

Cassandra Lowe, PhD

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EXECUTIVE SUMMARY

My primary research goal is to understand the neurocognitive mechanisms underlying individual vulnerability to dysregulated eating behaviours. My research uses multidimensional and transdisciplinary approach that combines repetitive transcranial magnetic stimulation (rTMS), neuroimaging (EEG, fMRI, MRI), cognitive and behavioural assessments, and aerobic exercise methodologies understand the neurocognitive mechanisms underlying susceptibility to dysregulated eating behaviours. While my past work has focused primarily on building causal models linking the linking the functionality of the lateral prefrontal cortex (lPFC) to food cravings and consumptive behaviours, the primary focus of future work is to be able to successfully develop these fundamental neurobiological findings into the development and implementation of preventative interventions during critical developmental periods.

ACADEMIC POSITIONS

BrainsCAN Tier 1 Postdoctoral Fellow

Sept 2019 - present

University of Western Ontario
The Brain and Mind Institute, Department of Psychology
Advisors: Drs. J. Bruce Morton and Lindsay Bodell

BrainsCAN Tier 2 Postdoctoral Associate

April 2018 - August 2019

University of Western Ontario
The Brain and Mind Institute, Department of Psychology
Advisor: Dr. J. Bruce Morton

EDUCATION

Doctorate of Philosophy

Oct 2017

School of Public Health and Health Systems, University of Waterloo
Supervisor: Dr. Peter Hall
Thesis: "*Investigation into the neurocognitive mechanisms underlying self-regulatory processes in eating behaviours*"

Masters of Science (Health Studies and Gerontology)

Jan 2014

School of Public Health and Health Systems, University of Waterloo
Supervisor: Dr. Peter Hall
Thesis: "*The effects of continuous theta burst stimulation (cTBS) to the left dorsolateral prefrontal cortex on executive control resources, subjective food cravings, and the consumption of appetitive snack foods*"

Bachelor of Arts (Hons) Psychology

June 2010

Brock University

FELLOWSHIPS AND STUDENTSHIPS

2019-2022	BrainsCAN Tier 1 Postdoctoral Fellowship	\$ 210 000
2019-2021	CIHR Postdoctoral Fellowship (accepted in name)	\$ 90 000
2018-2020	BrainsCAN Tier 2 Postdoctoral Fellowship	\$110 000

AWARDS AND HONOURS

2018	Finalist Gold Medal Alumni Award	University of Waterloo	
2017	Doctoral Thesis Completion Award	University of Waterloo	\$5000
2016	AHS Teaching Assistant Award	University of Waterloo	\$500
2015	Brain Star Award	CIHR: Institute of Neurosciences, Mental Health, and Addiction	\$1500
2015	Distinguished Student Award	Society of Behavioural Medicine	\$500
2015	AHS Senate Award	University of Waterloo	\$500
2014	Best Overall Poster Presentation at the PhD Level	Canadian Obesity Network	\$300
2014	Entrance Scholarship	University of Waterloo	\$2500

PUBLICATIONS

Overview of Metrics: Peer reviewed manuscripts total = 18, 12 first author. Book chapters total =2, 1 first author. Received 527 (542 in total) citations since 2015, *h*-index = 12, *i10*-index = 12. The journal's impact factor (IF) and ranking (when available) according to the 2018 Scientific Journal Rankings. It is worth noting that of my publications 12 are in the top 25% of their category. Underlined contributors are graduate and undergraduate student mentees. * corresponding author.

JOURNAL CONTRIBUTIONS

18. **Lowe, C.J.**, Morton, J.B., & Reichelt, A.C. (2020). Adolescent obesity and dietary decision making—a brain-health perspective. *The Lancet Child & Adolescent Health*. DOI: [https://doi.org/10.1016/S2352-4642\(19\)30404-3](https://doi.org/10.1016/S2352-4642(19)30404-3)

Journal Metrics: 1st Quartile Psychology

IF: 8.54

17. Hall, P. A., Erickson, K., **Lowe, C.**, & Sakib, M. N. (2020). Quantifying cortical resilience in experimental, clinical and epidemiological studies: A conceptually grounded method using non-invasive brain stimulation. *Psychosomatic Medicine*, *82*(3), 281-286. DOI: 10.1097/PSY.0000000000000785

Journal Metrics: 1st Quartile Applied Psychology **IF:** 3.70

16. **Lowe, C.J.***, Reichelt A.C., & Hall, P.A (2019). The Prefrontal Cortex and Obesity: A Health Neuroscience Perspective. *Trends in Cognitive Sciences*, *23*, 349-361 DOI: <https://doi.org/10.1016/j.tics.2019.01.005>

Journal Metrics: 1st Quartile Cognitive Neuroscience (#1 Cognitive Neuroscience) **IF:** 15.22

15. **Lowe, C.J.**, & Reichelt A.C. (2019). Can magnetic resonance imaging reveal the neural signatures of dietary self-control? *Journal of Neuroscience*, *39*, 581-583. DOI: <https://doi.org/10.1523/JNEUROSCI.1972-18.2018>

Journal Metrics: 1st Quartile Neuroscience (#10 Neuroscience) **IF:** 5.67

14. **Lowe, C.J.**, & Hall, P.A. (2018) Reproducibility and sources of interindividual variability in the responsiveness to prefrontal continuous theta burst stimulation (cTBS). *Neuroscience Letters*, *687*, 280-284. DOI: <https://doi.org/10.1016/j.neulet.2018.09.039>.

Journal Metrics: 3rd Quartile Neuroscience **IF:** 2.27

13. Hall P.A., **Lowe C.J.** (2018). Cravings, currents and cadavers: What is the magnitude of tDCS effects on food craving outcomes? *Nutritional Neuroscience*, 1-4.

Journal Metrics: 1st Quartile Medicine **IF:** 4.03

12. **Lowe, C.J.**, Staines, W.R., Manocchio, F., Hall, P.A., Staines, W.R., Hall, P.A., Manocchio, F., Hall, P.A., (2018). The neurocognitive mechanisms underlying food cravings and snack food consumption. A combined continuous theta burst stimulation (cTBS) and EEG study. *Neuroimage* *177*, 45–58. DOI: <https://doi.org/10.1016/j.neuroimage.2018.05.013>.

Journal Metrics: 1st Quartile Cognitive Neuroscience (#4 Cognitive Neuroscience) **IF:** 5.90

11. Hall, P.A., **Lowe, C.J.**, Safati, A.B., Li, H., Klassen, E.B., Burhan, .A.M. (2018). Effects of left dlPFC modulation on social cognitive processes following food sampling. *Appetite* *126*, 73–79. DOI: <https://doi.org/10.1016/j.appet.2018.03.022>

Journal Metrics: 1st Quartile Psychology **IF:** 3.61

10. **Lowe, C.J.**, Manocchio, F., Safati, A.B., Hall, P.A. (2018). The effects of theta burst stimulation (TBS) targeting the prefrontal cortex on executive functioning: A systematic review and meta-analysis. *Neuropsychologia* *111*, 344-359. DOI: <https://doi.org/10.1016/j.neuropsychologia.2018.02.004>.

Journal Metrics: 1st Quartile Cognitive Neuroscience **IF:** 2.65

9. Hall, P. A., **Lowe, C.**, & Vincent, C. (2017). Brain Stimulation Effects on Food Cravings and Consumption: An Update on Lowe et al. (2017) and a Response to Generoso et al. (2017). *Psychosomatic Medicine*, *79*(7), 839–842. DOI: <https://doi.org/10.1097/PSY.0000000000000504>

Journal Metrics: 1st Quartile Applied Psychology **IF:** 3.70

8. **Lowe, C. J., Safati, A., & Hall, P. A. (2017).** The neurocognitive consequences of sleep restriction: A meta-analytic review. *Neuroscience & Biobehavioral Reviews*, *80*, 586–604. DOI: <https://doi.org/10.1016/j.neubiorev.2017.07.010>

Journal Metrics: 1st Quartile Cognitive Neuroscience **IF:** 8.33

7. **Lowe, C. J., Staines, W. R., & Hall, P. A. (2017).** Effects of moderate exercise on cortical resilience: A transcranial magnetic stimulation study targeting the dorsolateral prefrontal cortex. *Psychosomatic Medicine*, *79*(2), 143–152–10. <http://doi.org/10.1097/PSY.0000000000000361>

Journal Metrics: 1st Quartile Applied Psychology **IF:** 3.70

6. **Lowe, C. J., Vincent, C., & Hall, P. A. (2017).** Effects of noninvasive brain stimulation on food cravings and consumption. *Psychosomatic Medicine*, *79*(1), 2–13. DOI: <http://doi.org/10.1097/PSY.0000000000000368>

Journal Metrics: 1st Quartile Applied Psychology **IF:** 3.70

5. **Lowe, C. J., Kolev, D., & Hall, P. A. (2016).** An exploration of exercise-induced cognitive enhancement and transfer effects to dietary self-control. *Brain and Cognition*, *110*, 102–111. DOI: <http://doi.org/10.1016/j.bandc.2016.04.008>

Journal Metrics: 2nd Quartile Cognitive Neuroscience **IF:** 2.51

4. **Lowe, C. J., Hall, P. A., & Staines, W. R. (2014).** The effects of continuous theta burst stimulation to the left dorsolateral prefrontal cortex on executive function, food cravings, and snack food consumption. *Psychosomatic medicine*, *76*(7), 503-511. DOI: [10.1097/PSY.0000000000000090](https://doi.org/10.1097/PSY.0000000000000090)

Journal Metrics: 1st Quartile Applied Psychology **IF:** 3.70

3. **Lowe, C. J., Hall, P. A., Vincent, C. M., & Luu, K. (2014).** The effects of acute aerobic activity on cognition and cross-domain transfer to eating behavior. *Frontiers in Human Neuroscience*, *8*. DOI: [10.3389/fnhum.2014.00267](https://doi.org/10.3389/fnhum.2014.00267)

Journal Metrics: 1st Quartile Psychiatry and Mental Health **IF:** 3.21

2. Hall, P.A., **Tran, B., Lowe, C.J.,** Vincent C., Mourtzakis, M., Roy E., Lui-Ambrose, T., Prapavessis, H., & Gidron, Y. (2015). The expression of executive control in situational context: Effects of facilitating versus restraining cues on snack food consumption. *Health Psychology*, *34*(5), 539-546. DOI: [10.1037/hea0000134](https://doi.org/10.1037/hea0000134)

Journal Metrics: 1st Quartile Applied Psychology **IF:** 3.06

1. Hall P.A., **Lowe, C., & Vincent, C. (2014).** Executive control resources and snack food consumption in the presence of restraining versus facilitating cues. *Journal of Behavioral Medicine*, *37*(4), 587-594. doi: [10.1007/s10865-013-9528-3](https://doi.org/10.1007/s10865-013-9528-3)

Journal Metrics: 1st Quartile Psychology **IF:** 2.99

BOOK CHAPTERS

2. Hall, P.A., Fong, G.T., & **Lowe C.J.** (2018). Affective dynamics in temporal self-regulation theory: Social forces meet neurobiological processes. In D. Williams, M. Conner, & R. Rhodes, *Affective determinants of health behavior*. Oxford, UK: Oxford University Press.
1. **Lowe, C.**, & Hall, P.A. (2013). Neurobiological facets of food craving and consumption: Evidence from Neuropsychological and Transcranial Magnetic Stimulation (TMS) Studies. In P. Hall (Ed.), *Social Neuroscience and Public Health: Foundations of an Emerging Discipline*. Springer: New York, NY.

PREPRINTS

1. Manocchio, F., **Lowe, C.J.**, Hall, P.A. Investigating the cortical buffering effects of acute exercise: A combined cTBS and EEG study. <https://www.biorxiv.org/content/10.1101/2020.09.14.297010v2>
2. **Lowe, C.J.**, Cho, I., Goldsmith, S.F. & Morton, J.B. The bilingual advantage in children is not related to language status: a meta-analytic review. <https://psyarxiv.com/spjfg/>

*Currently under review(Revision Requested) at *Neuroimage Reports*

*Currently under review (Revision Requested) at *Psychological Science*

SUBMITTED MANUSCRIPTS TO A REFEREED JOURNAL

1. Shoychet G, **Lowe, C.J.**, Bodell, L.P. Food for Thought: Do Calorie Labels Influence Eating Behaviours in Young Adults? Submitted to *Appetite*

WORKS IN PREPARATION

2. **Lowe, C.J.**, Morton, J.B., Leatherdale S, Falkner G., Patte K. Physical activity mediates the association between emotion regulation and snack food consumption: Evidence from the COMPASS study. In preparation to be submitted by Nov 2020.
1. Cho, I, Morton, J.B., **Lowe, C.J.*** Continuous theta burst stimulation over the left lateral prefrontal cortex and right temporal parietal junction differentially impacts executive functions and theory of mind. In preparation to be submitted by Nov 2020.

CONFERENCE CONTRIBUTIONS

CONFERENCE ABSTRACTS ACCEPTED AS TALKS

1. **Lowe, C.J.** (2019, May). Prefrontal cortical activity modulates obesogenic eating behaviours. Presented at the HBHL Research Day, Montreal Quebec, May 3, 2019.
2. **Lowe, C.J.** (2018, May). Attenuation of Dorsolateral Prefrontal Cortex Activity Increases Appetitive Food Cravings and Consumption Via Heightened Reward Responsivity to High Calorie Food Stimuli. In P.A. Hall (Chair), *Health Neuroscience: Exploring lifestyle factors and brain health*. Symposium conducted at the Association for Psychological Science Annual Convention, San Francisco, CA.

3. **Lowe C.**, Hall P. & Staines W.R. *Testing the causal status of the EF-dietary behaviour link using cortical stimulation techniques*. Presented at the Society of Behavioral Medicine Annual Meeting, San Antonio TX, April 23, 2015.
4. **Lowe, C.**, Hall P., & Staines W.R. *The effects of continuous theta burst stimulation to the left dorsolateral prefrontal cortex on executive function, food cravings, and snack food consumption*. Presented at the 4th Canadian Obesity Student Meeting, Waterloo ON, June 19, 2014.

CONFERENCE ABSTRACTS ACCEPTED AS POSTERS

1. **Lowe, C.J.**, Manocchio, F., & Hall, P.A. (2018, May). *Examination into the reliability and effectiveness of Theta Burst Stimulation (TBS) Protocols targeting the prefrontal cortex in modulating executive function task performance: A systematic review and meta-analysis*. Poster presented at the Association for Psychological Science Annual Convention, San Francisco, CA.
2. **Lowe, C.J.**, Manocchio, F., & Hall, P.A. (2018, May). *Examination into the reproducibility and sources of inter-individual variability in the attenuating effects of continuous theta burst stimulation targeting the dorsolateral prefrontal on executive functions*. Poster presented at the Association for Psychological Science Annual Convention, San Francisco, CA.
3. Manocchio, F., **Lowe, C.J.**, Staines, W.R., & Hall, P.A. (2018, May). *Investigating cortical buffering effects of acute exercise: A cTBS study targeting the left dorsolateral prefrontal cortex*. Poster presented at the Association for Psychological Science Annual Convention, San Francisco, CA.
4. Kolev D., **Lowe C.**, & Hall P. *An exploration of exercise-induced cognitive enhancement and transfer effects to dietary self-control*. Presented at the 36th Annual Southern Ontario Neuroscience Association Conference, Waterloo ON, May 6, 2016.
5. **Lowe C.**, Hall P., & Staines W.R. *The effects of moderate exercise on the dorsolateral prefrontal cortex following transient downregulation by continuous theta burst stimulation*. Poster presented at the 36th Annual Southern Ontario Neuroscience Association Conference, Waterloo ON, May 6, 2016.
6. **Lowe C.**, Vincent C., Luu K., & Hall P. *The effects of acute aerobic activity on cognition and cross-domain transfer to eating behavior*. Poster presented at the 4th Canadian Obesity Student Meeting, Waterloo ON, June 19, 2014.
7. **Lowe C.**, Vincent C., & Hall P. *The effects of situational cues and executive function on snack food consumption among older adults*. Poster presented at the 4th Canadian Obesity Student Meeting, Waterloo ON, June 21, 2014.
8. Tran B., **Lowe C.** & Hall P. *The effect of executive function on dietary behaviors in the presence of external cues*. Poster presented at the 4th Canadian Obesity Student Meeting, Waterloo ON, June 21, 2014.
9. **Lowe C.**, Vincent C., & Hall, P. *The influence of facilitating environmental cues on snack food consumption in overweight and obese young adults*. Poster presented at the Canadian Obesity Summit, Vancouver BC, May 1, 2013.
10. Hall, P., **Lowe C.**, & Vincent, C. *The effects of executive control on snack food consumption in the presence of restraining versus facilitating cues*. Poster presented at the Society of Behavioral Medicine Annual Meeting, San Francisco CA, March 20, 2013.
11. **Lowe C.**, Murphy T.I., Homan, D.B. *I was not wrong, was I? ERP correlates of error awareness in an antisaccade task*. Poster presented at the Society for Psychophysiological Research, Portland, OR, Sept 2010.

MENTORING EXPERIENCE

September 2019 – Present	Jiacheng Yu Department of Psychology Western University Honour's thesis student
September 2019 – Present	Mohammed Sarikahya Department of Psychology Western University Independent studies student
Jan 2019-Present	Isu Cho Department of Psychology Western University PhD Candidate
April 2015-August 2016	Felicia Manocchio School of Public Health and Health Systems University of Waterloo Undergraduate research assistant and MSc student
April 2015-August 2016	Adrian Safati School of Public Health and Health Systems University of Waterloo Undergraduate research assistant
Sept 2015-April 2015	Dimitar Kolev School of Public Health and Health Systems University of Waterloo Honour's thesis student
Sept 2013-April 2014	Kimberely Luu Kinesiology research elective student University of Waterloo
Sept 2013-April 2014	Kathleen Dobson School of Public Health and Health Systems University of Waterloo Honour's thesis student
Sept 2013-April 2014	Betty Tran School of Public Health and Health Systems University of Waterloo Honour's thesis student

TEACHING EXPERIENCE

Head Teaching Assistant: Introduction to Health 1 2014-2017
Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Head Teaching Assistant- Introduction to Health 2 2015-2017
Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Introduction to Health 1 2014-2017

Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Introduction to Health 2 2014-2017
Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Environmental Toxicology and Public Health 2015
Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Social Determinants of Health 2014
Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Health Policy in Public Health 2012
Graduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Psychological Determinants of Health 2012 Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

Teaching Assistant: Aging and Health 2011
Undergraduate Course
School of Public Health and Health Systems, University of Waterloo

INVITED TALKS AND GUEST LECTURES

2017	Undergraduate	Mental Illness and Disorders	Introduction to Health (HLTH 101)
2016	Undergraduate	Mental Illness and Disorders	Introduction to Health (HLTH 101)
2016	Graduate	How to use LEARN and getting on-line for the MPH program.	Capstone (PHS 601/602)
2015	Undergraduate	Mental Illness and Disorders	Introduction to Health (HLTH 101)
2014	Undergraduate	Built Environment and Physical Activity	Social Determinants of Health (HLTH 260)
2014	Graduate	Non-invasive brain stimulation methods	Neuroscience Methods (Kin 654)

SCIENTIFIC REVIEW ACTIVITIES

Scientific Journal Ad Hoc Reviewer

Brain Stimulation, Sleep Medicine Reviews, Appetite, American Journal of Clinical Nutrition, Frontiers in Psychology, Behavioral Neuroscience, Cognitive, Affective and Behavioural Neuroscience, Frontiers in Psychiatry, Nature Human Behaviour

Conference Abstract Review and Award Reviews

- Canadian Obesity Summit Abstract Selection Committee (2016)
- Canadian Obesity Network Student Award Selection Committee (2016)
- Canadian Obesity Student and New Professional Conference Abstract Selection Committee (2014)
- Canadian Obesity Student and New Professional Conference Award Selection Committee (2014)

PROFESSIONAL SERVICE

2014-2017	Board of Directors (National), Student Member, Canadian Obesity Network
2014-2015	Organizing Committee for Student & Professional Events – Canadian Obesity Summit
2013-2014	Chair of the Organizing Committee of Canadian Obesity Network Student and New Professional Conference

SCIENTIFIC OUTREACH AND PUBLIC COMMUNICATIONS ACTIVITIES

TEXT INTERVIEWS

The Globe and Mail: <https://www.theglobeandmail.com/canada/article-why-you-might-be-binge-eating-while-stuck-at-home-during-the-pandemic/>

The Globe and Mail: <https://www.theglobeandmail.com/life/health-and-fitness/article-how-exercise-may-help-keep-food-cravings-in-check/>

Sydney Morning Herald: <https://www.smh.com.au/lifestyle/health-and-wellness/the-relationship-between-weight-and-self-control-is-complex-20190311-p51398.html>

Trends in Cognitive Sciences Eurekaalert: https://www.eurekaalert.org/pub_releases/2019-02/cp-rsa022119.php

Western News: <https://news.westernu.ca/2019/03/pre-frontal-activity-can-recipe-obesity/>

MEDIA APPEARANCES AND INTERVIEWS

The Craig Needles Show (AM 980), March 11, 2020

CTV News(London), March 10, 2020

CTV News (London), March 1, 2019.

CBC Radio: Afternoon Drive, February 27, 2019

OTHER OUTREACH ACTIVITIES

Webinar for the Canadian Positive Psychology Association, April 23, 2019