

Know Your Noodles!

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 The George Institute
for Global Health

Background:

Reducing salt intake is one of the most cost-effective public health interventions to reduce the global burden of noncommunicable disease (NCDs); by lowering blood pressure, and thereby reducing the risk of stroke and heart disease deaths. 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 (1). The World Health Organization Collaborating Centre for 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.

In most developed countries, the majority of salt in the diet is from processed foods – added by the food industry and so reformulation efforts to reduce the amount of salt added to processed foods are paramount to reduce population level salt intake. Conversely, in many developing countries the major source of salt in the diet often is salt added during cooking or at the table. However in recent years there has been a marked change in food consumption patterns and a notable shift towards eating more processed foods, particularly in urban settings where processed foods are increasingly available.

A key example of this is instant noodles; a highly processed food product which is widely available at a low cost. Noodles can be eaten as a snack, as a meal, part of a meal, and in some cases are eaten more than once a day. According to The World Instant Noodles Association (WINA) 270 million servings of instant noodles are consumed worldwide each day, with 80% of total consumption in Asian countries (2).

As part of the Global Food Monitoring Group (3) the George Institute for Global Health has been supporting countries to establish their own comprehensive food composition databases to monitor the nutritional composition of the food supply. This project analysed the sodium data collected for instant noodles from 10 countries as part of this program. The primary objective was to compare mean and ranges of sodium content of instant noodles both within and between countries, and compare sodium content against existing sodium targets for instant noodles (4,5). This was with a view to raising awareness about the sodium contents of instant noodles, monitoring progress against existing targets and identifying opportunities to reformulate products as a means to reduce population level salt consumption.

Methodology

Data, collected between 2012 and 2016, was extracted from existing food composition databases or from store survey data in 10 countries including Australia, China, Costa Rica, Fiji, India, Indonesia, New Zealand, Samoa, South Africa and the UK. Data extracted included brand name, products name, pack size, serving size, sodium mg/100g, and salt g/100 g. In addition, we recorded whether nutrition information was given as per dry weight, 'as sold', or "as prepared" according to manufacturer instructions.

Tips for consumers

- Check the label where possible or use FoodSwitch to choose the lower sodium options
- Limit intake to the occasional meal
- Ditch the flavour sachet which contains most of the sodium and add your own herbs and spices, such as pepper, chilli, lemon and garlic.
- Or use only a portion of the flavour sachet to reduce your salt intake
- Drain your noodles before eating, to reduce the amount of salt you'll eat
- Get really creative and add some vegetables like spinach which will cook with the steam in the noodles

Data Categorisation

Instant noodles were categorised as packaged noodles, with or without additional seasonings in separate pouches, ready for consumption after rehydration.

Data was categorised into two main groups: 'as sold' or 'as prepared' according to the listed nutrition information. Products categorised 'as sold' listed sodium information based on the dry weight. Products that were categorised 'as prepared' listed sodium information based on the product as prepared for consumption according to manufacturer instructions, for example, 'add x millilitres of water'.

Data analysis

The total number of instant noodle products and the number with sodium or salt information was recorded for each country. Sodium was calculated from salt where salt information was given on pack (sodium = salt/2.5).

The mean levels and ranges of sodium (mg/100g) were calculated for each category, for each country. Average pack size as sold and average portion size as prepared was derived from available data as given on pack for each country. Mean sodium values were compared against the UK 2017 sodium target for instant noodles, and the Pacific Island Salt Reduction Targets. The proportion of products known to meet the salt targets were derived for each country. The contribution of an average packet of instant noodles to the World Health Organisation's recommended daily intake of > 2000mg was derived using mean sodium values and average pack size for each country.

Key findings

- 765 instant noodles products were collected from 10 countries demonstrating a large number and a wide variety of instant noodles on the market.
- The results from this survey highlight the unnecessarily high amount of sodium in instant noodles - the noodles with the highest sodium content per 100g 'as sold' was found in Indonesia which contained 7584mg/100g, almost 30 times the amount of sodium compared to the noodles with the lowest sodium content, 249g/100 found in New Zealand.
- China had the highest mean sodium content (1944mg/100g) as sold, compared to the lowest mean sodium content in neighbouring New Zealand (798mg/100g).
- Global taste preferences cannot account for the differences in sodium content of instant noodles between countries, as there were huge ranges in sodium content of instant noodles within each country. Sodium content in instant noodles in Australia ranged from 205mg/100g to 3050mg/100g. [Countries may wish to use an example from their own country]
- Noodles come in a range of pack sizes and it's not always clear what a serve size is. Nevertheless, a packet of instant noodles contributes a HUGE amount of sodium to the diet; if someone ate a whole packet of noodles in China it would contribute almost an ENTIRE days' worth of sodium (95%).
- A packet of noodles in Australia would contribute over 80% of an entire day's worth, and a packet of noodles in Indonesia, Fiji or Samoa would contribute almost TWO THIRDS of an entire day's worth of sodium.
- People from South Africa, and the UK would consume about half their daily allowance of sodium from a single packet of noodles, and people in India and New Zealand would eat almost a third of their daily sodium intake from a packet of noodles.
- 20% of the products meet the UK targets, and 33% meet the Pacific Salt reduction targets.
- In the UK, 80% of products met the UK salt targets.
- It's impossible for consumers to know how much salt they are eating due to a lack of clear and consistent labelling on instant noodles. 63% of products listed sodium information 'as sold', 30% of products listed sodium information 'as prepared', and 7% of products do not label for sodium at all. About half of products in New Zealand listed sodium data 'as sold', and half as 'as prepared' making it extremely difficult for consumers to compare sodium contents between packs. In India, 68% of products did not list sodium data on nutrition information panels; making it impossible for consumers to know how much salt they are eating.

Results:

765 instant noodles products were collected from 10 countries. China had the greatest number of noodle products (283 products), followed by the UK (137), New Zealand (85) and Australia (58). Indonesia and Costa Rica had the fewest products, 28 and 18 products respectively (Table 1).

7% of products did not label sodium or salt on the nutrition information panel; the majority of which were collected in India - 68% of instant noodles products in India did not have sodium information. Of all those that did approximately 64% of products listed nutrition information 'as sold', and 31% listed nutrition information 'as prepared' (Table 1). 88% of products in the UK listed nutrition information 'as prepared' compared to China, Indonesia, India and Costa Rica which listed all nutrition information 'as sold'. Australia and New Zealand listed approximately half of all products 'as prepared' (65% and 48% respectively).

There was a wide range in sodium content of instant noodles within and between countries: the highest mean sodium content of instant noodles 'as sold' was in China 1944mg/100g with a range 397-3678mg/100g, followed by Australia, Fiji, Samoa and Indonesia. The lowest mean sodium content was found in New Zealand 798mg/100g with a range of 249-2380mg/100g (Table 2).

The highest mean sodium content of instant noodles 'as prepared' was New Zealand 388mg/100g with a range of 222-725mg/100g; the lowest mean sodium content as prepared was the UK 220mg/100g with a range of 120-440mg/100g (Table 2).

33% of all products are known to meet the Pacific Salt Reduction Targets

for Instant Noodles (1600mg/100g 'as sold'); 20% are known to meet the UK 2017 salt target (350mg/100g 'as prepared'). 21% and 25% of instant noodles in Fiji and Samoa, respectively, met the Pacific Island salt targets.

Average pack size ranged from 57g in Costa Rica to 98g in China. Average serving size 'as prepared' ranged from 143g in Fiji to 392g in South Africa. 6 out of 10 countries gave serving size information (Table 1). Based on an average packet of noodles the estimated contribution of one pack of noodles towards the World Health Organisation daily recommend maximum intake of sodium (<2000mg) ranged from 35% in India and New Zealand (628mg per pack and 697mg per pack respectively) to 95% in China (1905mg per packet in China) (Table 3).

Limitations of the research:

The number of products collected in the survey do not necessarily reflect the number of products sold in country, but rather those captured during surveys which are necessarily limited to a subset of retail outlets. Reported data is accurate to the best of the investigators knowledge; anomalies in the data resulting from data inputting errors were removed. Not all products could be directly compared due to differences in the presentation of sodium information 'as sold' vs. 'as prepared' per 100g. Products were categorised 'as sold' or 'as prepared' according to information recorded from the pack. In the absence of information 'as sold' or 'as prepared' products were categorised 'as sold' or 'as prepared' according to the investigators best interpretation, using mean sodium as a guide. Products that could not be categorised were excluded from further analysis Products collected in the survey may no longer be on sale due to stock changes.

Recommendations:

- *The high level of sodium in instant noodles is a great public health concern, given their low cost, high convenience, and availability. Rigorous reformulation efforts, with clear targets, to reduce the amount of sodium added to instant noodles to their lowest level across the world are needed, with robust and transparent monitoring systems to ensure that the sodium targets are met.*
- *Clear and consistent nutrition information panels which include sodium information is vital to inform consumers of the amount of sodium they would be eating, and enable them to compare products and choose the healthier option.*
- *FoodSwitch, a mobile health App – available in the UK, India, Australia, New Zealand and South Africa can be used to help people make healthier choices. FoodSwitch works by comparing the nutrition information of packaged food and drinks, and presenting the information in an 'at-a-glance', easy to understand way. FoodSwitch will then suggest healthier switches. FoodSwitch is free to download from the App store.*

Notes on data:

Data for instant and flavoured noodles were extracted from the food composition database for each country, or from data collected and entered into excel from shop surveys.

Sodium data was calculated from salt where salt data was given. To convert the sodium content from salt content it is necessary to divide by 2.5 – for example 250mg/100g salt = 100mg/100g sodium.

For more information

For more information on the work of the WHO Collaborating Centre on population salt reduction please visit:

[The George Institute for Global Health, World Health Organization Collaborating Centre for Population Salt Reduction \(WHO CC SALT\)](#)

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.

About the author – Clare Farrand

Clare Farrand is a Public Health Nutritionist and the Senior Project Manager for Salt Reduction at the World Health Organisation Collaborating Centre on Population Salt Reduction supporting countries to develop and implement salt reduction strategies to achieve the global target to reduce salt by 30% by 2025.

Clare has over 9 years' experience working in public health on the primary prevention of nutrition related illness. Clare previously worked in the UK for the Food Standards Agency's Nutrition Strategy Division

on their successful salt reduction programme before going on to lead the International Salt Reduction Programme at World Action on Salt and Health. Clare has extensive experience in public health advocacy, stakeholder engagement and translating research in to public health action; influencing public health policies at the national and international level, supporting countries to implement effective salt reduction programmes and working with the food industry on reformulation of food products to contain less salt, fat and sugar. Clare's primary interest is reducing the growing burden of food, nutrition and diet related noncommunicable disease through effective food and nutrition related policies.

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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Collaborators

- Costa Rican Institute of Research and Education on Nutrition and Health (INCIENSA)
- Discover Vitality, South Africa
- The George Institute for Global Health, Australia
- The George Institute for Global Health, China
- The George Institute for Global Health, India
- The NCD Asia Pacific Alliance
- The Pacific Research Centre for the Prevention of Obesity and Non-communicable Diseases (CPOND)
- The University of Auckland, New Zealand
- World Action on Salt and Health
- World Health Organisation, Western Pacific Region - Pacific Technical Support unit

Table 1: Proportion of instant noodles collected per country and average pack/serving size (g)

Date of data collection	Country	Total no. of products collected	Products with sodium data		Products with sodium data 'as sold'		Products with sodium data 'as prepared'		Average pack size (g)	Average serving size (g) as prepared
			No.	%	No	%		%		
2015	China	283	283	100	283	100	0	0	98	n/a
2014	Australia	58	58	100	9	16	49	84	86	308
2013	Fiji	28	28	100	23	82	5	18	69	143
2013	Samoa	44	43	98	28	57	15	34	69	n/a
2015	Indonesia	28	28	100	28	100	0	0	76	n/a
2013	Costa Rica	18	18	100	18	100	0	0	57	n/a
2016	UK	137	135	99	12	9	121	88	84	282
2015	South Africa	37	37	100	28	76	9	24	72	300
2012	India	47	15	32	15	32	0	0	n/a	n/a
2015	New Zealand	85	83	98	42	49	41	48	87	343
	Totals	765	728	93	486	64	240	30	78	278

*Products that listed sodium or salt information, but did not state if as sold or as prepared were excluded from further analysis.

Table 2: Mean, range and percentage of products which meet sodium targets

Country	Products with sodium data 'as sold'		Mean sodium (mg/100g) as sold	Range of sodium (mg/100g) as sold	Products known to meet Pacific Salt Reduction Target (1600mg/100g as sold)		No. of products with sodium data 'as prepared'	Mean sodium (mg/100g)'as prepared'	Range (mg/100g) 'as prepared'	Products known to meet UK 2017 max sodium target (350mg/100g as consumed)	
	No	%			No.	%				No	%
China	283	100	1944	397-3678	77	30	0	n/a	n/a	n/a	n/a
Australia	9	16	1939	950-3050	3	33	49	378	205-635	25	51
Fiji	23	82	1892	845-3510	6	21	5	317	200-443	3	11
Samoa	28	57	1854	970-3360	11	25	15	334	245-590	12	27
Indonesia	28	100	1821	770-7584	16	57	0	n/a	n/a	n/a	n/a
Costa Rica	18	100	1703	1148-2278	4	22	0	n/a	n/a	n/a	n/a
UK	12	9	1323	488-2650	6	4	121	220	120-440	109	80
South Africa	28	76	1238	350-1640	27	73	9	331	266-475	5	14
India	15	32	910	280-1932	12	26	0	n/a	n/a	n/a	n/a
New Zealand	42	49	798	249-2380	35	41	41	388	222-725	19	22

Table 3: Estimated contribution of an average packet of instant noodles 'as sold' to maximum recommended daily salt intake (2000mg/day) ranked highest to lowest

Country	Average pack size (g)	Mean sodium mg/100g as sold	Estimate mean sodium mg/average pack size (g)	Estimated % of daily sodium intake
China	98	1944	1905	95
Australia	86	1939	1668	83
Indonesia	76	1821	1390	69
Fiji	69	1892	1297	65
Samoa	69	1854	1275	64
UK	84	1323	1114	56
Costa Rica	57	1703	963	48
South Africa	72	1238	892	45
India	78	910	710	35
New Zealand	87	798	697	35

****note only includes products with salt information 'as sold'**