

Nutritional impact and consumer acceptance

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Task 1.6. Calculation of the nutritional impact ...

- Impact of new processed food products formulated with reduced salt (sodium), fat (saturated) and/or sugar (mono and disaccharides) on nutrient intake
- Differences between standard and modified nutrient was calculated:
 - EuroFIR recipe calculation procedure
 - Yield factor at recipe level
 - Retention factors at ingredient level
- Data on nutrients and energy values from national food composition databases from European compiler organisations (linked with EuroFIR)
- The impact of new processed food products formulated supported by Creme (EuroFIR member)



- Pizza dough
- Puff pastry dough
- Mozzarella-style cheese
- Bologna type sausage
- Cooked ham
- Tomato sauce
- Apple sauce

The impact of new processed food products

How it works?



- Calculates the intake at each eating event for each person per day:
- Food amount:
 - Given by food consumption diary
- Concentration:
 - *Variable*, and can occur with a certain probability

- United Kingdom (UK)



- Rolling National Dietary Nutrition Survey (NDNS) 2008 – 2011 (n= 1491)

- The Netherland (NL)





- Dutch National Food Consumption Survey (DNFCS) 2007 – 2010 (n= 3819)

- Work done in 3 steps:
 - 1. Baseline Nutrient and Food Assessments**
 2. Reformulated Nutrient Assessments
 3. Consumer Acceptance Scenario

Analysis of saturated fats, sugar and salt intakes from the diet

Mean:	The average of all intake values calculated for individuals within the target population
Mean Error:	Standard deviation of the distribution of mean intake values. The distributions of mean intake values are calculated using bootstrapping.
95 percentile (P95):	The value of intake below which 95% of the analyzed population falls
95 percentile (P95) Error:	Standard deviation of the distribution of P95 intake values. The distributions of P95 intake values are calculated using bootstrapping.
% Consumers:	The amount of people in the population who consume a particular food
% Contribution to the Total Diet (Mean Intakes):	The % contribution of a food group for a given nutrient intakes compared to the overall intake of a given nutrient intake from the total diet

Total Population	
<ul style="list-style-type: none"> Includes all people present in sample, even those who did not consume the food/supplement of interest 	
Food Consumers	
<ul style="list-style-type: none"> Includes only those people within the sample who definitely consumed the food/supplement of interest 	





	Saturated Fat g/d	Sugar g/d	Sodium mg/d
Mean	31.20	119.01	2403.10
Mean Error	0.26	1.09	17.71
P95	54.88	223.19	3996.69
P95 Error	0.71	4.72	53.87



	Saturated Fat g/d	Sugar g/d	Sodium mg/d
Mean	25.56	95.61	2292.86
Mean Error	0.33	1.36	26.39
P95	45.52	179.04	3795.38
P95 Error	1.14	4.57	58.78

National Recommendations:

➤ Salt :

- 9g/day (3540mg sodium/day)
- NL
- 6g/day (2369 mg sodium/day) – UK

- **+13% intake - NL**

- **+ 60% intake - UK**

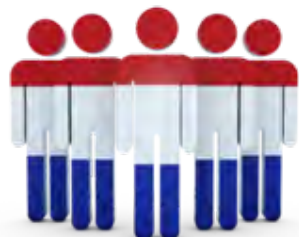
➤ Sat. Fat - 10% total energy

If we consider an average of 2000kcal/day

NL – 54,88g saturated fat corresponds to **25%** total energy

UK – 45.52g saturated fat corresponds to **20.5%** total energy

- Food intakes (g/d) for the Dutch population



- Food intakes (g/d) for the Dutch Food Consumers

Total Population	Mean	Mean Error	P95	P95 Error
Total Diet	3127.2	18.3	4771.33	57.8
Pizza dough →	6.9	0.5	63.2	4.2
Cooked ham →	6.6	0.3	32.0	1.5
Dried cured sausage	5.6	0.3	33.6	2.4
Apple sauce	4.1	0.4	28.3	2.6
Tomato sauce	4.0	0.3	29.8	3.6
Puff pastry dough	2.3	0.2	23.1	3.5
Bologna type sausage	1.3	0.1	9.0	1.0
Mozzarella-style cheese	1.13	0.1	4.7	2.1

Food Consumers	Mean	Mean Error	P95	P95 Error
Pizza dough →	77.6	2.6	159.4	7.5
Apple sauce	57.0	3.6	161.6	23.3
Tomato sauce	46.8	2.7	109.7	8.9
Puff pastry dough	33.1	1.5	70.0	5.8
Dried cured sausage	26.1	1.0	70.2	4.5
Cooked ham →	20.5	0.6	50.6	3.9
Mozzarella-style cheese	20.8	1.7	62.5	4.5
Bologna type sausage	13.4	0.7	32.0	3.7

- Food intakes (g/d) for the UK population



- Food intakes (g/d) for the UK Food Consumers

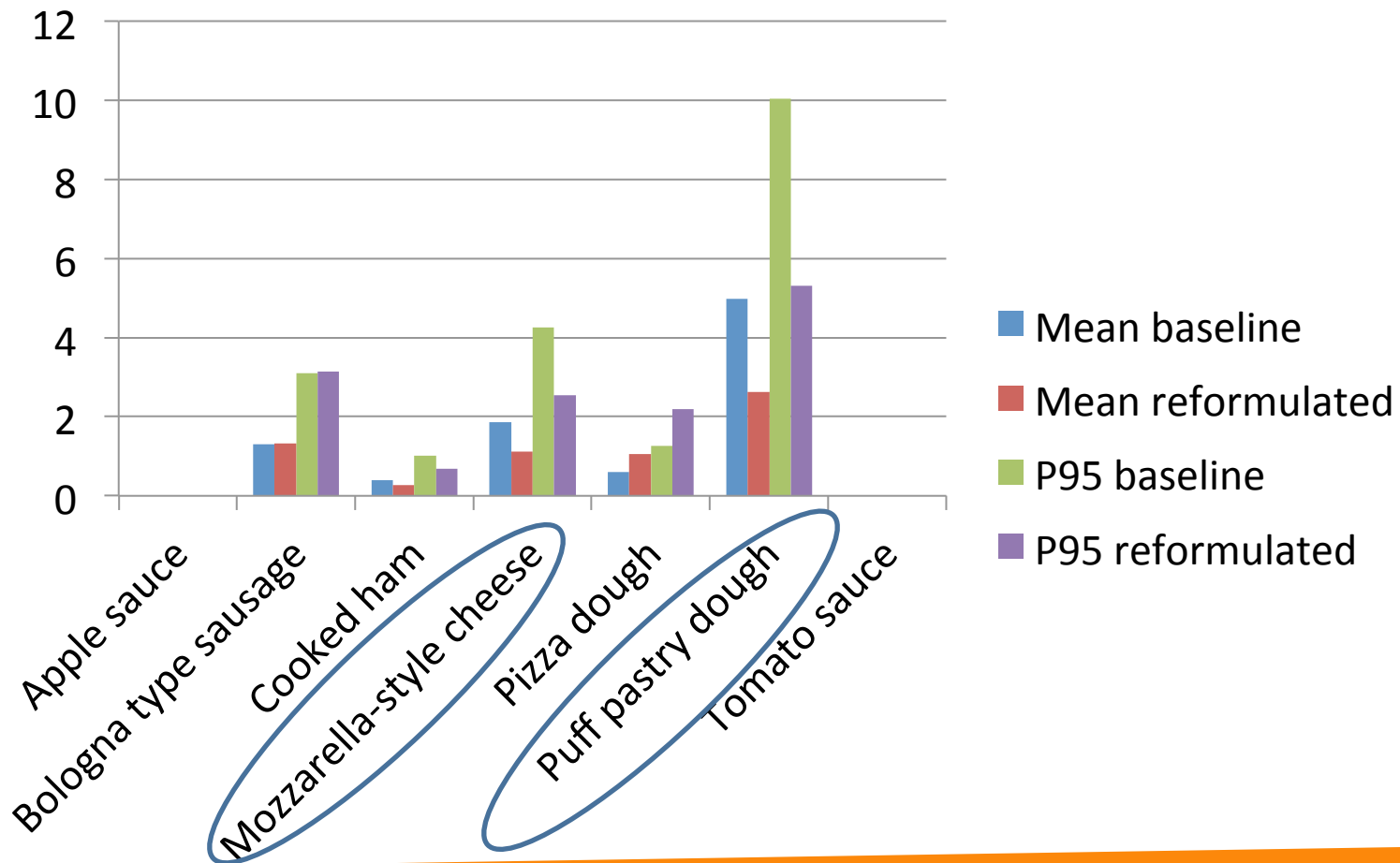
Total Population	Mean	Mean Error	P95	P95 Error
Total Diet	2779.1	29.6	4537.5	128.7
Tomato sauce →	20.0	1.3	103.2	3.8
Mozzarella-style cheese →	12.1	1.0	87.3	6.0
Pizza dough	12.0	0.9	87.3	5.9
Cooked ham	5.3	0.3	25.2	2.0
Puff pastry dough	1.3	0.2	0	0.2
Apple sauce	0.9	0.2	0	0.9
Dried cured sausage	0.6	0.3	0	0.7
Bologna type sausage	0	0	0	0

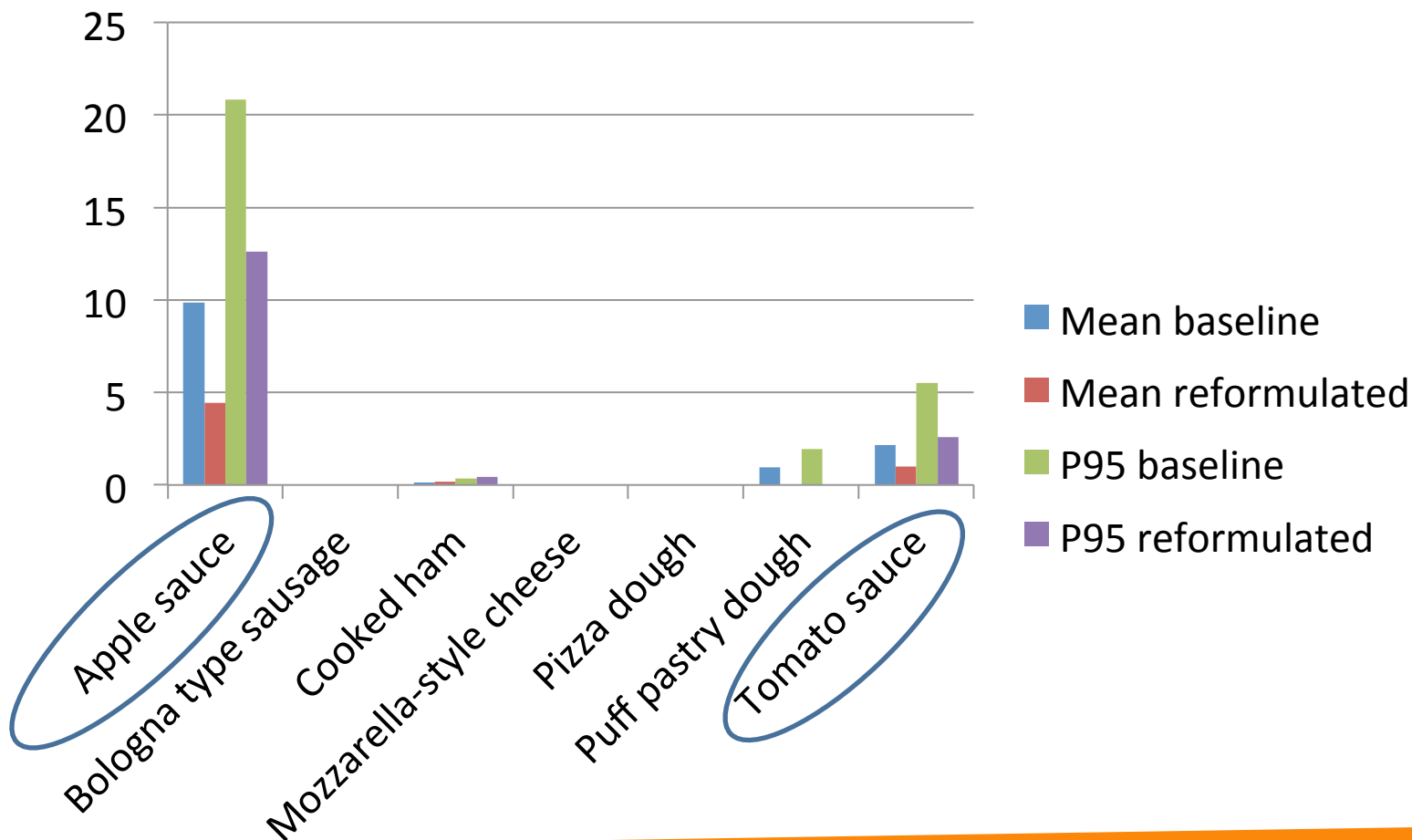
Food Consumers	Mean	Mean Error	P95	P95 Error
Pizza dough	68.4	3.5	160.5	9.5
Mozzarella-style cheese →	64.8	3.4	160.5	8.5
Tomato sauce →	62.2	2.8	157.3	13.2
Puff pastry dough	38.9	4.4	73.4	23.3
Apple sauce	20.3	3.2	72.3	13.1
Cooked ham	14.8	0.6	38.4	2.7
Dried cured sausage	14.0	5.5	39.4	37.9
Bologna type sausage	0	0	0	0

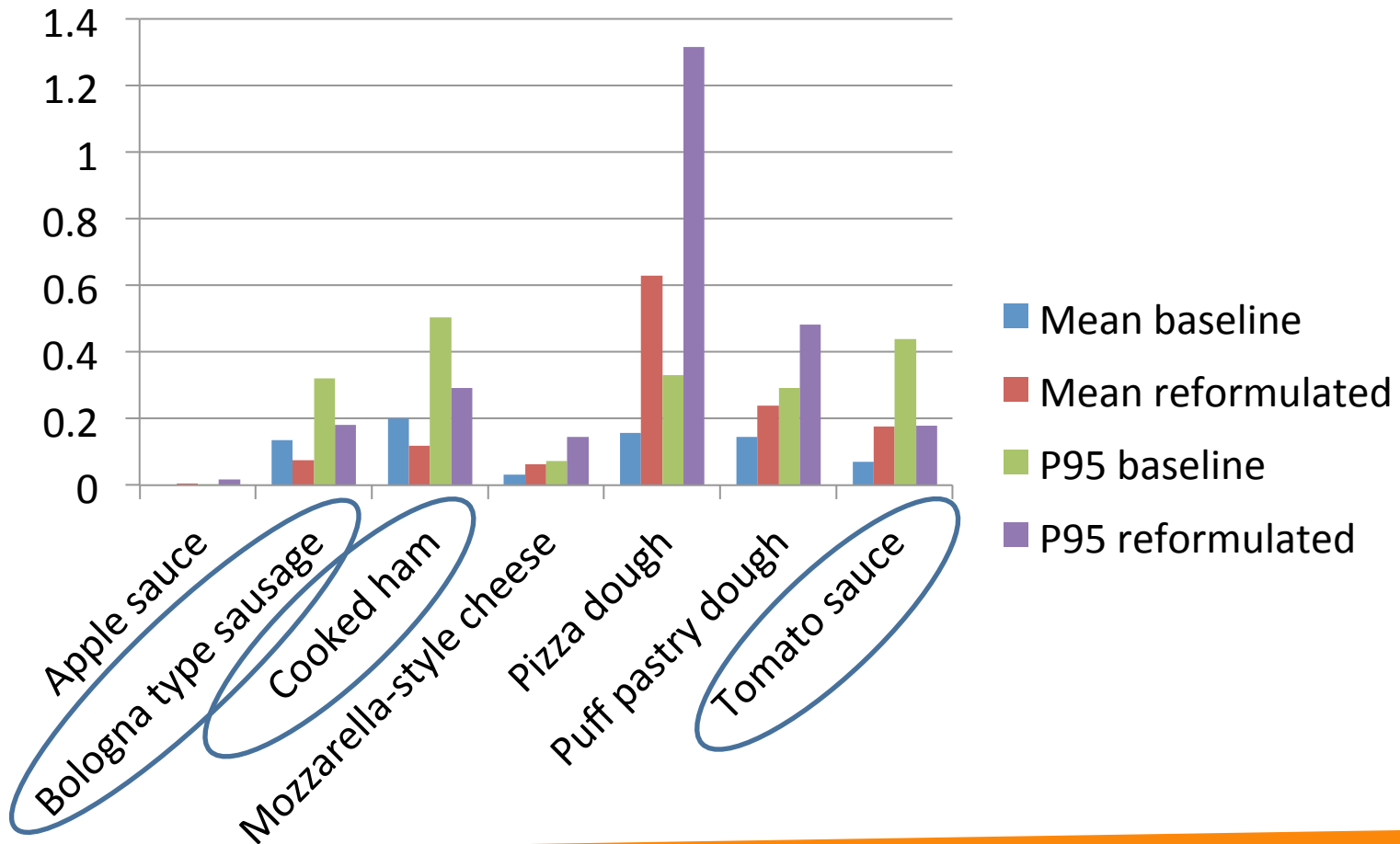
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Reformulation data baseline vs Reformulation data

Product	Sodium reduction g/100g	Sugar reduction g/100g	Sat Fat reduction g/100g
Cooked Sausage (Bologna type)	(30%) 0.565	(30%) 0	(30%) 9.8
Cooked Ham	(30%) 0.599	(30%) 0.9	(30%) 1.4
Pizza Dough	2.1 g salt = 0.826 g sodium	0 (no sugar, no reduction)	(44%) 1.38
Puffed pastry dough	2.1 g salt = 0.826 g sodium	(100%) 0	(30%) 9.1
Apple Sauce	0.01	7.8	<0.1
Mozzarella style cheese	(34%) 0.395	0	(48%) 7
Tomato sauce	(30%) 0.2	(30%) 2.87	0
Cooked puff pastry dough (20% loss, *1.20)	0.9912	0	10.92
Cooked pizza dough (15% loss, *1.15)	0.9299	0	1.587













- Work done in 3 steps:
 1. Baseline Nutrient and Food Assessments
 2. Reformulated Nutrient Assessments
 3. **Consumer Acceptance Scenario**
 - **End December 2014**

Food/Formulation Replacement Models

Original	Replacement	Proportion	Replacement Probability
		0.75	0.5
		0.75	0.7
		0.60	1

- New reformulated foods could significantly contribute to a decrease of the consumption of salt, sugar, fat:
 - Food consumption:
 - 36% consumers – cooked ham (14g/day)
 - 21% consumers – dried sausage (26g/day)
 - 17% consumers - pizza dough (68,4g/day)
 - 18.7% consumers – mozzarella-style cheese (64.8g/day)
 - Reformulated food intake:
 - Tomato sauce (sodium): 439mg/day – 180mg/day
 - Cooked ham (sodium): 504mg/day – 292mg/day
 - Puff pastry dough (sat. fat): 10g/day – 5.3g/day
 - Mozzarella-style cheese (sat. fat): 4.3g/day – 2.5g/day
 - Apple sauce (sugar): 20.8g/day – 12.6g/day

Thank you!

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