

NUTRITIONAL STATUS OF ANABAPTIST WOMEN IN SOUTHERN ONTARIO

Taylor Hartwig¹, Natalee Ridgeway², Larissa Wilson¹, Jane Leach², Jacqui Tam², Cynthia Soulliere³, Emily Roth³, Victoria Mok Siu⁴, Ann Watt⁵, Janis Randall Simpson¹

University of Guelph, Perth District Health Unit, Countryside Midwifery Services, University of Western Ontario, Stratford General Hospital

Introduction:

- The Old Order Amish (OOA) and Old Order Mennonites (OOM), are two of the most conservative groups of Anabaptists in rural Southwestern Ontario
- Concerns about the nutritional status for women of childbearing age have been expressed

Objective:

- To assess dietary intake, and the status of vitamin D, iron, folate, and vitamin B₁₂ for OOA and OOM women

Methods:

- Questionnaires, 3-day food records, blood samples, and growth measures
- Descriptive statistics using SPSS

Results:

- 51 women were recruited; 18 of whom were pregnant
- 63% and 20% of women had concentrations of serum 25-OH <75 nmol/L and <50 nmol/L, respectively
- Mean (± SD) vitamin D intake from food alone was 3±1 mcg/day with 100% of intakes from food below the EAR of 10 mcg/d
- Mean servings of milk and alternatives were 2.2±1.6/day; however, most (86%) women consumed farm milk with no added vitamin D
- Three pregnant woman had hemoglobin concentrations less than reference values for their childbearing status
- Six women had ferritin concentrations <15 ug/L
- All women had red blood cell folate concentrations above the reference range
- Only one woman had low serum vitamin B₁₂; however, 11 had serum B₁₂ concentrations above the reference range
- Over 80% of women took vitamins and/or supplements, 66% of those contained vitamin B₁₂
- Vitamin B₁₂ intake from food alone was 4±1 mcg/day, well above the RDA of 2.4-2.6 mcg/day



Population Characteristics	
Characteristic	Number (n) (%)
Religion	
OOA	28 (55%)
OOM	22 (43%)
Neither	1 (2%)
Childbearing Status	
Pregnant	18 (35%)
Breastfeeding	24 (47%)
Neither	9 (18%)
Age (years)	
20-29	20 (44%)
30-39	22 (48%)
40-49	3 (7%)
50-59	1 (2%)
BMI (those not pregnant)	
<18.5 (underweight)	0 (0%)
18.5-24.9 (normal)	8 (33%)
25-29.9 (overweight)	10 (42%)
>30 (obese)	6 (25%)

Selected Biochemical Markers (n=45)		
Nutrient	Marker & Cut-off	Number (n) (%)
Vitamin D	25-Hydroxy vitamin D ^a	
	<75 nmol/L	29 (63%)
	<50 nmol/L	9 (20%)
Iron	Hemoglobin ^b	
	Pregnant <110 g/L	3 (18%)
	Not pregnant <120 g/L	0 (0%)
	MCV <80 fL	0 (0%)
Ferritin <15 ug/L	6 (13%)	
Folate	RBC Folate	
	<1186 nmol/L	0 (0%)
	>1186 nmol/L	45 (100%)
Vitamin B ₁₂	Serum vitamin B ₁₂	
	<138 pmol/L	1 (2%)
	>652 pmol/L	11 (24%)

a) Life Labs cut off = <70 nmol/L, Statistics Canada cut off = <50 nmol/L. b) An increase in plasma volume during pregnancy requires a different hemoglobin cut off

Dietary Intakes of Selected Nutrients			
Nutrient	Intake from food (mean±SD)	Intake from supplements (mean±SD)	Intake from food and supplements (mean±SD)
Vitamin D (mcg/d)	3±1	18±26	20±27
Iron (mg/d)	14±3	23±43	37±43
Folate (mcg/d) (DFE)	357±85	1125±1325	1481±1319
Vitamin B ₁₂ (mcg/d)	4±1	37±174	41±174

DRI Comparisons for Selected Nutrients				
Nutrient ^{a,b}	Non-pregnant (n=8)	Pregnant (n=18)	Lactating (n=20)	Total (n=46)
Vitamin D				
Number <EAR	6	5	6	17
Number >UL	2	0	1	3
Iron				
Number <EAR	0	7	0	7
Number >UL	0	3	2	5
Folate				
Number <EAR	2	3	4	9
Number >UL	2	11	16	29
Vitamin B₁₂				
Number <EAR	0	0	0	0
Number >UL	n/a	n/a	n/a	n/a

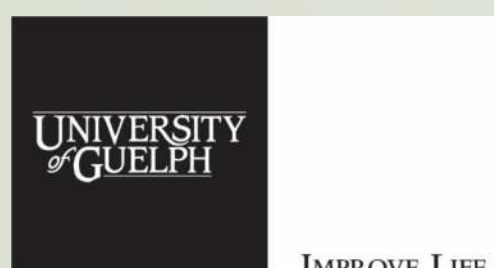
a) Total dietary intake from food and supplements b) The original DRI comparison was made according to the age group and life stage (non-pregnant, pregnant, and lactating)

Conclusions:

- Vitamin D was the only nutrient of real concern as women consume unfortified farm milk and have limited sun exposure due to the style of clothing worn
- A large portion of women also had high serum vitamin B₁₂ concentrations

Relevance to Practise:

- Recommendations can be made for the OOA and OOM and similar populations
- Vitamin D supplementation is recommended
- Avoid unnecessary vitamin and mineral supplementation, specifically vitamin B₁₂



Funded by: Canadian Foundation for Dietetic Research
Copyright © 2019 Taylor Hartwig, Janis Randall Simpson (rjanis@uoguelph.ca), Natalee Ridgeway