
BIOGRAPHICAL SKETCH

NAME: Bradley C. Johnston, PhD

POSITION TITLE: Associate Professor

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
University of New Brunswick, Fredericton, NB	BSc(Kin)	05/1996	Sport and Exercise Science
Canadian College of Naturopathic Medicine, Toronto, ON	N.D.	06/2002	Naturopathic Medicine
University of Oxford, Oxford, UK	Post-Doctoral Fellow	06/2004	Evidence-Based Health Care
University of Alberta, Edmonton, AB	Ph.D.	05/2009	Experimental Medicine
McMaster University, Hamilton, ON	Post-Doctoral Fellow	08/2011	Epidemiology & Biostatistics

A. Personal Statement

I am an Associate Professor of Nutrition (primary appointment), Epidemiology and Biostatistics at Texas A&M University. I joined Texas A&M in 2020 based on my international leadership in evidence synthesis methods (systematic reviews/meta-analysis, public health practice guidelines), as well as my expertise in the methodology of randomized clinical trials, and patient-reported health status outcomes (e.g. measuring quality of life). I have extensive experience in systematic reviews and practice guidelines addressing nutrition and lifestyle interventions for diabetes, obesity, and digestive diseases as evidenced by >10 first or senior (corresponding) authored publications in high-impact journals including *JAMA*, *BMJ*, *Annals of Internal Medicine*, and the *Cochrane Library* (see citations 1-4 below). I have more than 10 years of experience teaching and coordinating the Controlled Clinical Trials and Systematic Reviews courses at McMaster University, University of Toronto and Dalhousie University. Currently I teach two undergraduate courses in Critical Appraisal and Evidence-Based Practice (Nutri 204; Nutri 481) in the Department of Nutrition at Texas A&M University. Further, I have noteworthy experience in training students and clinicians in evidence-based decision-making, having completed post-doctoral training in Evidence-Based Health Care (Oxford University) and having been a tutor (2015 to 2022) in the annual weeklong Evidence-Based Clinical Practice Workshop at McMaster University, the first and premier workshop of its kind in the world. Currently I co-lead an NIH R25 funded program on Evidence-Based Nutrition Practice. My H-Index is 59 based on over 17,000 citations, considered “outstanding” for someone at my career stage according to Hirsch’s (2005) categorization scheme (Google Scholar: 04/30/2023), and I have obtained more than \$1,700,000 in funding as a principal investigator.

1. **Johnston BC**, Kanters S, Bandayrel K, Wu P, Naji F, Siemieniuk RA, Ball GD, Busse JW, Thorlund K, Guyatt G, Jansen JP, Mills EJ. Comparison of weight loss among named diet programs in overweight and obese adults: a meta-analysis. *JAMA*. 2014 Sep 3;312(9):923-33.
2. Ge L, Sadeghirad B, Ball GDC, da Costa BR, Hitchcock C, Svendrovski A, Kiflen R, Quadri K, Kwon HY, Karamouzian M, Adams-Webber T, Ahmed W, Damanhoury S, Zeraatkar D, Nikolakopoulou A, Tsuyuki RT, Tian J, Yang K, Guyatt GH, **Johnston BC**. Comparison of dietary macronutrient patterns based on 14 popular named dietary programs for weight and cardiovascular risk reduction in adults: A systematic review and network meta-analysis of randomized trials *BMJ*. 2020 Apr 1;369:m696.
3. Goldenberg JZ, Day A, Brinkworth GD, Sato J, Yamada S, Jönsson T, Beardsley J, Johnson JA, Thabane L, **Johnston BC**. Efficacy and safety of low and very low carbohydrate diets for type 2 diabetes remission: systematic review and meta-analysis of published and unpublished randomized trial data. *BMJ*. 2021 Jan 13;372:m4743.
4. Goldenberg JZ, Yap C, Lytvyn L, Lo CK, Beardsley J, Mertz D, **Johnston BC**. Probiotics for the prevention of *Clostridium difficile*-associated diarrhea in adults and children. *Cochrane Database Syst Rev*. 2017 Dec 19;12(12):CD006095.

B. Positions, Scientific Appointment and Honors

Positions and Employment

2004 - 2006	Research Assistant, AHRQ Evidence-Based Practice Centre, University of Alberta
2004 - 2006	Research Assistant, Department of Pediatrics, University of Alberta
2006 - 2009	Research Project Coordinator, Department of Pediatrics, University of Alberta
2009 - 2011	Post-Doctoral Fellow, Department of Clinical Epidemiology & Biostatistics, McMaster University
2011 - 2017	Scientist, The Hospital for Sick Children Research Institute, The Hospital for Sick Children
2011 - 2017	Clinical Epidemiologist, Department of Anesthesiology and Pain Medicine, The Hospital for Sick Children, University of Toronto
2012 - 2017	Assistant Professor, Health Policy, Management and Evaluation, Dalla Lana School of Public Health, University of Toronto
2014 - 2014	Visiting Scientist, Iberoamerican (Spanish) Cochrane Center, Barcelona, Spain
2015 - 2017	Scientific Director, Systematic Overviews through advancing Research Technologies (SORT), The Hospital for Sick Children Research Institute
2017 - 2019	Associate Professor (tenure track), Department of Community Health and Epidemiology, Dalhousie University
2017 -	Director and Co-founder, Nutrition Recommendations (NutriRECS) Research and Education Program
2020 -	Associate Professor (tenured), Department of Nutrition, Texas A&M University
2020 -	Associate Professor (cross-appointment), Department of Epidemiology and Biostatistics, Texas A&M University
2023 -	Director and Co-founder, EvidenceBasedNutrition.org

Other Experience and Professional Memberships

2004 -	Cochrane Patient-Reported Outcomes Methods Group
2004 -	Cochrane Gut Review Group
2012 -	GRADE Working Group
2017 -	Associate Editor and Editorial Advisor, <i>BMC Medical Research Methodology</i> (Impact Factor = 4.8)
2020 -	Member - PhD Program Re-design Committee, Department of Nutrition, Texas A&M University
2021 -	Undergraduate Curriculum Re-design Committee, Department of Nutrition, Texas A&M University
2021 -	Chair - Faculty Search Committee and Inclusion and Diversity Hiring Committee, Department of Nutrition, Texas A&M University

Honors

2004 - 2005	Studentship, AHRQ Evidence-Based Practice Centre, University of Alberta
2005 - 2005	Scholarship, Outstanding Academic Achievement in 1st Year of Graduate School, Alberta Ministry of Health
2005 - 2008	Fellowship, The Hospital for Sick Children Duncan L. Gordon Post-Doctoral Award
2005 - 2006	Fellowship, Canadian Institute of Health Research Post-Doctoral Award
2009 - 2011	Fellowship, The Hospital for Sick Children Post-Doctoral Award

C. Contribution to Science

Advancing methods in nutrition evidence synthesis and evidence-based nutrition practice

As the Director and Co-founder of NutriRECS, together with a consortium of >40 researchers and research trainees we developed high quality, value-added practice guideline recommendations on red and processed

meat and health outcomes. The work was published as a series of 6 papers (1 practice guideline based on 5 supporting systematic reviews) in the *Annals of Internal Medicine* (Impact Factor=51). Among other novel and robust methodological approaches, the nutrition guidelines on meat were the first to: i) follow international guideline standards set forth by the Institute of Medicine, AGREE and the GRADE working group to assess the potential casual connection between red meat and processed meat and health outcomes, ii) assess the quality (certainty) of evidence for all outcomes (e.g. diabetes, heart disease, cancer), iii) together with relative risk/hazard ratio, report intuitive absolute estimates of effect for decision-makers (e.g. risk difference) suggesting very small benefits, based on low to very low quality evidence, achieved by realistic reductions in red and processed meat (i.e. 3 fewer servings per week), and iv) incorporate value and preference data based on public attitudes related to meat consumption and health outcomes. The work did not address animal welfare or environment issues. Overall the guidelines generated considerable scientific debate. Four key citations from this work are below (1-4).

As the Director and Co-Founder of EvidenceBasedNutrition.org, more recent advances in developing EBP educational resources and research in the nutrition field are also below (5-7). Work includes i) an overview of EBP philosophy, ii) a comparison of RCT data for preventing mortality and major cardiovascular events, showing that Mediterranean style dietary programs offer the most protection, and iii) a systematic review of EBP competences among nutrition students and professionals. The later work is funded by an NIH R25 through the NIDDK.

Nutrition Evidence Synthesis

1. **Johnston BC**, Zeraatkar D, Han MA, Vernooij RWM, Valli C, El Dib R, Marshall C, Stover PJ, Fairweather-Tait S, Wójcik G, Bhatia F, de Souza R, Brotons C, Meerpohl JJ, Patel CJ, Djulbegovic B, Alonso-Coello P, Bala MM, Guyatt GH. Unprocessed Red Meat and Processed Meat Consumption: Dietary Guideline Recommendations From the Nutritional Recommendations (NutriRECS) Consortium. *Ann Intern Med*. 2019 Nov 19;171(10):756-764.

→ Plus 5 supporting systematic reviews published in *Ann Intern Med*. (four as lone corresponding author) and 2 letters of response to criticisms

2. Rubin R. Backlash over meat dietary recommendations raises questions about corporate ties to nutrition scientists. *JAMA*. 2020;10.1001/jama.2019.21441.

3. **Johnston BC** & Guyatt GH. Causal inference, interpreting and communicating results on red and processed meat. *Am J Clin Nutr*. 2020;111(5):1107-1108.

→ On the reporting absolute estimates of effect for decision-makers and the use of GRADE in evidence synthesis nutrition science

4. **Johnston BC**, Zeraatkar D, Vernooij RWM, Rabassa M, El Dib R, Valli C, Han MA, Alonso-Coello P, Bala MM, Guyatt GH. Unprocessed red meat and processed meat consumption. *Ann Intern Med*. 2020;172(9):639-640.

→ Response to comments on environmental impact of meat, composition of guideline panel, food replacement analysis, epidemiology vs evidence-based principles, the use of E-values to address causation

Evidence-Based Nutrition Practice

5. **Johnston BC**, Seivenpiper JL, Vernooij RWM, de Souza RJ, Jenkins DJA, Zeraatkar D, Bier DM, Guyatt GH. The Philosophy of Evidence-Based Principles and Practice in Nutrition. *Mayo Clin Proc Innov Qual Outcomes*. 2019 May 27;3(2):189-199. Available from:

[https://www.mcpiqojournal.org/article/S2542-4548\(19\)30031-1/fulltext](https://www.mcpiqojournal.org/article/S2542-4548(19)30031-1/fulltext)

6. Ghosh N, Lorenz S, Creasy R, Sauers D, **Johnston B**. Evidence-Based Practice in the Field of Nutrition: A Systematic Review of Knowledge, Skills, Attitudes, Behaviors and Teaching Strategies. *Nutrition 2022*, American Society of Nutrition (ASN). Online (June 14-16, 2022). Available from:

https://academic.oup.com/cdn/article/6/Supplement_1/425/6606345

7. Karam G, Agarwal A, Sadeghirad B, Jalink M, Hitchcock CL, Ge L, Kiflen R, Ahmed W, Zea AM, Milenkovic J, Chedrawe MA, Rabassa M, El Dib R, Goldenberg JZ, Guyatt GH, Boyce E, **Johnston BC**. Comparison of seven popular structured dietary programmes and risk of mortality and major cardiovascular events in patients at increased cardiovascular risk: systematic review and network meta-analysis. *BMJ*. 2023 Mar 29;380:e072003. Available from: <https://www.bmj.com/content/380/bmj-2022-072003>

Interpreting results of patient-reported quality of life outcomes in meta-epidemiology studies

I have worked to address the use of continuous outcome measures, in particular patient reported outcomes (PROs), in the clinical decision-making context. Randomized trials often use different measures for the same construct (such as quality of life). These trials are often pooled in meta-analysis as a standardized mean difference (SMD) and used for the development of guideline recommendations. I have developed and evaluated an alternative to the most commonly used approach (SMD, which has both statistical and interpretational limitations): reporting results in minimal important difference (MID) units (Johnston et al. *BMC Health Qual Life Outcomes* 2010; Johnston et al. *J Clin Epi* 2012), a new and intuitive approach to meta-analyze PROs.

I have summarized MID units together with 5 additional summary estimates that clinicians can more easily interpret than SMD including a Ratio of Means and Risk Difference (Johnston et al. *Health Qual Life Outcomes* 2013a; 2013b). These approaches have been recommended by the GRADE Working Group (Guyatt et al. *J Clin Epi* 2013). I have also led a randomized cross-sectional survey of 531 clinicians across 8 countries finding that physicians best understood continuous outcomes when presented as dichotomies (Risk Difference and Relative Risk based on the MID) (Johnston et al. *CMAJ* 2015).

Based on this body of work, I have been the PI or Co-I with Dr. Tahira Devji and others on Canadian Institute of Health Research (CIHR) project grants worth over \$380,000.00 to document and appraise all MID estimates in the literature (2015-2016; 2020-2022). For instance, I have supervised the publication of the results for 29 PROs relevant to children (Ebrahim et al. *Pediatrics* 2017). In 2020, the CIHR funded initiative that I led (Johnston et al. *BMJ Open* 2016) culminated in the publication of a mega-systematic review documenting all Minimal Important Difference (MID) estimates for over 600 PROs published in *BMJ* (Impact Factor=30) and *Journal of Clinical Epidemiology* (Impact Factor=5). A milestone for interpretation of PRO measures in RCTs and the systematic reviews of RCTs: an inventory of all the anchor-based MIDs known to human-kind, each with a credibility assessment. My expertise in PRO measurement is reflected in my being the lead author of the PROs chapter in the Cochrane Handbook (2019). The Cochrane Handbook is recognized as the authoritative source for systematic review methods, with over 44,000 total citations. Four key citations from this work are below.

1. **Johnston BC**, Thorlund K, da Costa BR, Furukawa TA, Guyatt GH. New methods can extend the use of minimal important difference units in meta-analyses of continuous outcome measures. *J Clin Epidemiol*. 2012 Aug;65(8):817-26.
2. **Johnston BC**, Alonso-Coello P, Friedrich JO, Mustafa RA, Tikkinen KAO, Neumann I, Vandvik PO, Akl EA, da Costa BR, Adhikari NK, Dalmau GM, Kosunen E, Mustonen J, Crawford MW, Thabane L, Guyatt GH. Do clinicians understand the size of treatment effects? A randomized survey across 8 countries. *CMAJ*. 2016 Jan 5;188(1):25-32.
3. **Johnston BC**, Ebrahim S, Carrasco-Labra A, Furukawa TA, Patrick DL, Crawford MW, Hemmelgarn BR, Schunemann HJ, Guyatt GH, Nesrallah G. Minimally important difference estimates and methods: a protocol. *BMJ Open*. 2015 Oct 1;5(10):e007953.
4. **Johnston BC**, Patrick DL, Devji T, Maxwell LJ, Bingham CO, Beaton D, Boers M, Briel M, Busse JW, Carrasco-Labra A, Christensen R, da Costa BR, El Dib R, Lyddiatt A, Ostelo RW, Shea B, Singh J, Terwee CB, Williamson PR, Gagnier JJ, Tugwell P, Guyatt GH. *Chapter 18: Patient Reported Outcomes*. In: Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). *Cochrane Handbook for Systematic Reviews of Interventions*, 2019, London, Cochrane.

Probiotics to prevention antibiotic associated diarrhea and C. difficile infection: Systematic reviews and randomized trial

I have developed expertise and made important contributions in the area of microbial preparations (probiotics) for the prevention of antibiotic-associated diarrhea (AAD) and *Clostridium difficile* infection (CDI). I led and supervised systematic reviews and meta-analyses of both aggregate data and individual patient data demonstrating that probiotics appear safe and effective among otherwise healthy children and adults for preventing AAD (*CMAJ* 2006, >275 citations; *Cochrane Library* 2011, >700 citations) and CDI (*Annals Intern Med* 2012; >450 citations; *Cochrane Library* 2017, >800 citations; *Infect Control Hosp Epidemiol* 2018, >40 citations). Among other media outlets, The BBC, CBC, and The New York Times have covered my teams work on probiotics. I have been invited to write a synopsis of my work in AAD and CDI for *JAMA* (*JAMA* 2016; *JAMA* 2018). Based on this work I am a co-investigator on a recent peer-reviewed grant from Hamilton Health Sciences (\$128,000.00) for pilot randomized trial of probiotics versus vancomycin vs placebo for the prevention to CDI in adults. Four key citations from this work are below (1-4).

1. **Johnston BC**, Supina AL, Vohra S. Probiotics for pediatric antibiotic-associated diarrhea: a meta-analysis of randomized placebo-controlled trials. *CMAJ*. 2006 Aug 15;175(4):377-83.
2. **Johnston BC**, Ma SS, Goldenberg JZ, Thorlund K, Vandvik PO, Loeb M, Guyatt GH. Probiotics for the prevention of *Clostridium difficile*-associated diarrhea: a systematic review and meta-analysis. *Ann Intern Med*. 2012 Dec 18;157(12):878-88.
3. **Johnston BC**, Lytvyn L, Lo CK, Allen SJ, Wang D, Szajewska H, Miller M, Ehrhardt S, Sampalis J, Duman DG, Pozzoni P, Colli A, Lönnemark E, Selinger CP, Wong S, Plummer S, Hickson M, Pancheva R, Hirsch S, Klarin B, Goldenberg JZ, Wang L, Mbuagbaw L, Foster G, Maw A, Sadeghirad B, Thabane L, Mertz D. Microbial Preparations (Probiotics) for the Prevention of *Clostridium difficile* Infection in Adults and Children: An Individual Patient Data Meta-analysis of 6,851 Participants. *Infect Control Hosp Epidemiol*. 2018 Jul;39(7):771-781.
4. Goldenberg JZ, Yap C, Lytvyn L, Lo CK, Beardsley J, Mertz D, **Johnston BC**. Probiotics for the prevention of *Clostridium difficile*-associated diarrhea in adults and children. *Cochrane Database Syst Rev*. 2017 Dec 19;12(12):CD006095.

Complete List of Published Work in PubMed:

<https://pubmed.ncbi.nlm.nih.gov/?term=johnston+bc&sort=date>