

Canadian Study Reports Significant Losses of Vitamins and Minerals in Many Fruits and Vegetables During the Last 50 Years

By Jane Ramberg

According to a recent report conducted by CTV, Inc. (a Canadian broadcast communications company) and The Globe and Mail (a Toronto-based newspaper), the quantity of **vitamins** and **minerals** in many Canadian fruits and vegetables is decreasing.¹ This follows a study published in 1997 that reported significant **mineral** losses in fruits and vegetables in the U.K.²

The author, Jeffrey Christian, compared data compiled in 1999 by Health Canada, Nutrient Value of Some Common Foods, with data collected in 1951 and 1972.³ Christian looked at 7 **vitamins** and **minerals** (**calcium**, **iron**, **vitamin A**, **vitamin C**, **thiamine**, **riboflavin**, and **niacin**) found in 25 common fruits and vegetables. Overall, nutrient losses far exceeded nutrient gains. Compared with 1951 data, 13 fruits and vegetables showed losses in 4 or more nutrients in 1999; 6 fruits and vegetables showed gains in 4 or more nutrients. **Broccoli** showed losses in every nutrient studied and corn showed gains in every nutrient (see table 1 below).

Table 1. Fruits and vegetables that showed losses or gains of four or more nutrients	
Lower levels of 4 or more nutrients	Higher levels of 4 or more nutrients
Broccoli (-7)	Corn (+7)
Cauliflower (-6)	Carrot (+4)
Potato (-6)	Blueberry (+4)
Banana (-5)	Grape (+4)
Onion (-5)	Green pepper (+4)
Apple (-5)	Red pepper (+4)
Spinach (-5)	
Strawberry (-5)	
Cherry (-4)	
Lettuce (-4)	
Peach (-4)	
Winter squash (-4)	
Tomato (-4)	

Of particular concern were losses of nutrients in foods that are reported to be good sources of that nutrient. These include **calcium** (**broccoli**), **riboflavin** (**broccoli** and **spinach**), **vitamin A** (**broccoli** and **spinach**), and **vitamin C** (**broccoli**, potatoes, **cauliflower**, strawberries, tomatoes, and green peppers). Whereas one serving of **broccoli** supplied more than the RDA of **vitamin A** for adult males in 1951, one would have to eat more than two servings to obtain the same amount of **vitamin A** today. Two peaches in 1951 supplied the RDA of **vitamin A** for adult women. Today, a woman would have to eat almost 53 peaches to meet her daily requirements! **Calcium**, **iron**, and **vitamin A** were the nutrients that were most frequently diminished. Some nutrients have increased (see table 2 below). **Niacin** is a striking example: **niacin** levels increased in 21 fruits and vegetables. However, the most dramatic increase of **niacin** (3X in oranges), still only yields 0.5 **mg niacin** - far from the RDA of 15-19 **mg**.

Table 2. Number of fruits and vegetables that showed lower or higher levels of each individual nutrient.

Nutrient	Lower	Higher	No change	Data from one time point not available
Calcium	20	5	0	0
Iron	19	4	2	0
Vitamin A	16	5	3	1
Vitamin C	11	12	2	0
Riboflavin	11	8	6	0
Thiamine	9	9	7	0
Niacin	3	21	1	0

The U.K. study examined 8 minerals in 20 fruits and 20 vegetables and reported significant mineral losses of calcium, magnesium, copper and sodium in vegetables and magnesium, iron, copper and potassium in fruits over a 50-year period (comparing data from 1930 and 1980). The author also reported that the foods were significantly higher in water content and lower in dry matter.² Why are these nutrient losses occurring? The author of the U.K. study speculated that numerous factors could be involved, including plant breeding practices that select for post-harvest handling qualities and cosmetic appeal (rather than nutrient content); changed storage and ripening systems; and reliance on chemical fertilizers that have lead to soil nutrient losses.²

To view the complete CTV article summarizing the results, go to: "http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20020705/favaro_nutrients_chart_020705"