

Curriculum Vitae

Name	Peter A. Bos
Work address	Wassenaarseweg 52 2333 AK Leiden
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E-mail	p.a.bos@fsw.leidenuniv.nl
Website	www.peterbos.org
Date of birth	01-05-1983
Nationality	Dutch
Marital status	married to Joanne Zwart (children: Milia 2009, Otto 2012, Anke 2017)

research interest

My main research interest is the role of hormones and neuropeptides in human caregiving and its neural underpinnings. I am especially fascinated by modulating factors during child development such as the quality of caregiving and parental communication, which can alter social-emotional behavior via endocrine mechanisms such as epigenetic programming. A future aim to which I would like to contribute is the further integration of psychological and neurobiological perspectives on human caregiving behavior and child development. The experimental methods I employ are: single drug administration, functional MRI (fMRI), facial Electromyography (EMG), and electroencephalography (EEG).

professional experience

2019 -	Associate Professor, Institute of education and child studies, Leiden University (tenured)
2014 - 2019	Assistant Professor, Experimental Psychology Utrecht University (tenured)
2017 -	CEO (Bestuursvoorzitter) stichting Violinde; antroposofische kinderdagopvang & BSO
2015 - 2016	Assisting diagnostic work, Ambulatorium Fac. Social Science Utrecht University
2012 - 2014	Postdoctoral Research Fellow, University of Cape Town
2012 - 2013	Postdoctoral Researcher Social Neuroscience with prof. Jack van Honk
2008 - 2012	PhD student on UU High Potential grant of Prof. Jack van Honk.
2006 - 2007	Flow manager University Medical Centre Utrecht, operating MRI scanner and performing and supporting functional MRI research.
2006	Research assistant in pharmacological fMRI experiments supervised by Dr. E. J. Hermans, Utrecht University
2005	Graduation project on visual awareness at Department of Psychology, Stockholm University, Prof. S. Wiens

education

2017	BKO (Basiskwalificatie Onderwijs), University Teaching Qualification
2014	course Gespreksvoering Open University (for the purpose of theoretic BAPD)
2012	PhD in Psychology Utrecht University, June 4 2012 (cum laude)
2011	Certificate for BROK-course; Good Clinical Practice
2007	Certified to independently perform fMRI research in the UMC Utrecht (scanbevoegd)
2007	Master of Science, Psychology, University of Utrecht, The Netherlands, study direction: Biological Neuropsychology
2001	Bachelor Applied Psychology, Hogeschool IJsseland, Deventer, The Netherlands
2000	High School Graduation, Christelijk College Nassau Veluwe, Harderwijk, The Netherlands

supervision and teaching experience

- co-supervisor of following PhD students: Franca Parianen Lesemann (Univ Utrecht, 2017 - 2019); Isabell Meier (Univ Utrecht, 2016 - 2020); Sarah Heany (Univ Cape Town, 2014 -); Estrella Montoya (Univ Utrecht, 2011-2015)
- Supervision of >25 internships and theses (bachelor and master students).
- Coordinator and teacher in the BSc program of Pedagogical Sciences at Leiden University in the courses: Neurobiologische achtergronden van opvoeding en ontwikkeling en Vaders.
- Coordinator and teacher in the Minor program Social Neuroscience for the following courses: Methods in Social Neuroscience; Neuroscience of Social Behavior and Emotional Disorders.
- Development, Coordination and Teaching in the MSc course Social and Affective neuroscience (research master Neuroscience and Cognition)

invited talks (selection)

- VNOP Conference, Amsterdam NL (2020) - *cancelled*
- colloquium Amsterdam Brain and Cognition (ABC) University of Amsterdam (2018)
- European Society for Cognitive and Affective Neuroscience, Leiden NL (2018)
- keynote on Human Behavior and Evolution Society preconference, Amsterdam NL (2018)
- Child lectures for YOUth research Utrecht & WKZ publieksdag (2018)
- 'Catalysts for Change' symposium (2018)
- Brain and Development research Center – Leiden University (2017)
- Science café Harderwijk (2017)
- SIBTalks – studentenvereniging voor internationale betrekkingen (2016)
- Centrum voor Consultatie en Expertise (2016)
- Universiteit van Nederland (www.universiteitvannederland.nl)– Amsterdam (2016)
- Colloquium Social Psychology department Leiden University (2016)
- Science Café Utrecht (2016)
- Colloquium Behavioral Science Insitute (2015)
- Leiden Institute for Brain and Cognition publieksdag – hormonen en het sociale brein (2015)
- Society for Research in Child Development: special topic meeting: new conceptualizations in the study of parenting-at-risk (2014), San Diego, California.
- Annual conference of the German Society of Psychiatry, Psychotherapy and Psychosomatics (2014), Berlin, Germany
- Society for Applied Neuroscience (2014), Utrecht, The Netherlands
- International Society of Psychoneuroendocrinology (2013), Leiden, The Netherlands
- Psychology Department, University of Warwick, Coventry, UK (2012)
- Publieksdag Hersenstichting, Utrecht (2011)
- International Infant Cry Workshop (2011), Zeist, The Netherlands
- International Society of Psychoneuroendocrinology (2011), Berlin, Germany
- Endo-Neuro-Psycho meeting (2011, 2013), Lunteren, The Netherlands
- Recent advances in Neuropsychopathology; Guest lecture (2010), Leiden, The Netherlands
- Helmholtz Retreat (2010), Bergen, The Netherlands
- Social Brain Congress (2009), Utrecht, The Netherlands
- Endo-Neuro-Psycho meeting (2009), Doorwerth, The Netherlands

grants & prizes

- co-applicant Onderzoekstalent 2018 – Hannah Spencer (250k)
- Nominated for the 2019 Agnites Vrolijkprijs (Utrecht University) for scientific impact.

- Dynamics of Youth seed grant 2015 (91k) “Getting together; how (epi)genetics and family history predict sensitive parenting behavior.”
- NWO (The Netherlands Organisation for Scientific Research) VENI grant 2014 (250k) “Off to a bad start – Investigating the role of oxytocin and estradiol in the cycle of harsh parenting over generations”
- Praemium Erasmianum thesis prize 2014 (3k)
- Travel grant: ISPNE conference 2013, Leiden (0.5k)
- 2012 editor’s choice award NeuroImage for: Bos P. A., Hermans E. J., Ramsey N. F. & van Honk J. (2012) The neural mechanisms by which testosterone acts on interpersonal trust. *NeuroImage*, 61: 730-7.
- University of Cape Town: Medical Research Council Competitive Post-Doctoral Fellowship Grant (50k)
- Erasmus travel grant Sweden (1k)

memberships

- editorial board *Psychoneuroendocrinology* and *Comprehensive Psychoneuroendocrinology*
- begeleidingscommissie Wetenschappelijk Onderzoek- en Documentatiecentrum (WODC) | Ministerie van Veiligheid en Justitie onderzoek ‘Inventarisatie praktijkgericht neurowetenschappelijk onderzoek jeugdigen: preventie, meetinstrumenten, interventies’.
- editorial board *PLOS ONE*
- editorial board *Frontiers in Emotion Science*
- editorial board *Frontiers in Behavioral Neuroscience*

media coverage

Publications in the PNAS (2010, 2011) have led to worldwide media attention: over a hundred websites (e.g. wired.com, cbsnews.com, BBC.co.uk/news, telegraph.co.uk, nytimes.com, livescience.com, independent.co.uk), several international newspapers, and interviews for Dutch radio (Labyrinth, FunX radio). The PNEC publication of 2016 was featured on dailymail.co.uk and iflscience.com. The PNEC publication of 2018 was featured on nu.nl and other Dutch media. Appearance in Dutch television and radio programs: RTL late Night, De kennis van nu (NTR, 2019), Grote Vragen (VPRO, 2020). Contributed to diverse news outlets: e.g. *de Correspondent*; *Ouders van Nu*; *Nemo Kennislink*; *Science Alert*.

reviewer for

peer reviewed journals: *Adaptive Human Behavior and Physiology*, *Behaviour Research and Therapy*, *BMC Psychiatry*, *Biological Psychiatry*, *Biological Psychology*, *Biology Letters*, *Cerebral Cortex*, *Cognition and Emotion*, *Cognitive Affective and Behavioral Neuroscience*, *Development and Psychopathology*, *Developmental Psychobiology*, *Developmental Psychology*, *Developmental Science*, *Evolution and Human Behavior*, *Evolutionary Psychological Science*, *Frontiers in Emotion Science*, *Frontiers in Behavioral Neuroscience*, *Hormones and Behavior*, *Human Brain Mapping*, *Infant Behavior and Development*, *Journal of Cognitive Neuroscience*, *Journal of Psychophysiology*, *Neurobiology of Learning and Memory*, *NeuroImage*, *Neuropsychopharmacology*, *Neuropsychobiology*, *Neuropsychologia*, *Neuropsychopharmacology & Biological Psychiatry*, *Neuroscience and Biobehavioral Reviews*, *Neuroscience Letters*, *Psychiatry Research: Neuroimaging*, *Psychoneuroendocrinology*, *Physiology & Behavior*, *PLoS ONE*, *Proceedings of the Royal Society B*, *Psychological Science*, *Psychopharmacology*, *Social Cognitive and Affective Neuroscience*, *Scientific Reports*, *Social Neuroscience*, *World Journal of Pediatrics*.

grants committees: European Research Council (ERC), Research Council KU Leuven, German-Israeli Foundation (GIF), University of Vienna, Vienna Science and Technology Fund, The Research Foundation – Flanders (FWO), Deutsche Forschungsgemeinschaft (DFG), FWF Austrian Science Fund.

publications (h-index 21)

Endendijk, J. J., Smit, A. K., **Bos, P. A.** & Van Baar, A. L. (2020) Pictures of Preterm Infants Elicit Increased Affective Responses and Reduced Reward-Motivation or Perspective Taking in the Maternal Brain. *Behavioural Brain Res.*, in press.

Endendijk, J. J., Smit, A. K., Van Baar, A. L. & **Bos, P. A.** (2020) What a cute baby! Preliminary evidence from a fMRI study for the association between mothers' neural responses to infant faces and activation of the parental care system. *Neuropsychologia*, in press.

Heany, S. J., Terburg, D., Stein, D. J., van Honk, J. & **Bos, P. A.** (2020). Neural responses in the pain matrix when observing pain of others are unaffected by testosterone administration in women. *Experimental Brain Res.*, 1-9.

Endendijk, J. J., Smit, A. K., Van Baar, A. L. & **Bos, P. A.** (2019) Boys' toys, girls' toys: An fMRI study of mothers' neural responses to children violating gender expectations. *Biological Psychology*, 148, 107776.

Witteman, J., van IJzendoorn, M. H., Rilling, J. K., **Bos, P. A.**, Schiller, N. O. & Bakermans-Kranenburg, M. J. (2019) Towards a neural model of infant cry perception. *Neurosci Biobehav Rev.* in press.

Kraaijenvanger, E. J., He, Y., Spencer, H., Smith, A. K., **Bos, P. A.** & Boks, M. P. (2018) Epigenetic variability in the human oxytocin receptor (OXTR) gene: a possible pathway from early life experiences to psychopathologies. *Neurosci Biobehav Rev.* 96, 127-142.

Terburg, D., Scheggia, D., Triana del Rio, R., Klumpers, F., Ciobanu, A. C., Morgan, B., Montoya, E. R., **Bos, P.A.**, Giobellina, G., van den Burg, E., de Gelder, B., Stein, D.J., Stoop, R. & van Honk, J. (2018) The Basolateral Amygdala is Essential for Rapid Escape Behavior: A Human and Rodent Study. *Cell*. 175 (3), 723-735.

Bos, P. A., Spencer, H., & Montoya, E. R. (2018) Oxytocin reduces neural activation in response to infant faces in nulliparous young women. *Soc Cogn Affect Neurosci.* 13 (10), 1099-1109.

Bos, P. A., Hechler, C., Beijers, R., Shinohara, K., Esposito, G., & de Weerth, C. (2018) Prenatal and postnatal cortisol and testosterone are related to parental caregiving quality in fathers, but not in mothers. *Psychoneuroendocrinology*, 97, 94-103.

Spencer, H., Heitland, I., Montoya, E. R., Branje, S. J., & **Bos, P. A.** (2018) Ethnic effects when facing children: an ERP study. *Biol Psychol* 138, 56-62.

Heany, S. J., Bethlehem, R. A., van Honk, J., **Bos, P. A.**, Stein, D. J., & Terburg, D. (2018) Effects of Testosterone Administration on Threat and Escape Anticipation in the Orbitofrontal Cortex. *Psychoneuroendocrinology*, 69, 42-51.

Brummelman, E., Terburg, D. Smit, M. Bögels, S. M. & **Bos P.A.** (2018) Parental touch reduces social vigilance in children. *Devel Cogn Neurosci*, in press.

Endendijk J.J., Spencer H., **Bos P.A.** & Derks B. (2018) Neural Processing of Gendered Information is More Robustly Associated with Mothers' Gendered Communication with Children than Mothers' Implicit and Explicit Gender Stereotypes. *Soc Neurosci*, in press.

Endendijk J.J., Spencer H., van Baar A.L. & **Bos P.A.** (2018) Mothers' neural responses to infant faces are associated with activation of the maternal care system and observed intrusiveness with their own child. *Cogn Affect Behav Neurosci*, 18, 609-621.

Bos, P. A. (2017) The endocrinology of human caregiving and its intergenerational transmission. *Dev Psychopathol*, 29, 971-999.

Kraaijenvanger, E. J., Hofman, D. & **Bos, P. A.** (2017) A neuroendocrine account of facial mimicry and its dynamic modulation. *Neurosci Biobehav Rev*, 77, 98-106.

Montoya, E. R. & **Bos, P. A.** (2017) How oral contraceptives impact social-emotional behavior and brain function. *Trends Cogn Sci* 21, 125–136.

Bos, P. A., Jap-Tjong, N., Spencer, H. & Hofman, D. (2016) Social context modulates facial imitation of children's emotional expressions. *PLoS One*, doi.org/10.1371/journal.pone.0167991.

Meier, I. M., **Bos, P. A.**, Hamilton, K., Stein, D. J., Van Honk, J., & Malcolm-Smith, S. (2016) Naltrexone increases negatively-valenced facial responses to happy faces in female participants. *Psychoneuroendocrinology*, 74, 65-68.

Bos, P. A., Hofman, D., Hermans, E. J., Montoya, E. R., Baron-Cohen, S., & van Honk, J. (2016) Testosterone reduces functional connectivity during the 'Reading the Mind in the Eyes' Test. *Psychoneuroendocrinology*, 68, 194-201.

Montoya, E. R., van Honk, J., **Bos, P. A.** & Terburg, D. (2015) Dissociated neural effects of cortisol depending on threat escapability. *Hum Brain Mapp* 36 (11), 4304-4316

van Honk, J., **Bos P. A.**, Terburg, D., Heany, S. & Stein, D.J. (2015) Neuroendocrine models of social anxiety disorder. *Dialogues Clin, neurosci* 17 (3), 287.

Bos P. A.*, Montoya E. R.*, Hermans E. Keyzers C. & van Honk, J. (2015) Oxytocin reduces neural activity in the pain circuitry when seeing pain in others. *NeuroImage* 113:217-24.

Bos P. A., Brummelman E. & Terburg D. (2015) Cognition as the tip of the emotional iceberg: A neuro-evolutionary perspective. *Behav Brain Sci*, Jan;38:e72.

Syal S., Iperser J., Terburg D., Solms M., Panksepp J., Malcolm-Smith S., **Bos P. A.**, Montoya E. R., Stein D. J. & van Honk J. (2015) Improved memory for reward cues following acute buprenorphine administration in humans. *Psychoneuroendocrinology*. 53:10-5.

Bos P. A.*, Montoya E. R.*, Terburg D. & van Honk, J. (2014) Cortisol administration increases hippocampal activation to infant crying in males depending on childhood neglect. *Hum Brain Mapp*, 35:5116-26.

Montoya E. R., **Bos P. A.**, Terburg D, Rosenberger L. A. & van Honk J. (2014) Cortisol administration induces global down-regulation of the brain's reward circuitry. *Psychoneuroendocrinology*, 47:31-42.

Bethlehem R. A. I., Baron-Cohen S., van Honk J., Auyeung B. & **Bos P.A.** (2014) The oxytocin paradox. *Front Behav Neurosci*, 8:48. doi: 10.3389/fnbeh.2014.00048.

Bos P. A., van Honk J., Ramsey N. F., Stein D. J. & Hermans E. J. (2013) Testosterone administration in women increases amygdala responses to fearful and happy faces. *Psychoneuroendocrinology*, 38: 808-17.

Montoya E.R., Terburg D., **Bos P.A.**, Will G.J., Buskens V., Raub W. & van Honk J. (2013) Testosterone administration modulates moral judgments depending on second-to-fourth digit ratio. *Psychoneuroendocrinology*, 38: 1362-9.

Hofman D.*, **Bos P. A.***, Schutter D.J., van Honk, J. (2012) Fairness modulates non-conscious facial mimicry in women. *Proc Biol Sci*, 279: 3535-9.

van Honk J., Montoya E. R., **Bos P. A.**, van Vugt M. & Terburg, D. (2012) New evidence on testosterone on cooperation. *Nature*, 485(7399):E4-5; discussion E5-6.

Bos P. A., Hermans E. J., Ramsey N. F. & van Honk J. (2012) The neural mechanisms by which testosterone acts on interpersonal trust. *NeuroImage*, 61: 730-7. (2012 editor's choice award)

Bos P. A., Panksepp J., Bluthé R. M. & van Honk J. (2012) Acute effects of steroid and neuropeptides on human social-emotional behavior; a review of single administration studies. *Front Neuroendocrinol*, 33: 17-35. (most cited paper Front Neuroendocrinol from 2011)

Montoya, E. R., Terburg, D., **Bos, P. A.** & van Honk, J. (2012) Testosterone, cortisol and serotonin as key regulators of social aggression: A review and theoretical perspective, *Motiv Emot*, 36: 65-73.

van Honk J., Terburg D. & **Bos P. A.** (2011) Further notes on testosterone as a social hormone. *Trends Cogn Sci*, 15:291-2.

van Honk J., Schutter D. J.*, **Bos P. A.***, Kruyt A., Lentjes E. & Baron-Cohen S. (2011) Testosterone Administration Impairs cognitive empathy in women depending on second-to-fourth digit ratio. *Proc Natl Acad Sci U S A*, 108:3448-52.

Bos P. A., Terburg D. & van Honk J. (2010) Testosterone decreases trust in socially naïve humans. *Proc Natl Acad Sci U S A*, 107:9991-5.

Bos P. A., Hermans E. J., Montoya E. R., Ramsey N. F. & van Honk J. (2010) Testosterone administration modulates neural responses to crying infants in young females. *Psychoneuroendocrinology*, 35:114-21.

Hermans E. J., **Bos P. A.**, Ossewaarde L., Ramsey N. F., Fernández G., van Honk J. (2010) Exogenous testosterone enhances the ventral striatal BOLD response during reward anticipation in humans. *NeuroImage*, 52:277-83.

Hermans E. J., van Wingen G., **Bos P. A.**, Putman P. & van Honk J. (2009) Reduced facial mimicry in woman with autistic traits. *Biol Psychol*, 80: 348-53.

Book chapters

Van Honk J., **Bos P. A.** & Terburg, D. (2014) Testosterone and dominance in humans: behavioral and brain mechanisms. In *New frontiers in Social Neuroscience*. Decety, J & Yves, C. (editors) Springer; New York.

Dutch publications

Bos P.A. & van Honk J. (2010) De rol van testosteron en oxytocine bij menselijke sociale interactie, *Neuropraxis*.

Poster Presentations

Bos P. A., Montoya E. R., Terburg D., de Dreu C. & van Honk, J. (2012) Effects of oxytocin on the neural mechanisms of empathy for in- and out-groups. World Meeting International Society for Research on Aggression (ISRA), Luxembourg.

Bos P. A., Hermans E. J. & van Honk J. (2010) The neural mechanisms by which testosterone decreases trust, Annual meeting of Organization for Human Brain Mapping, Barcelona. **Top ranked poster.**

* contributed equally

Collaborations

Prof. Jack van Honk, endocrine manipulation studies, Department of Psychiatry and Mental Health, University of Cape Town, South Africa.

dr. Eddie Brummelman, child development and parental communication, Faculty of Social and Behavioural Sciences, Developmental psychopathology, University of Amsterdam, The Netherlands.

Prof Carolina de Weerth, endocrinology of parenting behavior, Behavioural Science Institute, Radboud University Nijmegen, The Netherlands.

dr. Joyce Endendijk, linking observations to neural markers of parenting behavior, Clinical Child and Family Studies, Universiteit Utrecht.

Prof Dan J. Stein, endocrinology and development of social anxiety, Department of Psychiatry and Mental Health, University of Cape Town, South Africa.

Prof Susan Branje, adolescent development and effects of parenting relations, Department of developmental psychology, Utrecht University, The Netherlands.

dr. Marco Boks, behavioral (epi)genetics, Department of Psychiatry, University Medical Center Utrecht, Utrecht, The Netherlands

dr. Estrella Montoya, effects of estradiol and oral contraceptive use on social behavior, Department of experimental psychology, Utrecht University, The Netherlands.