



Changes in salt levels in chilled dips and crackers, Australia (2010-2017) November 2017



The George Institute
for Global Health



Report prepared for the VicHealth Salt Partnership by the World Health Organization Collaborating Centre on Population Salt Reduction at The George Institute for Global Health

Introduction

Cardiovascular disease is the leading cause of non-communicable disease (NCD) deaths worldwide.¹ 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 deaths.⁴ 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 target.⁵

Average salt intake in Australia is around 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 Victoria.⁷ 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.

It is estimated that approximately 75% of dietary salt is from processed foods.⁸ According to the most recent Australian

Tips for consumers

- Limit processed foods and meals where possible and increase consumption of fresh foods and vegetables.
- Be aware of portion size.
- Download the FoodSwitch app to scan product barcodes to be directed to a product with a lower sodium content. Available to download from <http://www.foodswitch.com.au>
- Read the label and choose the lower sodium option.
- Use the Australian Guide to Healthy Eating as a guide to make healthier choices.

Recommendations

- The high levels, and wide ranges of sodium in dips and crackers highlights the need for progressively lower sodium targets for manufacturers to work towards to reduce the amount of sodium in these products.
- Regular monitoring of food supply is required to ensure the food industry meets the targets for sodium reduction.

Health Survey, dips and savoury biscuits contributed 0.4% (0.3% males, 0.5% females) and 1.6% (1.4% males, 1.8% females) of salt in Australian diet respectively.⁹ Although dips and crackers contribute a relatively small amount of salt to the diet, reformulation to contain less sodium would still be beneficial as a means of helping Australians to reduce salt intake at the population level.⁹

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, which included crackers within the bread category. There are currently no Australian government

targets for dips.¹⁰ However, in 2011 the Australian Division of World Action on Salt and Health at the George Institute proposed a target for dips.

The aim of this study was to analyse the changes in sodium contents in dips and crackers sold in Australia in 2010, 2013, 2015 and 2017, and compare sodium contents against existing Australian targets and those set by The Department of Health in the United Kingdom (UK).¹¹ This was with the view to understanding how much sodium is in these products and whether this has changed over time and informing direction for future reformulation efforts in Australia.

Methods:

Data Collection

Sodium data for dips and crackers in 2010, 2013 and 2015 was extracted from the George Institute's FoodSwitch database for Australia.¹² Data from 2017 was collected in late September from four major grocery retail stores (Coles, Woolworths, ALDI and IGA) in Sydney, Australia, using the protocol for data collection for the FoodSwitch database. Sodium data was obtained from the Nutrition Information Panel (NIP) and reported in milligram (mg) per 100g of food. Food product, manufacturer, brand and product name, sodium content per 100g were recorded.

Product inclusion

Chilled dips which required refrigeration were included in the study. Crackers included plain or flavoured crackers, crisp breads, rice crackers, rice/corn cakes and breadsticks.

Products excluded were ambient dips and chilled/ambient dips & crackers that were sold as a snack pack (unless nutrition information for dips and/or crackers were available on the NIP), sweet biscuits (e.g. biscuits made with dried fruits and/or nuts). Products without sodium data were also excluded.

Categorisation

Dips and crackers were systematically categorised using the protocol for the FoodSwitch database.

Dips were categorised into two major categories: chilled dips and salsa. Chilled dips were further categorised into sub-categories including tzatziki, hummus, guacamole-based, French onion, corn relish, capsicum, eggplant, olive, beetroot, spinach, seafood-based, cheese-based dips and others.

Crackers were a sub-category of biscuits, which had three major categories: plain dry biscuits, savoury biscuits and other bread – which were further subcategorised into: wheat-based crackers, wheat based crispbread, plain rice crackers, plain rice cakes and similar products and others for plain dry biscuits; flavoured rice crackers and crispbread, flavoured rice crackers, breadsticks, flavoured rice cakes and corn cakes and others for savoury biscuits; croutons, other plain bread for other bread.

Data analysis

Number of products, mean sodium (mg/100g) and ranges

of sodium (mg/100g) were determined for each category and sub-category for each year (2010, 2013, 2015 and 2017). Mean sodium values were compared against the Australian (crackers) and UK (dips) salt targets. The proportion of products meeting targets were also derived for each year. In addition, one-way ANOVA was used to determine if there were statistically significant differences in the mean sodium content across the years, and a post-hoc analysis using Scheffe's method was carried out to determine which specific years differed (i.e. 2010 vs 2013, 2010 vs 2015, 2010 vs 2017 etc). Logistic regression was used to determine if there were differences in the proportion of products meeting the targets across the years. Statistical analysis was done using Stata IC version 13.0 for Windows (StataCorp LP, Texas). A p-value of <0.05 was considered as statistically significant.

Key Findings:

Dips

- 849 products were analysed from 2010 to 2017. The number of products increased from 113 in 2010 to 274 in 2017.
- The average sodium content in dips has increased by 14% from 434mg sodium/100g (1.08g salt/100g) in 2013 to 496mg sodium/100g (1.24g salt/100g) in 2017.
- Serving sizes ranged from 10-150g. The average serving size was 25g.
- The average sodium in an average serving of dip would contain 124mg of sodium (0.3g of salt).
- Average pack size ranged from 150g to 350g. The average pack size was 200g.
- The average sodium in the average pack was 992mg sodium (2.48g salt).
- There was a huge range in the sodium contents of dips with the highest containing 1930mg sodium/100g (4.8g salt) almost 400 times MORE sodium than the lowest salt dip containing 5mg sodium/100g (0g salt).
- Olive based dips had the highest average sodium content 849mg sodium/100g (2.1g salt) with a range of 411-1200mg sodium (1-3g salt).
 - The highest salt olive dips which contained 1200mg sodium/100g (3g) was Wattle Valley Delish Olive Medley with Fetta and Aldi Deli Originals trip of olives with fetta and oregano dip. With a suggested serving size of 10g.
- Tzatziki had the lowest average sodium content 351mg sodium/100g (0.9g salt) with a range of 105-715mg sodium (0.3-1.8g salt)
- An average serving of the dips with the highest average sodium content, olive based dip, would contain 212mg sodium per serve (0.53g salt).
 - The highest sodium dip was a seafood dip; Fresh Fodder Smokey Taramosalata which contained 1930mg sodium per 100g. Based on the recommended serving size (50g), one serving of this

dip would contain 967mg sodium (2.42g salt)

- In 2011 AWASH recommended a sodium target of 410mg/100, only 40% of current products would meet this target.

Crackers

- 1285 products were analysed from 2010 to 2017. The number of products increased from 207 in 2010 to 350 in 2017.
- The average sodium content in crackers decreased by 15.9% from 750mg sodium/100g in 2010 (1.87g salt/100g) to 630mg sodium/ 100g in 2017 (1.6g salt/100g).
 - The greatest reduction in average salt level was from 2010 and 2015: 11.8% reduction in average salt level.
- There is a huge variation in sodium content in crackers ranging from 1mg sodium/100g to 2100mg of sodium per 100g (0 - 5.3g of salt/100g).
- Flavoured rice cakes and corn cakes had the highest average sodium content of the savoury crackers sub-categories, 923mg of sodium per 100g (2.3g salt/100g) with a range of 470mg to 1270mg sodium/100g (1.2-3.2g/100g salt).
- The average serving size for crackers was 21g, with a range of 2-60g.
- Based on the average sodium content, an average serving would contain 132mg of sodium (0.3g salt).
 - The highest sodium cracker was the Kurrajong Kitchen Lavosh Thins 'Rosemary and Sea Salt' flavour, which contained 2100mg sodium/100g (5.25g of salt/100g). Based on the recommended serving size (10g) a serving of crackers would contain 210mg sodium (0.53g salt).
- 86.8% of products met the Australian FHD maximum sodium target.
 - On average, plain crackers had the highest adherence to the FHD target of 850mg/100g, with 94% of products meeting the target. 73% OF Flavoured rice crackers/cakes/corn cakes had the lowest met the FHD target (1000mg per 100g).
 - Only 64% of products met the 2017 UK FSA maximum sodium level of 700mg/100g.
 - Apart from plain rice crackers/cakes/corn cakes, all the categories for crackers exceeded the UK FSA average sodium level of 520mg/100g.

Salt levels in dips and crackers combinations

- The average amount of sodium in an average serving of the dip and cracker would contain 628mg sodium (1.57g salt) (496mg sodium per serve of dip and 132mg sodium per serve of cracker).
- Crackers and dips are often served together. However, some dips and cracker combinations contribute more than 50% of the recommended daily salt intake. For example:

- A serving of the highest salt dip, 50g of Fresh Fodder Smokey Taramasalata and a serving of the highest cracker, Kurrajong Kitchen Lavosh Thins 'Rosemary and Sea Salt' flavour would contain 2.93g salt more than half of our daily amount in a single serving of a snack food.

- Combinations of some lower salt options still contribute quite a lot of salt. For example;
 - A recommended portion of MonJay Mezza Hummos Dip, 25g, with 20g Peckish Sea Salt and Vinegar Rice Crackers (approximate 11 crackers) contains about 0.9g of salt (0.1g of salt from dips and 0.8g of salt from crackers).
 - The lowest combination was 3-4 of SunRice Original Thin Rice Cakes (25g serve) spread with Pilpel Avocado dip (17g), providing just 0.3g of salt.

Conclusion:

There is a wide range in sodium content of dips and crackers which indicates that manufacturers can make these products with less sodium. There has been an increase in the sodium content of dips since 2009 – which indicates the need for targets. In contrast, there has been a reduction in the sodium content of crackers in line with the targets set. This, coupled with the huge range in sodium content amongst similar products, highlights the need for targets to drive reformulation to reduce sodium in these products by food manufacturers

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.

Notes on data:

Data was analysed using sodium per 100g. To convert to salt (g) multiply sodium (mg) by 2.5 and divide by 1000. For example: 2000mg sodium = 5g salt. **References:**

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About the WHO Collaborating Centre on Population Salt Reduction

The WHO Collaborating Centre on Population Salt Reduction (WHO CC SALT) has a global remit with a focus on Australia, the Western Pacific and South East Asian Regions. It is currently involved in projects in Australia, the Pacific Islands, Mongolia, Vietnam, Cambodia, Indonesia, China and India. WHO CC SALT is working with the World Health Organization to develop a range of tools and resources to support countries to develop and implement salt reduction strategies. WHO CC SALT is funded through a mixture of short and longer term contracts and research grants including National Health and Medical Research Council project and partnership grants and contract funding from the Victorian Health Foundation and the World Health Organization.

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Table 1 - Mean, range and product count of sodium in dips from 2010 to 2017

	2010 SODIUM LEVELS (mg/100g) [salt, g/100g]			2013 SODIUM LEVELS (mg/100g) [salt, g/100g]			2015 SODIUM LEVELS (mg/100g) [salt, g/100g]			2017 SODIUM LEVELS (mg/100g) [salt, g/100g]		
	Mean	Range	Product count	Mean	Range	Product count	Mean	Range	Product count	Mean	Range	Product count
Dips	437 [1.1]	15-1216 [0-3.0]	113	434 [1.1]	25-2200 [0-5.5]	237	470 [1.2]	104– 2100 [0.3 – 5.3]	225	496 [1.2]	5–1930 [0–4.8]	274
Chilled dips	435 [1.1]	15-1216 [0-3.0]	112	434 [1.1]	25-2200 [0-5.5]	237	470 [1.2]	104 –2100 [0.3 – 5.3]	224	496 [1.2]	5 – 1930 [0 – 4.8]	273
Tzatziki	297 [0.7]	160-497 [0.4-1.2]	9	338 [0.8]	54-741 [0.1-1.9]	21	312 [0.8]	105 – 664 [0.3 – 1.7]	15	351 [0.9]	105–715 [0.3 –1.8]	21
Hummus	383 [1.0]	15-891 [0-2.2]	15	361 [0.9]	112-891 [0.3-2.2]	62	436 [1.1]	110 – 891 [0.3 – 1.1]	64	437 [1.1]	153 –786 [0.4–2.0]	53
Guacamole-based	396 [1.0]	179-620 [0.4-1.6]	8	363 [0.9]	285-620 [0.7-1.6]	10	421 [1.1]	250 – 630 [0.6 – 1.6]	13	368 [0.9]	5 – 609 [0 – 1.5]	16
French Onion	446 [1.1]	240-753 [0.6-1.9]	10	521 [1.3]	361-768 [0.9-1.9]	7	490 [1.2]	350 – 768 [0.9 – 1.9]	11	614 [1.5]	380 –768 [1.0 –1.9]	12
Corn Relish	346 [0.9]	240-451 [0.6-1.1]	2	399 [1.0]	-	1	433 [1.1]	360 – 480 [0.9 – 1.2]	3	404 [1.0]	212 –596 [0.5 –1.5]	2
Capsicum	536 [1.3]	320-820 [0.8-2.1]	10	514 [1.3]	280-785 [0.7-2.0]	17	476 [1.2]	295 – 726 [0.7 – 1.8]	11	497 [1.2]	337 –690 [0.8 –1.7]	17
Eggplant	411 [1.0]	264-585 [0.7-1.5]	5	425 [1.1]	39-720 [0.1-1.8]	16	430 [1.1]	104 – 652 [0.3 – 1.6]	11	418 [1.0]	104 –660 [0.3 –1.7]	13
Olive	895 [2.2]	480-1216 [1.2-3.0]	4	889 [2.2]	433-1529 [1.1-3.8]	12	842 [2.1]	433 –1200 [1.1 – 3]	7	849 [2.1]	411-1200 [1.0 –3.0]	12
Beetroot	526 [1.3]	417-648 [1.0-1.6]	6	381 [1.0]	86-630 [0.2-1.6]	12	597 [1.5]	295 –1170 [0.7 – 0.8]	6	470 [1.2]	223-1170 [0.6 –2.9]	13
Spinach	473 [1.2]	339-670 [0.8-1.7]	6	427 [1.1]	393-470 [1.0-1.2]	5	401 [1.0]	287 – 523 [0.7 – 1.3]	7	374 [0.9]	287 –443 [0.7 –1.1]	6
Cheese-based	310 [0.8]	180-440 [0.5-1.1]	2	289 [0.7]	180-440 [0.5-1.1]	4	342 [0.9]	320 – 400 [0.8 – 1]	6	408 [1.0]	262 –680 [0.7 –1.7]	10
Aioli	260 [0.7]	-	1	430 [1.1]	-	1	624 [1.6]	498 – 685 [1.2 – 1.7]	7	585 [1.5]	470 –682 [1.2 –1.7]	7
Seafood-based	453 [1.1]	133-790 [0.3-2.0]	8	676 [1.7]	25-2200 [0.1-5.5]	11	616 [1.5]	256 –2100 [0.6 – 5.3]	19	685 [1.7]	79 –1930 [0.2 –4.8]	30
Dips variety packs	-	-	-	311 [0.8]	180-444 [0.5-1.1]	4	-	-	-	308 [0.8]	250 –380 [0.6 –1.0]	2
Others	404 [1.0]	233-811 [0.6-2.0]	26	418 [1.0]	68-900 [0.2-2.3]	54	459 [1.1]	140 – 833 [0.4 – 2.1]	44	493 [1.2]	156 –917 [0.4 –2.3]	59
Salsa	710 [1.8]	-	1	-	-	-	470 [1.2]	-	1	470 [1.2]	-	1

*If there is only one product within the category, sodium content of that product is reported in the "mean" column

Table 2 - Comparison of sodium level in dips in 2017 to 2011 AWASH recommended sodium targets

Food category	Total number of products	Mean of sodium content (in mg/100g)	AWASH Recommended Maximum level (in mg/100g)	Number of products meeting the maximum level	Proportion of products meeting the maximum level
<i>Cheese-based dips</i>	10	408		6	60%
<i>Cream-based dips</i>	94	527		34	36.1%
<i>Bean-based dips</i>	55	440	410	25	45.4%
<i>Vegetable /fruit-based dips</i>	115	506		45	39.1%
Total	274	496		110	40.1%

Table 3- Mean, range and product count of sodium in crackers from 2010 to 2017

	2010 SODIUM LEVELS (mg/100g) [salt, g/100g]			2013 SODIUM LEVELS (mg/100g) [salt, g/100g]			2015 SODIUM LEVELS (mg/100g) [salt, g/100g]			2017 SODIUM LEVELS (mg/100g) [salt, g/100g]		
	Mean	Range	Product counts	Mean	Range	Product counts	Mean	Range	Product counts	Mean	Range	Product counts
All crackers	750 [1.9]	2 -1760 [0 - 4.4]	207	714 [1.8]	0.18-2250 [0-5.6]	363	661 [1.7]	2 - 2100 [0 - 5.3]	365	630 [1.6]	1-2100 [0 - 5.3]	350
Plain dry biscuits	655 [1.6]	2-1370 [0 - 3.4]	100	602 [1.5]	0.2-2250 [0-5.6]	183	553 [1.4]	2 - 1160 [0 - 2.9]	178	510 [1.3]	1 -1000 [0 - 2.5]	172
Wheat-based / crackers	742 [1.9]	341- 1370 [0.9 - 3.4]	49	812 [2.0]	296-2250 [0.7-5.6]	67	676 [1.7]	272-1160 [0.7-2.9]	60	641 [1.6]	272-878 [0.7-2.2]	56
Wheat-based crispbread	668 [1.7]	200 -1190 [0.5 -1.7]	28	614 [1.5]	191-1190 [0.5-3.0]	59	563 [1.4]	195-1000 [0.5-2.5]	63	559 [1.4]	195 -1000 [0.5 - 2.5]	51
Rice cakes /corn cakes	153 [0.4]	2 - 469 [0 -1.2]	8	157 [0.4]	0.18-521 [0-1.3]	24	149 [0.4]	2 - 322 [0 - 0.8]	18	215 [0.5]	1 - 521 [0 - 1.3]	23
Plain rice crackers	613 [1.5]	215-1156 [0.5-2.9]	15	490 [1.2]	144-873 [0.4-2.2]	22	458 [1.1]	53 - 756 [0.1-1.9]	26	372 [0.9]	53 - 711 [0.1 - 1.8]	31
Others	-	-	-	460 [1.2]	0.7-1000 [0-2.5]	11	703 [1.8]	430-1000 [1.1-2.5]	11	602 [1.5]	295 - 866 [0.7 - 2.2]	10
Savoury biscuits	843 [2.1]	220-1760 [0.6-4.4]	103	826 [2.1]	173-1810 [0.4-4.5]	180	766 [1.9]	173-2100 [0.4 - 5.3]	186	743 [1.9]	281-2100 [0.7 - 5.3]	165
Flavoured crackers and crispbread	940 [2.3]	364-1760 [0.9-4.4]	47	841 [2.1]	173-1620 [0.4-4.1]	74	783 [2.0]	173-2100 [0.4-5.3]	75	717 [1.8]	303- 2100 [0.8 - 5.3]	62
Flavoured rice crackers	690 [1.7]	220-1600 [0.6-4]	38	743 [1.9]	291-1810 [0.7-4.5]	66	678 [1.7]	320-1600 [0.8 - 4]	67	684 [1.7]	28 -1600 [0.7 - 4]	60
Flavoured rice cakes and corn cakes	991 [2.5]	657-1470 [1.6-3.7]	8	854 [2.1]	521-1470 [1.3-3.7]	15	847 [2.1]	521-1250 [1.3- 3.1]	15	923 [2.3]	470-1270 [1.2 - 3.2]	14
Breadsticks	847 [2.1]	385-1230 [1.0-3.1]	10	1011 [2.5]	385-1660 [1.0-4.2]	24	905 [2.3]	700-1260 [1.8 - 3.2]	24	926 [2.3]	665-1530 [1.6 - 3.8]	22
Others	-	-	-	409 [1.0]	-	1	760 [1.9]	409 -994 [1.0 -2.5]	5	577 [1.4]	305-867 [0.8-2.2]	8
Other bread	720 [1.8]	500-920 [1.3-2.3]	4	-	-	-	484 [1.2]	-	1	781 [2.0]	400 -1190 [1 - 3.0]	13
Croutons	720 [1.8]	500-920 [1.3-2.3]	4	-	-	-	484 [1.2]	-	1	743 [1.9]	400 -1190 [1 - 3.0]	11
Other plain bread	-	-	-	-	-	-	-	-	-	990 [2.5]	990 [2.5]	2

Table 4- Summary of the average and range of the sodium content of crackers in 2017, stratified by definitions from Food and Health Dialogue

Food category	Average sodium content/100g (in mg)	Range (in mg)
Plain Crackers	608	195-1000
Flavoured Crackers	762	303-2100
Flavoured Rice Crackers/Rice Cakes/Corn Cakes	729	281-1600
Plain Rice Crackers/Rice Cakes/Corn Cakes	305	1-711
Total	630	1-2100

Table 5- Overview of the average and range of serving size in crackers in 2017, stratified by definitions from Food and Health Dialogue (FHD)

Food category	Average serving size (in grams)	Range (in grams)
Plain Crackers	17 (approximately 4-6 biscuits)	2 – 27.8
Flavoured Crackers	22 (approximately 5-8 biscuits)	10 - 60
Flavoured Rice Crackers/Rice Cakes/Corn Cakes	23 (approximately 12 crackers; 3-4 rice/corn cakes)	12.5 - 30
Plain Rice Crackers/Rice Cakes/Corn Cakes	22 (approximately 12 crackers; 2-3 rice cakes)	5.8 - 28
Total	21	2 - 60

Table 6- Comparison of sodium level in crackers to Food and Health Dialogue (FHD) maximum sodium targets in 2017

Food category	Total number of products	Mean of sodium content (in mg/100g)	FHD maximum sodium targets (in mg/100g)	Number of products meeting the maximum sodium target	Proportion of products meeting the maximum sodium target
Plain Crackers	124	608	850	116	93.5%
Flavoured Crackers	98	762	1000	87	88.7%
Flavoured Rice Crackers/Rice Cakes/Corn Cakes	74	729	850	54	72.9%
Total	296	689	-	257	86.8%

Table 7- Comparison of 2017 sodium levels in crackers to UK FSA salt targets

Food category	Total number of products	Mean of sodium content (in mg/100g)	UK salt target average (in mg/100g)	Compliance to the UK salt target average (Y/N)	UK salt target maximum level (in mg/100g)	Number of products meet the maximum level	Proportion of products meet the maximum level
Plain Crackers	124	608		N		93	75.0%
Flavoured Crackers	98	762		N		37	37.7%
Flavoured Rice Crackers/ Rice Cakes/Corn Cakes	74	729	520	N	700	41	55.4%
Plain Rice Crackers/Rice Cakes/Corn Cakes	54	305		Y		53	98.1%
Total	350	630		N		224	64.0%