

The EAT-Lancet's Planetary Health Diet: How Does it Compare to Canadian Nutrient Recommendations?

NUTRITION IS A KEY FACTOR WHEN PROPOSING DIETARY PATTERNS FOR SUSTAINABLE HEALTHY DIETS

The Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) define sustainable healthy diets as those that promote health and wellbeing and prevent all forms of malnutrition, including micronutrient deficiency, while considering environmental impact, cultural acceptability, accessibility and affordability.¹

According to the FAO/WHO: *"Sustainable Healthy Diets must combine all the dimensions of sustainability to avoid unintended consequences."*¹

In 2019, the EAT-Lancet Commission on Food, Planet & Health proposed a new dietary pattern: The Planetary Health Diet.² The Planetary Health Diet is modeled on four energy-balanced dietary patterns: flexitarian, pescatarian, vegetarian and vegan.³ In practice, it is important to consider how these dietary patterns align with current Canadian recommendations for essential nutrients.

THE EAT-LANCET COMMISSION'S DIETARY PATTERNS:³

- **Flexitarian:** no processed meat, red meat (1 serving per week), moderate amounts of poultry, fish, and dairy, and generous amounts of fruits, vegetables, legumes, and nuts;
- **Pescatarian:** replaces meat with 2/3 fish and seafood and 1/3 fruits and vegetables;
- **Vegetarian:** replaces meat with 2/3 legumes and 1/3 fruits and vegetables;
- **Vegan:** replaces all animal-source foods with 2/3 legumes and 1/3 fruits and vegetables.

HOW DO THE EAT-LANCET DIETARY PATTERNS COMPARE WITH THE RECOMMENDED DIETARY ALLOWANCES (RDAs)?

The EAT-Lancet Commission assessed the nutrient content of their proposed dietary patterns but used one recommended nutrient value³ for each nutrient based on an average recommended intake level instead of using specific recommendations based on age, gender and life-stage. Their own analysis showed that all four proposed dietary patterns did not meet their target value for **riboflavin** and that the vegan and vegetarian dietary patterns did not meet their target value for **vitamin B₁₂**. **Calcium** also was below their recommended value in the vegan dietary pattern.³

Comparing the Eat-Lancet Commission's nutrient analysis of their four dietary patterns to the current RDAs reveals cause for concern for achieving Canadian recommendations for a number of essential nutrients, including: **calcium, iron, zinc, riboflavin, vitamin A and vitamin B₁₂**.

Calcium is a nutrient of particular concern in Canada. Many Canadians are not getting enough calcium, putting bone health at risk.⁵

DID YOU KNOW?

For individuals following a vegetarian or vegan diet, the RDAs for iron are 1.8 times higher and the RDAs for zinc are 1.5 times higher, respectively, due to reduced bioavailability in plant-based foods.⁴ The Eat-Lancet Commission did not take this into consideration in their analysis.³

The Eat-Lancet Commission set their recommended **nutrient target for calcium at 520 mg/day**, which is far below the Canadian RDAs for calcium that range from 1000 to 1300 mg per day for individuals 9 years and older, depending on life-stage.⁴



A GLOBAL PERSPECTIVE:

The WHO recommends daily calcium intakes ranging from **1000 to 1300 mg for individuals 10 years and older** and 500 to 700 mg for children 1-9 years, depending on life-stage.⁶

ASSESSMENT OF EAT-LANCET DIETARY PATTERNS IN MEETING CANADIAN RDAs

NUTRIENT	AGE GROUP	RDAs	DIETARY PATTERN			
			FLEXITARIAN	PESCATARIAN	VEGETARIAN	VEGAN
Calcium (mg)	9-18 y	1300	✗	✗	✗	✗
	19-50 y	1000	✗	✗	✗	✗
	51-70 y F	1200	✗	✗	✗	✗
	51-70 y M	1000	✗	✗	✗	✗
	71+ y	1200	✗	✗	✗	✗
	Pregnancy 19-50 y	1000	✗	✗	✗	✗
	Lactation 19-50 y	1000	✗	✗	✗	✗
Iron* (mg)	9-13 y	8	✓	✓	✓	✓
	14-18 y F	15	✓	✓	✗	✗
	14-18 y M	11	✓	✓	✗	✓
	19-50 y F	18	✓	✓	✗	✗
	19-50 y M	8	✓	✓	✓	✓
	51+ y	8	✓	✓	✓	✓
	Pregnancy 19-50 y	27	✗	✗	✗	✗
Lactation 19-50 y	9	✓	✓	✓	✓	
Zinc* (mg)	9-13 y	8	✓	✓	✗	✗
	14-18 y F	9	✓	✓	✗	✗
	14-18 y M	11	✗	✗	✗	✗
	19+ y F	8	✓	✓	✗	✗
	19+ y M	11	✗	✗	✗	✗
	Pregnancy 19-50 y	11	✗	✗	✗	✗
Lactation 19-50 y	12	✗	✗	✗	✗	

NUTRIENT	AGE GROUP	RDAs	DIETARY PATTERN			
			FLEXITARIAN	PESCATARIAN	VEGETARIAN	VEGAN
Riboflavin (mg)	9-13 y	0.9	✓	✓	✓	✓
	14-18 y F	1.0	✗	✓	✗	✗
	14-18 y M	1.3	✗	✗	✗	✗
	19+ y F	1.1	✗	✗	✗	✗
	19+ y M	1.3	✗	✗	✗	✗
	Pregnancy 19-50 y	1.4	✗	✗	✗	✗
	Lactation 19-50 y	1.6	✗	✗	✗	✗
Vitamin A (µg)	9-13 y	600	✓	✓	✓	✓
	14+ y F	700	✗	✗	✗	✓
	14+ y M	900	✗	✗	✗	✗
	Pregnancy 19-50 y	770	✗	✗	✗	✗
	Lactation 19-50 y	1300	✗	✗	✗	✗
Vitamin B ₁₂ (µg)	9-13 y	1.8	✓	✓	✗	✗
	14+ y	2.4	✓	✓	✗	✗
	Pregnancy 19-50 y	2.6	✗	✓	✗	✗
	Lactation 19-50 y	2.8	✗	✓	✗	✗

✗ = does not meet RDA ✓ = meets RDA | M = Male F = Female

The assessment excludes children 1-8 y as the proposed energy level set by the Eat-Lancet Commission of ~2100Kcal would not be appropriate for this group.* For vegetarian and vegan diets, the RDA for iron is 1.8 times higher and the RDA for zinc is 1.5 times higher due to reduced bioavailability in plant-based foods.⁴ This was considered in the assessment of the vegetarian and vegan dietary patterns.

NUTRIENT CONTENT OF EAT-LANCET DIETARY PATTERNS³

NUTRIENT	FLEXITARIAN	PESCATARIAN	VEGETARIAN	VEGAN
Calcium (mg)	621	660	630	489
Iron (mg)	18.8	19.3	19.5	21.1
Zinc (mg)	10.4	10.4	10.2	10.3
Riboflavin (mg)	0.9	1.0	0.9	0.9
Vitamin A (µg)	627	679	694	703
Vitamin B ₁₂ (µg)	2.4	3.7	0.8	0

Just the facts: The RDAs were set to help prevent deficiencies in essential nutrients. “The RDA is the average daily dietary intake level that is sufficient to meet the nutrient requirement of nearly all (97 to 98 percent) healthy individuals in a particular life-stage and gender group.”⁴

IN SUMMARY:

- **CALCIUM:** All dietary patterns do not meet RDAs for all life-stage and gender groups.
- **IRON:** The vegetarian and vegan dietary patterns do not meet RDAs for females 14-50 years old. The vegetarian diet also does not meet RDAs in males 14-18 years old. All dietary patterns do not meet RDAs for pregnant women.
- **ZINC:** All dietary patterns do not meet the RDAs for males 14 years and older, and for pregnant and lactating women. The vegetarian and vegan diets do not meet the RDAs for all males and females 9 years and older.
- **RIBOFLAVIN:** All dietary patterns either do not meet the RDAs or are borderline for males and females 14 years and older and for pregnant and lactating women.
- **VITAMIN A:** The flexitarian, pescatarian and vegetarian diets do not meet RDAs for everyone 14 years and older and the vegan diet does not meet RDAs for males 14 years and older as well as for pregnant and lactating women.
- **VITAMIN B₁₂:** The flexitarian diet does not meet RDAs for pregnant and lactating women and the vegetarian and vegan diets do not meet RDAs for individuals in all life-stage and gender groups.



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References: 1. FAO and WHO. 2019. *Sustainable healthy diets – Guiding principles*. Rome. | 2. Willet W et al. Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet* 2019;393: 447–492. | 3. Springmann M et al. Health and nutritional aspects of sustainable diet strategies and their association with environmental impacts: a global modelling analysis with country-level detail. *Lancet Planet Health* 2018; 2: e451–461. | 4. Health Canada. Dietary Reference Intakes. <https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating/dietary-reference-intakes/tables.html>. Accessed November 24, 2020. | 5. Vatanparast H et al. Calcium intake from food and supplemental sources decreased in the Canadian population from 2004 to 2015. *J Nutr* 2020;150(4): 833–841. | 6. World Health Organization. Vitamin and mineral requirements in human nutrition 2004. | 7. U.S. Department of Health and Human Services. Dietary Guidelines 2015–2020. Appendix 2. Estimated Calorie Needs per Day, by Age, Sex, and Physical Activity Level. <https://health.gov/our-work/food-nutrition/2015-2020-dietary-guidelines/guidelines/appendix-2>. Accessed December 8, 2020.