

# AN INVESTIGATION INTO THE VITAMIN B1 AND B2 CONTENT OF A POPULAR UK READY MEAL.

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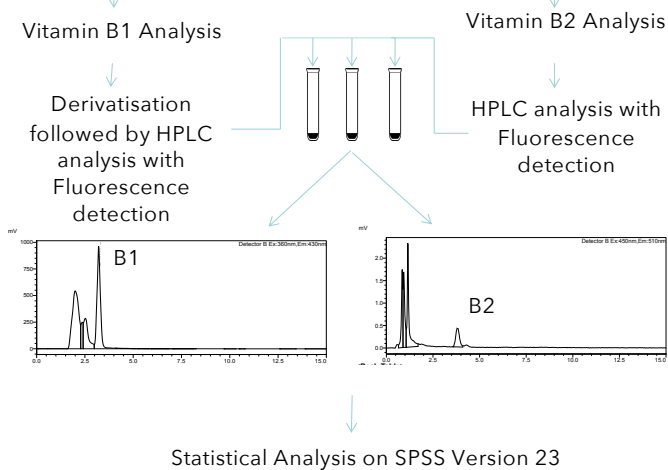
## Introduction

Ready meals (RMs) are a convenient meal option, and it is assumed by consumers that they can be part of a balanced diet. Research has shown that energy, fat and salt content of RMs are "nutritionally chaotic" (Celnik et al., 2012), with many meals being significantly under- or overestimated in the labelling. However, to our knowledge, no research has analysed the nutritional content of RMs in relation to nutritional guidelines for labile water-soluble vitamins undergoing food processing, such as vitamin B1 or B2. Accurate estimations of certain water-soluble vitamins is important to understand whether RMs contribute sufficient amounts of these essential vitamins to the diet to meet the reference nutrient intakes (RNI) for those who consistently consume RMs. The 'sausage and mash' range of RM is one of the most popular RMs eaten by meals-on-wheels users and purchased in supermarkets.

The aim of this study is to compare process-labile vitamin content; vitamin B1 and B2, in sausage and mash RMs, and carry out price comparison between meals.

## Method

Five ready meals 'Sausage and Mash' from four providers (Experiment duplicated)



## Results

- RMs significantly differed between providers where vitamin B1 ( $p < 0.05$ ) and B2 ( $p < 0.05$ ) content was between 0.033-0.089mg/100g and 0.009-0.021mg/100g, respectively, (Figure 1)
- Meals contributed 400-1958% and 10-52% of the RNI for vitamin B1 and B2, respectively.
- The price of the RMs ranged between £2.00-£3.50.
- Analysis showed that cheaper meals had a higher vitamin B1 content ( $r = -0.675$ ,  $p < 0.001$ ), which could be due to the presence of green peas; a source of vitamin B1, in only one of the cheaper RMs (figure 2)
- Results showed that the percentage(%) of meat/serving was higher in the more expensive meals ( $r = 0.603$ ,  $p < 0.001$ ), and the cheaper meals had a higher percentage of mashed potatoes ( $r = -0.837$ ,  $p < 0.001$ ).

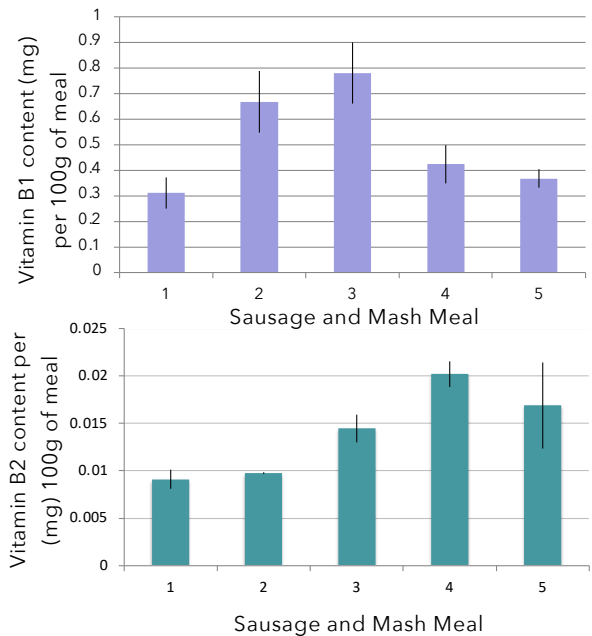


Figure 1: Vitamin content of sausage and mash ready meals; (top) Vitamin B1 content (mg) per 100g of ready meal ( $p < 0.05$ ). Vitamin B2 content (mg per 100g of ready meal) ( $p < 0.05$ ) (bottom)

## Discussion

This study shows that there are differences in vitamin B1 and B2 between RM providers. This may mean that consumers are not aware of which meals may be the most nutritionally adequate. Price of meal has an impact on composition and therefore nutrient density. Future studies should analyse other process labile essential vitamins such as vitamin C and other B-group vitamins to establish accurate estimations of water-soluble vitamin content in RMs.

## Potential for Ready Meal manufacturers

- The Peas Please campaign (Food Foundation, 2012) aimed at increasing the vegetable content of ready meals could provide ways to improve the micronutrient quality of RMs.
- Vegetables add nutrients to a meal at a lower cost than meat; only one meal had a distinct vegetable portion



Figure 2: An image of one of the sausage and mash RMs tested.

## References:

- The Food Foundation (2019) [online] accessed: 9<sup>th</sup> April 2019, URL: <https://foodfoundation.org.uk/veg-pledges/>
- Celnik, D., Gillespie, L. & Lean, M. E. J. 2012. Time-scarcity, ready-meals, ill-health and the obesity epidemic. *Trends in Food Science & Technology*, 27, 4-11.