

Post-Prandial Glycaemic Response Health Claims on Dry and Canned Whole Pulses for the Canadian Market

A health claim that states, “one cup (250 ml) of cooked whole pulse food (lentils, beans, peas, and chickpeas) in place of low fibre starchy foods results in a reduced blood sugar [glucose] rise after a meal” can be used in Canada.

DIABETES OR PREDIABETES affects approximately 9 million Canadians. Prevalence has almost doubled since 2000 and will increase by another 1.5 million people by 2020. When combined with undiagnosed diabetes and prediabetes, it is estimated that one in three people in Canada will be affected by 2020.

Foods that help maintain blood sugar levels within the normal range after a meal (the post-prandial glycaemic response) can be part of a dietary strategy to manage diabetes. The pulse industry is well positioned to address these opportunities by substantiating the health claim regarding reduced blood-sugar rise after a meal due to pulse consumption.

According to the Canadian *Food and Drug Act* and the Canadian Food Inspection Agency’s *Food Labelling for Industry*, health claims should not be misleading and are required to be supported by scientific evidence. This project sought to establish an evidence-based health claim for the relationship between pulses and favourable post-prandial blood glucose levels, which

will, in turn, stimulate food industry and consumer demand for pulse food products.

A systematic literature review was conducted to find scientific evidence supporting the claim for whole pulses and reduced post-prandial glycaemia. This review was conducted according to Health Canada’s standards to ensure results and conclusions were aligned with the standards of evidence. Studies published between 1980 and 2012 were included in the literature search to ensure recent data was utilized. Unpublished data was excluded and duplicate studies were removed. After review, eleven studies remained for whole lentils, seven for whole peas, seven for whole beans, and four for whole chickpeas. Health Canada’s threshold response to support a health claim is a reduction in post-prandial glycaemic response by 20% compared to controls.

The systematic review of high quality studies demonstrated that, when used to replace highly digestible carbohydrates, whole pulses, regardless of type, elicited

a significant decrease in post-prandial glycaemic response at a magnitude that meets or exceeds Health Canada’s 20% threshold (Table 1). Therefore, the evidence supports a health claim that communicates the low glycaemic response of canned or conventionally prepared dried whole pulses. After discussion with Health Canada, the following claim reflects the current body of evidence for the attenuation of glycaemic response with pulses.

“One cup (250 ml) of cooked (type of whole pulse) in place of low fibre starchy foods results in a reduced blood sugar [glucose] rise after a meal.”

Currently, evidence supports 250 ml as the minimum effective dose of whole pulses for lowering post-prandial glycaemia. As research continues, this dosage may potentially be reduced lower than the one cup (250 ml) threshold in the current claim. This health claim may be extended to products containing processed pulse-based ingredients once data that defines their effects on post-prandial glycaemia becomes available. ▀

Whole Pulse	Percent of Treatments Supporting the Health Claim	Effective Dose of Pulses	Reduction in Glycaemic Response Following a Meal
Lentils	83.3%	250 ml	32 – 73%
Edible Beans	57.1%	~ 250 – 500 ml	37 – 78%
Peas	57.1%	~ 250 – 625 ml	24 – 69%
Chickpeas	75%	~ 325 – 500 ml	35 – 47%
Health Canada’s minimum threshold response			20%