**
- ‘Biasing reward-based decision-making towards advantageous choices in Obesity’, ADI-K754, project grant, BMBF, **€78.237**
- ‘Habitual vs. Goal-Directed Behavioural Control in Obesity’, ADI-K753, project grant, BMBF, **€75.799**

Invited Talks

- 50th Annual Meeting of the European Association for the Study of Diabetes (EASD)**, Sept 15–19 2014, **Vienna, Austria**. “*Functional Brain Imaging of Appetite*”, as part of the symposium ‘Homeostasis vs. hedonism: central regulation of appetite’
- 11. Kongress der Fachgruppe Gesundheitspsychologie**, Sep 5-9 2013, **Luxembourg**. “*Clustering nach Essverhalten und Gewicht deckt kongruente Unterschiede in Hirnstruktur und -funktion auf*”
- The European Society for Clinical Nutrition and Metabolism Congress**, Aug 31–Sep 3 2013, **Leipzig, Germany** “*Brain structure, reward & eating behaviour.*”
- Tagung experimentell arbeitender Psychologen (TeaP)** 2013, **Vienna, Austria** “*Brain structure and function differs between normal-weight, overweight and obese women grouped based on their eating style*”, as part of the symposium “Mechanisms of food craving and its regulation”
- 1st Einstein Fellowship Symposium on “Decision-making”**, April 28-29, 2011, **Berlin, Germany** “*FTO regulates reward-based decision making and the homeostatic control of hunger and satiety*”
- 1st International School for Obesity Research and Management (ISORAM)**, March 6-11, 2011, **Chateau Lake Louise, Alberta, Canada** “*The impact of gender on reward-based learning and underlying brain structure in obesity*”
- Annual Scientific Meeting of the British Association for Cognitive Neuroscience (BACN)**, Sept 1-3, 2010, **Bristol, UK** “*Resuscitating the heart, but losing the brain: Brain atrophy and*

neuropsychological impairment following cardiac arrest”, as part of the symposium ‘The heart of the (grey) matter: the effect of cardiac pathology on the brain’

28th Annual Scientific Meeting of The Obesity Society (TOS), Oct 8-12, 2010, **San Diego, California, USA**, “*Gender Moderates Structural Changes in the Brain’s Reward System of Obese Humans*”

Invited Chair

30th Annual Meeting of the German Obesity Society (DAG), Nov 21-22 2014, **Leipzig, Germany**. S Engeli & A Horstmann. *Central and Peripheral Mechanisms in Obesity*.

29th Annual Meeting of the German Obesity Society (DAG), Oct 3-5 2013, **Hannover, Germany**. A Horstmann & H Preissl. *Basic Science Session*.

Supervision

Ph.D. students

Anja Dietrich (M. Sc. Biology)
 Martin Federbusch (cand. med.)
 Claudia Grellmann (M. Sc. Biomathematics)
 David Mathar (M.Sc. Mathematics), Co-supervision
 Marie-Theres Meemken (M. Sc. Neurocognitive Psychology)
 Nora Mehl (M. Sc. Psychology)
 Filip Morys (M. Sc. Medical Neuroscience)
 Maria Pössel (M. Sc. Psychology)
 Anne Schrimpf (M. A. Ethnology)
 Jakob Simmank (cand. med.)

Bachelor & Master Students

Nora Mehl (2013), M.Sc. Psychology, University of Leipzig
 Lara Müller-Wieland (2011), B.Sc. Psychology, University of Hamburg

Publications in Peer-Reviewed Journals [*n=24, citations: 615, h-index: 13, i10-index: 14*]

Subm **Horstmann A**, Dietrich A, Mathar D, Poessel M, Villringer A, Neumann J. (under review) *Obesity is associated with decreased behavioural sensitivity to reward devaluation*.

Kube J*, Schrimpf A*, Garcia-Garcia I, Villringer A, Neumann J, **Horstmann A**. (under review) *Differential heart rate responses to social and monetary reward in women with obesity*

In rev Mathar D*, Neumann J*, Villringer A, **Horstmann A**. (in rev) *Failing to learn from negative prediction errors: Obesity is associated with alterations in fundamental neural learning mechanisms*.

Keller M*, Rohde K*, **Horstmann A**, Liu X, Eichelmann F, Stumvoll M, Villringer A, Kovacs P, Tönjes A, Böttcher Y. (in rev) *Role of genetic variants in ADIPOQ in human eating behavior*.

Frisch S, Thiel F, Marschhauser A, Villringer A, Schroeter ML*, **Horstmann A*** (in rev) *Identifying neural correlates of memory and language in herpes simplex encephalitis – A voxel-based morphometry (VBM) study*.

Rohde K, Federbusch MG, **Horstmann A**, Keller M, Villringer A, Stumvoll M, Tönjes A, Kovacs P, Böttcher Y. (in rev) *Genetic variants in AKR1B10 associate with human eating behavior*.

Hellrung L, Hollmann M, Zscheyge O, Schlumm T, Kalberlah C, Roggenhofer E, Okon-Singer H, Villringer A, **Horstmann A**. (in rev) *A novel software tool to implement flexible adaptive paradigms for fMRI*.

- Grellmann C, Bitzer S, Neumann J, Westlye LD, Andreassen OA, Villringer A, **Horstmann A.** (in rev) *Comparison of Variants of Canonical Correlation Analysis and Partial Least Squares for Combined Analysis of MRI and Genetic Data*
- 2014** **Horstmann A***, Mueller K*, Möller HE, Anwander A, Lepsien J, Schroeter ML, Villringer A, Pleger B *Obesity associated cerebral gray and white matter alterations are interrelated in the female brain.* PLoS One 2014 (in press) [OA]
- Garcia-Garcia I, **Horstmann A**, Jurado MA, Garolera M, Margulies DS, Villringer A, Neumann J. *Reward processing in obesity, substance and non-substance addictions.* Obesity Reviews 2014, Sept 29 [EPub ahead of print]
- Wilbertz T, Deserno L, **Horstmann A**, Neumann J, Villringer A, Heinze HJ, Boehler CN, Schlagenhaut F *Response inhibition and its relation to multidimensional impulsivity.* NeuroImage 2014, Sept 18 [EPub ahead of print]
- Dietrich A*, Federbusch M*, Grellmann C¹, Villringer A, **Horstmann A.** *Body weight status, eating behavior, and sensitivity to reward or punishment: relationships and interdependencies.* Front Psych 2014 Sept; 5:1073 [OA]
- 2013** Gast M-T, Tönjes A, Keller M, **Horstmann A**, Steinle N, Scholz M, Müller I, Villringer A, Stumvoll M, Kovacs P, Böttcher Y *The role of rs2237781 within GRM8 in eating behavior.* Brain Behav. 2013; 3:495–502
- Horstmann A**, Kovacs P, Kabisch S, Boettcher Y, Schloegl H, Tönjes A, Stumvoll M, Pleger B*, Villringer A*. *Common Genetic Variation near MC4R Has a Sex-Specific Impact on Human Brain Structure and Eating Behavior.* PLoS One. 2013 Sep 16;8(9):e74362. [OA]
- Machann J, **Horstmann A**, Born M, Hesse S, Hirsch FW. *Diagnostic imaging in obesity.* Best Pract Res Clin Endocrinol Metab. 2013 Apr;27(2):261-77.
- Schlögl H*, Kabisch S*, **Horstmann A**, Lohmann G, Müller K, Lepsien J, Busse-Voigt F, Kratzsch J, Pleger B, Villringer A, Stumvoll M. *Exenatide-induced reduction in energy intake is associated with increase in hypothalamic connectivity.* Diabetes Care. 2013 Jul;36(7):1933-40.
- Frisch S, Dukart J, Vogt B, **Horstmann A**, Becker G, Villringer A, Barthel H, Sabri O, Müller K, Schroeter ML. *Dissociating memory networks in early Alzheimer's disease and frontotemporal lobar degeneration - a combined study of hypometabolism and atrophy.* PLoS One. 2013;8(2):e55251. [OA]
- Hollmann M, Pleger B, Villringer A, **Horstmann A.** *Brain imaging in the context of food perception and eating.* Curr Opin Lipidol. 2013 Feb;24(1):18-24.
- Steingroever H, Wetzels R, **Horstmann A**, Neumann J, Wagenmakers EJ. *Performance of healthy participants on the Iowa Gambling Task.* Psychol Assess. 2013 Mar;25(1):180-93.
- 2012** **Horstmann A**, Villringer A, Neumann J. *Iowa gambling task: there is more to consider than long-term outcome. Using a linear equation model to disentangle the impact of outcome and frequency of gains and losses.* Front Neurosci. 2012 May 14;6:61. Erratum in: Front Neurosci. 2013;7:90. [OA]
- 2011** Sehm B, Frisch S, Thöne-Otto A, **Horstmann A**, Villringer A, Obrig H. *Focal retrograde amnesia: voxel-based morphometry findings in a case without MRI lesions.* PLoS One. 2011;6(10):e26538. [OA]
- Horstmann A**, Busse FP, Mathar D, Müller K, Lepsien J, Schlögl H, Kabisch S, Kratzsch J, Neumann J, Stumvoll M, Villringer A, Pleger B. *Obesity-Related Differences between Women and Men in Brain Structure and Goal-Directed Behavior.* Front Hum Neurosci. 2011 Jun 10;5:58. [OA]
- Hollmann M, Hellrung L, Pleger B, Schlögl H, Kabisch S, Stumvoll M, Villringer A, **Horstmann A.** *Neural correlates of the volitional regulation of the desire for food.* Int J Obes (Lond). 2012 May;36(5):648-55.

- Mueller K*, Anwander A*, Möller HE*, **Horstmann A**, Lepsien J, Busse F, Mohammadi S, Schroeter ML, Stumvoll M, Villringer A, Pleger B. *Sex-dependent influences of obesity on cerebral white matter investigated by diffusion-tensor imaging*. PLoS One. 2011 Apr 11;6(4):e18544. [OA]
- Dukart J, Mueller K, **Horstmann A**, Barthel H, Möller HE, Villringer A, Sabri O, Schroeter ML. *Combined evaluation of FDG-PET and MRI improves detection and differentiation of dementia*. PLoS One. 2011 Mar 23;6(3):e18111. [OA]
- Lizier JT, Heinzle J, **Horstmann A**, Haynes JD, Prokopenko M. *Multivariate information-theoretic measures reveal directed information structure and task relevant changes in fMRI connectivity*. J Comput Neurosci. 2011 Feb;30(1):85-107.
- Schloegl H, Percik R, **Horstmann A**, Villringer A, Stumvoll M. *Peptide hormones regulating appetite--focus on neuroimaging studies in humans*. Diabetes Metab Res Rev. 2011 Feb;27(2):104-12.
- 2010** Taubert M, Draganski B, Anwander A, Müller K, **Horstmann A**, Villringer A, Ragert P. *Dynamic properties of human brain structure: learning-related changes in cortical areas and associated fiber connections*. J Neurosci. 2010 Sep 1;30(35):11670-7.
- Lohmann G, Margulies DS, **Horstmann A**, Pleger B, Lepsien J, Goldhahn D, Schloegl H, Stumvoll M, Villringer A, Turner R. *Eigenvector centrality mapping for analyzing connectivity patterns in fMRI data of the human brain*. PLoS One. 2010 Apr 27;5(4):e10232. [OA]
- Horstmann A**, Frisch S, Jentsch RT, Müller K, Villringer A, Schroeter ML. *Resuscitating the heart but losing the brain: brain atrophy in the aftermath of cardiac arrest*. Neurology. 2010 Jan 26;74(4):306-12.
- Dukart J, Mueller K, **Horstmann A**, Vogt B, Frisch S, Barthel H, Becker G, Möller HE, Villringer A, Sabri O, Schroeter ML. *Differential effects of global and cerebellar normalization on detection and differentiation of dementia in FDG-PET studies*. Neuroimage. 2010 Jan 15;49(2):1490-5.
- 2005** **Horstmann A**, Hoffmann KP. *Target selection in eye-hand coordination: Do we reach to where we look or do we look to where we reach?* Exp Brain Res. 2005 Nov;167(2):187-95.

Books

Horstmann A (2014) *The brains' got a taste for good food*. In: Hedonic Eating, N. Avena (Ed), Oxford University Press, forthcoming