**Daphna Joel**

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December 2020

## ACADEMIC EMPLOYMENT

Tel Aviv University

- Professor (2013-present)
- Head of the Interdisciplinary graduate program (2020-present)
- Chair of PhD Committee (2013-2020)
- Head of the Psychobiology graduate program (2003-2015)
- Associate Professor (2007-2012)
- Establisher and Head of Neuroscience PhD program (2007-2010)
- Senior Lecturer (2003-2007)
- Head of Biology-Psychology with emphasis in Neuroscience BA program (2003-2007)
- Lecturer (1998-2003)
- Counselor, Interdisciplinary Program for the Fostering of Excellence (1994-1998)
- Teaching and Research Assistant (1990-1998)

The Academic College of Tel-Aviv-Yaffo

- Teaching (1995-2000)

Ben Gurion University

- Teaching (1994-1995)

## EDUCATION

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|---|---|---|---|---|---|
| 1984-1985 | Hebrew University | Army service, Talpyot | Exact Sciences | | |
| 1988-1991 | Tel Aviv University | Sackler Medical School | Medicine | B.Med.Sc (Cum Laude) | 1992 |
| 1989-1993 | Tel Aviv University | Interdisciplinary Program for the Fostering of Excellence | | | |
| 1990- | Tel Aviv University | Psychology | Psychobiology, | MA | |
| 1992- 1998 | Tel Aviv University | Psychology | Psychobiology, Straight PhD | Ph.D (Cum Laude) | 1998 |
| 1996-1998 | Tel Aviv University | Training Program for Group Facilitators | | | |

## GRANTS

2002-2006 Israel Science Foundation: The neural substrates and the pharmacology of post-training signal attenuation: A potential new rat model of obsessive compulsive disorder. $140,000, PI

2004-2006 The National Institute for Psychobiology in Israel: Studying the interplay between the orbital cortex and the striatal serotonergic system in a rat model if obsessive compulsive disorder.

$30,000, PI

2006-2007 Ministry of Health, Israel: Studying the interplay between procedural and explicit mechanisms in obsessive compulsive disorder and Parkinson's disease patients compared to normal subjects, using functional MRI. $37,000, PI

2006-2008 German Israeli Foundation for Scientific Research and Development: Mapping brain regions in which high-frequency stimulation has anti-compulsive effects, using two rat models of obsessive compulsive disorder. $208,560, PI

2006-2008 United States-Israel Binational Science Foundation: Deficient procedural learning in obsessive compulsive disorder. A functional MRI study. $105,000, PI

2007-2011 Israel Science Foundation: Studying the autoimmune basis of obsessive-compulsive disorder in a rat model. $184,000, PI

2011-2012 F. Hoffmann-La Roche Ltd, Research agreement, $124,000, PI

2012-2016 EU Framework Project 7 (FP7) consortium: Translational Adolescent and Childhood Therapeutic Interventions in Compulsive Syndromes. Total grant, 6,000,000 euro; to DJ, 214,800 euro

2012-2015 Israel Science Foundation: Characterizing the development of abnormalities of brain and behavior in a novel neurodevelopmental rat model of obsessive-compulsive disorder. 920,000 NIS, PI

2016-2020 Israel Science Foundation: The human brain mosaic. 800,000 NIS, PI (with Isaac Meilijson)

**PUBLICATIONS**

PEER-REVIEWED JOURNALS

1. **Joel, D.** and Weiner, I. (1994) The organization of the basal ganglia-thalamocortical circuits: Open-interconnected rather than closed segregated. Neuroscience, 63, 363-379.

2. Gray, J. A., Joseph, M. H., Hemsley, D. R., Young, A. M. J., Warburton, E. C., Boulenguez, P., Grigoryan, G. A., Peters, S. L., Rawlins, J. N. P., Tai, C.-T., Yee, B. K., Cassaday, H., Weiner, I., Gal, G., Gusak, O., **Joel, D.**, Shadach, E., Shalev, U., Tarrasch, R., & Feldon, J. (1995) The role of mesolimbic dopaminergic and retrohippocampal afferents to the nucleus accumbens in latent inhibition: implications for schizophrenia. Behavioural Brain Research, 71, 19-31.

3. Gal, G., **Joel, D.**, Gusak, O., Feldon, J., and Weiner, I. (1997) The effects of electrolytic lesion to the shell subterritory of the nucleus accumbens on delayed-non-match-to-sample and 4-arm baited 8-arm radial maze tasks. Behavioural Neuroscience, 111, 92-103.

4. **Joel, D.**, and Weiner, I. (1997) The connections of the primate subthalamic nucleus: Indirect pathways and the open-interconnected scheme of basal ganglia-thalamocortical circuitry. Brain Research Reviews, 23, 62-78.

5. **Joel D.**, Weiner, I., and Feldon J. (1997) Electrolytic lesions of the medial prefrontal cortex in rats disrupt performance on an analog of the Wisconsin Card Sorting Test but do not disrupt latent inhibition: Implications for animal models of schizophrenia. Behavioural Brain Research, 85, 187-201.

6. **Joel, D.**, Tarrasch R., Feldon J., and Weiner, I. (1997) Effects of electrolytic lesions of the medial prefrontal cortex or its subfields on 4-arm baited 8-arm radial maze, two-way active avoidance and conditioned fear tasks in the rat. Brain Research, 765, 37-50.

7. **Joel, D.**, Ayalon L., Tarrasch R., Zohar O., Veenman L., Feldon J., and Weiner, I. (1998) Electrolytic lesion of globus pallidus ameliorates the behavioral and neurodegenerative effects of quinolinic acid lesion of the striatum: A potential novel treatment in a rat model of Huntington's disease. Brain Research, 787, 143-148.

8. Weiner I., Hairston I., Shayit M., Feldman G., **Joel D.**, and Feldon J. (1998) Strain differences in latent inhibition. Psychobiology, 26, 57-64.

9. Weiner I., Feldon J., Tarrasch R., Hairston I., and **Joel D.** (1998) Fimbria-fornix cut affects spontaneous activity, two-way avoidance and delayed non matching to sample, but not latent inhibition. Behavioural Brain Research, 96, 59-70.

10. Weiner I., Gaisler I., Shiller D., Green A., Zuckerman L. and **Joel D.** (2000) Screening of antipsychotic drugs in animal models. Drug Development Research, 50: 235-249.

11. **Joel D.** and Weiner I. (2000) The connections of the dopaminergic system with the striatum in rats and primates: An analysis with respect to the functional and compartmental organization of the striatum. Neuroscience, 96, 451-474.

12. Inzelberg R., Nisipeanu P., **Joel D.**, Sarkantyus M., Blumen S.C., Carasso R.L. (2001) Acute mania and hemichorea. Clinical Neuropharmacology, 24, 300-303.

13. **Joel D.**, and Avisar A. (2001) Excessive lever pressing following post-training signal attenuation in rats: A possible animal model of obsessive compulsive disorder? Behavioural Brain Research, 123, 77-87.

14. **Joel D.**, Avisar A. and Doljansky J. (2001) Enhancement of excessive lever-pressing after post-training signal attenuation in rats by repeated administration of the D1 antagonist SCH 23390 or the D2 agonist quinpirole but not of the D1 agonist SKF 38393 or the D2 antagonist haloperidol. Behavioral Neuroscience, 115, 1291–1300.

15. **Joel D.** (2001) The open interconnected model of basal ganglia-thalamocortical circuitry and its relevance to the clinical syndrome of Huntington's disease. Movement Disorders, 16, 407-23.

16. **Joel D.**, Niv Y. and Ruppin E. (2002) Actor-critic models of the basal ganglia: New anatomical and computational perspectives. Neural Networks, 15, 535-547.

17. Niv Y., **Joel D.**, Meilijson I. and Ruppin E. (2002) Evolution of reinforcement learning in bees: A simple explanation for complex foraging behaviors. Adaptive Behavior, 10, 5-24.

18. **Joel D.** and Doljansky J. (2003) Selective alleviation of 'compulsive' lever-pressing in rats by D1, but not D2, blockade: Possible implications for the involvement of D1 receptors in obsessive compulsive disorder. Neuropsychopharmacology, 28, 77-85.

19. Weiner I., Schiller D., Gaisler-Salomon I., Green A. and **Joel D.** (2003) A comparison of drug effects in latent inhibition and the forced swim test differentiates between the typical antipsychotic haloperidol, the atypical antipsychotics clozapine and olanzapine, and the antidepressants imipramine and paroxetine. Behavioural Pharmacology, 14, 215-222.

20. **Joel D.**, Ayalon L., Tarrasch R., and Weiner I. (2003) Deficits induced by quinolinic acid lesion to the striatum in a position discrimination and reversal task are ameliorated by permanent and temporary lesion to the globus pallidus: A potential novel treatment in a rat model of Huntington's disease. Movement Disorders, 18,1499-507.

21. Ayalon L., Doron R., Weiner I. and **Joel D.** (2004) Amelioration of behavioral deficits in a rat model of Huntington's disease by an excitotoxic lesion to the globus pallidus. Experimental Neurology, 186, 46-58

22. **Joel D.**, Ben-Amir E., Doljansky J. and Flaisher S. (2004) 'Compulsive' lever-pressing in rats is attenuated by the serotonin re-uptake inhibitors paroxetine and fluvoxamine but not by the tricyclic antidepressant desipramine or the anxiolytic diazepam. Behavioral Pharmacology, 15, 241-252.

23. **Joel D.**, Doljansky J., Roz N. and Rehavi M. (2005) Role of the orbital cortex and the serotonergic system in a rat model of obsessive compulsive disorder. Neuroscience, 130, 25-36.

24. **Joel D.**, Zohar O., Afek M., Hermesh H., Lerner L., Kuperman R., Gross-Isseroff R., Weizman A. and Inzelberg R. (2005) Impaired procedural learning in obsessive compulsive disorder and Parkinson's disease, but not in major depressive disorder. Behavioural Brain Research, 157, 253-263.

25. **Joel D.**, Doljansky J., Schiller D. (2005) 'Compulsive' lever-pressing in rats is enhanced following lesions to the orbital cortex, but not to the basolateral nucleus of the amygdala or to the dorsal medial prefrontal cortex. Eur. J. Neurosci. 21, 2252-2262.

26. Tarrasch R., Goelman G., **Joel D.**, Weiner I. (2005) Long term functional consequences of quinolinic acid striatal lesions and their alteration following an addition of a globus pallidus lesion assessed using pharmacological magnetic resonance imaging. Experimental Neurology, 196, 244-253.

27. **Joel D.** (2006) Current animal models of obsessive compulsive disorder: A critical review. Progress in Neuropsychopharmacology and Biological Psychiatry, 30, 374-388.

28. **Joel D.** (2006) The signal attenuation rat model of obsessive-compulsive disorder: A review. Psychopharmacology, 186, 487-503.

29. **Joel D.**, Klavir O. (2006) The effects of temporary inactivation of the orbital cortex in the signal attenuation rat model of obsessive compulsive disorder. Behavioral Neuroscience, 120, 976-83.

30. Niv Y., **Joel D.**, Dayan P. (2006). A normative perspective on motivation. Trends Cog. Sci. 10, 375-381.

31. Niv Y., Daw N.D., **Joel D.** and Dayan P. (2007) Tonic dopamine: Opportunity costs and the control of response vigor. Psychopharmacology, 191, 507-520.

32. Brimberg L., Flaisher S., Schilman E. and **Joel D.** (2007) Strain differences in compulsive lever-pressing. Behavioural Brain Research, 179, 141-151. (IF 3.393, 88$^{th}$ out of 238 in Neurosciences, 12$^{th}$ out of 48 in Behavioral Sciences)

33. Schonberg T., Daw N., **Joel D.**, O'Doherty J.P. (2007) Reinforcement learning signals in the human striatum distinguish learners from non-learners during reward-based decision making. J. Neurosci. 27, 12860-12867

34. Winter C., Mundt A., Jalali R., **Joel D.**, Harnack D., Morgenstern R. , Juckel G., Kupsch A. (2008) High frequency stimulation and temporary inactivation of the subthalamic nucleus reduce quinpirole induced compulsive checking behavior in rats. Experimental Neurology 210, 217-228

35. Schilman E. A., Uylings H. B., Galis-de Graaf Y., **Joel D.**, Groenewegen H. J. (2008) The orbitofrontal cortex in rats topographically projects to central parts of the caudate-putamen complex. Neurosci. Lett. 432, 40-45

36. Flaisher-Grinberg S., Klavir O. and **Joel D.** (2008) The role of 5-HT2a and 5-HT2c receptors in the signal attenuation rat model of obsessive compulsive disorder. Int. J. Neuropsychopharmacol 11, 811–825

37. Winter C., Flash S., Klavir O., Klein J., Sohr R. and **Joel D.** (2008) The role of the subthalamic nucleus in 'compulsive' behavior in rats. Eur. J. Neurosci. 27, 1902-1911

38. Klavir O, Flash S., Winter C. and **Joel D.** (2009) High frequency stimulation and pharmacological inactivation of the subthalamic nucleus reduces 'compulsive' lever-pressing in rats. Experimental Neurology, 215, 101-109.

39. Flaisher-Grinberg S., Albelda N., Gitter L., Weltman K., Arad M. and **Joel D.** (2009) Ovarian hormones modulate 'compulsive' lever-pressing in female rats. Hormones and Behavior, 55, 356-365.

40. Mundt A., Klein J., **Joel D.**, Heinz A., Djodari-Irani A., Harnack D., Kupsch A., Juckel G., Orawa H., Morgenstern R., Winter C. (2009) High frequency stimulation of the nucleus accumbens core and shell reduces quinpirole-induced compulsive checking in rats. Eur. J. Neurosci. 29, 2401-2412.

41. Schonberg T., O'Doherty J.P., **Joel D.**, Inzelberg R., Segev Y., Daw N.D. (2010) Selective impairment of prediction error signaling in human dorsolateral but not ventral striatum in Parkinson's disease patients: evidence from a model-based fMRI study. NeuroImage. 49, 772-781

42. Schilman E.A., Klavir O., Winter C., Sohr R., **Joel D.** (2010) The role of the striatum in compulsive behavior in intact and orbitofrontal cortex lesioned rats: possible involvement of the serotonergic system. Neuropsychopharmacology, 35, 1026-1039.

43. Albelda N., Bar-On N. and **Joel D.** (2010) The role of NMDA receptors in the signal attenuation rat model of obsessive-compulsive disorder. Psychopharmacology, 210, 13-24.

44. Klavir O, Flash S., Winter C. and **Joel D.** (2011) High but not low frequency stimulation of both the globus pallidus and the entopeduncular nucleus reduces 'compulsive' lever-pressing in rats. Behavioural Brain Research, 216, 84-93.

45. Djodari-Irani A., Klein J., Banzhaf J., **Joel D.**, Heinz A., Harnack D., Lagemann T., Juckel G., Kupsch A., Morgenstern R., Winter C. (2011) Activity modulation of the Globus pallidus and the Nucleus entopeduncularis affects compulsive checking in rats. Behavioural Brain Research, 219, 149-158.

46. **Joel D.** (2011) Male or female? Brains are intersex. Frontiers in Integrative Neuroscience, 5, 57

47. Albelda N. and **Joel D.** (2011) Current animal models of obsessive compulsive disorder: An update. Neuroscience. 211, 83-106.

48. Albelda N. and **Joel D.** (2012) Animal models of obsessive-compulsive disorder: Exploring pharmacology and neural substrates. Neuroscience & Biobehavioral Reviews, 36, 47-63.

49. Brimberg L., Benhar I., Mascaro-Blanco A., Alvarez K., Lotan D., Winter C., Klein J., Moses A.E., Somnier F.E., Leckman J.F., Swedo S.E., Cunningham M.W., **Joel D.** (2012) Behavioral, pharmacological, and immunological abnormalities after streptococcal exposure: a novel rat model of Sydenham chorea and related neuropsychiatric disorders. Neuropsychopharmacology, 37, 2076–2087

50. **Joel D.** (2012) Genetic-gonadal-genitals sex (3G-sex) and the misconception of brain and gender, or, why 3G-males and 3G-females have intersex brain and intersex gender. Biology of Sex Differences. 3, 27.

51. Yankelevitch-Yahav R., **Joel D.** (2013) Studying the role of acetylcholine in the signal attenuation rat model of obsessive-compulsive disorder. Psychopharmacology, 230, 37-48.

52. **Joel D.**, Tarrasch R., Berman Z., Mukamel M. and Ziv E. (2014) Queering gender: studying gender identity in the normative population. Psychology & Sexuality, 5, 291-321.

53. **Joel D.** and Yarimi D. (2014) Consciousness-raising in a gender conflict group. International Journal of Group Psychotherapy, 64, 48-69.

54. **Joel D.** (2014) Response to Nina K. Thomas and J. Scott Rutan: Is the Personal Political? And Who Benefits From Believing It Is Not? International Journal of Group Psychotherapy, 64, 83-89.

55. Lotan D., Benhar I., Alvarez K., Mascaro-Blanco A., Cox C., Moses A.E., Brimberg L., Frenkel D., Cunningham M., **Joel D.** (2014) Behavioral and neural effects of intra-striatal infusion of anti-streptococcal antibodies in rats. Brain, Behavior, and Immunity, 38, 249-62

56. **Joel D.** and Yankelevitch-Yahav R. (2014) Reconceptualizing sex, brain and psychopathology: Interaction, interaction, interaction. Br. J. Pharmacology, 171, 4620-4635

57. Lotan D., Benhar I., Moses A.E., Rehavi M., Cunningham M., **Joel D.** (2014) Antibiotic Treatment Attenuates Behavioral and Neurochemical changes Induced by Exposure of Rats to Group A Streptococcal Infection. Plos One, 9, e101257. doi: 10.1371/journal.pone.0101257

58. Goltseker, K., Yankelevitch-Yahav R., Albelda, N., & **Joel D.** (2015). Signal attenuation as a rat model of obsessive-compulsive disorder. Journal of Visualized Experiments, (95), e52287. doi:10.3791/52287

59. **Joel D.**, Berman Z., Tavor I., Wexler N., Gaber O., Stein Y., Shefi N., Pool J., Urchs S., Margulies D., Liem F., Hänggi J., Jäncke L., Assaf Y. (2015) Sex beyond the genitalia: The human brain mosaic. Proc Natl Acad Sci U S A, 112, 15468–15473.

60. **Joel D.** (2015) The NIH call to consider sex as a biological variable is conceptually "captured" in the "sex differences" paradigm. Catalyst, 1, 4-5.

61. **Joel D.,** Fausto-Sterling A. (2016) Beyond sex differences: New approaches for thinking about variation in brain structure and function. Phil. Trans. R. Soc. B., 371: 20150451.

62. **Joel D.** (2016) Captured in terminology: sex, sex categories, and sex differences. Feminism & Psychology, 26, 335–345.

63. **Joel D.,** McCarthy M.M. (2017) Circumspective: Incorporating Sex As a Biological Variable in Neuropsychiatric Research: Where Are We Now and Where Should We Be? Neuropsychopharmacology, 42: 379-385

64. Rippon G., Jordan-Young R., Kaiser A., **Joel D.**, Fine. C. (2017) Journal of neuroscience research policy on addressing sex as a biological variable: comments, clarifications, and elaborations. J. Neurosci. Res. Feb 22; Early view. Available from, DOI: 10.1002/jnr.24045

65. Fine C., Dupre J., **Joel D.** (2017) Sex-Linked Behavior: Evolution, Stability, and Variability, Trends Cog. Sci., 21: 666-673.

66. Hyde J.S., Bigler R., **Joel D.**, Tate C., van Anders S. (2018) The Future of Sex and Gender in Psychology: Five Challenges to the Gender Binary. Am. Psychologist, 74:171-193. (won the APA Division 1 George A. Miller Award and the Distinguished Publication Award of the Association for Women in Psychology)

67. Berman Z., Assaf Y., Tarrasch R., **Joel D.** (2018) Assault-related Self-Blame and its Association with PTSD in Sexually Assaulted Women: An MRI Inquiry. Social Cognitive and Affective Neuroscience. 13: 775-784.

68. Jacobson R., **Joel D.** (2018) An exploration of the relations between self-reported gender identity and sexual orientation in an online sample of cisgender individuals. Arch. Sex. Behav., 47:2407-2426.

69. **Joel D.**, Persico A., Salhov M., Berman Z., Oligschläger S., Meilijson I., Averbuch A. (2018) Analysis of human brain structure reveals that the brain 'types' typical of males are also typical of females, and vice versa. Frontiers in Human Neuroscience, 12:399.

70. Jacobson R., **Joel D.** (2019) Self-reported gender identity and sexuality in an online sample of cisgender, transgender and gender-diverse individuals: an exploratory study. J. Sex. Res., 56:249-263.

71. Fine C., Joel D., Rippon G. (2019) Eight Things You Need to Know About Sex, Gender, Brains, and Behavior: A Guide for Academics, Journalists, Parents, Gender Diversity Advocates, Social Justice Warriors, Tweeters, Facebookers, and Everyone Else. S&F Online.

72. **Joel D.**, Garcia-Falgueras A., Swaab D. (2020) The complex relationships between sex and the brain. Neuroscientist, 26:156-169.

73. Shalev R., Admon, R. Berman Z. **Joel D.** (2020) A mosaic of sex-related structural changes in the human brain following exposure to real-life stress. Brain Structure & Function, 225:461–466. https://doi.org/10.1007/s00429-019-01995-6

74. Jacobson R., **Joel D.** (2020) Gender identity and sexuality in an online sample of intersex-identified individuals: a descriptive study. Psychology and Sexuality, DOI: 10.1080/19419899.2019.1711447

75. Alon N., Meilijson I., **Joel D.** (2020) Analyzing brain data by sex: Are we asking the right question? bioRxiv. doi: https://doi.org/10.1101/2020.11.09.373258

76. Berman Z., Assaf Y., Tarrasch R., **Joel D.** (2020) Macro- and microstructural gray matter alterations in sexually assaulted women. Journal of Affective Disorders, 262: 196-204.

77. **Joel D.** (2021) Beyond the binary: Rethinking sex and the brain. Neuroscience and Biobehavioral Reviews, 122: 165-175.

78. Saguy T., Reifen Tagar M., **Joel D.** (2021) The Gender-Binary Cycle: The perpetual relations between a biological-essentialist view of gender, gender ideology, and gender-labeling and sorting. Phil. Trans. R. Soc. B., 376**:** 20200141, DOI: http://doi.org/10.1098/rstb.2020.0141

79. Rippon G., Eliot L., Genon S., **Joel D.** (2021) How hype and hyperbole distort the neuroscience of sex differences. PLoS Biol., 19(5): e3001253. DOI: https://doi.org/10.1371/journal.pbio.3001253

80. **Joel D.** (2021) Uncovering and challenging the binary framework. Psychological Inquiry, 32(2): 105-106.

BOOK

**Joel D.** and Vikhanski L. (2019) Gender Mosaic: Beyond the Myth of the Male and Female Brain (Little, Brown Spark, New York)

CHAPTERS IN BOOKS

1. **Joel D.** and Weiner I. (1999) Striatal contention scheduling and the split circuit scheme of basal ganglia-thalamocortical circuitry: From anatomy to behaviour. In: R. Miller and J.R. Wickens (Eds). Conceptual Advances in Brain Research: Brain dynamics and the striatal complex. Harwood Academic Publishers. Amsterdam. pp. 209-236.

2. Weiner I. and **Joel D.** (2002) Dopamine in schizophrenia: Dysfunctional information processing in basal ganglia-thalamocortical split circuits. In: Handbook of Experimental Pharmacology Vol. 154/II, Dopamine in the CNS II (Ed. G. Di Chiara) Springer-Verlag, Berlin, pp. 417-472.

3. **Joel D.**, Stein D.J. and Schreiber R. (2008) Animal Models Of Obsessive-Compulsive Disorder: From Bench To Bedside Via Endophenotypes And Biomarkers. In: R.A. McArthur and F. Borsini (Eds). Animal and translational models of psychiatric disorders. Elsevier.

4. **Joel, D.** (2014) Sex, Gender, and Brain – A Problem of Conceptualization. In S. Schmitz and G. Höppner (Eds). Gendered Neurocultures. Feminist and Queer Perspectives on Current Brain Discourses. Vienna: Zaglossus. e.U. 169-186.

5. **Joel D.** (2020). Beyond sex differences and a male-female continuum: Mosaic brains in a multidimensional space. In Lanzenberger, R., G. S. Kranz and I. Savic, eds. Handbook of Clinical Neurology, 3rd Series, Sex Differences in Neurology and Psychiatry, Amsterdam: Elsevier

OTHER PUBLICATIONS

1. **Joel D.** (1999) The limbic basal-ganglia-thalamocortical circuit and goal-directed behavior. Behavioral and Brain Sciences, 22, 525-526.

2. Niv Y., **Joel D.**, Meilijson I. and Ruppin, E. (2001) Evolution of reinforcement learning in uncertain environments: Emergence of risk aversion and probability matching. In J. Kelemen & P. Sosik (Eds.), Advances in Artificial life, Proceedings of ECAL'2001 - the 6th European Conference on Artificial Life, Springer-Verlag, pp. 252-261.

3. Niv Y., **Joel D.**, Meilijson I. and Ruppin E. (2002) Evolution of reinforcement learning in foraging bees: a simple explanation for risk averse behavior. Neurocomputing 44-46, 951-956.

4. **Joel D.** (2002) Deep brain stimulation in Huntington's disease – Globus pallidus externus or substantia nigra pars compacta. Movement Disorders, 17, 431-432.

5. Niv Y., Dayan P. and **Joel D.** (2006) - The effects of motivation on extensively trained behavior - Leibniz Technical Report, Hebrew University, 2006-6.

6. **Joel D.** and Tarrasch R. (2010) The risk of a wrong conclusion - on testosterone and gender differences in risk aversion and career choices. Proc Natl Acad Sci USA, 107, E19

7. **Joel D.** and Tarrasch R. (2014) On the mis-presentation and misinterpretation of gender-related data: The case of Verma's human connectome study. Proc Natl Acad Sci USA, 111: E637

8. Fine C., **Joel D.**, Jordan-Young R., Kaiser A., and Rippon G. (2014) Why Males ≠ Corvettes, Females ≠ Volvos, and Scientific Criticism ≠ Ideology. http://www.dana.org/Cerebrum/2014/Reaction_to_"Equal_≠_The_Same__Sex_Differences_in_the_Human_Brain"/

9. **Joel D.**, Persico A., Hänggi J., Pool J., and Berman Z. (2016) Reply to Del Guidice et al, Chekroud et al, and Rosenblatt: Do brains of females and males belong to two distinct populations? Proc Natl Acad Sci USA

10. **Joel D.**, Hänggi J., and Pool J. (2016) Reply to Glezerman: Why differences between brains of females and brains of males do not 'add up' to create two types of brains. Proc Natl Acad Sci USA

PUBLISHED IN THE PRESS

Fausto-Sterling and **Joel D.,** The Science of Difference: Let's Do It Right! Huffington Post, May 23, 2014 https://www.huffingtonpost.com/dr-anne-fausto-sterling/the-science-of-difference-lets-do-it-right_b_5372859.html

**Joel D.** and Fine C. It's time to celebrate the fact that there are many ways to be male and female The Guardian, December 1, 2015, https://www.theguardian.com/science/2015/dec/01/brain-sex-many-ways-to-be-male-and-female

Fine. C., **Joel D.** and Dupre J., How we inherit masculine and feminine behaviours: a new idea about environment and genes, The Conversation, August 18, 2017, http://theconversation.com/how-we-inherit-masculine-and-feminine-behaviours-a-new-idea-about-environment-and-genes-82524

**Joel D.** and Fine. C., Can we finally stop talking about a male and a female brain. New York Times, December 3, 2018, https://www.nytimes.com/2018/12/03/opinion/male-female-brains-mosaic.html

**Joel D.** Q&A session about sex, brain and gender, Quora, October 1, 2019, https://www.quora.com/profile/Daphna-Joel-1

**Joel D.** It's Time for a World without Gender, Scientific American, October 4, 2019, https://blogs.scientificamerican.com/voices/its-time-for-a-world-without-gender/

**INVITED AND REFEREED PRESENTATIONS** (LAST 7 YEARS ONLY)

2013 Symposium on Basic & Translational Neuroscience: Sex Differences (Stanford, CA, USA). Sex, brain and psychopathology (Keynote speaker)

2013 Stanford Prevention Research Center / General Medical Disciplines Seminar Series (Stanford, CA, USA). Complex Sex-Stress interactions affect brain structure: Why there are sex difference in psychopathology even though brains do not have sex

2014 The Organization for the Study of Sex Differences (OSSD) 2014 Annual Meeting (Minneapolis, Minnesota USA), Re-conceptualizing sex beyond the genitalia (Organizer of the symposium and Speaker)

2014 NeuroGenderings III (Laussane, Switzerland) Queering gender using positivist methods: An example from a study of gender identity in 'normative' individuals (Speaker)

2015 Member of the Program Committee in preparation for the 2015 OSSD meeting, April 21-23 at Stanford

2015 The International Academy Of Sex Research (IASR) 2015 Annual Meeting (Toronto, Canada), Re-thinking sex beyond the genitalia, from dimorphism to mosaic (Invited speaker)

2015 45th Annual Congress of the European Association for Behavioural and Cognitive Therapies, Vive La Petite Difference: On the critical difference between sex differences in genitals and brains (Keynote speaker)

2016 The annual meeting of the American Psychological Association (APA) (Denver, USA), Co-organizer of a Symposium: Rethinking Sex: The Future of Sex and Gender in Psychology; and speaker: Rethinking Sex Beyond the Genitalia: From Dimorphism to Mosaic

2016 The annual meeting of the Gender Developmeant Research Conference (GDRC) (San Francisco, USA), Co-organizer of a Symposium: Rethinking Sex: The Future of Sex and Gender in Psychology; and speaker: Rethinking Sex Beyond the Genitalia: From Dimorphism to Mosaic

2016 The 25th annual meeting of the Israel Society for Neuroscience (ISFN) (Eilat, Israel) Co-organizer of a Symposium: Gender and individual differences in the brain: toward personalized medicine; and speaker: Sex beyond the genitalia: from dimorphism to mosaic

2017 47th meeting of the European Brain and Behaviour Society (Bilbao, Spain). Rethinking sex and brain: from dimorphism to mosaic (Plenary lecture)

2018 Wisconsin Symposium on Feminist Biology (University of Wisconsin—Madison, USA) (Keynote speaker)

2020 NeuroGenderings V: Intersectional Analysis of the Sexed/Gendered Brain (Leiden, Netherlands) (Speaker)

2020 Neurizons (Göttingen, Germany) (Keynote speaker)

2020 The annual meeting of the American Psychological Association (APA) (Invited speaker)

2020 A talk at the Center for Women Empowerment and Gender Equality (CWEGE), Amrita University, India: The male and female brain: Science or myth?