

[Can statistics tell us what is a representative recipe? The case of Yorkshire pudding](#)

Discussion published by Kristen Ann Ehrenberger on Monday, June 19, 2017

A What is a Recipe? contribution by Christian J. Reynolds, PhD (Geography, University of Sheffield)

#195 Yorkshire Pudding

100g Flour
1tsp Salt
1 egg
250ml milk
20g dripping

Sieve flour and salt into a basin. Break in the egg and add about 100ml milk, stirring until smooth. Add the rest of the milk and beat to a smooth batter. Pour into a tin containing the hot dripping. Bake for about 40 minutes at 220C/mark 7

Weight loss: 16%

Royal Society of Chemistry, *McCance and Widdowson's the Composition of Foods: Summary Edition* (6th Edition) 2002, p. 452.¹

The above recipe comes from the sixth summary edition of *McCance and Widdowson's the Composition of Foods*. This tome of a book was first published the 1930s, by Professor McCance and Dr Widdowson and over the last 80 years it has now been extensively developed and expanded to the 7th edition in 2014. To many in British nutritionists the *McCance and Widdowson's* (M&W) food composition tables are 'Gospel', and are used for approximations of nutrient composition of traditional items in the British diet. However, M&W is nightmarish text to update, due to the speed of shifts in the UK diet, with recipes and portion sizes changing, and ingredients and fortificants reformulated, added and subtracted much faster than editions can be published. Therefore, M&W provides a static snapshot of diet and nutrition at the time of measurement, which can be a proxy for current consumption. Sadly, due to its infrequent updates, this proxy may be inaccurate. In turn, these inaccuracies will distort the findings of nutritional surveys that use this data.

A new method to investigate the composition of "current" or "contemporary" recipes, is to use meta-analysis of internet recipes to create a statistically representative recipe. For a recent conference I have performed such a meta-analysis on 33 online recipes of roast beef and Yorkshire pudding.^{2,3} Below is a comparison of the *McCance and Widdowson's* (M&W) recipe for Yorkshire

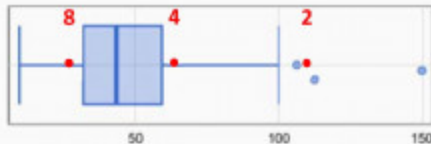
pudding compared to the contemporary statistically representative recipe.

I selected Yorkshire pudding as it is a quintessential British dish dating back to the 1700s that involves primarily oven cookery. It was selected as it is a relatively "simple" meal to prepare with minimal ingredient variation between recipes; one mixes a batter of eggs, flour, and milk or water, and then cooks this batter in a small amount of hot fat (dripping or oil) in an oven.^{4,5} Historically, the batter pudding was served prior to the beef, in order to fill up (sate) the eater, who would thus eat less beef. However, modern recipes serve both simultaneously. The dish is still commonly served in many pubs and households as a trimming for a "Sunday lunch."

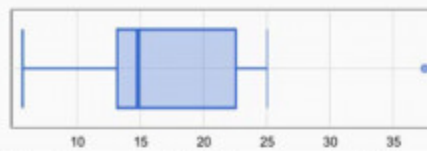
A problem is that the M&W Yorkshire pudding recipe does not report the number of servings or portions, so I mark the values for 8, 4 and 2 portions of the M&W Yorkshire pudding on the figures below. To my eyes, the data indicates that the M&W recipe could serve 2 or 4, while serving 8 would result in miserly portions. Overall the M&W recipe provides a somewhat characteristic recipe for Yorkshire pudding, however the meta analysis has revealed some interesting insights into the recipe. The oven temperature of the M&W recipe is within the interquartile range of the meta-analysis, while the cooking time of the M&W recipe is on the high side of the meta-analysis sample. It is interesting to note the egg to milk relationship of the M&W varies considerably from the meta-analysis sample (with more milk to egg than in the sample), and the lack of water as an ingredient in the M&W recipe (7 of the 33 recipes in the sample used a milk water mixture). This change in eggs to milk relationship could be due to either the introduction of water as an ingredient, or shifts in egg consumption and availability, or changes in favoured texture and taste of Yorkshire puddings since the M&W version was published. It is also interesting to note the exclusive dripping use in the M&W recipe, while 11 of the 33 recipes in the online sample used oil, or an oil and dripping mixture—perhaps this indicates trends towards health and environment consciousness, the use of non-animal products, and an uptake of non-saturated fats since the M&W recipe was written?

I acknowledge that there is no one authentic or true recipe for a dish. Each cook has their own version, unique to that time, place and ingredients to hand.⁶ Nevertheless, in order to analyse recipes, data such as ingredients, methods, timings, temperatures, weights and measures are required. M&W opted to use a single—possibly out of date—recipe for the purpose of expressing nutrient information about this dish. Comparison with the 33 meta-analysed recipes indicates that the M&W recipe provides a somewhat characteristic recipe for Yorkshire pudding, with the definition of a true Yorkshire pudding recipe being a moveable feast.

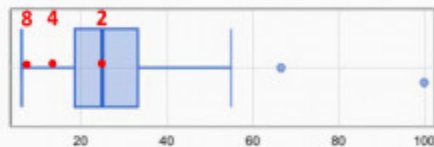
[reynolds.yorkshirepuddingfigures.jpg](#)



Volume of milk portion (ml). Median milk portion: 43ml.
McCance and Widdowson's: 2 portions: 125ml, 4 portions: 62.5ml,
 8 portions: 31.25ml.



Volume of water portion (ml). Median water portion: 15ml.
McCance and Widdowson's: none.



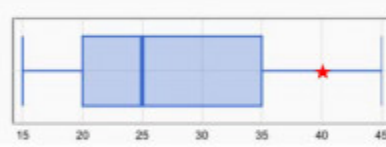
Weight of egg portion (g). Median egg portion 25g.
McCance and Widdowson's: 2 portions: 1/2 egg (25g),
 4 portions: 1/4 egg (12.5g), 8 portions: 1/8 egg (6.5g).



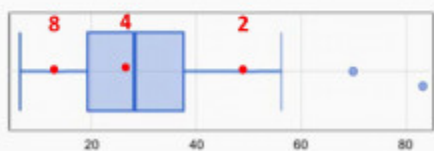
Volume of oil portion (ml). Median oil portion 4ml.
McCance and Widdowson's: none.



Volume of dripping portion (ml). Median dripping portion 7ml
McCance and Widdowson's: 2 portions: 10ml, 4 portions: 5ml,
 8 portions: 2.5ml.



Yorkshire pudding cooking time. Median cooking time
 minutes 25 minutes.
McCance and Widdowson's: 40 minutes.



Weight of flour portion (g). Median flour portion 28g.
McCance and Widdowson's: 2 portions: 50g, 4 portions: 25g,
 8 portions: 12.5g.



Starting oven temperatures (C). Median starting temperature 200C.
McCance and Widdowson's: 220C

1. Food Standard Agency. *McCance and Widdowson's The Composition of Foods*. 6th summar. Royal Society of Chemistry; 2004. <https://books.google.com/books?hl=en&lr=&id=rNqYBAAAQBAJ&pgis=1>. Accessed April 3, 2015.
2. Reynolds CJ. Energy embodied in household cookery: the missing part of a sustainable food system? Part 1: A method to survey and calculate representative recipes. *Energy Procedia (1st Int Conf Sustain Energy Resour Use Food Chain)*. 2017.
3. Reynolds CJ. Energy embodied in household cookery: the missing part of a sustainable food system? Part 2: A life cycle assessment of roast beef and Yorkshire pudding. *Energy Procedia (1st Int Conf Sustain Energy Resour Use Food Chain)*. 2017.
4. Ysewijn R. *Pride and Pudding: The History of British Puddings, Savoury and Sweet*. Allen & Unwin; 2016.

5. Hannah Glasse. *The Art of Cookery Made Plain and Easy: Which Far Exceeds Any Thing of the Kind Yet Published ... To Which Are Added, One Hundred and Fifty New and Useful Receipts. And Also Fifty Receipts for Different Articles of Perfumery. With a Copious Index.* London: W. Strahan et al; 1784.
6. Potter J. *Cooking for Geeks : Real Science, Great Cooks, and Good Food.*; 2010. https://books.google.co.uk/books/about/Cooking_for_Geeks.html?id=VaJRrgECAAJ&redir_esc=y. Accessed March 8, 2017.