

University of Windsor

## Scholarship at UWindsor

---

UWill Discover Conference

UWill Discover 2022

---

### An Integrative Review on the Effect of School- Based Nutrition Programs on Obesity Rates in Indigenous Youth

Melissa Stein

*University of Windsor*, steinmj@uwindsor.ca

Rachel Raspburg

*University of Windsor*, alexandr@uwindsor.ca

Scott Berendsen

*University of Windsor*, berends@uwindsor.ca

Natalie Gladwish

*University of Windsor*, gladwisn@uwindsor.ca

Melissa Bonifazi

*University of Windsor*, vuk@uwindsor.ca

*See next page for additional authors*

Follow this and additional works at: <https://scholar.uwindsor.ca/uwilldiscover>

---

Stein, Melissa; Raspburg, Rachel; Berendsen, Scott; Gladwish, Natalie; Bonifazi, Melissa; and Sharrow, Jennifer, "An Integrative Review on the Effect of School- Based Nutrition Programs on Obesity Rates in Indigenous Youth" (2022). *UWill Discover Conference*. 2.

<https://scholar.uwindsor.ca/uwilldiscover/2022/2022Day3/2>

This Event is brought to you for free and open access by the Conferences and Conference Proceedings at Scholarship at UWindsor. It has been accepted for inclusion in UWill Discover Conference by an authorized administrator of Scholarship at UWindsor. For more information, please contact [scholarship@uwindsor.ca](mailto:scholarship@uwindsor.ca).

---

**Submitter and Co-author information**

Melissa Stein, Rachel Raspburg, Scott Berendsen, Natalie Gladwish, Melissa Bonifazi, and Jennifer Sharrow



# WE CAN'T WEIGHT ANY LONGER:

An Integrative Review on Obesity Rates  
in Canadian Indigenous Children

Scott Berendsen, Melissa Bonifazi, Natalie Gladwish,  
Rachel Raspburg, Jennifer Sharrow, Melissa Stein

# Acknowledgment

We want to respectfully acknowledge that the University of Windsor sits upon the traditional territory of the Three Fires Confederacy of First Nations, (comprising the Ojibwa, the Odawa, and the Potawatomi Peoples), and of the Huron Wendat and Wyandot Peoples past, present and future. We recognize that many of us are uninvited guests on these lands. We recognize the distinct impact that colonialism has had and continues to have on the people, animals and plants who are Indigenous to this territory. Let this acknowledgment serve as a reminder that we must all continue to strengthen the longstanding relationship with First Nations people in this 100-mile Windsor-Essex peninsula and the straits – les détroits – of Detroit.

## Introduction & Background

- What is it?
- Why does it matter?
- How does Obesity in Indigenous Children differ from non-Indigenous children?



# Methods & Search Strategy

## Inclusion Criteria:

- English
- Obesity Research Focus
- Peer reviewed
- School Aged  
Children/Youth under  
18 years old
- Published after 2000

## Databases:

- CINAHL
- PubMed
- Google Scholar

## Key Search Terms:

- Indigenous/Aboriginal
- Children/youth
- Obesity/over-weight
- Nutrition/food  
program(s)

# Results

## Data Alignment

- 25 articles (78%) aligned with the purpose of conducting this integrative review.
- 9 articles (36%) measured obesity by examining body mass index of participants.
- 12 articles (50%) considered age and gender as covariables when examining obesity rates and its impact on nutrition status.
- 18 articles (72%) utilized similar data collection methods, such as questionnaires or surveys with participants.

## Data Divergence & Gaps

- 12 articles (50%) noted a cultural component with only 3 (12.5%) articles specifically describing Indigenous ownership of the intervention
- Nine (37.5%) of the total sources involved an educational component as an aspect of an intervention or review of interventions, but only 16% of these sources specify culturally centered-education

# Limitations & Discussion

- Lack of access to healthy nutritious foods in Indigenous communities prevents the sustainability of implemented food programs (Skinner, Et al., 2021).
- Recall error completing questionnaires threatens studies validity.
- Positive impact overall





# Recommendations & Conclusion

## Indigenous Ownership

- Indigenous ownership of Interventions correlated with positive study outcomes

## Combine Diet / Education / Physical Activity

- Interventions which included a combination of culturally-centric nutritious food choices, education, and physical activity interventions proved most successful

## Further Studies Required

- Continued efforts to support Indigenous communities in the development and implementation of interventions are needed to identify the most effective strategies

Gillies et al., 2018., Valery et al., 2012



So  
What?

# References

- Bhawra, J., Cooke, M. J., Hanning, R., Wilk, P., & Gonneville, S. L. H. (2015). Community perspectives on food insecurity and obesity: Focus groups with caregivers of metis and off-reserve first nations children. *International Journal for Equity in Health*, 14, 1–10. <https://doi-org.ledproxy2.uwindsor.ca/10.1186/s12939-015-0232-5>
- Boklis-Berer, Rauber, F., Azeredo, C. M., Levy, R. B., & Louzada, M. L. da C. (2021). The adherence to school meals is associated with a lower occurrence of obesity among Brazilian adolescents. *Preventive Medicine*, 150, 106709–106709. <https://doi.org/10.1016/j.ypmed.2021.106709>
- Browne, J., Adams, K., Atkinson, P., Gleeson, D., & Hayes, R. (2018). Food and nutrition programs for Aboriginal and Torres Strait Islander Australians: An overview of systematic reviews. *Australian Health Review*, 42(6), 689–697. <https://doi-org.ledproxy2.uwindsor.ca/10.1071/AH17082>
- Bryars, T., Mouttapa, M., McMahan, S., & Park Tanjasiri, S. (2012). Results of a school -based obesity prevention program targeting early childhood students. *Californian Journal of Health Promotion*, 10(1), 91–102. <https://journals.calstate.edu/cjhp/article/view/1499>
- Bullock, A., Sheff, K., Moore, K., & Manson, S. (2017). Obesity and overweight in american indian and alaska native children, 2006-2015. *American Journal of Public Health*, 107(9), 1502-1507. <https://doi-org.ledproxy2.uwindsor.ca/10.2105/AJPH.2017.303904>
- Caballero, B., Clay, T., Davis, S.M., Ethelbah, B., Holy Rock, B., Lohman, T., Norman, J., Story, M., Stone, E.J., Stephenson, L., & Stevens, J. (2003). Pathways: A school-based, randomized controlled trial for the prevention of obesity in American Indian schoolchildren. *American Journal of Clinical Nutrition*, 78(5), 1030-1038. <https://doi-org.ledproxy2.uwindsor.ca/10/1093/ajcn/78.5.1030>
- Chan, H. M., Fediuk, K., Malek, B., Tonio, S., Constantine, T., Ing, A., & Lynn, B. (2021). The first nations food, nutrition and environment study (2008–2018) —rationale, design, methods and lessons learned. *Canadian Journal of Public Health*, 112, 8-19. doi:<http://dx.doi.org/10.17269/s41997-021-00480-0>
- Christidis, R., Lock, M., Walker, T., Egan, M., & Browne, J. (2021). Concerns and priorities of Aboriginal and Torres Strait Islander peoples regarding food and nutrition: a systematic review of qualitative evidence. *International Journal for Equity in Health*, 20(1), 1–19. <https://doi-org.ledproxy2.uwindsor.ca/10.1186/s12939-021-01551-x>
- Cole, T. J., Bellizzi, M. C., Flegal, K. M., & Dietz, W. H. (2000). Establishing a standard definition for child overweight and obesity worldwide: International survey. *BMJ: British Medical Journal*, 320(7244), 1240-1243. <http://www.jstor.org/stable/25224434>
- Colles, S. L., Maypilama, E., & Brimblecombe, J. (2014). Food, food choice and nutrition promotion in a remote Australian Aboriginal community. *Australian Journal of Primary Health*, 20(4), 365–372. <https://doi-org.ledproxy2.uwindsor.ca/10.1071/PY14033>

# References Cont.

- Cueva, K., Speakman, K., Neault, N., Richards, J., Lovato, V., Parker, S., Carroll, D., Sundbo, A., & Barlow, A. (2020). Cultural connectedness as obesity prevention: Indigenous youth perspectives on a feast for the future. *Journal of Nutrition Education & Behavior*, 52(6), 632–639. <https://doi-org.ledproxy2.uwindsor.ca/10.1016/j.jneb.2019.11.009>
- Davison, B., Goodall, J., Whalan, S., Montgomery, Q. K., Howarth, T., & Singh, G. (2019). Nutritional dual burden in Indigenous young adults: The geographical differential. *Australian Journal of Rural Health*, 27(1), 14–21. <https://doi-org.ledproxy2.uwindsor.ca/10.1111/ajr.12439>
- Deacon-Crouch, M., Begg, S., & Skinner, T. (2020). Is sleep duration associated with overweight/obesity in Indigenous Australian adults? *BMC Public Health*, 20(2), 1–13. <https://doi-org.ledproxy2.uwindsor.ca/10.1186/s12889-020-09287-z>
- Demir, D., & Bektas, M. (2021). The effect of an obesity prevention program on children's eating behaviors, food addiction, physical activity, and obesity status. *Journal of Pediatric Nursing*, 61, 355–363. <https://doi-org.ledproxy2.uwindsor.ca/10.1016/j.pedn.2021.09.001>
- Gates, Hanning, R. M., Gates, A., Isogai, A., Tsuji, L. J. S., & Metatawabin, J. (2013). A pilot comprehensive school nutrition program improves knowledge and intentions for intake of milk and milk alternatives among youth in a remote First Nation. *Journal of Nutrition Education and Behavior*, 45(5), 455–459. <https://doi.org/10.1016/j.jneb.2012.12.002>
- Gates M., Hanning R.M., Gates A., McCarthy D.D., & Tsuji L.J.S. (2013). Assessing the impact of pilot school snack programs on milk and alternatives intake in 2 remote First Nations communities in northern Ontario, Canada. *J Sch Health*, 83(2), 69-76
- Gates, A., Hanning, R.M., Martin, I.D., Gates, M., & Tsuji, L.J.S. (2014). Body weight perceptions and eating-related weight control behaviors of on-reserve First Nations youth from Ontario, Canada. *Rural and Remote Health*, 14(3), 2665. <http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=2665>
- Gillies, C., Farmer, A., Maximova, K., & Willows, N. D. (2018). First Nations students' perceptions of school nutrition policy implementation: A mixed methods study. *Nutrition & Dietetics*, 75(5), 533–540. <https://doi.org/10.1111/1747-0080.12499>
- Gillies, C., Blanchet, R., Gokiart, R., Farmer, A., Thorlakson, J., Hamonic, L., & Willows, N. D. (2020). School-based nutrition interventions for Indigenous children in Canada: a scoping review. *BMC Public Health*, 20(1), 11–11. <https://doi.org/10.1186/s12889-019-8120-3>
- Laws, R. Campbell, K. J., Van der Pligt, P., Russell, G., Ball, K., Lynch, J., Crawford, D., Taylor, R., Askew, D., & Denney-Wilson, E. (2014). The impact of interventions to prevent obesity or improve obesity related behaviours in children (0-5 years) from socioeconomically disadvantaged and/or indigenous families: a systematic review. *BMC Public Health*, 14(1), 779–779. <https://doi.org/10.1186/1471-2458-14-779>

# References Cont.

- Leme, A., Muszynski, D., Mirotta, J., Carroll, N., Hogan, J., Jewell, K., Yu, J., Fisberg, R., Duncan, A., & Haines, J., (2021). Diet quality of Canadian preschool children: Associations with socio-demographic characteristics. *Canadian Journal of Dietetic Practice and Research*, 82(3), 131-135. <https://www-proquest-com.ledproxy2.uwindsor.ca/scholarly-journals/diet-quality-canadian-preschool-children/docview/2564586426/se-2?accountid=14789>
- Miyawaki, Lee, J. ., & Kobayashi, Y. (2019). Impact of the school lunch program on overweight and obesity among junior high school students: A nationwide study in Japan. *Journal of Public Health (Oxford, England)*, 41(2), 362–370. <https://doi.org/10.1093/pubmed/fdy095>
- [Photograph of an Indigenous Child}. Humanium: Canada's Indigenous Children. <https://www.humanium.org/en/canadas-indigenous-children/>
- Rice, K., Te Hiwi, B., Zwarenstein, M., Lavelle, B., Barre, D.E., & Harris, S.B. (2016). Best practices for the prevention and management of diabetes and obesity-related chronic disease among indigenous peoples in Canada: A Review. *Canadian Journal of Diabetes*, 40(3), 216–225. DOI10.1016/j.jcjd.2015.10.007.
- Selmin, K., & Yildirim, G. (2020). The effect of a nutrition education program on nutrition behavior and body mass index of secondary school students. *International Journal of Caring Sciences*, 13(1), 573–582. <https://web-s-ebscohost-com.ledproxy2.uwindsor.ca/ehost/pdfviewer/pdfviewer?vid=7&sid=67b233d8-7c6a-4188-862b-f6eb65e6da0a%4oredis>
- Storey, Montemurro, G., Flynn, J., Schwartz, M., Wright, E., Osler, J., Veugelers, P. J., & Roberts, E. (2016). Essential conditions for the implementation of comprehensive school health to achieve changes in school culture and improvements in health behaviours of students. *BMC Public Health*, 16(1), 1133–1133. <https://doi.org/10.1186/s12889-016-3787-1>
- Thurber, Dobbins, T., Neeman, T., Banwell, C., & Banks, E. (2017). Body mass index trajectories of Indigenous Australian children and relation to screen time, diet, and demographic factors. *Obesity (Silver Spring, Md.)*, 25(4), 747–756. <https://doi.org/10.1002/oby.21783>
- Valery, P. C., Ibieble, T., Harris, M., Green, A. C., Cotterill, A., Moloney, A., Sinha, A. K., & Garvey, G. (2012). Diet, physical activity, and obesity in school-age indigenous youths in northern Australia. *Journal of Obesity*, 1–12. <https://doi-org.ledproxy2.uwindsor.ca/10.1155/2012/893508>
- Willows, N. D., Hanley, A. J. G., & Delormier, T. (2012). A socioecological framework to understand weight-related issues in aboriginal children in Canada. *Applied Physiology, Nutrition, and Metabolism*, 37(1), 1-13. <https://doi.org/10.1139/h11-128>



Questions?