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References

A

Aan het Rot, M., Moskowitz, D. S., Pinard, G., & Young, S. N. (2006). Social behaviour and mood in everyday life: the effects of tryptophan in quarrelsome individuals. *Journal of Psychiatry & Neuroscience*, *31*(4), 253-262.

Abdou, A. M., Higashiguchi, S., Horie, K., Kim, M., Hatta, H., & Yokogoshi, H. (2006). Relaxation and immunity enhancement effects of γ-aminobutyric acid (GABA) administration in humans. *Biofactors*, *26*(3), 201-208.

Abramson, L., Metalsky, G., & Alloy, L. (1989). Hopelessness depression: a theory-based subtype of depression. *Psychological review*, *96*(2), 358-372.

Acworth, I. N., During, M. J., & Wurtman, R. J. (1988). Tyrosine: effects on catecholamine release. *Brain Research Bulletin*, *21*(3), 473-477.

Adler, A., Finkes, I., Katabi, S., Prut, Y., & Bergman, H. (2013). Encoding by synchronization in the primate striatum. *The Journal of Neuroscience*, *33*(11), 4854-4866.

Adolphs, R. (2001). The neurobiology of social cognition. *Current Opinion in Neurobiology, 11*(2), 231-239.

Ait-Belgnaoui, A., Durand, H., Cartier, C., Chaumaz, G., Eutamene, H., Ferrier, L., ... & Theodorou, V. (2012). Prevention of gut leakiness by a probiotic treatment leads to attenuated HPA response to an acute psychological stress in rats. *Psychoneuroendocrinology, 37*(11), 1885-1895.

Albert, P. R., Benkelfat, C., & Descarries, L. (2012). The neurobiology of depression—revisiting the serotonin hypothesis. I. Cellular and molecular mechanisms. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, *367*(1601), 2378-2381.

Ambrose, M. L., Bowden, S. C., & Whelan, G. (2001). Working memory impairments in alcohol-dependent participants without clinical amnesia. *Alcoholism: Clinical and Experimental Research*, *25*(2), 185-

191.

Andrews, G., & Murphy, K. (2006). Does video-game playing improve executive function? In M. A. Vanchevsky (Ed.) *Frontiers in Cognitive Science* (pp. 145-161). New York, NY: Nova Science Publishers Inc.

Antal, A., Keeser, D., Priori, A., Padberg, F., & Nitsche, M. A. (2015). Conceptual and procedural shortcomings of the systematic review "Evidence that transcranial direct current stimulation (tDCS) generates little-to-no reliable neurophysiologic effect beyond MEP amplitude modulation in healthy human subjects: A systematic review" by Horvath and coworkers. *Brain Stimulation, 8,* 846-849.

Antypa N., & Van der Does A. J. W. (2010). Serotonin transporter gene, childhood emotional abuse and cognitive vulnerability to depression. *Genes, Brain and Behavior, 9,* 615–620.

Appelbaum, L. G., Cain, M. S., Darling, E. F., & Mitroff, S. R. (2013). Action video game playing is associated with improved visual sensitivity, but not alterations in visual sensory memory. *Attention, Perception, & Psychophysics*, *75*(6), 1161-1167.

Attenburrow, M. J., Williams, C., Odontiadis, J., Reed, A., Powell, J., Cowen, P. J., & Harmer, C. J. (2003). Acute administration of nutritionally sourced tryptophan increases fear recognition. *Psychopharmacology*, *169*(1), 104-107.

B

Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2013). Sniffing around oxytocin: review and meta-analyses of trials in healthy and clinical groups with implications for pharmacotherapy. *Translational Psychiatry*, *3*(5), e258.

Bar-Gad, I., Morris, G., & Bergman, H. (2003). Information processing, dimensionality reduction and reinforcement learning in the basal ganglia.*Progress in Neurobiology*, *71*(6), 439-473.

Bari, A., & Robbins, T. W. (2013). Inhibition and impulsivity: behavioral and neural basis of response control. *Progress in Neurobiology*, *108*, 44-79.

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, *34*(2), 163-175.

Barraza, J. A., McCullough, M. E., Ahmadi, S., & Zak, P. J. (2011). Oxytocin infusion increases charitable donations regardless of monetary resources. *Hormones and Behavior*, *60*(2), 148-151.

Bar-Tal, D. (1976). *Prosocial behaviour: Theory and research.* New York, NY: Halsted Press.

Bartus, R. T., Dean, R. L., Pontecorvo, M. J., & Flicker, C. (1985). The cholinergic hypothesis: a historical overview, current perspective, and future directions. *Annals of the New York Academy of Sciences*, *444*(1), 332-358.

Bassett, M. L., Mullen, K. D., Scholz, B., Fenstermacher, J. D., & Jones, E. A. (1990). Increased brain uptake of γ-aminobutyric acid in a rabbit model of henatic. *Gastroenterology*, *98*(3), 747-757.

Beck, A. T. & Steer, R. A. (1993). *Manual for the Beck Anxiety Inventory.* San Antonio: The Psychological Corporation.

Beck, A. T. (1967). *Depression: Causes and treatment*. Philadelphia: University of Pennsylvania Press.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology*, *56*(6), 893.

Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. F. (1996). Comparison of Beck Depression Inventories-IA and-II in psychiatric outpatients. *Journal of Personality Assessment, 67*(3), 588-597.

Beeney, J. E., Franklin Jr, R. G., Levy, K. N., & Adams Jr, R. B. (2011). I feel your pain: emotional closeness modulates neural responses to empathically experienced rejection. *Social Neuroscience*, *6*(4), 369-376.

Bejjanki, V. R., Zhang, R., Li, R., Pouget, A., Green, C. S., Lu, Z. L., & Bavelier, D. (2014). Action video game play facilitates the development of better perceptual templates. *Proceedings of the National Academy of Sciences*, *111*(47), 16961-16966.

Ben-Menachem, E., Hamberger, A., Hedner, T., Hammond, E. J., Uthman, B. M., Slater, J., ... & Wilder, B. J. (1995). Effects of vagus nerve stimulation on amino acids and other metabolites in the CSF of patients with partial seizures. *Epilepsy Research*, *20*(3), 221-227.

Benton, D., Williams, C., & Brown, A. (2006). Impact of consuming a milk drink containing a probiotic on mood and cognition. *European Journal of Clinical Nutrition, 61*(3), 355-361.

Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity, and social history. *Games and Economic Behavior*, *10*(1), 122-142.

Beste, C., & Saft, C. (2015). Action selection in a possible model of striatal medium spiny neuron dysfunction: behavioral and EEG data in a patient with benign hereditary chorea. *Brain Structure and Function*, *220*(1), 221-228.

Beste, C., Dziobek, I., Hielscher, H., Willemssen, R., & Falkenstein, M. (2009). Effects of stimulus–response compatibility on inhibitory processes in Parkinson's disease. *European Journal of Neuroscience*, *29*(4), 855-860.

Beste, C., Ness, V., Lukas, C., Hoffmann, R., Stüwe, S., Falkenstein, M., & Saft, C. (2012). Mechanisms mediating parallel action monitoring in fronto-striatal circuits. *Neuroimage*, *62*(1), 137-146.

Beste, C., Stock, A. K., Epplen, J. T., & Arning, L. (2014). On the relevance of the NPY2-receptor variation for modes of action cascading processes. *NeuroImage*, *102*, 558-564.

Bestmann, S., de Berker, A. O., & Bonaiuto, J. (2015). Understanding the behavioural consequences of noninvasive brain stimulation. *Trends in cognitive sciences*, *19*(1), 13-20.

Bethea, C. L., Streicher, J. M., Coleman, K., Pau, F. K. Y., Moessner, R., & Cameron, J. L. (2004). Anxious behavior and fenfluramine-induced prolactin secretion in young rhesus macaques with different alleles of the serotonin reuptake transporter polymorphism (5HTTLPR). *Behavior genetics*, *34*(3), 295-307.

Birrell, J. M., & Brown, V. J. (2000). Medial frontal cortex mediates perceptual attentional set shifting in the rat. *The Journal of Neuroscience*, *20*, 4320-4324.

Bjork, J. M., Dougherty, D. M., Moeller, F. G., Cherek, D. R., & Swann, A. C. (1999). The effects of tryptophan depletion and loading on laboratory aggression in men: time course and a food-restricted control. *Psychopharmacology, 142*(1), 24-30.

Bjork, J. M., Dougherty, D. M., Moeller, F. G., & Swann, A. C. (2000). Differential behavioral effects of plasma tryptophan depletion and loading in aggressive and nonaggressive men. *Neuropsychopharmacology*, *22*(4), 357-369.

Boecker, M., Gauggel, S., & Drueke, B. (2013). Stop or stop-change—Does it make any difference for the inhibition process?. *International Journal of Psychophysiology*, *87*(3), 234-243.

Boggio, P. S., Ferrucci, R., Rigonatti, S. P., Covre, P., Nitsche, M., Pascual-Leone, A., & Fregni, F. (2006). Effects of transcranial direct current stimulation on working memory in patients with Parkinson's disease. *Journal of the Neurological Sciences*, *249*(1), 31-38.

Booij, L., & van der Does, W. (2007). Cognitive and serotonergic vulnerability to depression: Convergent findings. *Journal of Abnormal Psychology, 116*(1), 86.

Boot, W. R., Blakely, D. P., & Simons, D. J. (2011). Do action video games improve perception and cognition?. *Frontiers in Psychology*, *2*, 226.

Boot, W. R., Kramer, A. F., Simons, D. J., Fabiani, M., & Gratton, G. (2008). The effects of video game playing on attention, memory, and executive control. *Acta Psychologica*, *129*(3), 387-398.

Borovikova, L. V., Ivanova, S., Zhang, M., Yang, H., Botchkina, G. I., Watkins, L. R., ... & Tracey, K. J. (2000). Vagus nerve stimulation attenuates the systemic inflammatory response to endotoxin. *Nature*, *405*(6785), 458-462.

Bosc, M. (2000). Assessment of social functioning in depression. *Comprehensive Psychiatry*, *41*(1), 63-69.

Botvinick, M. M., Braver, T. S., Barch, D. M., Carter, C. S., & Cohen, J. D. (2001). Conflict monitoring and cognitive control. *Psychological Review*, *108*(3), 624.

Bouman, T. K. (1994). De Beck Depression Inventory (BDI). *Gedragstherapie, 27,* 69-72.

Bowers, M. B. (1970). Cerebrospinal fluid 5-hydroxyindoles and behavior after L-tryptophan and pyridoxine administration to psychiatric patients. *Neuropharmacology*, *9*(6), 599-604.

Bowman, N. D., Weber, R., Tamborini, R., & Sherry, J. (2013). Facilitating game play: How others affect performance at and enjoyment of video games. *Media Psychology*, *16*(1), 39-64.

Boy, F., Evans, C. J., Edden, R. A., Singh, K. D., Husain, M., & Sumner, P. (2010). Individual differences in subconscious motor control predicted by GABA concentration in SMA. *Current Biology*, *20*(19), 1779-1785.

Brambilla, P., Perez, J., Barale, F., Schettini, G., & Soares, J. C. (2003). GABAergic dysfunction in mood disorders. *Molecular Psychiatry*, *8*(8), 721-737.

Brass, M., & von Cramon, D. Y. (2002). The role of the frontal cortex in task preparation. *Cerebral Cortex*, *12*, 908-914.

Brass, M., & von Cramon, D. Y. (2004). Decomposing components of task preparation with functional magnetic resonance imaging. *Journal of Cognitive Neuroscience, 16*, 609-620.

Braver, T. S., Reynolds, J. R., & Donaldson, D. I. (2003). Neural mechanisms of transient and sustained cognitive control during task switching. *Neuron, 39,* 713–726.

Bravo, J. A., Forsythe, P., Chew, M. V., Escaravage, E., Savignac, H. M., Dinan, T. G., ... & Cryan, J. F. (2011). Ingestion of Lactobacillus strain regulates emotional behavior and central GABA receptor expression in a mouse via the vagus nerve. *Proceedings of the National Academy of Sciences, 108*(38), 16050-16055.

Bravo, R., Matito, S., Cubero, J., Franco, L., Sánchez, C., Rodríguez, A. B., ... & Barriga, C. (2012). Assessment of the intake of tryptophan-enriched cereals in the elderly and its influence on the sleep-wake circadian rhythm. *Antropologia Portuguesa, 29*, 113-120.

Brief, A. P., & Motowidlo, S. J. (1986). Prosocial organizational behaviors. *Academy of management Review*, *11*(4), 710-725.

Brown, G. L., Ballanger, J. C., Minichiello, M. D., & Goodwin, F. K. (1979). Human aggression and its relationship to cerebrospinal fluid 5-hydroxyindoleacetic acid, 3-methoxy-4-hydroxyphenylglycol, and

homovanillic acid. In M. Sandler (Ed.), *Psychopharmacology of aggression* (pp. 131-148). New York, NY: Raven Press.

Brunoni, A. R., & Vanderhasselt, M. A. (2014). Working memory improvement with non-invasive brain stimulation of the dorsolateral prefrontal cortex: a systematic review and meta-analysis. *Brain and Cognition*, *86*, 1-9.

Buckert, M., Kudielka, B. M., Reuter, M., & Fiebach, C. J. (2012). The COMT Val158Met polymorphism modulates working memory performance under acute stress. *Psychoneuroendocrinology*, *37*(11), 1810-1821.

Buckley, D., Codina, C., Bhardwaj, P., & Pascalis, O. (2010). Action video game players and deaf observers have larger Goldmann visual fields. *Vision Research*, *50*(5), 548-556.

C

Cai, K., Nanga, R. P., Lamprou, L., Schinstine, C., Elliott, M., Hariharan, H., ... & Epperson, C. N. (2012). The impact of gabapentin administration on brain GABA and glutamate concentrations: a 7T 1H-MRS study. *Neuropsychopharmacology*, *37*(13), 2764-2771.

Cain, M. S., Landau, A. N., & Shimamura, A. P. (2012). Action video game experience reduces the cost of switching tasks. *Attention, Perception, & Psychophysics*, *74*(4), 641-647.

Calderón-Guzmán, D., Hernández-Islas, J. L., Espitia-Vázquez, I., Barragán-Mejía, G., Hernández-García, E., Santamaría-del Ángel, D., & Juárez-Olguín, H. (2004). Pyridoxine, regardless of serotonin levels, increases production of 5-hydroxytryptophan in rat brain. *Archives of Medical Research*, *35*(4), 271-274.

Camerer, C., & Weigelt, K. (1988). Experimental tests of a sequential equilibrium reputation model. *Econometrica: Journal of the Econometric Society, 56*(1), 1-36.

Cameron, I. G., Watanabe, M., Pari, G., & Munoz, D. P. (2010). Executive impairment in Parkinson's disease: response automaticity and task switching. *Neuropsychologia*, *48*(7), 1948-1957.

Capuron, L., & Miller, A. H. (2011). Immune system to brain signaling: neuropsychopharmacological implications. *Pharmacology & therapeutics*,*130*(2), 226-238.

Caspi, A., Sugden, K., Moffitt, T. E., Taylor, A., Craig, I. W., Harrington, H., ... & Poulton, R. (2003). Influence of life stress on depression: moderation by a polymorphism in the 5-HTT gene. *Science*, *301*(5631), 386-389.

Cerit, H., Jans, L. A., & Van der Does, W. (2013). The effect of tryptophan on the cortisol response to social stress is modulated by the 5-HTTLPR genotype. *Psychoneuroendocrinology*, *38*(2), 201-208.

Cerit, H., Schuur, R. J., de Bruijn, E. R., & Van der Does, W. (2015). Tryptophan supplementation and the response to unfairness in healthy volunteers. *Frontiers in Psychology*, *6*.

Chamberlain, S. R., Fineberg, N. A., Blackwell, A. D., Robbins, T. W., & Sahakian, B. J. (2006a). Motor inhibition and cognitive flexibility in obsessive-compulsive disorder and trichotillomania. *American Journal of Psychiatry*, *163*, 1282–1284.

Chamberlain, S. R., Müller, U., Blackwell, A. D., Clark, L., Robbins, T. W., & Sahakian, B. J. (2006b). Neurochemical modulation of response inhibition and probabilistic learning in humans. *Science*, *311*(5762), 861-863.

Chapman, C. M. C., Gibson, G. R., & Rowland, I. (2011). Health benefits of probiotics: are mixtures more effective than single strains?. *European Journal of Nutrition, 50*(1), 1-17.

Chase, T. N., & Taminga, C. A. (1979). GABA system participation in human motor, cognitive and endocrine function. In P. Krogsgaard-Larson, J. Scheel-Kruger & H. Kofod. (eds.) *GABA-Neurotransmitters* (pp. 283-294). Copenhagen: Munksgaard.

Chen, G. L., Novak, M. A., Meyer, J. S., Kelly, B. J., Vallender, E. J., & Miller, G. M. (2010). The effect of rearing experience and TPH2 genotype on HPA axis function and aggression in rhesus monkeys: A retrospective analysis. *Hormones and Behavior*, *57*(2), 184-191.

Chen, R., Chen, J., & Li, L. (2015). Action videogame play improves visual motor control. *Journal of Vision*, *15*(12), 42.

Cherek, D. R., Schnapp, W., Moeller, F. G., & Dougherty, D. M. (1996).

Aggressive responding of violent and nonviolent male parolees under laboratory conditions. *Aggressive Behavior*, *22*, 27-36.

Chisholm, J. D., & Kingstone, A. (2012). Improved top-down control reduces oculomotor capture: The case of action video game players. *Attention, Perception, & Psychophysics*, *74*(2), 257-262.

Chisholm, J. D., Hickey, C., Theeuwes, J., & Kingstone, A. (2010). Reduced attentional capture in action video game players. *Attention, Perception, & Psychophysics*, *72*(3), 667-671.

Chmielewski, W. X., Yildiz, A., & Beste, C. (2014). The neural architecture of age-related dual-task interferences. *Frontiers in Aging Neuroscience*, *6*, 193.

Chouinard, G., Young, S. N., Bradwejn, J., & Annable, L. (1983). Tryptophan in the treatment of depression and mania. *Advances in Biological Psychiatry, 10,* 47-66.

Cleare, A. J., & Bond, A. J. (1995). The effect of tryptophan depletion and enhancement on subjective and behavioural aggression in normal male subjects. *Psychopharmacology*, *118*(1), 72-81.

Coccaro, E. F., Fanning, J. R., Phan, K. L., & Lee, R. (2015). Serotonin and impulsive aggression. *CNS spectrums, 20*(03), 295-302.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Colzato, L. S., & Hommel, B. (2008). Cannabis, cocaine, and visuomotor integration: Evidence for a role of dopamine D1 receptors in binding perception and action. *Neuropsychologia*, *46*(5), 1570-1575.

Colzato, L. S., de Haan, A. M., & Hommel, B. (2015). Food for creativity: tyrosine promotes deep thinking. *Psychological Research*, *79*(5), 709-714.

Colzato, L. S., Hertsig, G., van den Wildenberg, W. P. M., & Hommel, B. (2010). Estrogen modulates inhibitory control in healthy human females: Evidence from the stop-signal paradigm. *Neuroscience, 167*, 709-715.

Colzato, L. S., Jongkees, B. J., Sellaro, R., & Hommel, B. (2013). Working memory reloaded: tyrosine repletes updating in the N-back task. *Frontiers in Behavioral Neuroscience*, *7*(200).

Colzato, L. S., Jongkees, B. J., Sellaro, R., van den Wildenberg, W. P. M., & Hommel, B. (2014). Eating to stop: tyrosine supplementation enhances inhibitory control but not response execution. *Neuropsychologia*, *62*, 398-402.

Colzato, L. S., Kool, W., & Hommel, B. (2008). Stress modulation of visuomotor binding. *Neuropsychologia*, *46*(5), 1542-1548.

Colzato, L. S., Ruiz, M. J., van den Wildenberg, W. P. M., & Hommel, B. (2011). Khat use is associated with impaired working memory and cognitive flexibility. *PloS one*, *6*(6), e20602.

Colzato, L. S., Slagter, H. A., van den Wildenberg, W. P. M., & Hommel, B. (2009). Closing one's eyes to reality: Evidence for a dopaminergic basis of psychoticism from spontaneous eye blink rates. *Personality and Individual Differences*, *46*(3), 377-380.

Colzato, L. S., Steenbergen, L., de Kwaadsteniet, E. W., Sellaro, R., Liepelt, R., & Hommel, B. (2013). Tryptophan promotes interpersonal trust. *Psychological Science, 24*, 2575–2577.

Colzato, L. S., van den Wildenberg, W. P. M., & Hommel, B. (2013). The genetic impact (C957T-DRD2) on inhibitory control is magnified by aging. *Neuropsychologia*, *51*(7), 1377-1381.

Colzato, L. S., van den Wildenberg, W. P. M., & Hommel, B. (2014). Cognitive control and the COMT Val158Met polymorphism: genetic modulation of videogame training and transfer to task-switching efficiency. *Psychological Research*, *78*(5), 670-678.

Colzato, L. S., van den Wildenberg, W. P., Zmigrod, S., & Hommel, B. (2013). Action video gaming and cognitive control: playing first person shooter games is associated with improvement in working memory but not action inhibition. *Psychological Research*, *77*(2), 234-239.

Colzato, L. S., van Leeuwen, P. J., van den Wildenberg, W., & Hommel, B. (2010). DOOM'd to switch: superior cognitive flexibility in players of first person shooter games. *Frontiers in Psychology*, *1*, 8.

Colzato, L. S., Waszak, F., Nieuwenhuis, S., Posthuma, D., & Hommel, B. (2010). The flexible mind is associated with the Catechol-O-methyltransferase (COMT) Val158Met polymorphism: Evidence for a role of dopamine in the control of task switching. *Neuropsychologia, 48*, 2764-2768.

Conners, C. K. (1970). Symptom patterns in hyperkinetic, neurotic, and normal children. *Child Development*, 667-682.

Cools, R. (2008). Role of dopamine in the motivational and cognitive control of behaviour. *Neuroscientist, 14*, 381–395.

Cools, R. & D'Esposito, M. (2010). Dopaminergic modulation of flexible cognitive control in humans. In A. Björklund, S. Dunnett, L. Iversen, & S. Iversen (Eds.), *Dopamine handbook*. Oxford, UK: Oxford University Press.

Cools, R., Roberts, A. C., & Robbins, T. W. (2008). Serotoninergic regulation of emotional and behavioural control processes. *Trends in Cognitive Sciences*, *12*(1), 31-40.

Cools, R., Robinson, O. J., & Sahakian, B. (2008). Acute tryptophan depletion in healthy volunteers enhances punishment prediction but does not affect reward prediction. *Neuropsychopharmacology*, *33*(9), 2291-2299.

Cools, R., Sheridan, M., Jacobs, E., & D'Esposito, M. (2007). Impulsive personality predicts dopamine-dependent changes in frontostriatal activity during component processes of working memory. *The Journal of Neuroscience*, *27*, 5506-5514.

Coppen, A. (1967). The biochemistry of affective disorders. *The British Journal of Psychiatry*, *113*(504), 1237-1264.

Cristancho, P., Cristancho, M. A., Baltuch, G. H., Thase, M. E., & O'Reardon, J. P. (2011). Effectiveness and safety of vagus nerve stimulation for severe treatment-resistant major depression in clinical practice after FDA approval: outcomes at 1 year. *The Journal of Clinical Psychiatry*, *72*(10), 1-478.

Crockett, M. J. (2009). The neurochemistry of fairness. *Annals of the New York Academy of Sciences*, *1167*(1), 76-86.

Crockett, M. J., Clark, L., & Robbins, T. W. (2009). Reconciling the role of serotonin in behavioral inhibition and aversion: acute tryptophan depletion abolishes punishment-induced inhibition in humans. *The Journal of Neuroscience*, *29*(38), 11993-11999.

Crockett, M. J., Clark, L., Hauser, M. D., & Robbins, T. W. (2010). Serotonin selectively influences moral judgment and behavior through effects

on harm aversion. *Proceedings of the National Academy of Sciences*, *107*(40), 17433-17438.

Crockett, M. J., Clark, L., Tabibnia, G., Lieberman, M. D., & Robbins, T. W. (2008). Serotonin modulates behavioral reactions to unfairness. *Science*,*320*(5884), 1739-1739.

Cryan, J. F., & Dinan, T. G. (2012). Mind-altering microorganisms: the impact of the gut microbiota on brain and behaviour. *Nature Reviews Neuroscience, 13*(10), 701-712.

Cryan, J. F., & O'Mahony, S. M. (2011). The microbiome-gut-brain axis: from bowel to behavior. *Neurogastroenterology and Motility, 23*(3), 187-192.

Curtin, J. J., & Fairchild, B. A. (2003). Alcohol and cognitive control: implications for regulation of behavior during response conflict. *Journal of Abnormal Psychology*, *112*(3), 424.

Curtis, C. E., & D'Esposito, M. (2003). Persistent activity in the prefrontal cortex during working memory. *Trends in Cognitive Sciences*, *7*(9), 415-423.

D

Datta, A., Truong, D., Minhas, P., Parra, L. C., & Bikson, M. (2012). Inter-individual variation during transcranial direct current stimulation and normalization of dose using MRI-derived computational models. *Frontiers in Psychiatry, 3,* 91.

Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. SAS Catalog of Selected Documents in Psychology, *10*, 85.

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113-126.

De Boer, S., Caramaschi, D., Natarajan, D., & Koolhaas, J. (2009). The vicious cycle towards violence: focus on the negative feedback mechanisms of brain serotonin neurotransmission. *Frontiers in Behavioral Neuroscience*, *3*, 52.

De Corte, K., Buysse, A., Verhofstadt, L., Roeyers, H., Ponnet, K., & Davis, M. (2007). Measuring empathic tendencies: Reliability and validity of the Dutch version of the Interpersonal Reactivity Index. *Psychologica Belgica*,*47*(4).

De Jong, R., Berendsen, E., & Cools, R. (1999). Goal neglect and inhibitory limitations: Dissociable causes of interference effects in conflict situations. *Acta Psychologica, 101*, 379-394.

De Jong, R., Liang, C., & Lauber, E. (1994). Conditional and unconditional automaticity: A dual-process model of effects of spatial stimulus–response correspondence. *Journal of Experimental Psychology: Human Perception and Performance*, *20*, 731–750.

De Valdez, G. F., de Giori, G. S., de Ruiz Holgado, A. P., & Oliver, G. (1985). Effect of the rehydration medium on the recovery of freeze-dried lactic acid bacteria. *Applied and Environmental Microbiology, 50*, 1339-1341.

Deac, O. M., Mills, J. L., Shane, B., Midttun, Ø., Ueland, P. M., Brosnan, J. T., ... & Wang, Y. (2015). Tryptophan catabolism and vitamin B-6 status are affected by gender and lifestyle factors in healthy young adults. *The Journal of nutrition*, *145*(4), 701-707.

Deijen, J. B. (2005). Tyrosine. In: H. R. Lieberman, R. B. Kanarek, & C. Prasad (Eds.), *Nutrition brain and behavior* (pp. 363–381). Boca Raton, FL: CRC Press.

Deijen, J. B., & Orlebeke, J. F. (1994). Effect of tyrosine on cognitive function and blood pressure under stress. *Brain Research Bulletin, 33*(3), 319–323.

Desbonnet, L., Garrett, L., Clarke, G., Bienenstock, J., & Dinan, T. G. (2008). The probiotic Bifidobacteria infantis: An assessment of potential antidepressant properties in the rat. *Journal of Psychiatric Research, 43(2*), 164-174.

Desbonnet, L., Garrett, L., Clarke, G., Kiely, B., Cryan, J. F., & Dinan, T. G. (2010). Effects of the probiotic Bifidobacterium infantis in the maternal separation model of depression. *Neuroscience, 170*(4), 1179-1188.

Dias, R., Robbins, T. W., & Roberts, A. C. (1996). Dissociation in prefrontal cortex of affective and attentional shifts. *Nature*, *380*(6569), 69-72.

Dietrich, S., Smith, J., Scherzinger, C., Hofmann-Preiss, K., Freitag, T., Eisenkolb, A., & Ringler, R. (2008). A novel transcutaneous vagus nerve stimulation leads to brainstem and cerebral activations measured by functional MRI/Funktionelle Magnetresonanztomographie zeigt Aktivierungen des Hirnstamms und weiterer zerebraler Strukturen unter transkutaner Vagusnervstimulation. *Biomedizinische Technik/Biomedical Engineering, 53(3)*, 104-111.

Dippel, G., & Beste, C. (2015). A causal role of the right inferior frontal cortex in implementing strategies for multi-component behaviour. *Nature Communications*, *6*.

Donohue, S. E., Woldorff, M. G., & Mitroff, S. R. (2010). Video game players show more precise multisensory temporal processing abilities. *Attention, Perception, & Psychophysics*, *72*(4), 1120-1129.

Dove, A., Pollmann, S., Schubert, T., Wiggins, C. J., & von Cramon, D. Y. (2000). Prefrontal cortex activation in task switching: an event-related fMRI study. *Cognitive Brain Research*, *9*(1), 103-109.

Dozois, D. J., Dobson, K. S., & Ahnberg, J. L. (1998). A psychometric evaluation of the Beck Depression Inventory–II. *Psychological Assessment, 10*(2), 83.

Draper, A., Stephenson, M. C., Jackson, G. M., Pépés, S., Morgan, P. S., Morris, P. G., & Jackson, S. R. (2014). Increased GABA contributes to enhanced control over motor excitability in Tourette syndrome. *Current Biology*, *24*(19), 2343-2347.

Drevets, W. C. (2001). Neuroimaging and neuropathological studies of depression: implications for the cognitive-emotional features of mood disorders. *Current Opinion in Neurobiology*, *11*(2), 240-249.

Duncan, J. (2010). The multiple-demand (MD) system of the primate brain: mental programs for intelligent behaviour. *Trends in Cognitive Sciences*,*14*(4), 172-179.

Duncan, J. (2013). The structure of cognition: Attentional episodes in mind and brain. *Neuron*, 80, 35–50.

Dye, M. W., Green, C. S., & Bavelier, D. (2009). Increasing speed of processing with action video games. *Current directions in*

Psychological Science, *18*(6), 321-326.

E

Ebstein, R. P., Israel, S., Chew, S. H., Zhong, S., & Knafo, A. (2010). Genetics of human social behavior. *Neuron*, *65*(6), 831-844.

Eccleston, D., Ashcroft, G. W., & Crawford, T. B. (1970). Effect of tryptophan administration on 5HIAA in cerebrospinal fluid in man. *Journal of Neurology, Neurosurgery, and Psychiatry*, *33*(2), 269.

Eisenberg, N. (1982). The development of reasoning about prosocial behaviour. In N. Eisenberg (Ed.), *The development of prosocial behaviour* (pp. 219-249). New York, NY: Academic Press.

Eisenberger, N. I., & Lieberman, M. D. (2004). Why rejection hurts: The neurocognitive overlap between social pain and physical pain. *Trends in Cognitive Sciences*, *8*, 294-300.

Ellenbogen, M. A., Carson, R. J., & Pishva, R. (2010). Automatic emotional information processing and the cortisol response to acute psychosocial stress. *Cognitive, Affective, & Behavioral Neuroscience*, *10*(1), 71-82.

Ellenbogen, M. A., Young, S. N., Dean, P., Palmour, R. M., & Benkelfat, C. (1996). Mood response to acute tryptophan depletion in healthy volunteers: sex differences and temporal stability. *Neuropsychopharmacology*, *15*(5), 465-474.

Engle, R. W., Tuholski, S. W., Laughlin, J. E., & Conway, A. R. (1999). Working memory, short-term memory, and general fluid intelligence: a latent-variable approach. *Journal of Experimental Psychology: General*, *128*(3), 309.

Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology*, *87*(3), 327

Errante, L. D., Williamson, A., Spencer, D. D., & Petroff, O. A. (2002). Gabapentin and vigabatrin increase GABA in the human neocortical slice. *Epilepsy Research*, *49*(3), 203-210.

F

Fallgatter, A. J., Neuhauser, B., Herrmann, M. J., Ehlis, A. C., Wagener, A., Scheuerpflug, P., ... & Riederer, P. (2003). Far field potentials from the brain stem after transcutaneous vagus nerve stimulation. *Journal of Neural Transmission*, *110*(12), 1437-1443.

Farrelly, D., Moan, E., White, K., & Young, S. (2015). Evidence of an Alternative Currency for Altruism in Laboratory-Based Experiments. *Europe's Journal of Psychology*, *11*(1), 100-111.

Fehr, E., & Fischbacher, U. (2003). The nature of human altruism. *Nature*,*425*(6960), 785-791.

Feng, J., Spence, I., & Pratt, J. (2007). Playing an action video game reduces gender differences in spatial cognition. *Psychological Science*,*18*(10), 850-855.

Ferguson, C. J. (2011). Video games and youth violence: A prospective analysis in adolescents. *Journal of Youth and Adolescence*, *40*(4), 377-391.

Fernstrom, J. D. (1990). Aromatic amino acids and monoamine synthesis in the central nervous system: influence of the diet. *The Journal of Nutritional Biochemistry*, *1*(10), 508-517.

Fernstrom, J. D. (2012). Effects and side effects associated with the non-nutritional use of tryptophan by humans. *The Journal of Nutrition*, 142, 2236-2244.

Fernstrom, J. D. (2013). Large neutral amino acids: dietary effects on brain neurochemistry and function. *Amino acids*, *45*(3), 419-430.

Fernstrom, J. D., & Faller, D. V. (1978). Neutral amino acids in the brain: changes in response to food ingestion1. *Journal of Neurochemistry*, *30*(6), 1531-1538.

Fernstrom, J. D., & Fernstrom, M. H. (2007). Tyrosine, phenylalanine, and catecholamine synthesis and function in the brain. *The Journal of Nutrition*,*137*(6), 1539S-1547S.

Fernstrom, M. H., & Fernstrom, J. D. (1995). Acute tyrosine depletion reduces tyrosine hydroxylation rate in rat central nervous system. *Life Sciences*, *57*(9), PL97-PL102.

Feuerbach, L. A. (1960). “Das Geheimnis des Opfers oder der Mensch ist was er ißt [The mystery of sacrifice or man is what he eats]”. In W. Bolin & F. Jodl, *Ludwig Feuerbach Sämtliche Werke* (pp. 41-67). Stuttgart: Frommann Verlag. (Original work published in 1862).

Fidalgo, S., Ivanov, D. K., & Wood, S. H. (2013). Serotonin: from top to bottom. *Biogerontology*, *14*(1), 21-45.

Fillmore, M. T., & Rush, C. R. (2002). Impaired inhibitory control of behavior in chronic cocaine users. *Drug and Alcohol Dependence*, *66*(3), 265-273.

Finn, P. R., Young, S. N., Pihl, R. O., & Ervin, F. R. (1998). The effects of acute plasma tryptophan manipulation on hostile mood: the influence of trait hostility. *Aggressive Behavior*, *24*, 173-185.

Firk, C., & Markus, C. R. (2009). Mood and cortisol responses following tryptophan-rich hydrolyzed protein and acute stress in healthy subjects with high and low cognitive reactivity to depression. *Clinical Nutrition, 28*(3), 266-271.

Fischer, A. G., Jocham, G., & Ullsperger, M. (2015). Dual serotonergic signals: a key to understanding paradoxical effects?. *Trends in Cognitive Sciences*, *19*(1), 21-26.

Fitzgerald, P., Cassidy E., M., Clarke, G., Scully, P., Barry, S., Quigley E., M. M., ... & Dinan T. G. (2008). Tryptophan catabolism in females with irritable bowel syndrome: relationship to interferon-gamma, severity of symptoms and psychiatric co-morbidity. *Neurogastroenterology & Motility*, *20*(12), 1291-1297.

Floyer-Lea, A., Wylezinska, M., Kincses, T., & Matthews, P. M. (2006). Rapid modulation of GABA concentration in human sensorimotor cortex during motor learning. *Journal of Neurophysiology*, *95*(3), 1639-1644.

Foster, J. A., & McVey Neufeld, K. A. (2013). Gut–brain axis: how the microbiome influences anxiety and depression. *Trends in Neurosciences, 36*(5), 305-312.

Fox, D. (2011). Neuroscience: Brain Buzz. *Nature News, 472*, 156-159.

Fregni, F., Boggio, P. S., Nitsche, M., Bermpohl, F., Antal, A., Feredoes, E., ... & Pascual-Leone, A. (2005). Anodal transcranial direct current

stimulation of prefrontal cortex enhances working memory. *Experimental Brain Research*,*166*(1), 23-30.

G

Gandiga, P. C., Hummel, F. C., & Cohen, L. G. (2006). Transcranial DC stimulation (tDCS): a tool for double-blind sham-controlled clinical studies in brain stimulation. *Clinical Neurophysiology*, *117*(4), 845-850.

Gauggel, S., Rieger, M., & Feghoff, T. A. (2004). Inhibition of ongoing responses in patients with Parkinson's disease. *Journal of Neurology, Neurosurgery & Psychiatry*, *75*(4), 539-544.

Gazzaley A. (2013). Top-down modulation deficit in the aging brain: An emerging theory of cognitive aging. In D. T. Stuss, R. T. Knight (eds.), *Principles of Frontal Love Function* (pp. 593-608). Oxford: Oxford University Press.

Gibson, C. J., Watkins, C. J., & Wurtman, R. J. (1983). Tyrosine administration enhances dopamine synthesis and release in light-activated rat retina. *Journal of Neural Transmission*, *56*(2-3), 153-160.

Gibson, E. L., Vargas, K., Hogan, E., Holmes, A., Rogers, P. J., Wittwer, J., ... & Mohajeri, M. H. (2014). Effects of acute treatment with a tryptophan-rich protein hydrolysate on plasma amino acids, mood and emotional functioning in older women. *Psychopharmacology*, *231*(24), 4595-4610.

Glaeser, B. S., Melamed, E., Growdon, J. H., & Wurtman, R. J. (1979). Elevation of plasma tyrosine after a single oral dose of L-tyrosine. *Life Sciences, 25,* 265–271.

Glavin, G. B. (1985). Stress and brain noradrenaline: a review. *Neuroscience & Biobehavioral Reviews*, *9*(2), 233-243.

Goldman-Rakic, P. S., Muly III, E. C., & Williams, G. V. (2000). D 1 receptors in prefrontal cells and circuits. *Brain Research Reviews*, *31*(2), 295-301.

Goschke, T. (2000). Involuntary persistence and intentional reconfiguration in task-set switching. In S. Monsell & J. Driver (Eds.), *Attention and*

Performance XVIII: Control of cognitive processes (pp. 331-355). Cambridge, MA: MIT Press.

Gouzoulis-Mayfrank, E., Daumann, J., Tuchtenhagen, F., Pelz, S., Becker, S., Kunert, H. J., ... & Sass, H. (2000). Impaired cognitive performance in drug free users of recreational ecstasy (MDMA). *Journal of Neurology, Neurosurgery & Psychiatry*, *68*(6), 719-725.

Gozli, D. G., Bavelier, D., & Pratt, J. (2014). The effect of action video game playing on sensorimotor learning: evidence from a movement tracking task. *Human Movement Science*, *38*, 152-162.

Green, C. S., & Bavelier, D. (2003). Action video game modifies visual selective attention. *Nature*, *423*(6939), 534-537.

Green, C. S., & Bavelier, D. (2006a). Effect of action video games on the spatial distribution of visuospatial attention. *Journal of Experimental Psychology: Human Perception and Performance*, *32*(6), 1465.

Green, C. S., & Bavelier, D. (2006b). Enumeration versus multiple object tracking: The case of action video game players. *Cognition*, *101*(1), 217-245.

Green, C. S., & Bavelier, D. (2007). Action-video-game experience alters the spatial resolution of vision. *Psychological Science*, *18*(1), 88-94.

Green, C. S., & Bavelier, D. (2015). Action video game training for cognitive enhancement. *Current Opinion in Behavioral Sciences*, *4*, 103-108.

Green, C. S., Li, R., & Bavelier, D. (2010). Perceptual learning during action video game playing. *Topics in Cognitive Science*, *2*(2), 202-216.

Green, C. S., Pouget, A., & Bavelier, D. (2010). Improved probabilistic inference as a general learning mechanism with action video games. *Current Biology*, *20*(17), 1573-1579.

Green, C. S., Strobach, T., & Schubert, T. (2014). On methodological standards in training and transfer experiments. *Psychological Research*,*78*(6), 756-772.

Green, C. S., Sugarman, M. A., Medford, K., Klobusicky, E., & Bavelier, D. (2012). The effect of action video game experience on task-switching. *Computers in Human Behavior*, *28*(3), 984-994.

Grenham, S., Clarke, G., Cryan, J. F., & Dinan, T. G. (2011). Brain–gut–microbe communication in health and disease. *Frontiers in Physiology*, 2.

Groenewegen, H. J. (2003). The basal ganglia and motor control. *Neural Plasticity*, *10*(1-2), 107-120.

Grossman, M. I. (1979). Neural and hormonal regulation of gastrointestinal function: an overview. *Annual Review of Physiology*, *41*(1), 27-27.

Growdon, J. H., Melamed, E., Logue, M., Hefti, F., & Wurtman, R. J. (1982). Effects of oral L-tyrosine administration of CSF tyrosine and homovanillic acid levels in patients with Parkinson's disease. *Life Sciences*, *30*, 827-832.

Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*, *3*(4), 367-388.

Gutknecht, L., Kriegebaum, C., Waider, J., Schmitt, A., & Lesch, K. P. (2009). Spatio-temporal expression of tryptophan hydroxylase isoforms in murine and human brain: convergent data from Tph2 knockout mice. *European Neuropsychopharmacology*, *19*(4), 266-282.

H

Haaga, D. A., Dyck, M. J., & Ernst, D. (1991). Empirical status of cognitive theory of depression. *Psychological Bulletin*, *110*(2), 215.

Haatveit, B. C., Sundet, K., Hugdahl, K., Ueland, T., Melle, I., & Andreassen, O. A. (2010). The validity of d prime as a working memory index: Results from the “Bergen n-back task”. *Journal of Clinical and Experimental Neuropsychology*, *32*(8), 871-880.

Haig, G. M., Bockbrader, H. N., Wesche, D. L., Boellner, S. W., Ouellet, D., Brown, R. R., ... & Posvar, E. L. (2001). Single-Dose Gabapentin Pharmacokinetics and Safety in Healthy Infants and Children. *The Journal of Clinical Pharmacology*, *41*(5), 507-514.

Harmer, C. J. (2008). Serotonin and emotional processing: does it help explain antidepressant drug action?. *Neuropharmacology*, *55*(6), 1023-1028.

Harmer, C. J., Goodwin, G. M., & Cowen, P. J. (2009). Why do antidepressants take so long to work? A cognitive neuropsychological model of antidepressant drug action. *The British Journal of Psychiatry*, *195*(2), 102-108.

Harmer, C. J., Mackay, C. E., Reid, C. B., Cowen, P. J., & Goodwin, G. M. (2006). Antidepressant drug treatment modifies the neural processing of nonconscious threat cues. *Biological Psychiatry*, *59*(9), 816-820.

Harmer, C. J., McTavish, S. F. B., Clark, L., Goodwin, G. M., & Cowen, P. J. (2001). Tyrosine depletion attenuates dopamine function in healthy volunteers. *Psychopharmacology*, *154*(1), 105-111.

Haussler, M. R., Jurutka, P. W., Mizwicki, M., & Norman, A. W. (2011). Vitamin D receptor (VDR)-mediated actions of 1α, 25 (OH) 2 vitamin D 3: genomic and non-genomic mechanisms. *Best Practice & Research Clinical Endocrinology & Metabolism*, *25*(4), 543-559.

Heils, A., Teufel, A., Petri, S., Stöber, G., Riederer, P., Bengel, D., & Lesch, K. P. (1996). Allelic variation of human serotonin transporter gene expression. *Journal of Neurochemistry*, *66*(6), 2621-2624.

Hiratsuka, C., Fukuwatari, T., Sano, M., Saito, K., Sasaki, S., & Shibata, K. (2013). Supplementing healthy women with up to 5.0 g/d of L-tryptophan has no adverse effects. *The Journal of Nutrition*, *143*(6), 859-866.

Hogenelst, K., Schoevers, R. A., & aan het Rot, M. (2015). The effects of tryptophan on everyday interpersonal encounters and social cognitions in individuals with a family history of depression. *International Journal of Neuropsychopharmacology*, *18*(8), pyv012.

Horvath, J. C., Forte, J. D., & Carter, O. (2015a). Evidence that transcranial direct current stimulation (tDCS) generates little-to-no reliable neurophysiologica effect beyond MEP amplitude modulation in healthy human subjects: A systematic review. *Neuropsychologia, 66,* 213-236.

Horvath, J. C., Forte, J. D., & Carter, O. (2015b). Quantitative review finds no evidence of cognitive effects in healthy populations from single-session transcranial direct current stimulation (tDCS). *Brain Stimulation, 8*, 535-550.

Hsieh, J. C., Estess, R. C., Kaneko, I., Whitfield, G. K., Jurutka, P. W., & Haussler, M. R. (2014). Vitamin D receptor-mediated control of Soggy, Wise, and Hairless gene expression in keratinocytes. *Journal of Endocrinology*,*220*(2), 165-178.

Hu, X. Z., Lipsky, R. H., Zhu, G., Akhtar, L. A., Taubman, J., Greenberg, B. D., ... & Murphy, D. L. (2006). Serotonin transporter promoter gain-of-function genotypes are linked to obsessive-compulsive disorder. *The American Journal of Human Genetics*, *78*(5), 815-826.

Hubert-Wallander, B., Green, C. S., & Bavelier, D. (2011). Stretching the limits of visual attention: The case of action video games. *Wiley Interdisciplinary Reviews: Cognitive Science*, *2*(2), 222-230.

Hubert-Wallander, B., Green, C. S., Sugarman, M., & Bavelier, D. (2011). Changes in search rate but not in the dynamics of exogenous attention in action videogame players. *Attention, Perception, & Psychophysics*, *73*(8), 2399-2412.

Humphries, M. D., & Prescott, T. J. (2010). The ventral basal ganglia, a selection mechanism at the crossroads of space, strategy, and reward.*Progress in Neurobiology*, *90*(4), 385-417.

Humphries, M. D., Stewart, R. D., & Gurney, K. N. (2006). A physiologically plausible model of action selection and oscillatory activity in the basal ganglia. *The Journal of Neuroscience*, *26*(50), 12921-12942.

Ingram, R. E., Miranda, J., & Segal, Z. (2006). Cognitive vulnerability to depression. *Cognitive Vulnerability to Emotional Disorders*, 63-91.

J

Jarosz, A. F., & Wiley, J. (2014). What are the odds? A practical guide to computing and reporting Bayes Factors. *The Journal of Problem Solving*, *7*(1), 2.

Jarosz, A. F., & Wiley, J. (2014). What are the odds? A practical guide to computing and reporting Bayes Factors. *The Journal of Problem Solving, 7*(1), 2.

Jo, J. M., Kim, Y. H., Ko, M. H., Ohn, S. H., Joen, B., & Lee, K. H. (2009). Enhancing the working memory of stroke patients using

tDCS. *American Journal of Physical Medicine & Rehabilitation*, *88*(5), 404-409.

K

Kane, M. J., & Engle, R. W. (2002). The role of prefrontal cortex in working-memory capacity, executive attention, and general fluid intelligence: An individual-differences perspective. *Psychonomic Bulletin & Review*, *9*(4), 637-671.

Kane, M. J., Conway, A. R., Miura, T. K., & Colflesh, G. J. (2007). Working memory, attention control, and the N-back task: a question of construct validity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *33*(3), 615.

Karle, J. W., Watter, S., & Shedden, J. M. (2010). Task switching in video game players: Benefits of selective attention but not resistance to proactive interference. *Acta Psychologica*, *134*(1), 70-78.

Kass, R. E., & Wasserman, L. (1995). A reference Bayesian test for nested hypotheses and its relationship to the Schwarz criterion. *Journal of the American Statistical Association*, *90*(431), 928-934.

Kass, R. E., & Wasserman, L. (1995). A reference Bayesian test for nested hypotheses and its relationship to the Schwarz criterion. *Journal of the American Statistical Association*, *90*(431), 928-934.

Kavussanu, M., Seal, A. R., & Phillips, D. R. (2006). Observed prosocial and antisocial behaviors in male soccer teams: Age differences across adolescence and the role of motivational variables. *Journal of Applied Sport Psychology*, *18*(4), 326-344.

Kawamoto, T., Nittono, H., & Ura, M. (2013). Cognitive, affective, and motivational changes during ostracism: an ERP, EMG, and EEG study using a computerized Cyberball task. *Neuroscience Journal*, *2013*.

Keeser, D., Meindl, T., Bor, J., Palm, U., Pogarell, O., Mulert, C., ... & Padberg, F. (2011). Prefrontal transcranial direct current stimulation changes connectivity of resting-state networks during fMRI. *The Journal of Neuroscience*, *31*(43), 15284-15293.

Keizer, A. W., Verschoor, M., Verment, R. S., & Hommel, B. (2010). The

effect of gamma enhancing neurofeedback on the control of feature bindings and intelligence measures. *International Journal of Psychophysiology*, *75*(1), 25-32.

Kiesel, A., Steinhauser, M., Wendt, M., Falkenstein, M., Jost, K., Philipp, A. M., & Koch, I. (2010). Control and interference in task switching—A review. *Psychological Bulletin*, *136*(5), 849.

King, G., & Krzywinska, T. (2002). *ScreenPlay: Cinema/videogames/interfacings*. London: Wallflower Press.

Kiser, D., Steemer, S. B., Branchi, I., & Homberg, J. R. (2012). The reciprocal interaction between serotonin and social behaviour. *Neuroscience & Biobehavioral Reviews*, *36*(2), 786-798.

Knudsen, G. M., Poulsen, H. E., & Paulson, O. B. (1988). Blood-brain barrier permeability in galactosamine-induced hepatic encephalopathy: no evidence for increased GABA-transport. *Journal of Hepatology*, *6*(2), 187-192.

Knutson, B., Wolkowitz, O. M., Cole, S. W., Chan, T., Moore, E. A., Johnson, R. C., ... & Reus, V. I. (1998). Selective alteration of personality and social behavior by serotonergic intervention. *American Journal of Psychiatry, 155*(3), 373-379.

Koning, C.J., Jonkers, D.M., Stobberingh, E.E., Mulder, L., Rombouts, F.M. & Stockbrugger, R.W. (2008). The effect of a multispecies probiotic on the intestinal microbiota and bowel movements in healthy volunteers taking the antibiotic amoxycillin. *American Journal of Gastroenterology*, 103, 178-189.

Konrad, K., Gauggel, S., Manz, A., & Schöll, M. (2000a). Inhibitory control in children with traumatic brain injury (TBI) and children with attention deficit/hyperactivity disorder (ADHD). *Brain Injury*, *14*(10), 859-875.

Konrad, K., Gauggel, S., Manz, A., & Schöll, M. (2000b). Lack of Inhibition: A Motivational Deficit in Children With Attention Deficit/Hyperactivity Disorder and Children With Traumatic Brain Injury*. *Child Neuropsychology*, *6*(4), 286-296.

Kovacs, M., & Beck, A. T. (1978). Maladaptive cognitive structures in depression. *American Journal of Psychiatry*, *135*(5), 525-533.

Krabbe, K. S., Reichenberg, A., Yirmiya, R., Smed, A., Pedersen, B. K., & Bruunsgaard, H. (2005). Low-dose endotoxemia and human neuropsychological functions. *Brain, Behavior and Immunity*, *19*(5), 453-460.

Kraus, T., Hösl, K., Kiess, O., Schanze, A., Kornhuber, J., & Forster, C. (2007). BOLD fMRI deactivation of limbic and temporal brain structures and mood enhancing effect by transcutaneous vagus nerve stimulation. *Journal of Neural Transmission*, *114*(11), 1485-1493.

Kraus, T., Kiess, O., Hösl, K., Terekhin, P., Kornhuber, J., & Forster, C. (2013). CNS BOLD fMRI effects of sham-controlled transcutaneous electrical nerve stimulation in the left outer auditory canal–a pilot study. *Brain Stimulation*, *6*(5), 798-804.

Kreuzer, P. M., Landgrebe, M., Husser, O., Resch, M., Schecklmann, M., Geisreiter, F., ... & Langguth, B. (2012). Transcutaneous vagus nerve stimulation: retrospective assessment of cardiac safety in a pilot study.*Frontiers in Psychiatry, Frontiers in Neuropsychiatric Imaging and Stimulation*, *3*, 70.

Kristjánsson, Á. (2013). The case for causal influences of action videogame play upon vision and attention. *Attention, Perception, & Psychophysics*,*75*(4), 667-672.

Kruesi, M. J., Hibbs, E. D., Zahn, T. P., Keysor, C. S., Hamburger, S. D., Bartko, J. J., & Rapoport, J. L. (1992). A 2-year prospective follow-up study of children and adolescents with disruptive behavior disorders: Prediction by cerebrospinal fluid 5-hydroxyindoleacetic acid, homovanillic acid, and autonomic measures?. *Archives of General Psychiatry*, *49*(6), 429.

Kruijt, A. W., Antypa, N., Booij, L., de Jong, P. J., Glashouwer, K., Penninx, B. W., & Van der Does, W. (2013). Cognitive reactivity, implicit associations, and the incidence of depression: a two-year prospective study. *PloS One, 8*(7), e70245.

Kuehner, C., & Weber, I. (1999). Responses to depression in unipolar depressed patients: An investigation of Nolen-Hoeksema's response styles theory. *Psychological Medicine, 29,* 1323–1333.

Kuo, M. F., & Nitsche, M. A. (2012). Effects of transcranial electrical stimulation on cognition. *Clinical EEG and Neuroscience*, *43*(3), 192-199.

Kuo, M. F., & Nitsche, M. A. (2015). Exploring prefrontal cortex functions in healthy humans by transcranial electrical stimulation. *Neuroscience bulletin*,*31*(2), 198-206.

L

Larsen, P. J., Hay-Schmidt, A., Vrang, N., & Mikkelsen, J. D. (1996). Origin of projections from the midbrain raphe nuclei to the hypothalamic paraventricular nucleus in the rat: a combined retrograde and anterograde tracing study. *Neuroscience*, *70*(4), 963-988.

Le Floc'h, N., Otten, W., & Merlot, E. (2011). Tryptophan metabolism, from nutrition to potential therapeutic applications. *Amino Acids*, *41*(5), 1195-1205.

Leader, J. B., & Klein, D. N. (1996). Social adjustment in dysthymia, double depression and episodic major depression. *Journal of Affective Disorders*,*37*(2), 91-101.

Lee, R., Garcia, F., van de Kar, L. D., Hauger, R. D., & Coccaro, E. F. (2003). Plasma oxytocin in response to pharmaco-challenge to D-fenfluramine and placebo in healthy men. *Psychiatry Research*, *118*(2), 129-136.

Lehnardt, S., Massillon, L., Follett, P., Jensen, F. E., Ratan, R., Rosenberg, P. A., ... & Vartanian, T. (2003). Activation of innate immunity in the CNS triggers neurodegeneration through a Toll-like receptor 4-dependent pathway. *Proceedings of the National Academy of Sciences*, *100*(14), 8514-8519.

Lehnert, H., Reinstein, D. K., Strowbridge, B. W., & Wurtman, R. J. (1984). Neurochemical and behavioral consequences of acute,

uncontrollable stress: effects of dietary tyrosine. *Brain Research*, *303*(2), 215-223.

Lesch, K. P., Araragi, N., Waider, J., van den Hove, D., & Gutknecht, L. (2012). Targeting brain serotonin synthesis: insights into neurodevelopmental disorders with long-term outcomes related to negative emotionality, aggression and antisocial behaviour. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, *367*(1601), 2426-2443.

Lesch, K. P., Bengel, D., Heils, A., Sabol, S. Z., Greenberg, B. D., Petri, S., ... & Murphy, D. L. (1996). Association of anxiety-related traits with a polymorphism in the serotonin transporter gene regulatory region. *Science*,*274*(5292), 1527-1531.

Levy, R. (1994). Aging-associated cognitive decline. *International Psychogeriatrics*, *6*(01), 63-68.

Li, C. S. R., Luo, X., Yan, P., Bergquist, K., & Sinha, R. (2009). Altered impulse control in alcohol dependence: neural measures of stop signal performance. *Alcoholism: Clinical and Experimental Research*, *33*(4), 740-750.

Li, R., Polat, U., Makous, W., & Bavelier, D. (2009). Enhancing the contrast sensitivity function through action video game training. *Nature neuroscience*,*12*(5), 549-551.

Liao, D. L., Hong, C. J., Shih, H. L., & Tsai, S. J. (2004). Possible association between serotonin transporter promoter region polymorphism and extremely violent crime in Chinese males. *Neuropsychobiology*, *50*(4), 284-287.

Logan G. D. (1994). On the ability to inhibit thought and action: A users' guide to the stop signal paradigm in inhibitory processes. In D. Dagenbach & T. H. Carr (eds), *Attention, Memory, and Language* (pp. 189-239). San Diego, CA: Academic Press.

Logan, A. C., & Katzman, M. (2005). Major depressive disorder: probiotics may be an adjuvant therapy. *Medical Hypotheses, 64*(3), 533-538.

Logan, G. D., & Cowan, W. B. (1984). On the ability to inhibit thought and action: A theory of an act of control. *Psychological Review*, *91*(3), 295-327.

Logan, G. D., Schachar, R. J., & Tannock, R. (1997). Impulsivity and inhibitory control. *Psychological Science*, *8*(1), 60-64.

Luks, T. L., Simpson, G. V., Feiwell, R. J., & Miller, W. L. (2002). Evidence for anterior cingulate cortex involvement in monitoring preparatory attentional set. *Neuroimage*, *17*(2), 792-802.

M

Macmillan, N. A. & Creelman, C. D. (1991). *Detection theory: A user's guide*. Cambridge: Cambridge University Press.

Mahoney, C. R., Castellani, J., Kramer, F. M., Young, A., & Lieberman, H. R. (2007). Tyrosine supplementation mitigates working memory decrements during cold exposure. *Physiology & Behavior*, *92*(4), 575-582.

Mann, J. J., Ellis, S. P., Waternaux, C. M., Liu, X., Oquendo, M. A., Malone, K. M., ... & Currier, D. (2008). Classification trees distinguish suicide attempters in major psychiatric disorders: a model of clinical decision making. *Journal of Clinical Psychiatry, 69*(1), 23-31.

Mannie, Z. N., Harmer, C. J., & Cowen, P. J. (2007). Increased waking salivary cortisol levels in young people at familial risk of depression. *American Journal of Psychiatry, 164*(4), 617-621.

Manuck, S. B., Flory, J. D., Ferrell, R. E., Dent, K. M., Mann, J. J., & Muldoon, M. F. (1999). Aggression and anger-related traits associated with a polymorphism of the tryptophan hydroxylase gene. *Biological Psychiatry*,*45*(5), 603-614.

Markus, C. R., Firk, C., Gerhardt, C., Kloek, J., & Smolders, G. F. (2008). Effect of different tryptophan sources on amino acids availability to the brain and mood in healthy volunteers. *Psychopharmacology*, *201*(1), 107-114.

Markus, C. R., Olivier, B., Panhuysen, G. E., Van der Gugten, J., Alles, M. S., Tuiten, A., ... & de Haan, E. E. (2000). The bovine protein α-lactalbumin increases the plasma ratio of tryptophan to the other large neutral amino acids, and in vulnerable subjects raises brain serotonin activity, reduces cortisol concentration, and improves

mood under stress. *The American Journal of Clinical Nutrition*, *71*(6), 1536-1544.

Marrosu, F., Serra, A., Maleci, A., Puligheddu, M., Biggio, G., & Piga, M. (2003). Correlation between GABA A receptor density and vagus nerve stimulation in individuals with drug-resistant partial epilepsy. *Epilepsy Research*, *55*(1), 59-70.

Marrow, A. J. (1969). *The Practical Theorist: The Life and Work of Kurt Lewin.* New York: Basic Books

Marsh, D. M., Dougherty, D. M., Moeller, F. G., Swann, A. C., & Spiga, R. (2002). Laboratory-measured aggressive behavior of women: acute tryptophan depletion and augmentation. *Neuropsychopharmacology, 26*, 660-671

Martinussen, R., Hayden, J., Hogg-Johnson, S., & Tannock, R. (2005). A meta-analysis of working memory impairments in children with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, *44*(4), 377-384.

Masson, M. E. (2011). A tutorial on a practical Bayesian alternative to null-hypothesis significance testing. *Behavior Research Methods*, *43*(3), 679-690.

Masson, M. E. J. (2011). A tutorial on a practical Bayesian alternative to Null Hypothesis Significance Testing. *Behavior Research Methods, 43*, 679–690.

Masten, C. L., Eisenberger, N. I., Pfeifer, J. H., & Dapretto, M. (2013). Neural responses to witnessing peer rejection after being socially excluded: fMRI as a window into adolescents' emotional processing. *Developmental Science*, *16*(5), 743-759.

Masten, C. L., Eisenberger, N. I., Pfeifer, J. H., & Dapretto, M. (2010). Witnessing peer rejection during early adolescence: Neural correlates of empathy for experiences of social exclusion. *Social Neuroscience*, *5*(5-6), 496-507.

Masten, C. L., Eisenberger, N. I., Pfeifer, J. H., Colich, N. L., & Dapretto, M. (2013). Associations among pubertal development, empathic ability, and neural responses while witnessing peer rejection in adolescence. *Child development*, *84*(4), 1338-1354.

Masten, C. L., Morelli, S. A., & Eisenberger, N. I. (2011). An fMRI investigation of empathy for 'social pain' and subsequent prosocial behavior. *Neuroimage, 55*, 381–388.

Masten, C. L., Telzer, E. H., & Eisenberger, N. I. (2011). An fMRI investigation of attributing negative social treatment to racial discrimination.*Journal of Cognitive Neuroscience*, *23*(5), 1042-1051.

Max Planck Institute on Human Development, Stanford Center on Longevity. (2014). *A Consensus on the Brain Training Industry from the Scientific Community*. Retrieved October 20, 2014, from http://longevity3.stanford.edu/blog/2014/10/15/the-consensus-on-the-brain-training-industry-from-the-scientific-community/

Mayer, E. A. (2011). Gut feelings: the emerging biology of gut–brain communication. *Nature Reviews Neuroscience*, *12*(8), 453-466.

Mayer, E. A., Naliboff, B. D., & Craig, A. D. (2006). Neuroimaging of the brain-gut axis: from basic understanding to treatment of functional GI disorders. *Gastroenterology*, *131*(6), 1925-1942.

McCann, U. D., Mertl, M., Eligulashvili, V., & Ricaurte, G. A. (1999). Cognitive performance in (±) 3, 4-methylenedioxymethamphetamine (MDMA,"ecstasy") users: a controlled study. *Psychopharmacology*, *143*(4), 417-425.

McCusker, R. H., & Kelley, K. W. (2013). Immune–neural connections: how the immune system's response to infectious agents influences behavior. *The Journal of Experimental Biology, 216*(1), 84-98.

Meiran, N. (1996). Reconfiguration of processing mode prior to task performance. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *22*(6), 1423.

Meiran, N., Chorev, Z., & Sapir, A. (2000). Component processes in task switching. *Cognitive Psychology*, *41*(3), 211-253.

Meltzer, H. Y., Li, Z., Kaneda, Y., & Ichikawa, J. (2003). Serotonin receptors: their key role in drugs to treat schizophrenia. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *27*(7), 1159-1172.

Mendelsohn, D., Riedel, W. J., & Sambeth, A. (2009). Effects of acute tryptophan depletion on memory, attention and

executive functions: a systematic review. *Neuroscience & Biobehavioral Reviews*, *33*(6), 926-952.

Messaoudi, M., Violle, N., Bisson, J. F., Desor, D., Javelot, H., & Rougeot, C. (2011). Beneficial psychological effects of a probiotic formulation (Lactobacillus helveticus R0052 and Bifidobacterium longum R0175) in healthy human volunteers. *Gut Microbes, 2*(4), 256-261.

Meyer, M. L., Masten, C. L., Ma, Y., Wang, C., Shi, Z., Eisenberger, N. I., & Han, S. (2013). Empathy for the social suffering of friends and strangers recruits distinct patterns of brain activation. *Social Cognitive and Affective Neuroscience, 8*(4), 446-454..

Miczek, K. A., Fish, E. W., Joseph, F., & De Almeida, R. M. (2002). Social and neural determinants of aggressive behavior: pharmacotherapeutic targets at serotonin, dopamine and γ-aminobutyric acid systems. *Psychopharmacology*, *163*(3-4), 434-458.

Milinski, M., Semmann, D., & Krambeck, H. (2002). Donors to charity gain in both indirect reciprocity and political reputation. *Proceedings of the Royal Society of London B: Biological Sciences*, *269*(1494), 881-883.

Mishra, J., Zinni, M., Bavelier, D., & Hillyard, S. A. (2011). Neural basis of superior performance of action videogame players in an attention-demanding task. *The Journal of Neuroscience*, *31*(3), 992-998.

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex “frontal lobe” tasks: A latent variable analysis.*Cognitive Psychology*, *41*(1), 49-100.

Moll, J., Krueger, F., Zahn, R., Pardini, M., de Oliveira-Souza, R., & Grafman, J. (2006). Human fronto–mesolimbic networks guide decisions about charitable donation. *Proceedings of the National Academy of Sciences*, *103*(42), 15623-15628.

Monsell, S. (2003). Task switching. *Trends in Cognitive Science, 7*(3), 134-140.

Morand, C., Young, S. N., & Ervin, F. R. (1983). Clinical response of aggressive schizophrenics to oral tryptophan. *Biological Psychiatry*, 18(5), 575-578.

Moskowitz, D. S. (1994). Cross-situational generality and the interpersonal circumplex. *Journal of Personality and Social Psychology*, *66*(5), 921-933.

Moskowitz, D. S. (2010). Quarrelsomeness in daily life. *Journal of personality*, *78*(1), 39-66.

Moskowitz, D. S., Pinard, G., Zuroff, D. C., Annable, L., & Young, S. N. (2001). The effect of tryptophan on social interaction in everyday life: a placebo-controlled study. *Neuropsychopharmacology*, *25*(2), 277-289.

Moskowitz, D. S., Zuroff, D. C., aan het Rot, M., & Young, S. N. (2011). Tryptophan and interpersonal spin. *Journal of Research in Personality*, *45*(6), 692-696.

Moulds, M. L., Kandris, E., Williams, A. D., Lang, T., Yap, C., & Hoffmeister, K. (2008). An investigation of the relationship between cognitive reactivity and rumination. *Behavior Therapy, 39*(1), 65-71.

Mückschel, M., Stock, A. K., & Beste, C. (2014). Psychophysiological mechanisms of interindividual differences in goal activation modes during action cascading. *Cerebral Cortex*, *24*(8), 2120-2129.

Mückschel, M., Stock, A. K., & Beste, C. (2015). Different strategies, but indifferent strategy adaptation during action cascading. *Scientific Reports*, *5*.

Mulligan, M. K., Wang, X., Adler, A. L., Mozhui, K., Lu, L., & Williams, R. W. (2012). Complex control of GABA (A) receptor subunit mRNA expression: variation, covariation, and genetic regulation. *PLoS One*, *7*(4), e34586.

Muly, E. C., Szigeti, K., & Goldman-Rakic, P. S. (1998). D1 receptor in interneurons of macaque prefrontal cortex: distribution and subcellular localization. *The Journal of Neuroscience*, *18*(24), 10553-10565.

Murphy, F., Smith, K., Cowen, P., Robbins, T., & Sahakian, B. (2002). The effects of tryptophan depletion on cognitive and affective processing in healthy volunteers. *Psychopharmacology*, *163*(1), 42-53.

Murphy, S. E., Longhitano, C., Ayres, R. E., Cowen, P. J., & Harmer, C. J. (2006). Tryptophan supplementation induces a positive bias in the

processing of emotional material in healthy female volunteers. *Psychopharmacology*, *187*(1), 121-130.

N

Nakao, T., Nakagawa, A., Nakatani, E., Nabeyama, M., Sanematsu, H., Yoshiura, T., ... & Kuroki, T. (2009). Working memory dysfunction in obsessive–compulsive disorder: a neuropsychological and functional MRI study. *Journal of Psychiatric Research*, *43*(8), 784-791.

Nantel-Vivier, A., Pihl, R. O., Young, S. N., Parent, S., Bélanger, S. A., Sutton, R., ... & Séguin, J. R. (2011). Serotonergic contribution to boys' behavioral regulation. *PLoS One*, *6*(6), e20304.

Nasseri, P., Nitsche, M. A., & Ekhtiari, H. (2015). A framework for categorizing electrode montages in transcranial direct current stimulation. *Frontiers in Human Neuroscience*, *9*.

Nemeroff, C. B., Mayberg, H. S., Krahl, S. E., Mcnamara, J., Frazer, A., Henry, T. R., … & Brannan, S. K. (2006). VNS therapy in treatment- resistant depression: clinical evidence and putative neurobiological mechanisms. *Neuropsychopharmacology*, *31*(7), 1345–1355.

Nemzer, E. D., Arnold, L. E., Votolato, N. A., & McConnell, H. (1986). Amino acid supplementation as therapy for attention deficit disorder. *Journal of the American Academy of Child Psychiatry*, *25*(4), 509-513.

Nieratschker, V., Kiefer, C., Giel, K., Krüger, R., & Plewnia, C. (2015). The COMT Val/Met polymorphism modulates effects of tDCS on response inhibition. *Brain Stimulation, 8,* 283-288.

Nieuwenhuis, S., Van Nieuwpoort, I. C., Veltman, D. J., & Drent, M. L. (2007). Effects of the noradrenergic agonist clonidine on temporal and spatial attention. *Psychopharmacology*, *193*(2), 261-269.

Nishizawa, S., Benkelfat, C., Young, S. N., Leyton, M., Mzengeza, S. D., De Montigny, C., ... & Diksic, M. (1997). Differences between males and females in rates of serotonin synthesis in human brain. *Proceedings of the National Academy of Sciences*, *94*(10), 5308-5313.

Nitsche, M. A., & Paulus, W. (2000). Excitability changes induced in the human motor cortex by weak transcranial direct current stimulation. *The Journal of Physiology*, *527*(3), 633-639.

Nitsche, M. A., & Paulus, W. (2011). Transcranial direct current stimulation–update 2011. *Restorative Neurology and Neuroscience*, *29*(6), 463-492.

Nitsche, M. A., Fricke, K., Henschke, U., Schlitterlau, A., Liebetanz, D., Lang, N., ... & Paulus, W. (2003a). Pharmacological modulation of cortical excitability shifts induced by transcranial direct current stimulation in humans. *The Journal of Physiology*, *553*(1), 293-301.

Nitsche, M. A., Liebetanz, D., Lang, N., Antal, A., Tergau, F., & Paulus, W. (2003b). Safety criteria for transcranial direct current stimulation (tDCS) in humans. *Clinical Neurophysiology*, *114*(11), 2220-2222.

Nitsche, M. A., Niehaus, L., Hoffmann, K. T., Hengst, S., Liebetanz, D., Paulus, W., & Meyer, B. U. (2004). MRI study of human brain exposed to weak direct current stimulation of the frontal cortex. *Clinical Neurophysiology*, *115*(10), 2419-2423.

Nolen-Hoeksema, S. (2000). The Role of Rumination in Depressive Disorders and Mixed Anxiety/Depressive Symptoms. *Journal of Abnormal Psychology, 109*(3), 504-511.

Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102*(1), 20-28.

O

Oades, R. D. (2008). Dopamine–serotonin interactions in attention-deficit hyperactivity disorder (ADHD). *Progress in Brain Research*, *172*, 543-565.

Ohn, S. H., Park, C. I., Yoo, W. K., Ko, M. H., Choi, K. P., Kim, G. M., ... & Kim, Y. H. (2008). Time-dependent effect of transcranial direct current stimulation on the enhancement of working memory. *Neuroreport*, *19*(1), 43-47.

Oldendorf, W. H., & Szabo, J. O. H. N. (1976). Amino acid assignment to one of three blood-brain barrier amino acid carriers. *American Journal of Physiology*, *230*(1), 94-98.

Oliveira, J. F., Zanao, T. A., Valiengo, L., Lotufo, P. A., Bensenor, I. M., Fregni, F., & Brunoni, A. R. (2013). Acute working memory improvement

after tDCS in antidepressant-free patients with major depressive disorder.*Neuroscience letters*, *537*, 60-64.

Oquendo, M. A., Currier, D., & Mann, J. J. (2006). Prospective studies of suicidal behavior in major depressive and bipolar disorders: what is the evidence for predictive risk factors?. *Acta Psychiatrica Scandinavica, 114*(3), 151-158.

Over, H., & Carpenter, M. (2009). Priming third-party ostracism increases affiliative imitation in children. *Developmental science*, *12*(3), F1-F8.

Owens, M. J., & Nemeroff, C. B. (1994). Role of serotonin in the pathophysiology of depression: focus on the serotonin transporter. *Clinical chemistry, 40*(2), 288-295.

P

Palm, U., Reisinger, E., Keeser, D., Kuo, M. F., Pogarell, O., Leicht, G., ... & Padberg, F. (2013). Evaluation of sham transcranial direct current stimulation for randomized, placebo-controlled clinical trials. *Brain Stimulation*, *6*(4), 690-695.

Paredes, S. D., Barriga, C., Reiter, R. J., & Rodríguez, A. B. (2009). Assessment of the potential role of tryptophan as the precursor of serotonin and melatonin for the aged sleep-wake cycle and immune function: Streptopelia risoria as a model. *International Journal of Tryptophan Research*, *2*, 23.

Patrick, R. P., & Ames, B. N. (2014). Vitamin D hormone regulates serotonin synthesis. Part 1: relevance for autism. *The FASEB Journal*, *28*(6), 2398-2413.

Paulus, W. (2011). Transcranial electrical stimulation (tES–tDCS; tRNS, tACS) methods. *Neuropsychological Rehabilitation*, *21*(5), 602-617.

Penner, L. A., Dovidio, J. F., Piliavin, J. A., & Schroeder, D. A. (2005). Prosocial behavior: Multilevel perspectives. *Annual Review of Psychoogy*, *56*, 365-392.

Peuker, E. T., & Filler, T. J. (2002). The nerve supply of the human auricle.*Clinical Anatomy*, *15*(1), 35-37.

Pietz, J., Landwehr, R., Kutscha, A., Schmidt, H., de Sonneville, L., & Trefz, F. K. (1995). Effect of high-dose tyrosine supplementation on brain

function in adults with phenylketonuria. *The Journal of Pediatrics*, *127*(6), 936-943.

Pihl, R. O., Young, S. N., Harden, P., Plotnick, S., Chamberlain, B., & Ervin, F. R. (1995). Acute effect of altered tryptophan levels and alcohol on aggression in normal human males. *Psychopharmacology*, *119*(4), 353-360.

Plenz, D. (2003). When inhibition goes incognito: feedback interaction between spiny projection neurons in striatal function. *Trends in Neurosciences*, *26*(8), 436-443.

Pohl, C., Kunde, W., Ganz, T., Conzelmann, A., Pauli, P., & Kiesel, A. (2014). Gaming to see: action video gaming is associated with enhanced processing of masked stimuli. *Frontiers in Psychology, 5,* 44-52.

Polanía, R., Nitsche, M. A., & Paulus, W. (2011). Modulating functional connectivity patterns and topological functional organization of the human brain with transcranial direct current stimulation. *Human Brain Mapping*,*32*(8), 1236-1249.

Poreisz, C., Boros, K., Antal, A., & Paulus, W. (2007). Safety aspects of transcranial direct current stimulation concerning healthy subjects and patients. *Brain Research Bulletin*, *72*(4), 208-214.

Q

Quay, H. C., & Peterson, D. R. (1967). *Behaviour Problem Checklist*. Urbana, Illinois: Children's Research Center, University of Illinois.

Quetscher, C., Yildiz, A., Dharmadhikari, S., Glaubitz, B., Schmidt-Wilcke, T., Dydak, U., & Beste, C. (2015). Striatal GABA-MRS predicts response inhibition performance and its cortical electrophysiological correlates. *Brain Structure and Function*, *220*(6), 3555-3564.

R

Raedt, R., Clinckers, R., Mollet, L., Vonck, K., El Tahry, R., Wyckhuys, T., ... & Smolders, I. (2011). Increased hippocampal noradrenaline is a biomarker for efficacy of vagus nerve stimulation in a limbic seizure model.*Journal of Neurochemistry*, *117*(3), 461-469.

Raftery, A. E. (1995). Bayesian model selection in social research. In P. V. Marsden (ed.), *Sociological Methodology* (pp. 111-196). Oxford, UK: Blackwells.

Raftery, A. E. (1995). Bayesian model selection in social research. In P. V. Marsden (Ed.): *Sociological methodology* (pp. 111–196). Oxford, U.K.: Blackwells.

Rao, A. V., Bested, A. C., Beaulne, T. M., Katzman, M. A., Iorio, C., Berardi, J. M., & Logan, A. C. (2009). A randomized, double-blind, placebo-controlled pilot study of a probiotic in emotional symptoms of chronic fatigue syndrome. *Gut Pathogens, 1*(1), 1-6.

Raven, J. C., & John Hugh Court. (1998). *Raven's progressive matrices and vocabulary scales*. Oxford, UK: Oxford Psychologists Press.

Ravizza, S. M., Goudreau, J., Delgado, M. R., & Ruiz, S. (2012). Executive function in Parkinson's disease: contributions of the dorsal frontostriatal pathways to action and motivation. *Cognitive, Affective, & Behavioral Neuroscience*, *12*(1), 193-206.

Redgrave, P., Prescott, T. J., & Gurney, K. (1999). The basal ganglia: a vertebrate solution to the selection problem?. *Neuroscience*, *89*(4), 1009-1023.

Reuter, M., & Hennig, J. (2005). Pleiotropic effect of the TPH A779C polymorphism on nicotine dependence and personality. *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics*, *134*(1), 20-24.

Richards, J. S., Hartman, C. A., Franke, B., Hoekstra, P. J., Heslenfeld, D. J., Oosterlaan, J., ... & Buitelaar, J. K. (2015). Differential susceptibility to maternal expressed emotion in children with ADHD and their siblings? Investigating plasticity genes, prosocial and antisocial behaviour. *European Child & Adolescent Psychiatry*, *24*(2), 209-217.

Richardson, G. S. (2005). The human circadian system in normal and disordered sleep. *The Journal of Clinical Psychiatry*, *66*(suppl 9), 1-478.

Riem, M. M., Bakermans-Kranenburg, M. J., Huffmeijer, R., & van IJzendoorn, M. H. (2013). Does intranasal oxytocin promote prosocial

behavior to an excluded fellow player? A randomized-controlled trial with Cyberball. *Psychoneuroendocrinology*, *38*(8), 1418-1425.

Rizzo, V., Quartarone, A., Bagnato, S., Battaglia, F., Majorana, G., & Girlanda, P. (2001). Modification of cortical excitability induced by gabapentin: a study by transcranial magnetic stimulation. *Neurological Sciences*, *22*(3), 229-232.

Robbins, T. W., & Arnsten, A. F. (2009). The neuropsychopharmacology of fronto-executive function: monoaminergic modulation. *Annual Review of Neuroscience*, *32*, 267.

Rogers, R., Bowman, N. D., & Oliver, M. B. (2015). It's not the model that doesn't fit, it's the controller! The role of cognitive skills in understanding the links between natural mapping, performance, and enjoyment of console video games. *Computers in Human Behavior*, *49*, 588-596.

Rogers, R. D., & Monsell, S. (1995). Costs of a predictible switch between simple cognitive tasks. *Journal of Experimental Psychology: General*, *124*(2), 207.

Roosevelt, R. W., Smith, D. C., Clough, R. W., Jensen, R. A., & Browning, R. A. (2006). Increased extracellular concentrations of norepinephrine in cortex and hippocampus following vagus nerve stimulation in the rat. *Brain Research*, *1119*(1), 124-132.

Ruddick, J. P., Evans, A. K., Nutt, D. J., Lightman, S. L., Rook, G. A., & Lowry, C. A. (2006). Tryptophan metabolism in the central nervous system: medical implications. *Expert reviews in molecular medicine*, *8*(20), 1-27.

Rueter, L. E., Fornal, C. A., & Jacobs, B. L. (1997). A critical review of 5-HT brain microdialysis and behavior. *Reviews in the Neurosciences*, *8*(2), 117-138.

Ruhé, H. G., Mason, N. S., & Schene, A. H. (2007). Mood is indirectly related to serotonin, norepinephrine and dopamine levels in humans: a meta-analysis of monoamine depletion studies. *Molecular Psychiatry*, *12*(4), 331-359.

Russell, J. A., Weiss, A., & Mendelsohn, G. A. (1989). Affect grid: a single-item scale of pleasure and arousal. *Journal of Personality and Social Psychology*, *57*(3), 493.

Russo, S., Kema, I. P., Fokkema, R. M., Boon, J. C., Willemse, P. H., de Vries, E. G., ... & Korf, J. (2003). Tryptophan as a link between psychopathology and somatic states. *Psychosomatic Medicine*, *65*(4), 665-671.

S

Sage, L., Kavussanu, M., & Duda, J. (2006). Goal orientations and moral identity as predictors of prosocial and antisocial functioning in male association football players. *Journal of Sports Sciences*, *24*(05), 455-466.

Sakai, Y., Nishikawa, M., Leyton, M., Benkelfat, C., Young, S. N., & Diksic, M. (2006). Cortical trapping of α-[11 C] methyl-L-tryptophan, an index of serotonin synthesis, is lower in females than males. *Neuroimage*, *33*(3), 815-824.

Savignac, H. M., Tramullas, M., Kiely, B., Dinan, T. G., & Cryan, J. F. (2015). Bifidobacteria modulate cognitive processes in an anxious mouse strain. *Behavioural Brain Research*, *287*, 59-72.

Scher, C. D., Ingram, R. E., & Segal, Z. V. (2005). Cognitive reactivity and vulnerability: Empirical evaluation of construct activation and cognitive diatheses in unipolar depression. *Clinical Psychology Review*, *25*(4), 487-510.

Schubert, T., & Strobach, T. (2012). Video game experience and optimized executive control skills—On false positives and false negatives: Reply to Boot and Simons (2012). *Acta Psychologica*, *141*(2), 278-280.

Schuch, S., & Koch, I. (2014). Mood states influence cognitive control: The case of conflict adaptation. *Psychological Research,* 79(5), 759-772.

Segal, Z. V., Gemar, M., & Williams, S. (1999). Differential cognitive response to a mood challenge following successful cognitive therapy or pharmacotherapy for unipolar depression. *Journal of Abnormal Psychology, 108*(1), 3.

Segal, Z. V., Kennedy, S., Gemar, M., Hood, K., Pedersen, R., & Buis, T. (2006). Cognitive reactivity to sad mood

provocation and the prediction of depressive relapse. *Archives of General Psychiatry, 63*(7), 749-755.

Sellaro, R., Nitsche, M. A., & Colzato, L. S. (in press). The stimulated brain: effects of transcranial direct current stimulation on social cognition. *Annals of the New York Academy of Sciences.*

Selvaraj, S., Arnone, D., Cappai, A., & Howes, O. (2014). Alterations in the serotonin system in schizophrenia: a systematic review and meta-analysis of postmortem and molecular imaging studies. *Neuroscience & Biobehavioral Reviews*, *45*, 233-245.

Seo, M. H., Park, S. H., Seo, J. H., Kim, Y. H., & Ko, M. H. (2011). Improvement of the Working Memory by Transcranial Direct Current Stimulation in Healthy Older Adults. *Journal of Korean Academy of Rehabilitation Medicine*, *35*(2), 201-206.

Shaw, K., Turner, J., & Del Mar, C. (2002). Tryptophan and 5-hydroxytryptophan for depression. *Cochrane Database of Systematic Reviews 1*, Art. No.: CD003198.

Sheehan, B. D., Tharyan, P., McTavish, S. F. B., Campling, G. M., & Cowen, P. J. (1996). Use of a dietary manipulation to deplete plasma tyrosine and phenylalanine in healthy subjects. *Journal of Psychopharmacology*, *10*(3), 231-234.

Sheehan, D. V., Lecrubier, Y., Sheehan, K. H., Amorim, P., Janavs, J., Weiller, E., ... & Dunbar, G. C. (1998). The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of Clinical Psychiatry, 59*, 22-23.

Sherry, J. L., & Bowman, N. D. (2015). Computer games and child development. In W. Donsback (Ed.), *International encyclopedia of communication*. Oxford, UK: Blackwell.

Sherry, J. L., Rosaen, S., Bowman, N. D., & Huh, S. (2006, June). Cognitive skill predicts video game ability. Paper presented at the annual meeting of the international communication association, Dresden, Germany.

Shurtleff, D., Thomas, J. R., Schrot, J., Kowalski, K., & Harford, R. (1994). Tyrosine reverses a cold-induced working memory deficit in humans.

Pharmacology Biochemistry and Behavior, *47*(4), 935-941.

Shyamaladevi, N., Jayakumar, A. R., Sujatha, R., Paul, V., & Subramanian, E. H. (2002). Evidence that nitric oxide production increases γ-amino butyric acid permeability of blood-brain barrier. *Brain Research Bulletin*, *57*(2), 231-236.

Siegel, J. Z., & Crockett, M. J. (2013). How serotonin shapes moral judgment and behavior. *Annals of the New York Academy of Sciences*,*1299*(1), 42-51.

Silber, B. Y., & Schmitt, J. A. J. (2010). Effects of tryptophan loading on human cognition, mood, and sleep. *Neuroscience & Biobehavioral Reviews*,*34*(3), 387-407.

Smith, S. E., Pihl, R. O., Young, S. N., & Ervin, F. R. (1986). Elevation and reduction of plasma tryptophan and their effects on aggression and perceptual sensitivity in normal males. *Aggressive behavior*, *12*(6), 393-407.

Soubrie, P. (1986). Reconciling the role of central serotonin neurons in human and animal behavior. *Behavioral and Brain Sciences*, *9*(02), 319-335.

Spasojevic, J., & Alloy, L. B. (2001). Rumination as a common mechanism relating depressive risk factors to depression. *Emotion, 1*, 25–37.

Spence, I., & Feng, J. (2010). Video games and spatial cognition. *Review of General Psychology*, *14*(2), 92.

Spence, I., Yu, J. J., Feng, J., & Marshman, J. (2009). Women match men when learning a spatial skill. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *35*(4), 1097.

Spoont, M. R. (1992). Modulatory role of serotonin in neural information processing: implications for human psychopathology. *Psychological bulletin*,*112*(2), 330.

Stagg, C. J., Bachtiar, V., & Johansen-Berg, H. (2011). The role of GABA in human motor learning. *Current Biology*, *21*(6), 480-484.

Starcke, K., & Brand, M. (2012). Decision making under stress: a selective review. *Neuroscience & Biobehavioral Reviews*, *36*(4), 1228-1248.

Staub, E. (1978). *Positive social behaviour and morality: Social and personal influences* New York, NY: Academic Press.

Steenbergen, L., Sellaro, R., & Colzato, L. S. (2014). Tryptophan promotes charitable donating. *Frontiers in Psychology*, *5*, 1451.

Steenbergen, L., Sellaro, R., de Rover, M., Hommel, B., & Colzato, L. S. (2015). No role of beta receptors in cognitive flexibility: Evidence from a task-switching paradigm in a randomized controlled trial. *Neuroscience*, *295*, 237-242.

Steenbergen, L., Sellaro, R., Stock, A. K., Beste, C., & Colzato, L. S. (2015). γ-Aminobutyric acid (GABA) administration improves action selection processes: a randomised controlled trial. *Scientific Reports*, *5*.

Steenbergen, L., Sellaro, R., Stock, A. K., Verkuil, B., Beste, C., & Colzato, L. S. (2015). Transcutaneous vagus nerve stimulation (tVNS) enhances response selection during action cascading processes. *European Neuropsychopharmacology*, *25*(6), 773-778.

Steinberg, S., Annable, L., Young, S. N., & Liyanage, N. (1999). A placebo-controlled clinical trial of L-tryptophan in premenstrual dysphoria. *Biological Psychiatry*, *45*(3), 313-320.

Stelzel, C., Fiebach, C. J., Cools, R., Tafazoli, S., & D'Esposito, M. (2013). Dissociable fronto-striatal effects of dopamine D2 receptor stimulation on cognitive versus motor flexibility. *Cortex*, *49*(10), 2799-2811.

Stöber, G., Nöthen, M. M., Pörzgen, P., Brüss, M., Bönisch, H., Knapp, M., ... & Propping, P. (1996). Systematic search for variation in the human norepinephrine transporter gene: identification of five naturally occurring missense mutations and study of association with major psychiatric disorders. *American Journal of Medical Genetics*, *67*(6), 523-532.

Stock, A. K., Arning, L., Epplen, J. T., & Beste, C. (2014). DRD1 and DRD2 genotypes modulate processing modes of goal activation processes during action cascading. *The Journal of Neuroscience*, *34*(15), 5335-5341.

Stock, A. K., Blaszkewicz, M., & Beste, C. (2014). Effects of binge drinking on action cascading processes: an EEG study. *Archives of Toxicology*,*88*(2), 475-488.

Stock, A. K., Gohil, K., & Beste, C. (2015). Age-related differences in task goal processing strategies during action cascading. *Brain Structure and Function*, 1-9.

Streeter, C. C., Whitfield, T. H., Owen, L., Rein, T., Karri, S. K., Yakhkind, A., ... & Jensen, J. E. (2010). Effects of yoga versus walking on mood, anxiety, and brain GABA levels: a randomized controlled MRS study. *The Journal of Alternative and Complementary Medicine*, *16*(11), 1145-1152.

Strobach, T., Frensch, P. A., & Schubert, T. (2012). Video game practice optimizes executive control skills in dual-task and task switching situations. *Acta Psychologica*, *140*(1), 13-24.

Sved, A., & Fernstrom, J. (1981). Tyrosine availability and dopamine synthesis in the striatum: studies with gamma-butyrolactone. *Life Sciences*,*29*(7), 743-748.

Swets, J. A., Tanner Jr, W. P., & Birdsall, T. G. (1961). Decision processes in perception. *Psychological Review*, *68*(5), 301.

Sze, J. A., Gyurak, A., Goodkind, M. S., & Levenson, R. W. (2012). Greater emotional empathy and prosocial behavior in late life. *Emotion*, *12*(5), 1129.

T

Teixeira, T. F. S., Moreira, A. P. B., Souza, N. C. S., Frias, R., & Peluzio, M. D. C. G. (2014). Intestinal permeability measurements: general aspects and possible pitfalls. *Nutricion Hospitalaria*, *2*(29), 269-281.

Teo, F., Hoy, K. E., Daskalakis, Z. J., & Fitzgerald, P. B. (2011). Investigating the role of current strength in tDCS modulation of working memory performance in healthy controls. *Frontiers in Psychiatry*, *2*(45).

ter Horst, G. J., & Postema, F. (1997). Forebrain parasympathetic control of heart activity: retrograde transneuronal viral labeling in rats. *American Journal of Physiology, 273,* H2926-H2930.

Thayer, J. F., & Lane, R. D. (2007). The role of vagal function in the risk for cardiovascular disease and mortality. *Biological Psychology, 74*(2), 224-242.

Thomas, J. R., Lockwood, P. A., Sing, A., & Deuster, P. A. (1999). Tyrosine improves working memory in a multitasking environment. *Pharmacology Biochemistry and Behavior, 64*(3)*,* 495–500.

Thomson, J., Rankin, H., Ashcroft, G. W., Yates, C. M., McQueen, J. K., & Cummings, S. W. (1982). The treatment of depression in general practice: a comparison of L-tryptophan, amitriptyline, and a combination of L-tryptophan and amitriptyline with placebo. *Psychological Medicine*, *12*(04), 741-751.

Ticku, M. K. (1990). Alcohol and GABA-benzodiazepine receptor function.*Annals of Medicine*, *22*(4), 241-246.

Tillisch, K. (2014). The effects of gut microbiota on CNS functions in humans. *Gut Microbes, 5*(3).

Tillisch, K., Labus, J., Kilpatrick, L., Jiang, Z., Stains, J., Ebrat, B., ... & Mayer, E. A. (2013). Consumption of fermented milk product with probiotic modulates brain activity. *Gastroenterology*, *144*(7), 1394-1401.

Timmerman, H. M., Koning, C. J. M., Mulder, L., Rombouts, F. M., & Beynen, A. C. (2004). Monostrain, multistrain and multispecies probiotics—a comparison of functionality and efficacy. *International Journal of Food Microbiology*, *96*(3), 219-233.

Tomova, L., von Dawans, B., Heinrichs, M., Silani, G., & Lamm, C. (2014). Is stress affecting our ability to tune into others? Evidence for gender differences in the effects of stress on self-other distinction.*Psychoneuroendocrinology*, *43*, 95-104.

Treiman, D. M. (2001). GABAergic mechanisms in epilepsy. *Epilepsia*, *42* (s3), 8-12.

Tremblay, S., Lepage, J. F., Latulipe-Loiselle, A., Fregni, F., Pascual-Leone, A., & Théoret, H. (2014). The uncertain outcome of prefrontal tDCS. *Brain Stimulation, 7*(6), 773-783.

Trulson, M. E., & Jacobs, B. L. (1976). Dose-response relationships between systemically administered L-tryptophan or L-5-hydroxytryptophan

and raphe unit activity in the rat. *Neuropharmacology*, *15*(6), 339-344.

Tse, W. S., & Bond, A. J. (2002). Serotonergic intervention affects both social dominance and affiliative behaviour. *Psychopharmacology*, *161*(3), 324-330.

U

Udenfriend, S. (1966). B. Tyrosine hydroxylase. *Pharmacological Reviews*, *18*(1), 43-51.

V

Van der Does, W. (2002a). Cognitive reactivity to sad mood: structure and validity of a new measure. *Behaviour Research and Therapy, 401,* 105-120.

Van der Does, W. (2002b). *Handleiding bij de Nederlandse versie van Beck Depression Inventory* (*BDI - II - NL).* Amsterdam: Pearson.

Van der Does, W. (2005). Thought suppression and cognitive vulnerability to depression. *British Journal of Clinical Psychology, 44,* 1-14.

Van der Does, W., & Williams, J. M. G. (2003). Leiden Index of Depression Sensitivity – Revised (LEIDS-R). Leiden University.

Van der Goot, A. T., & Nollen, E. A. (2013). Tryptophan metabolism: entering the field of aging and age-related pathologies. *Trends in Molecular Medicine*, *19*(6), 336-344.

Van Hemert, S. & Ormel, G. (2014) Influence of the Multispecies Probiotic Ecologic® BARRIER on Parameters of Intestinal Barrier Function. *Food and Nutrition Sciences, 5*, 1739-1745.

Van Hemert, S., Verwer, J., & Schütz, B. (2013). Clinical studies evaluating effects of probiotics on parameters of intestinal barrier function. *Advances in Microbiology, 3,* 212-22.

Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Pannebakker, F., & Out, D. (2010). In defence of situational morality: Genetic, dispositional and situational determinants of children's donating to charity. *Journal of Moral Education*, *39*(1), 1-20.

Van Ijzendoorn, M. H., Huffmeijer, R., Alink, L. R., Bakermans-Kranenburg, M. J., & Tops, M. (2011). The impact of oxytocin administration on charitable donating is moderated by experiences of parental love-withdrawal. *Frontiers in Psychology, 2*(258), 10-3389.

Van Leusden, J. W., Sellaro, R., & Colzato, L. S. (2015). Transcutaneous Vagal Nerve Stimulation (tVNS): a new neuromodulation tool in healthy humans?. *Frontiers in psychology*, *6*.

Van Praag, H. M., Korf, J., Dols, L. C. W., & Schut, T. (1972). A pilot study of the predictive value of the probenecid test in application of 5-hydroxytryptophan as antidepressant. *Psychopharmacologia*, *25*(1), 14-21.

Van Schouwenburg, M., Aarts, E., & Cools, R. (2010). Dopaminergic modulation of cognitive control: distinct roles for the prefrontal cortex and the basal ganglia. *Current pharmaceutical design*, *16*(18), 2026-2032.

Van Spronsen, F. J., van Dijk, T., Smit, G. P., van Rijn, M., Reijngoud, D. J., Berger, R., & Heymans, H. S. (1996). Large daily fluctuations in plasma tyrosine in treated patients with phenylketonuria. *The American Journal of Clinical Nutrition*, *64*(6), 916-921.

Van Steenbergen, H., Band, G. P., & Hommel, B. (2010). In the mood for adaptation how affect regulates conflict-driven control. *Psychological Science*, *21*(11), 1629-1634.

Ventureyra, E. C. (2000). Transcutaneous vagus nerve stimulation for partial onset seizure therapy. *Child's Nervous System*, *16*(2), 101-102.

Verbruggen, F., Schneider, D. W., & Logan, G. D. (2008). How to stop and change a response: the role of goal activation in multitasking. *Journal of Experimental Psychology: Human Perception and Performance*, *34*(5), 1212-1228.

Verhaegen, P., Borchelt, M., & Smith, J. (2003). Relation between cardiovascular and metabolic disease and cognition in very old age: cross-sectional and longitudinal findings from the berlin aging

study. *Health Psychology*, *22*(6), 559.

Verhaeghen, P., & Cerella, J. (2002). Aging, executive control, and attention: A review of meta-analyses. *Neuroscience & Biobehavioral Reviews*, *26*(7), 849-857.

Virkkunen, M., & Närvänen, S. (1987). Plasma insulin, tryptophan and serotonin levels during the glucose tolerance test among habitually violent and impulsive offenders. *Neuropsychobiology*, 17(1-2), 19-23.

Virkkunen, M., Rawlings, R., Tokola, R., Poland, R. E., Guidotti, A., Nemeroff, C., ... & Linnoila, M. (1994). CSF biochemistries, glucose metabolism, and diurnal activity rhythms in alcoholic, violent offenders, fire setters, and healthy volunteers. *Archives of General Psychiatry*, *51*(1), 20-27.

Volavka, J., Crowner, M., Brizer, D., Convit, A., Van Praag, H., & Suckow, R. F. (1990). Tryptophan treatment of aggressive psychiatric inpatients. *Biological Psychiatry*, *28*(8), 728-732.

Von Dawans, B., Fischbacher, U., Kirschbaum, C., Fehr, E., & Heinrichs, M. (2012). The social dimension of stress reactivity acute stress increases prosocial behavior in humans. *Psychological Science*, *23*(6), 651-660.

Vonck, K., Raedt, R., Naulaerts, J., De Vogelaere, F., Thiery, E., Van Roost, D., ... & Boon, P. (2014). Vagus nerve stimulation… 25 years later! What do we know about the effects on cognition?. *Neuroscience & Biobehavioral Reviews*, *45*, 63-71.

W

Wagenmakers, E. J. (2007). A practical solution to the pervasive problems ofp values. *Psychonomic Bulletin & Review*, *14*(5), 779-804.

Walther, D. J., Peter, J. U., Bashammakh, S., Hörtnagl, H., Voits, M., Fink, H., & Bader, M. (2003). Synthesis of serotonin by a second tryptophan hydroxylase isoform. *Science*, *299*(5603), 76-76.

Watanabe, H., Shimizu, H., & Matsumoto, K. (1990). Acetylcholine release detected by trans-striatal dialysis in freely moving rats correlates with spontaneous motor activity. *Life Sciences*, *47*(9), 829-832.

Watanabe, N., & Yamamoto, M. (2015). Neural mechanisms of social dominance. *Frontiers in Neuroscience*, *9*, 154.

Watters, A. J., Gotlib, I. H., Harris, A. W., Boyce, P. M., & Williams, L. M. (2013). Using multiple methods to characterize the phenotype of individuals with a family history of major depressive disorder. *Journal of Affective Disorders*, *150*(2), 474-480.

Weiner, N., Lee, F. L., Barnes, E., & Dreyer, E. (1977). Enzymology of tyrosine hydroxylase and the role of cyclic nucleotides in its regulation. In E. Usdin, N. Wiener, & M. B. H. Youdim (Eds.), *Structure and function of monoamine enzymes* (pp. 109-148). New York, NY: Marcel Dekker.

Wells, T. T., Beevers, C. G., & McGeary, J. E. (2010). Serotonin transporter and BDNF genetic variants interact to predict cognitive reactivity in healthy adults. *Journal of Affective Disorders, 126*(1), 223-229.

Wesselmann, E. D., Bagg, D., & Williams, K. D. (2009). "I feel your pain": The effects of observing ostracism on the ostracism detection system.*Journal of Experimental Social Psychology*, *45*(6), 1308-1311.

Wesselmann, E. D., Williams, K. D., & Hales, A. H. (2013). Vicarious ostracism. *Frontiers in Human Neuroscience*, *7*, 153.

Wesselmann, E. D., Wirth, J. H., Pryor, J. B., Reeder, G. D., & Williams, K. D. (2013). When do we ostracize?. *Social Psychological and Personality Science*, *4*(1), 108-115.

West, G. L., Stevens, S. A., Pun, C., & Pratt, J. (2008). Visuospatial experience modulates attentional capture: Evidence from action video game players. *Journal of Vision*, *8*(16), 13-13.

Will, B. E., Toniolo, G., & Brailowsky, S. (1988). Unilateral infusion of GABA and saline into the nucleus basalis of rats: 1. Effects on motor function and brain morphology. *Behavioural Brain Research*, *27*(2), 123-129.

Will, G. J., Crone, E. A., van den Bos, W., & Güroğlu, B. (2013). Acting on observed social exclusion: Developmental perspectives on punishment of excluders and compensation of victims. *Developmental Psychology*, *49*(12), 2236.

Willemssen, R., Falkenstein, M., Schwarz, M., Müller, T., & Beste, C. (2011). Effects of aging, Parkinson's disease, and dopaminergic medication

on response selection and control. *Neurobiology of Aging*, *32*(2), 327-335.

Williams, J. M. G., Van der Does, A. J. W., Barnhofer, T., Crane, C., & Segal, Z. S. (2008). Cognitive reactivity, suicidal ideation and future fluency: preliminary investigation of a differential activation theory of hopelessness/suicidality. *Cognitive Therapy and Research, 32*(1), 83-104.

Williams, K. D. (2009). Ostracism: effects of being excluded and ignored. In M. Zanna (Ed.), *Advances in Experimental Social Psychology* (pp. 275-314). NewYork, NY: Academic Press.

Williams, K. D., & Jarvis, B. (2006). Cyberball: A program for use in research on interpersonal ostracism and acceptance. *Behavior Research Methods*, *38*(1), 174-180.

Williams, K., Brignell, A., Randall, M., Silove, N., & Hazell, P. (2013). Selective serotonin reuptake inhibitors (SSRIs) for autism spectrum disorders (ASD). *The Cochrane Library, 8*(8).

Wood, R. M., Rilling, J. K., Sanfey, A. G., Bhagwagar, Z., & Rogers, R. D. (2006). Effects of tryptophan depletion on the performance of iterated prisoner's dilemma game in healthy adults. *Neuropsychopharmacology, 31*, 1075–1084.

Woods, A. J., Bryant, V., Sacchetti, D., Gervits, F., & Hamilton, R. (2015). Effects of electrode drift in transcranial direct current stimulation. *Brain Stimulation, 8,* 515-519.

World Health Organization. (2012). *Depression* (Fact sheet No. 369). Available: http://www.who.int/mediacentre/factsheets/fs369/en/. Accessed 28 September 2014.

Wu, G. (2009). Amino acids: metabolism, functions, and nutrition. *Amino Acids*, *37*(1), 1-17.

Wurtman, R. J. (1992). Choline metabolism as a basis for the selective vulnerability of cholinergic neurons. *Trends in Neurosciences*, *15*(4), 117-122.

Wurtman, R. J., Hefti, F., & Melamed, E. (1980). Precursor control of neurotransmitter synthesis. *Pharmacological Reviews*, *32*(4), 315-335.

Y

Yamamura, S., Morishima, H., Kumano-Go, T., Suganuma, N., Matsumoto, H., Adachi, H., ... & Takeda, M. (2009). The effect of Lactobacillus helveticus fermented milk on sleep and health perception in elderly subjects. *European Journal of Clinical Nutrition, 63*(1), 100-105.

Yildiz, A., Quetscher, C., Dharmadhikari, S., Chmielewski, W., Glaubitz, B., Schmidt-Wilcke, T., ... & Beste, C. (2014). Feeling safe in the plane: neural mechanisms underlying superior action control in airplane pilot trainees—a combined EEG/MRS study. *Human Brain Mapping*, *35*(10), 5040-5051.

Yildiz, A., Wolf, O. T., & Beste, C. (2014). Stress intensifies demands on response selection during action cascading processes. *Psychoneuroendocrinology*, *42*, 178-187.

Young, S. N. (1991). Use of tryptophan in combination with other antidepressant treatments: a review. *Journal of Psychiatry and Neuroscience*, *16*(5), 241.

Young, S. N. (2013). The effect of raising and lowering tryptophan levels on human mood and social behaviour. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, *368*(1615), 20110375.

Young, S. N., & Gauthier, S. (1981). Tryptophan availability and the control of 5-hydroxytryptamine and tryptamine synthesis in human CNS. *Advances inExpermental Medicine and Biology, 133*, 221-230.

Young, S. N., & Leyton, M. (2002). The role of serotonin in human mood and social interaction: insight from altered tryptophan levels. *Pharmacology Biochemistry and Behavior*, *71*(4), 857-865.

Young, S. N., Pihl, R. O., & Ervin, F. R. (1987). The effect of altered tryptophan levels on mood and behavior in normal human males. *Clinical Neuropharmacology*, *11*, S207-15.

Yuwiler, A. (1973). Conversion of d-and l-tryptophan to brain serotonin and 5-hydroxyindoleacetic acid and to blood serotonin. *Journal of Neurochemistry*, *20*(4), 1099-1109.

Yuwiler, A., Brammer, G. L., Morley, J. E., Raleigh, M. J., Flannery, J. W., & Geller, E. (1981). Short-term and repetitive administration of oral

tryptophan in normal men: effects on blood tryptophan, serotonin, and kynurenine concentrations. *Archives of General Psychiatry*, *38*(6), 619-626.

Z

Zaehle, T., Sandmann, P., Thorne, J. D., Jäncke, L., & Herrmann, C. S. (2011). Transcranial direct current stimulation of the prefrontal cortex modulates working memory performance: combined behavioural and electrophysiological evidence. *BMC Neuroscience*, *12*(1), 1.

Zhang, W., & Mifflin, S. (2010). Plasticity of GABAergic mechanisms within the nucleus of the solitary tract in hypertension. *Hypertension*, *55*(2), 201-206.

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Curriculum Vitae

Laura Steenbergen was born on August 4, 1991 in Gouda, the Netherlands. In 2009 she obtained her pre-university level high school diploma from the St.-Antoniuscollege in Gouda, after which she studied Psychology at Leiden University. During her bachelor, Laura worked as a voluntary research assistant for several projects, including research on the effect of tryptophan on interpersonal trust and the imaging of dopaminergic nuclei. She received her bachelor's degree in 2012. During her master's Laura worked as a research assistant investigating the effect of bilingual education on cognitive flexibility. After a six-month research internship on the effect of cocaine on creativity and emotional processing at Maastricht University, she received her master of science in Psychology (research) in June 2014 (cum laude/with honors). Since July 2014, Laura has worked as a PhD student at Leiden University under the supervision of Dr. Lorenza Colzato and Dr. Roberta Sellaro. As part of her doctoral research, Laura has spent one month in the Actionlab of Prof. dr. Christian Beste at the Technical University of Dresden. The results of her doctoral work are described in this dissertation.

Publications

Steenbergen, L., Jongkees, B.J., Sellaro, R., & Colzato, L.S. (2016). Tryptophan supplementation modulates social behavior: a review. *Neuroscience and Biobehavioral Reviews, 64,* 346-358*.*

Steenbergen L., Sellaro R., Hommel B., Kühn S. & Colzato L.S. (2016). "Unfocus" on foc.us: Commercial tDCS headset impairs working memory. *Experimental Brain Research, 234*(3), 637-643.

Sellaro R., Steenbergen L., Verkuil B., Van IJzendoorn M. & Colzato L.S. (2015). Transcutaneous vagus nerve stimulation (tVNS) does not increase prosocial behavior in cyberball. *Frontiers in Psychology, 6 :* e499.

Steenbergen L., Sellaro R., Hommel B. & Colzato L.S. (2015). Tyrosine promotes cognitive flexibility: Evidence from proactive vs. reactive control during task switching performance. *Neuropsychologia, 69,* 50-55.

Steenbergen L., Sellaro R., Stock A.K., Beste C. & Colzato L.S. (2015). y-Aminobutyric acid (GABA) administration improves action selection processes: A randomised controlled trial. *Scientific Reports*, 5: e12770.

Steenbergen L., Sellaro R., Stock A.K. & Beste C. Colzato L.S. (2015). Action video gaming and cognitive control: Playing first person shooter games is associated with improved action cascading but not inhibition. *PLoS One, 10*(12): e0144364.

Kuypers K.P.C., Steenbergen L., Theunissen E.L., Toennes S.W. & Ramaekers J.G. (2015). Emotion recognition during cocaine intoxication. *European Neuropsychopharmacology, 25*(11), 1914-1921.

Steenbergen L., Sellaro R., Stock A.K., Verkuil B., Beste C. & Colzato L.S. (2015). Transcutaneous vagus nerve stimulation (tVNS) enhances response selection during action cascading processes*. European Neuropsychopharmacology, 25*(6), 773-778.

Steenbergen L., Sellaro R., De Rover M., Hommel B. & Colzato L.S. (2015). No role of beta receptors in cognitive flexibility: Evidence from task-

switching paradigm in a randomized controlled trial. *Neuroscience, 295,* 237-242.

Steenbergen L, Sellaro R., Van Hemert S., Bosch J.A. & Colzato L.S. (2015). A randomized controlled trial to test the effect of multispecies probiotics on cogitive reactivity to sad mood. *Brain, Behavior and Immunity, 48,* 258-264.

Christoffels I.K., De Haan A.M., Steenbergen L., Van den Wildenberg W.P.M. & Colzato L.S. (2015). Two is better than one: Bilingual education promotes the flexible mind. *Psychological Research / Psychologische Forschung, 79*(3), 371-379.

Steenbergen L., Sellaro R. & Colzato L.S. (2014). Tryptophan promotes charitable donating. *Frontiers in Psychology, 5*: e1451.

Colzato L.S., Steenbergen L., De Kwaadsteniet E.W., Sellaro R., Liepelt R. & Hommel B. (2013). Tryptophan promotes interpersonal trust. *Psychological Science, 24*(12), 2575-2577.