

# High Fructose Corn Syrup Content in Bread Products

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## Introduction

- Non-alcoholic fatty liver disease is the buildup of fat in the liver without alcohol as a factor in its diagnosis.<sup>1</sup>
- Develops most commonly in patients who are overweight, diagnosed with diabetes mellitus, or who have unhealthy diets.<sup>1</sup>
- High fructose corn syrup (HFCS) is a highly refined sweetener which is used by many corporations due to its low price and its preservative properties.<sup>2</sup>
- Excess HFCS in the diet may be a factor in the development of non-alcoholic fatty liver disease.<sup>2</sup>
- Bread products, one of the most consumed food groups in Canada, may contain HFCS.
- Purpose of this study is to identify breads in a sample of the Canadian food supply that contain HFCS, fructose and other added sugars.

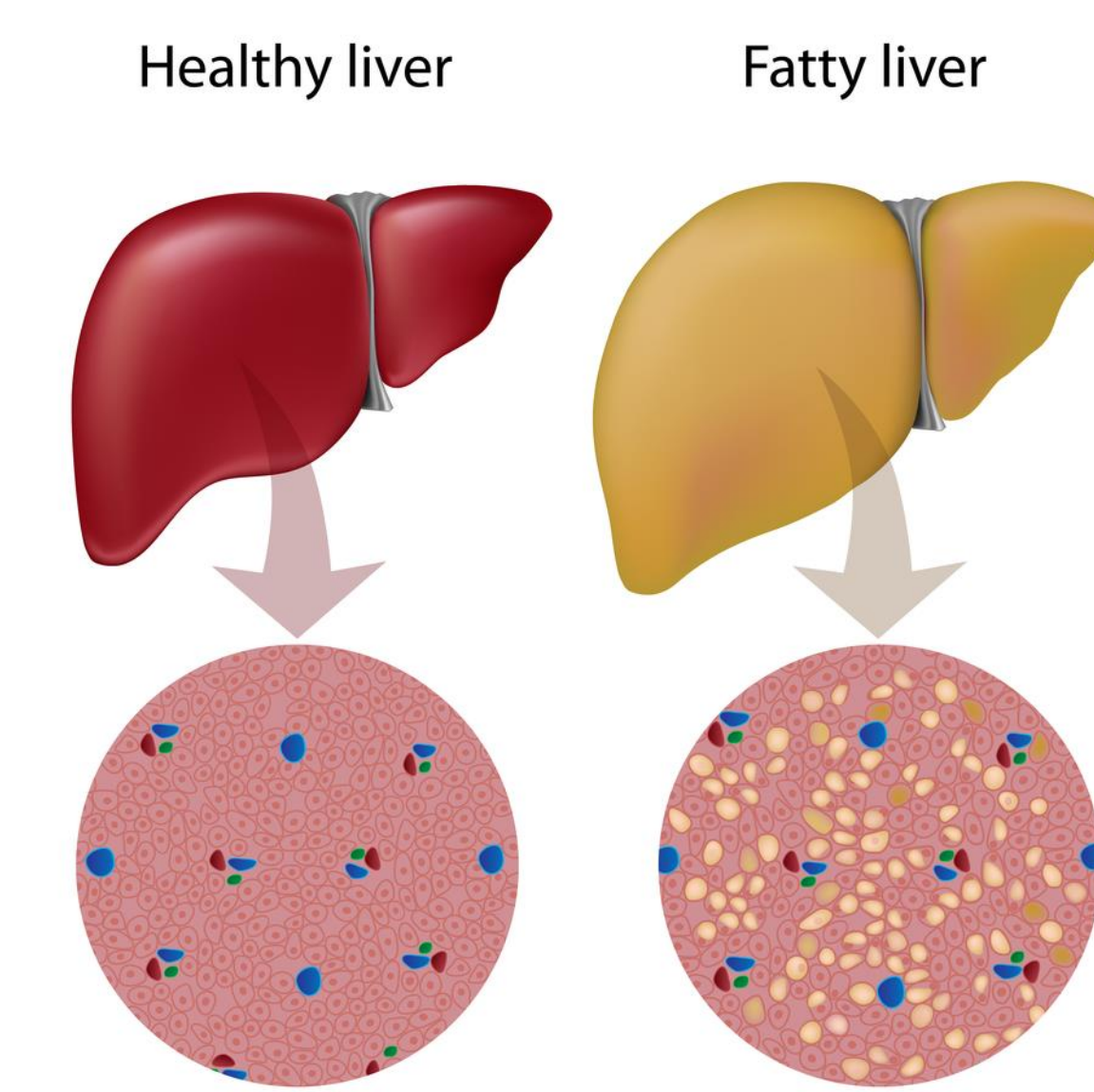


Figure 1: Healthy liver being compared to a fatty liver externally and internally. Yellow particles represent excess fat. (Retrieved from <http://www.freedoctorhelpline.com/fatty-liver-disease-causes-types-and-treatment-free-doctor-helpline/>)

## Methods

- Recorded ingredients for bread products in 2 grocery stores in Edmonton, AB (one using a web-based system). Bread products included naans, pitas, tortillas, pizza crusts, bagels, raisin breads, bread crumbs, hamburger and hotdog buns, sandwich breads, and other breads/buns.
- The study was focused on both store prepared and commercial bread products as well as products baked with enriched flour and whole wheat flour.
- A total sample of 177 ingredient labels were analyzed for HFCS, fructose, and other added sugars.



Figure 2.1: Collection of data on bread products from Safeway

## Results

- No bread products contained added fructose.
- No store prepared bread products contained HFCS, but contained added sugar.
- 38% of all bread products analysed contain HFCS.
- 74% of products that did not contain HFCS, contained other added sugars.

Bread Type	Store Prepared		Commercial	
	Whole Wheat	White	Whole Wheat	White
Sandwich Breads	5	4	49	20
Hotdog Buns	0	1	0	8
Hamburger Buns	2	1	3	5
Other Buns	2	8	1	5
Bread Crumbs	0	0	0	7
Raisin Bread	0	1	0	2
Bagels	0	0	3	6
Pizza Crust	0	0	1	3
Tortilla	0	0	7	15
Pita	0	0	6	4
Naan	0	1	1	6

Table 1: Categorization of bread products analyzed into store prepared and commercial bread products and sub-divided into quantities of whole wheat and white bread products.

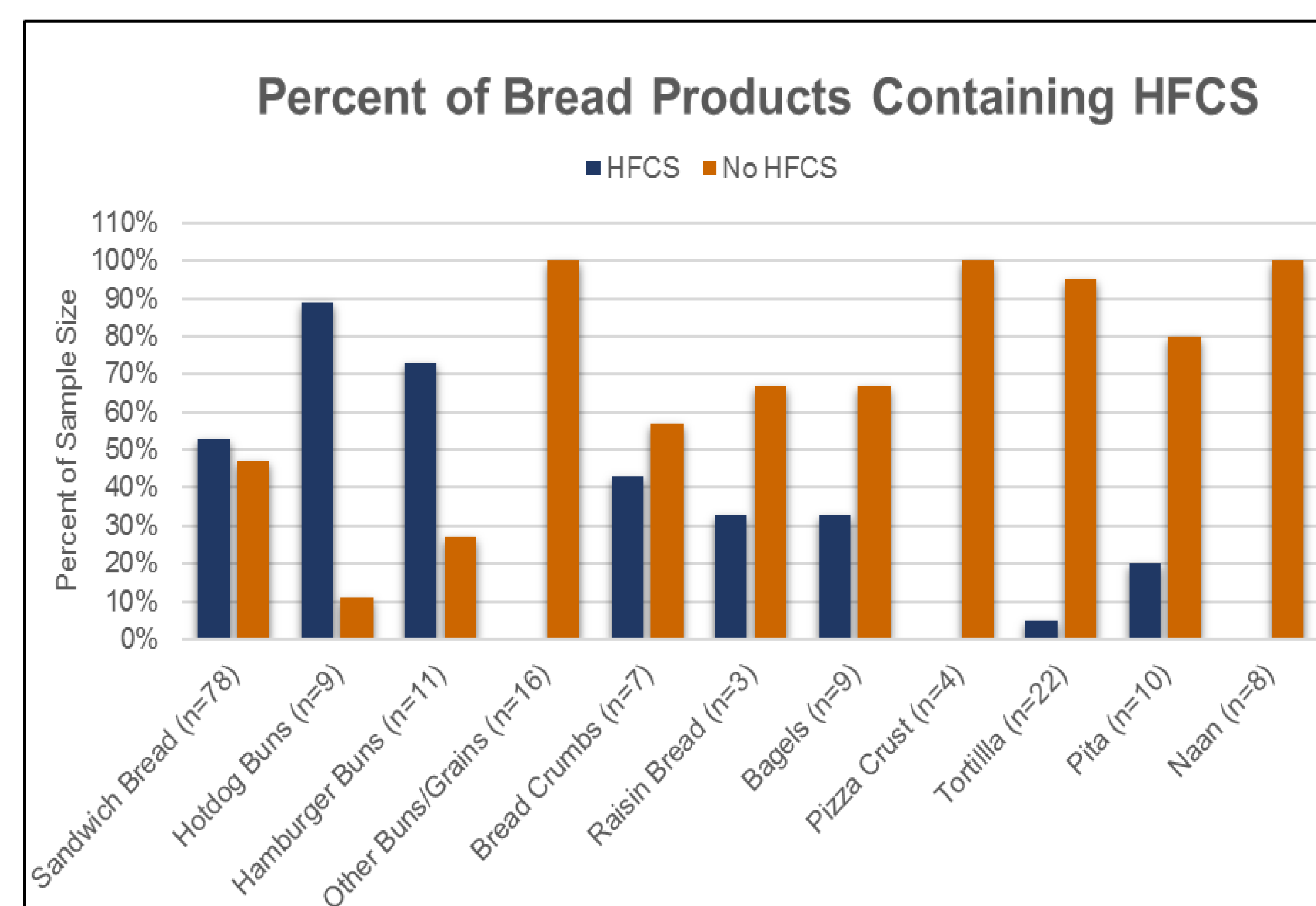


Figure 5: Percentage of all bread products which do and do not contain HFCS ("Other Breads" category includes cheese buns, baguettes, and lunch/dinner rolls).

## HFCS Content in White and Whole Grain Breads

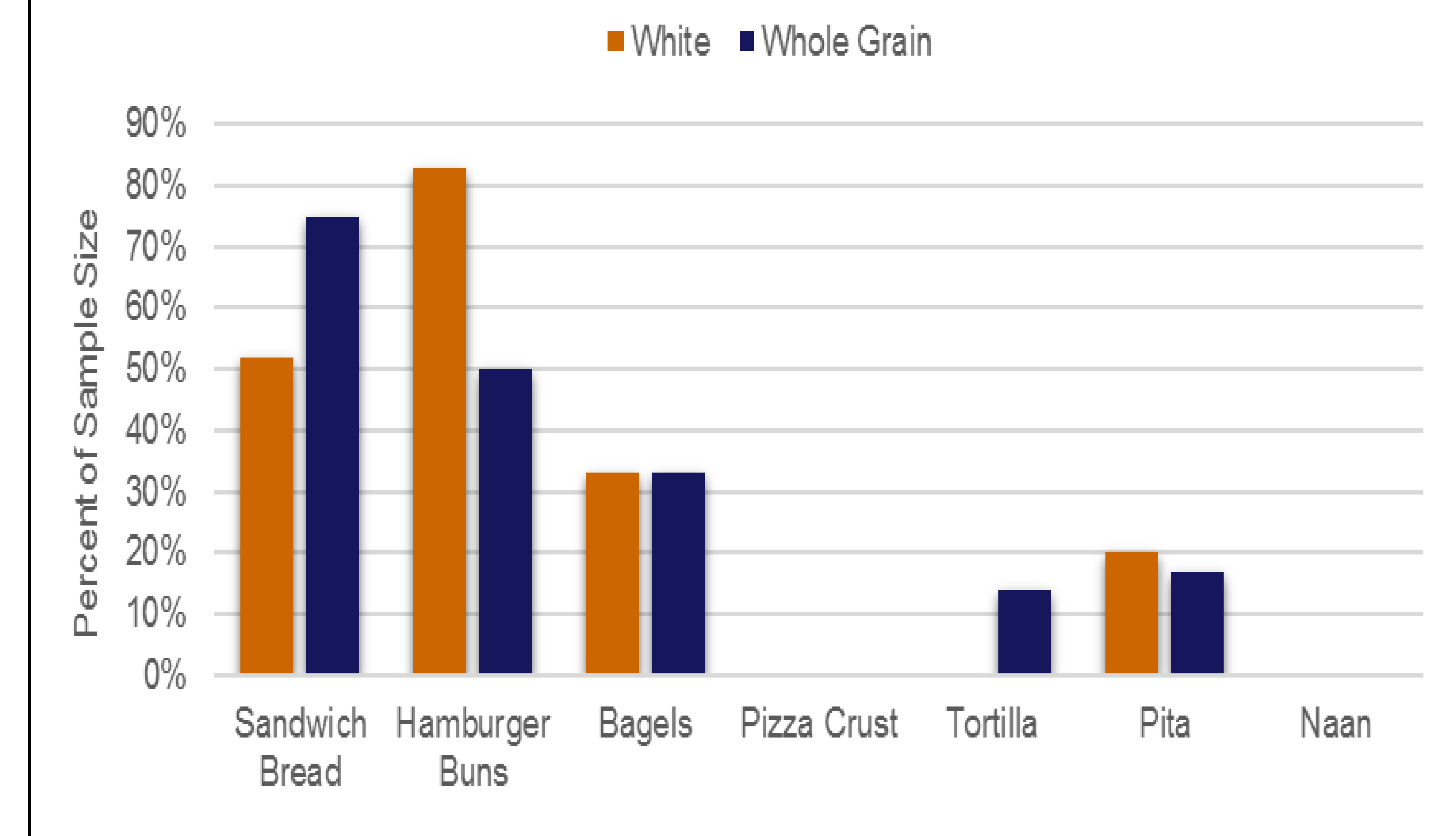


Figure 5: Percentages of different breads which contain HFCS (Hotdog buns, other buns, bread crumbs, and raisin bread not included due to lack of whole grain alternatives in the sample).

## Conclusions

- Commercial breads tend to have HFCS while store prepared breads do not.
- Many breads without HFCS contain other added sugars rather than added fructose to make up for the lack of sweetness.
- There is no consistency in HFCS content for whole grains vs. white bread products, indicating the importance of reading ingredient labels for consumers.
- Store prepared breads should be recommended for patients diagnosed with non-alcoholic fatty liver disease as none of these breads contain HFCS.

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## Literature Cited

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