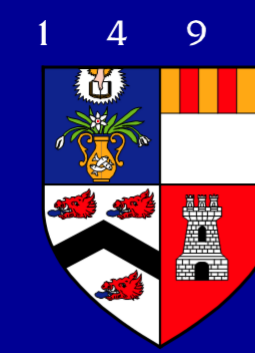


# Seafood Inclusion In Early Years' Feeding: A comparison of commercial products to home-cooking

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## BACKGROUND

Commercial infant foods contribute 13-19% of daily energy intakes of Scottish infants aged 4-11 months and 6% in infants aged 12-18 months [1]. The vast availability of commercial infant food products provides parents with a convenient alternative to home-cooked family meals [2,3] and despite the fact that homemade food is seen as the ideal option, commercial foods can provide a variety of flavours to help identify and develop infants' preferences [4]. Under-exposure to seafood during early years' feeding, when taste and food acceptance is developed, may impact on the future development of a healthy balanced diet.

## AIM

The primary aim of this study was to assess the inclusion of seafood as a component of main meals in commercially available pre-prepared products and cookbooks targeted towards early years' feeding compared to other food types (poultry, meat and vegetables). The secondary aim of this study was to investigate the beneficiary and cautionary claims cited for seafood inclusion compared to the other food types.

## METHODS

- A survey of all commercial pre-prepared early years' products available for purchase in Scotland during September to December 2012 was conducted to investigate the inclusion of seafood (n=341).
- A survey of all early years' cookbooks was conducted from those available through Aberdeen and Tayside libraries throughout 2012 and an additional two books were identified through Amazon's best-selling top 20 infant cookbooks in June 2013 to investigate the inclusion of seafood recipes and the beneficiary and cautionary claims made in reference to seafood (n=56).
- A survey was conducted using a systematic protocol to identify and classify the components of main meal products. A systematic, sampled double extraction method was conducted by two members of the research team on recipes and claims. Data extraction was completed independently and researchers met to discuss and agree on any variances in data.
- Main meal products and recipes were investigated with the exclusion of infant formulas, and breakfast, dessert and snack-based products and recipes.
- The non-parametric Kruskal-Wallis Test was used to examine the variance between food types for the occurrence of recipes, benefits and cautions in main meal recipes.

## RESULTS

### Cookbooks and Products Content (Figure 1)

- Meat-based meals were predominate in commercial products (n=121).
- Vegetable-based recipes were predominate in cookbooks (n=1860) (p<0.001).
- Seafood inclusion was the lowest contributing food type in both commercial products (n=13) and in baby and toddler cookbooks (n=626).

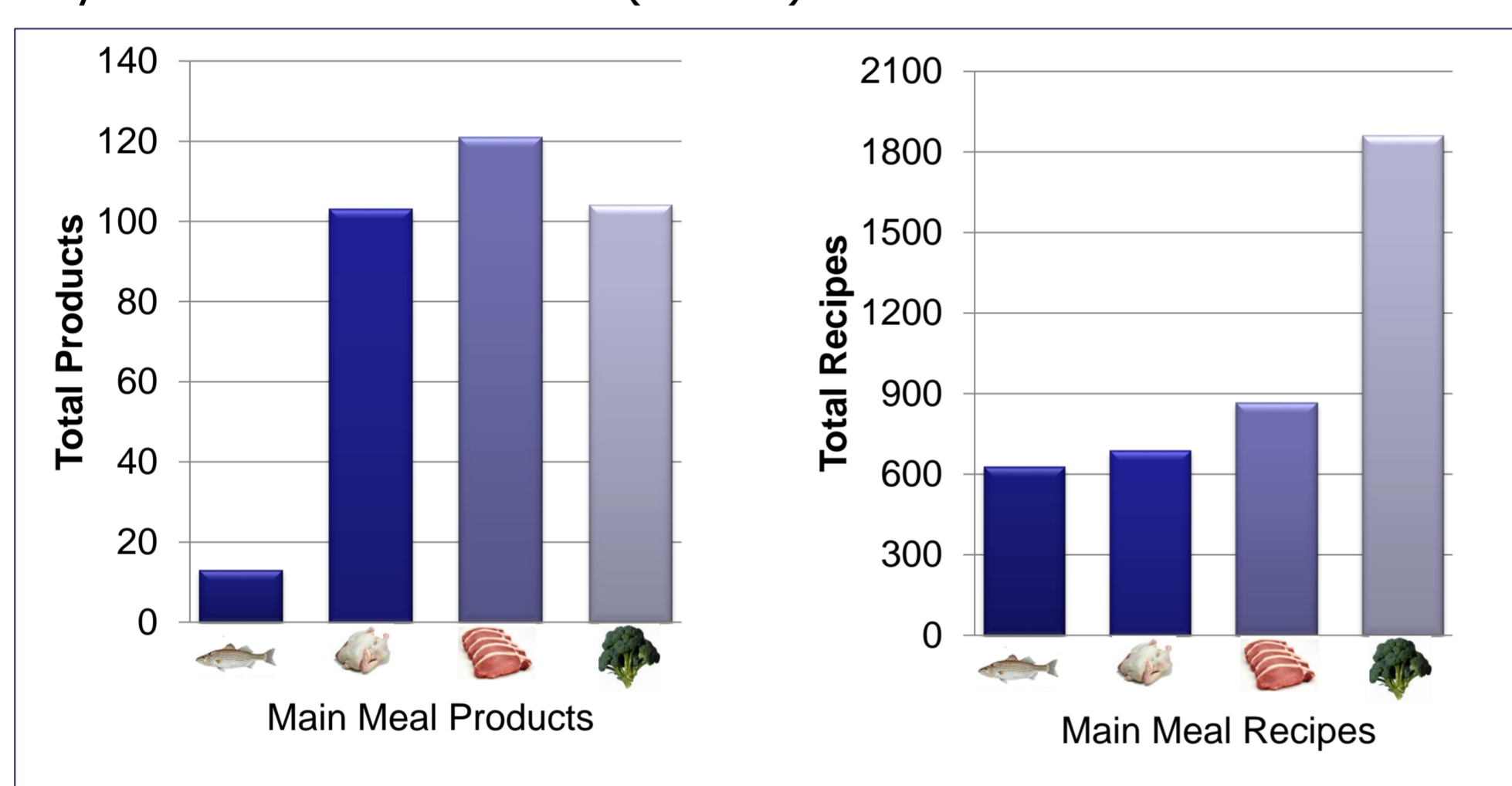


Figure 1: The total number of commercial pre-prepared main meals and main meal recipes within baby and toddler cookbooks by food types.

### Comparison of Seafood Species (Figure 2)

- Salmon was the predominant species in commercial products (69.2%) whilst it was the second most common species in cookbook recipes (19.7%) after tuna (20.2%).

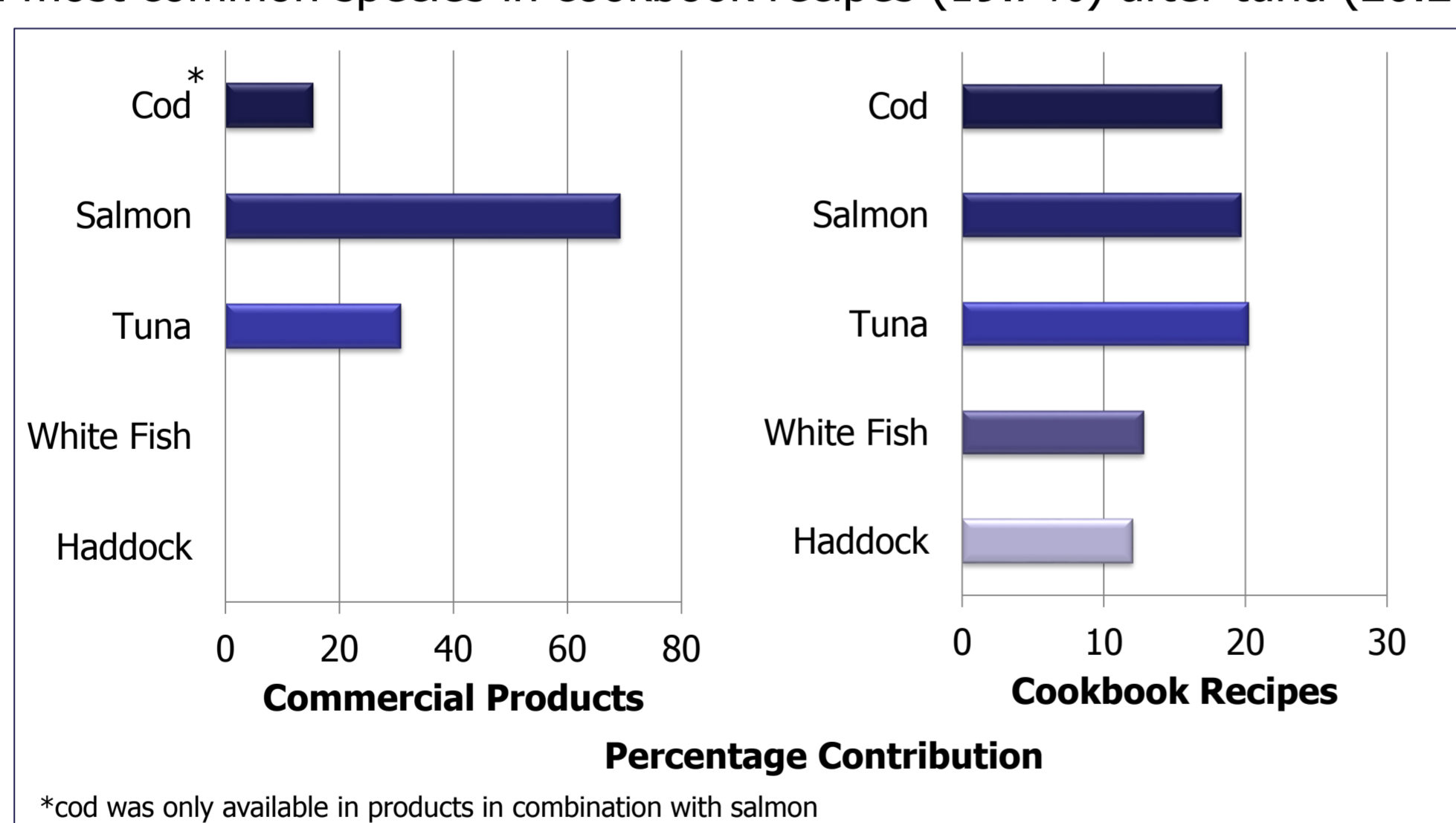


Figure 3: The percentage contribution of seafood species in commercial pre-prepared main meals and in main meal recipes within baby and toddler cookbooks.

### Beneficiary and Cautionary Claims (Figure 3)

- Vegetables received significantly more beneficiary claims (median=12.5) than the other food types in the cookbooks (p<0.001).
- Seafood meals received the second highest number of beneficiary claims (median=9.5) and the highest number of cautionary claims (median=10.5).

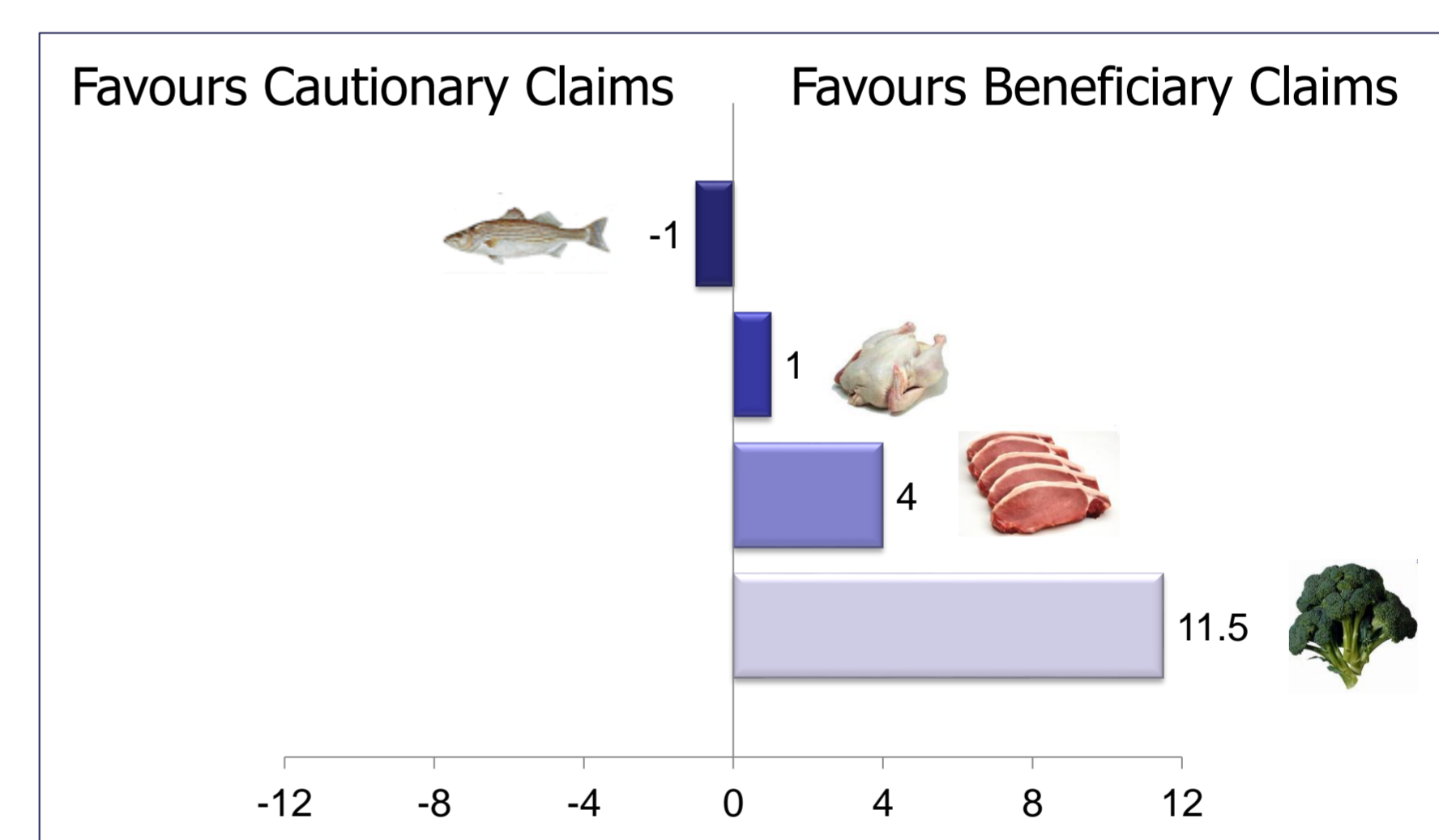


Figure 2: The balance of beneficiary and cautionary claims (median number of benefits minus the median number of cautions) cited in baby and toddler cookbooks for each food type.

### Nutrient Content of Commercial Products (Table 1)

- Seafood-based products contained significantly higher energy (148.00kcal), protein (8.74g), total fat (4.76g) and saturated fat (0.60g) than other food types (p<0.001).
- Vegetable-based products contained significantly higher sugar (3.91g) than the other food types (p=0.009).

Table 1: The median nutritional content of commercial main meal products by food type.

Nutrient	Seafood	Poultry	Meat	Vegetable
	Median (Range)			
Energy (kcal)	148.00* (108.55, 194.65)	127.30 (75.50, 146.30)	120.00 (82.00, 138.00)	85.70 (61.00, 127.78)
Sugar (g)	2.30 (1.56, 3.13)	3.40 (2.42, 5.18)	3.61 (2.60, 5.00)	3.91* (2.66, 6.87)
Protein (g)	8.74* (5.90, 13.00)	5.40 (3.98, 7.13)	5.20 (3.90, 6.63)	3.63 (1.95, 5.42)
Total Fat (g)	4.76* (3.51, 10.85)	3.80 (2.05, 4.75)	3.59 (2.00, 4.80)	2.46 (0.50, 4.10)
Saturated Fat (g)	1.82* (0.60, 5.70)	0.60 (0.39, 0.95)	1.10 (0.65, 1.71)	0.84 (0.10, 2.10)

Data are median and interquartile values for nutrient content per serving

\*significant difference to other food types (p<0.009)

## CONCLUSIONS

- Seafood inclusion in both commercial pre-prepared main meals and main meal recipes were under-represented compared to other food types.
- Parents who predominantly wean their infant using commercial products may face challenges in sourcing a suitable variety of products to enable the inclusion of seafood.
- Seafood-based products contain significantly higher energy, protein, total and saturated fat than their vegetable and meat-based counterparts providing essential nutrients for the growth and development of infants.
- Parents who wean their infant using commercial products and/or home-cook are predominantly provided with oily fish options, in particular salmon and tuna, as the seafood options to give to their infants.
- Parents who predominantly home-cook, have greater exposure to seafood recipes and a variety of recommended species however, this may be counteracted by the prominence of negative seafood messages which may deter parents from including seafood into the diet of their infant.

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