



Changes in salt levels in cooking sauces, Australia (2010-17)

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Introduction

Cardiovascular disease is the leading cause of non-communicable disease (NCD) deaths worldwide¹. Excess dietary salt intake increases blood pressure, and the risk of stroke and cardiovascular disease.² Globally, it has been estimated that more than 1.65 million cardiovascular deaths per year are attributed to excess dietary salt intake.³ Reducing salt intake is one of the most cost-effective public health interventions to reduce the global burden of non-communicable disease (NCDs); by lowering blood pressure, and thereby reducing the risk of stroke and heart disease deaths⁴. Many countries are working towards achieving the global target of a 30% relative reduction in mean population salt intake towards the World Health Organisation (WHO) <5g target⁵.

Average salt intake in Australia is 9g salt per day⁶, almost DOUBLE the WHO <5g recommendation. The Australian Federal Government has signed up to the global target to reduce population salt intake by 30% by 2025. In order to ensure we are on the right track to achieve this, The Victorian Health Promotion Foundation has established a Salt Reduction Partnership Group, including The George Institute for Global Health, The Heart Foundation, Deakin University, and the Victorian Department of Health, to review the evidence, consult with stakeholders and develop an action plan for salt reduction in Victoria⁷. The World Health Organization Collaborating Centre on Population Salt Reduction at the George Institute for Global Health in Sydney has a remit to support countries to achieve this target including developing programs of work to reduce salt levels in food.

Tips for consumers

- o The greatest reduction in average sodium content was between 2010 and 2015 (33% reduction in average sodium contents). There was no further decrease from 2015-2017 (1221 – 1313mg/100g respectively).
- o In 2017, tomato based pasta sauces had the lowest average sodium content of all pasta sauces (334mg/100g), however there is a huge range in the sodium content of these products, (8-750mg/100g), with some products containing almost 100 times more sodium than the lowest sodium product.
- o Some powdered casserole mixes contain over three times more sodium than others (2850-8700mg/100g).
- o There is currently NO salt target for powdered meal based sauces.
- o 30% more pasta sauce products met the targets in 2015 compared to 2010 (73% compared to 43%).

According to the most recent Australian Health Survey, the highest contributors of salt to the diet include bread and bread rolls (12.8%), processed meat (6.7%), ready to eat breakfast cereals (2-3%) and sauces, dips and condiments (6%).⁸ Given the frequency of consumption, as well as the contribution of salt to the diet, reformulating these foods to contain less sodium offers a good opportunity to reduce population level salt intake.

In 2009, The Australian Food and Health Dialogue (FHD) (since superseded by the new government's Healthy Food Partnership) set voluntary sodium reduction targets for 9 food categories, including simmer sauces to be achieved by the end of 2014.⁹

The aim of this study was to analyse the changes in sodium contents in cooking sauces sold in Australia in 2010, 2013, 2015 and 2017, and compare sodium contents against the Australian FHD targets.¹⁰ This was with the view to understanding the current levels of sodium levels in cooking sauces in Australia and inform direction for future reformulation efforts.

Key findings

- Overall average sodium content of cooking sauces decreased by 28% from 2010 (1815mg/100g) to 2017 (1313mg/100g)
 - The greatest reduction in average sodium content was between 2010 and 2015 (33% reduction in average sodium contents). There was no further decrease from 2015-2017 (1221 – 1313mg/100g respectively).
- In 2017, about 70% of products were covered by the FHD targets, of which 55% of products met the targets.
- The average sodium content of ambient meal based sauces increased by 29% from 542mg/100g in 2010 to 696mg/100g in 2015.
- Black bean /Asian sauces had the highest average sodium content in ambient meal based sauces (947mg sodium/100g) in 2017 with Ayam's Pad Thai Stir Fry sauce containing 2.9g of salt per serve. However there was a huge range in sodium contents from 270-2250mg/100g – with some products containing more than 10 times the amount of sodium compared to others.
- Average sodium in ambient pasta sauces decreased by 27% from 2010 (472mg/100g) to 2017 (342mg/100g), meeting the FHD (420mg/100g target). However between 2015 and 2017 there was no further significant decrease (376 and 342mg/100g respectively).
- Within ambient pasta sauces, the categories with the greatest reductions included cream based and tomato based pasta sauces - reduced by 27% and 28% respectively from 2010-2017
 - In 2017, tomato based pasta sauces had the lowest average sodium content of all pasta sauces (334mg/100g), however there is a huge range in the sodium content of these products, (8-750mg/100g), with some products containing almost 100 times more sodium than the lowest sodium product.
- Powder based meal sauces had the highest mean sodium content (5011mg/100g) amongst meal based sauces in 2017. McCormick's Slow Cookers Mild Chicken Curry sauce contains 8700g/100g for example. Whilst it is recognised that these products are diluted with water, there is a huge range of sodium content from 715-8950mg/100g, which demonstrates that manufacturers are able to make these products with far less sodium.
 - For example: some powdered casserole mixes contain over three times more sodium than others (2850-8700mg/100g).

- There is currently NO salt target for powdered meal based sauces.

- Curry pastes also contain high levels of sodium – average sodium content was 2000mg/100g in 2017 with some products containing 20 times more sodium than others (range: 251-4530mg/100g).
- Since 2010, there has been an 18% increase in the proportion of products meeting the FHD targets (from 37% in 2010 to 55% in 2017)
- The proportion of pasta sauce and other simmer sauce products meeting the FHD targets increased from 2010 to 2015, however there was no further increase from 2015 to 2017.
 - For example 30% more pasta sauce products met the targets in 2015 compared to 2010 (73% compared to 43%).

Conclusion

Overall the average sodium content of cooking sauces decreased by 28% from 2010-2017. In addition, 55% of products, with FHD targets, now meet the targets compared to 37% in 2010. However, there are some categories, including where FHD targets were not applicable, where average sodium levels have increased. The huge range in sodium content amongst similar products highlights the potential for further reductions to be made by food manufacturers. The largest increase in the proportion of products meeting the targets occurred between 2010 and 2015, which suggests that the setting of targets may be effective in motivating the food industry to take action. However currently, no further targets have been set. This highlights the need for comprehensive targets across the entire product category, with continuous, and specific time frames, and transparent monitoring systems to ensure compliance by the food industry.

Limitations

The products captured in the packaged food composition database do not necessarily represent a complete coverage of the product supply within Australia, but rather those captured at specific time points during surveys, and limited to major food retailers.

About The George Institute's Food Policy Division

The George Institute's Food Policy group works in Australia and internationally to reduce rates of death and disease caused by diets high in salt, saturated fat and sugar or excess energy, by undertaking research and advocating for a healthier food environment. The George Institute Food Policy group's main focuses are food reformulation, monitoring changes in the food supply, and developing and testing innovative approaches to encourage consumers towards better food choices.

The George Institute for Global Health

The George Institute for Global Health is improving the lives of millions of people worldwide through innovative health research. Working across a broad health landscape, the Institute conducts clinical, population and health system research aimed at changing health practice and policy worldwide. The Institute has a global network of medical and health experts working together to address the leading causes of death and disability worldwide. Established in Australia and affiliated with The University of Sydney, the Institute today also has offices in China, India and the United Kingdom, and is also affiliated with Peking University Health Science Centre, the University of Hyderabad and the University of Oxford.

The George Institute prioritises clinical and population health research that produces outcomes that are easily translated into practice, and effect real change within a short period of time to health policy and practice. The Institute has been ranked among the top 10 global institutes for impact for the last several years, and its research has resulted in changes to medical guidelines and ways of thinking about some of the most common medical treatments around the world. Examples include developing a new treatment for stroke, showing that blood pressure lowering reduces the risk of cardiovascular disease in people with diabetes, and providing safer fluid options for patients in intensive care. Developing better methods for delivering health care are a priority for the Institute. Follow us on Facebook at and on Twitter @georgeinstitute

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Table 1: Mean, median, range of sodium in cooking sauces from 2010 to 2017

FOOD CATEGORIES	2010 SODIUM LEVELS (mg/100g)				2013 SODIUM LEVELS (mg/100g)				2015 SODIUM LEVELS (mg/100g)				2017 SODIUM LEVELS (mg/100g)			
	No.	Mean	Median	Range	No.	Mean	Median	Range	No.	Mean	Median	Range	No.	Mean	Median	Range
COOKING SAUCES	492	1815	667	0-12140	659	1546	682	10-11000	521	1221	490	15-8700	543	1313	549	8-8950
Meal-based sauces	321	2525	1370	132-12140	415	2190	1300	118-11000	310	1759	1069	108-8700	334	1881	1080	57-8950
Ambient meal-based sauces	110	542	472	169-1600	137	816	489	188-5890	121	696	416	108-8210	100	554	416	120-2250
Black bean/Asian	19	871	932	216-1600	44	1384	706	235-5890	15	1921	1760	270-8210	25	947	703	270-2250
Chicken-based	13	462	480	320-605	16	464	483	340-605	21	513	420	330-1601	14	402	403	321-485
Curry-based	54	455	420	280-1090	41	449	387	228-1300	57	440	377	108-1628	33	355	332	272-623
Satay	6	782	704	409-1310	11	840	615	251-3500	14	620	498	251-1920	5	460	416	251-657
Stroganoff	3	486	465	435-559	4	446	445	430-465	5	421	430	373-465	3	403	427	353-430
Sweet and sour	10	285	272	169-560	16	631	494	188-1450	5	347	310	200-560	4	246	207	120-450
Other	5	683	718	335-1060	5	781	776	385-1060	4	1761	1202	419-4220	16	617	521	220-1610
Curry pastes	26	2157	1811	563-4660	83	3048	2550	526-11000	61	2260	2000	283-5960	58	2000	1870	251-4530
Liquid meal-based sauces	73	1406	1180	132-4520	116	1377	1070	118-7050	81	1316	1000	135-5750	112	1215	881	57-4940
Asian-style	34	1615	1265	132-4520	60	1617	1377	118-4520	37	1736	1430	135-5750	61	1619	1500	135-4940
Casserole	11	1472	1382	584-2790	11	939	1000	394-1347	6	873	905	394-1191	6	722	809	380-1000
Curry-style	2	613	613	497-728	17	1089	740	322-7050	18	872	698	230-2940	26	655	704	245-1090
Devilled sausages	2	953	953	905-1000	2	854	854	794-914	2	854	854	794-914	2	480	480	57-902
Pasta meal	10	1179	1136	561-1715	9	857	905	144-1340	1	930	930	NA	3	735	829	486-890
Potato bake	2	1340	1340	950-1729	3	1309	1174	998-1755	2	1162	1162	568-1755	2	958	958	568-1347
Stroganoff	2	1070	1070	960-1180	2	755	755	589-920	3	1720	1080	589-3490	1	1080	1080	NA
Other	10	1177	1219	629-1462	12	1586	1219	611-5671	12	941	800	385-2415	11	892	867	396-1650
Powdered meal-based sauces	112	5288	5200	883-12140	79	4863	4800	298-11000	47	4608	4650	507-8700	64	5011	5250	715-8950
Casserole	32	5268	5345	2420-10144	20	5293	5039	298-10144	7	6201	6560	3880-8150	11	6418	7060	2850-8700
Chili con carne	2	4910	4910	4660-5160	5	5562	5170	2940-10300	3	4017	3925	2940-5185	2	4928	4928	3925-5930
Curry-based	14	5442	4845	2500-12140	13	4623	4320	636-11000	11	4399	4940	507-8700	6	5114	5532	2890-6240
Devilled sausages	4	2348	2465	883-3580	5	2676	2230	1480-4890	2	2440	2440	2200-2680	5	1535	1240	715-2680
Pasta-based	11	4766	4260	2820-7490	3	3613	3570	2850-4420	2	3418	3418	2825-4010	3	4302	3200	2825-6880
Potato bake	15	6015	5824	3920-8185	12	6356	6235	5170-8185	8	5795	5958	3685-6830	6	5797	6040	3880-6830
Stroganoff	6	4728	4590	3360-6576	6	4784	4685	2710-6576	4	5185	4760	4570-6650	5	4810	4650	2400-6860
Other	28	5617	4906	3000-11200	15	4081	3710	515-8800	10	3389	3885	641-4990	26	5007	5100	2100-8950
Pasta sauces	144	490	446	0-1540	219	459	395	15-1597	211	430	383	15-1597	186	413	377	8-1350
Ambient pasta sauces	120	472	447	19-1200	160	410	390	15-1200	170	376	380	15-898	145	342	368	8-750
Cream-based	10	545	544	423-751	20	476	467	321-751	19	452	438	341-745	13	397	416	292-506
Pasta sauce with meat	2	396	396	338-454	2	521	521	479-563	4	493	479	450-563	5	394	450	130-480

Tomato-based	108	466	444	19-1200	138	398	385	15-1200	147	363	370	15-898	127	334	360	8-750
Fresh pasta sauces	15	315	310	0-480	36	323	301	116-660	21	315	273	116-547	21	376	364	190-547
Cream-based	5	355	366	270-480	7	324	270	258-498	5	372	310	250-547	4	404	423	270-498
Pasta sauce with meat	3	357	310	290-470	5	356	321	290-443	5	332	315	190-443	7	405	382	315-547
Tomato-based	7	268	310	0-410	24	316	301	116-660	11	280	265	116-471	10	344	330	190-490
Pesto	9	1026	1113	248-1540	23	1012	1080	458-1597	20	1010	1090	466-1597	20	969	1083	259-1350
Tomato paste	27	431	420	22-980	25	379	234	10-1099	0	NA	NA	NA	23	345	241	9-1210

Table 2: Cooking sauces categories with FHD targets: proportion of products meeting the targets from 2010 to 2017

FOOD CATEGORIES	FHD Target (mg/100g)	2010			2013			2015			2017		
		No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target
Asian-style sauces ¹	680	69	25	36	131	42	32	71	23	32	95	30	32
Indian-style sauces ²	420	56	27	48	58	29	50	75	45	60	59	29	49
Pasta sauces ³	420	145	62	43	205	129	63	192	141	73	169	127	75
Other (simmer type sauces) ⁴	420	48	4	8	55	7	13	55	16	29	55	20	36
TOTAL	NA	318	118	37	449	207	46	393	225	57	378	206	55

¹ Includes Black bean/Asian ambient, satay ambient, sweet and sour ambient meal based sauces, and Asian-style liquid recipe bases; ² Includes curry-based ambient meal-based sauces and curry-style liquid recipe bases; ³ Includes ambient cream-based, ambient pasta sauce with meat, ambient tomato-based, fresh cream-based, fresh pasta sauce with meat, fresh tomato-based pasta sauces, and pasta meal liquid recipe bases;

⁴ Includes chicken-based, stroganoff and other ambient meal-based sauces, and casserole, devilled sausages, potato bake, stroganoff and other liquid recipe bases

Table 3: Cooking sauces categories with UK targets (average): proportion of products meeting the targets from 2010 to 2017

FOOD CATEGORIES	UK Target (mg/100g)	2010			2013			2015			2017		
		No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target
All cook in and pasta sauces ¹	300	317	33	10	439	63	14	379	59	16	362	59	16
Pesto and other thick sauces ²	550	9	1	11	23	2	9	20	2	10	20	3	15
Thick pastes ³	1300	53	30	57	108	34	31	61	11	18	81	37	46
TOTAL	NA	379	64	17	570	99	17	460	72	16	463	99	21

¹ Includes ambient and liquid meal-based sauces (excluding passata), and ambient and fresh pasta sauces; ² Includes pesto; ³ Includes curry and tomato pastes

Table 4: Cooking sauces categories with UK targets (maximum): proportion of products meeting the targets from 2010 to 2017

FOOD CATEGORIES	UK Target (mg/100g)	2010			2013			2015			2017		
		No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target	No. of products	No. meeting the target	% meeting the target
All cook in and pasta sauces ¹	370	317	68	21	439	116	26	379	128	34	362	113	31
Pesto and other thick sauces ²	650	9	2	22	23	4	17	20	5	25	20	3	15
Thick pastes ³	1500	53	36	68	108	39	36	61	13	21	81	39	48
TOTAL	NA	379	106	28	570	159	28	460	146	32	463	155	33

1 Includes ambient and liquid meal-based sauces (excluding passata), and ambient and fresh pasta sauces; 2 Includes pesto; 3 Includes curry and tomato pastes