

Designed with health in mind

A psychological approach to helping consumers
make healthier choices in foodservice



Research description

Footprint Intelligence was commissioned to conduct a piece of independent research on how to use the psychology of healthier eating to encourage consumers to eat more healthily in foodservice by Compass Group UK & Ireland. The research for this report comprised of a mix of desk-based research and semi-structured interviews with foodservice experts and psychologists, as well as other opinion leaders linked to industry. In total, over 60 experts were interviewed. See list at the back for those who were happy to be credited. An industry focus group also brought operators, producers and pressure groups together to debate the issues. Footprint Intelligence is indebted to the industry experts who generously gave their time and insights for interviews and the focus group.

About Footprint Intelligence

With the ever moving and shifting sustainability debate, accurate intelligence which enabling businesses to make informed decisions is vital. Footprint Intelligence is Footprint Media Group's research and analysis division. It helps companies to develop successful strategies in the context of responsible business practices.

Footprint Intelligence aims to drive, promote and share best practice by helping industry to answer some of the most pressing sustainability questions of our time by taking on the challenge of asking tough questions and finding answers. We use research and industry insight to bring industry together to find workable solutions, revealing the opportunities, trends and challenges.

Report author:

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Forward

As the country's leading food and support services company, Compass Group employ 60,000 people across the UK and Ireland with a focus on delivering great food and service daily to millions of customers across thousands of sites.

We are committed to promoting better health and wellbeing wherever we operate. Since being the first foodservice company to sit on the government's Public Health Responsibility Deal plenary group in 2011, we have proudly led the way in encouraging healthier choices for our clients, customers and colleagues. Our recently launched Corporate Responsibility Report incorporates our 2020 Health Strategy. This sets further stretching targets for our business along with a commitment to ensuring that every restaurant offers a balanced meal option of less than 500 calories and contains one of your five a day. We've also created a new health website, Nourished Life, to inform consumers on a range of health and wellbeing topics - www.nourishedlife.co.uk.

The *Designed with health in mind* research explores how understanding consumer psychology can influence healthier choices and, ultimately, improve the national diet. The report takes a fresh approach to healthy eating, acknowledging that education and willpower alone are not enough. It also highlights the work of the foodservice industry in implementing changes that have encouraged healthier eating out of home, and outlines the "nudges" industry can use to promote healthy behaviours.

In commissioning Footprint Intelligence to create this report, we wanted to break with the status quo to reconsider the role of our industry in helping to improve the health of the nation.

I believe that the foodservice industry can, and should contribute to positive change to help society become healthier. We've already accomplished a great

deal, but at Compass we recognise there's still more work we can and want to do. This report provides a good basis for proactive changes that can have a big impact.

Dennis Hogan, Managing Director, Compass Group UK & Ireland



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Executive summary



The need:

In an age of convenience and an abundance of food, we're eating ourselves to ill health. Efforts to improve national eating habits have failed to prevent the scales tipping, indicating that education campaigns based on willpower are having a limited effect.

Yet with 1 in 6 meals¹ and a quarter of calories consumed outside of the home², foodservice must play its part in helping people to eat more healthily.

Using nudges and other psychological tools to make healthier choices the easiest, most obvious choice when eating out of home would mean that healthier choices would become the default. This would mean that eating well no longer becomes an issue of willpower, but the accepted norm. This would have a significant positive influence on public health.



The opportunity:

The landscape is changing and it is the industry's responsibility to stay one step ahead. Using psychology offers a relatively painless way to promote healthy eating with limited pushback.

Using nudges and psychological approaches to help consumers to make healthier choices provides commercial opportunity as it taps into overriding health and wellbeing trends. However, whilst reformulation is high on foodservice's agenda, only a few leading operators have considered using nudges and other psychological approaches. With increasing concern over public health and additional legislation highly likely, this represents a massive missed opportunity.

Having a healthy and sustainable offering has been shown to enhance brand, distinguish an offer and demonstrate that a business is a forward thinking organisation³. This helps to win tenders and maintain clients. For example, in contract catering, from public sector to corporate clients, health and wellbeing is on the agenda and health is becoming a key performance indicator. Meanwhile, across foodservice, there are many examples where making food offerings healthier has been shown to increase sales⁴.



The nudge:

Nudges and the psychology of behavioural change can be used to influence what people choose, and how much they eat just by adjusting things like portion size, presentation, and the way a food outlet is laid out. This research pulls together the top psychological

tools and nudges that can be used to promote healthier choices in foodservice to create a blueprint of best practice to guide and drive the industry. The key findings are summarized below:

**ACTION
POINT
1**

Redesign the menu as layout and descriptions all work together to highlight and draw attention to healthier choices. This includes:

- Using descriptive words to sell dishes. Simple descriptors have been shown to increase sales by more than a quarter so use descriptors to boost sales of healthy options.
- Being careful of the word 'healthy' – it may be safer to use other taste-related terms which imply health but that don't risk turning some consumers off.
- Using logos, icons, boxes and bold to draw the eye to healthier dishes.
- Using clear, colour-coded labelling on menus and menu boards.
- Running healthy promotions to ensure that healthy options are good value and well promoted.

**ACTION
POINT
2**

Change the food layout. This includes:

- Making healthy items accessible and making unhealthy products less available – it can be enough to put people off.
- Making the unconscious conscious – getting people to pause and think about their behaviour gives them the chance to change it.
- Reduce oversize portions. Larger portions mean adults and children eat more so make it easier to eat the right amount.
- Adding half portions to the menu – people tend to eat less but order more dishes overall.
- Reducing plate and glass size – they only encourage people to eat and drink more.
- Making it look good – people eat with their eyes first.

**ACTION
POINT
3**

Makeover restaurants and outlets to create a healthier eating environment. This includes:

- Installing tables not booths or bars because people at booths and bars eat less healthily.
- Putting on relaxing music to slow people down and ditching TVs to ensure people are concentrating on what they are eating, and not the show.
- Putting in good lighting and large windows – because windows and well-lit tables encourage people to eat less.

**ACTION
POINT
4**

Get into their heads to guide unconscious food decisions. This includes:

- Meeting unexpressed demand – even the most unlikely customers can embrace healthier products.
- Using social norms. Knowing that other people are making healthy choices creates social pressure to conform, so publicise healthy behaviours to encourage others to follow.
- Making people feel good about themselves by creating positive associations with healthy foods.
- Educating consumers, where possible, to help combat consumer confusion over what is a healthy diet.

**ACTION
POINT
5**

Rethink what is on offer. This includes:

- Making your offering healthier by default, for example, by reducing salt, fat and sugar, whilst maintaining flavour.
- Offering healthier side dishes as standard to create a new norm.
- Choice editing by increasing the range of healthy options and consider removing really unhealthy ones.
- Converting to healthy snacking because out of meal calories are continually climbing.



Introduction: the need - eating our way to ill health

People eat for a whole host of reasons – because they are hungry, bored, excited, sad, celebrating or feel they deserve a treat. They eat out of habit, or because food is put in front of them. Our relationship with food is complex. It is a vital part of everyday life and an integral part of culture. But what and how much we eat can depend on a variety of factors. And in an age of convenience and an abundance of food, we're eating ourselves to ill health.

63% of the UK adult population, one quarter of 2-10 year olds⁵ and one third of 11-15 year olds are overweight or obese⁶. According to the World Health Organization, non-communicable, lifestyle-related diseases are becoming the biggest threat to human health⁷. The annual economic impact of obesity in the UK is estimated at £46 billion⁸.

But research has shown that losing small amounts of weight can dramatically reduce the likelihood of dietary-related diseases⁹.

With 1 in 6 meals¹⁰ and a quarter of calories consumed outside of the home¹¹, foodservice has a responsibility. But can foodservice help citizens make healthier choices?

Using psychology as a tool for health

Research has shown that it is surprisingly easy to influence what people choose, and how much they eat if you only know how. Many of these changes can be nudges that guide people towards making better choices, in the way white lines painted on roads unconsciously nudge drivers into driving more safely.

Nudges that encourage healthier behaviours in foodservice include changing things like the portion or plate size, which products are within eye line and the way food is positioned and presented. They can also include environmental factors like lighting and music. Yet whilst many foodservice providers have been busy reformulating products, recipes and menus, only a few leaders have considered how psychological approaches can help make people healthier.

This research report outlines the innovative ways in which foodservice can use psychology to help customers make healthier choices, thereby creating a roadmap to a healthier future.

By understanding what works and by sharing best practice, the goal is to make the strategies that work widespread in foodservice.

"If the food environment was different and the default was the healthy choice, people would be much more successful at sticking to weight loss or healthy eating plans. People blame themselves when things go wrong but it shouldn't be so much effort to get through the day without putting on weight."

**Dr Susan Jebb, Professor of Diet and Population Health,
University of Oxford**



The opportunity: health - on trend and good business

As those operators at the vanguard have discovered, using nudges and psychological approaches to help consumers to make healthier choices provides commercial opportunity as it taps into overriding health and wellbeing trends. Salads are overtaking fish and chips on pub menus¹², and 89% of people report that they want to make dietary changes to improve their health¹³. The Veggie Pret A Manger which popped up in London over the summer as a test kitchen for new recipes was expected to operate at a 30% loss, yet instead, the initiative, which many consumers deemed to be 'healthy', led to a 70% increase in sales¹⁴.

Having a healthy and sustainable offering has been shown to enhance brand, distinguish an offer and demonstrate that a business is a forward thinking organisation¹⁵. In contract catering, this helps to win tenders and maintain clients. From public sector to corporate clients, health and wellbeing is on the agenda and health is becoming a key performance indicator.

In the same way that health and safety has become an integral, accepted and necessary part of the agenda, the trends indicate that nutrition will do the same. Indeed, inaction on health is clearly felt to impact on business opportunity, whilst embracing the health agenda helps to forge stronger ties with consumers and clients.

"The foodservice landscape has shifted," comments Michael Hickman, Foodservice Director, Compass Group UK & Ireland. "Consumers want help to be healthier. Our health initiatives - from cutting fat to developing tasty low calorie meal options and snacks - play a key role in keeping customers happy." Another contract caterer even admitted that "its work in advancing the health and sustainability agenda through the food we serve means we've become our clients' CSR."

However, whilst reformulation is high on foodservice's agenda, there are only a few leading operators who have considered using psychological approaches. With increasing concern over public health and additional legislation highly likely, this represents a massive missed opportunity.

Healthier does not mean more expensive

There can be a perception that healthier food costs more. But during this research, industry experts agreed that when cooked from scratch using fresh ingredients, in general, 'healthier' food costs about the same as 'normal' food. Sodexo's "Green & Lean" meals are a great example of this. Formulated to adhere to strict health and sustainability guidelines, the meals have been carefully designed to achieve cost parity with the 'normal' ranges they replace, despite being made with potentially more expensive, higher welfare meat.

Small changes, big impacts

Research has also indicated that small changes can have big impacts. You don't have to consume that many extra calories to put on a health-impacting amount of weight over time. Conversely, an achievable 100-calorie-a-day reduction is likely to lead to a health-improving weight reduction¹⁶. Studies show that people are more likely to reach a goal when it is specific, realistic, and attainable¹⁷, and that when a diet requires small changes, they are more likely to keep it up¹⁸. Over time, these small changes can add up to make a significant difference¹⁹.

Consumers say they want to eat well and be healthy. However, their aim seems to be on achieving a balanced diet, within which unhealthy foods have a place, rather than giving them up entirely²⁰.

However, despite government Eatwell messaging on the importance of a balanced diet, consumers are confused over what healthy means in practice^{21, 22} (see box for the Eatwell definition of a healthy diet). This means that even when consumers want to make a healthy choice, they may get it wrong.



What is a healthy diet? The Eatwell definition

There is debate over some of elements of its recommendations, and many operators and manufacturers have developed their own nutritional guidelines. However, the Government's Eatwell Guide is generally accepted as a good overall guide to a healthy, balanced diet. As such, the Eatwell definition of a healthy diet is the one used in this report.

Eatwell recommends that vegetables and fruits make up over one third of a healthy diet, with a goal of eating at least five portions of fruit and vegetables a day. Starchy carbohydrates such as bread, rice and pasta - ideally wholegrain - should make up another third. Protein, in the form of beans, pulses, fish, eggs, lean meat and other protein, should make up roughly one sixth, with two portions of sustainably sourced fish per week. Dairy or dairy alternatives, ideally low fat, should also feature, with very small amounts of oils and spreads, ideally unsaturated. High fat, sugar and salt items should be eaten less often, and in very small amounts. It also recommends drinking six to eight glasses of fluid, ideally water, or low sugar/sugar free drinks, a day.



The nudge: use psychology not willpower

The leaders in foodservice are breaking with the status quo to rethink the role the industry can play in helping to improve national diets by using nudges and the psychology of behaviour change to help make healthier choices the easiest, most automatic choice when eating out of home.

This is because nudges can be a particularly effective way to change behaviour. Nudge theory is based on the premise that choices should be based on how people actually think and decide, which tends to be primarily based on instinct and inference, rather than logic. It is rooted in social and cognitive psychology and the study of perception to take account of how behaviours are guided by context and social norms, how our internal mental processes work and how our senses work to interpret the world around us.

According to David Halpern, the chief executive of the UK Cabinet Office's Behavioural Insight Team, 'nudges' are ways of encouraging or guiding behaviour, without mandating or instructing. They are gentle hints or suggestions that positively reinforce, instead of oblige.

Nudges have been shown to influence behaviour as effectively, and at times more effectively, than legislation or enforcement. And it can work in many spheres, from getting people to pay their tax on time or to insulate their lofts, to eating more healthily.

Using nudge theory and other psychological approaches in foodservice would mean that eating well no longer becomes an issue of willpower, but becomes the everyday norm. This would have a significant positive influence on public health whilst providing commercial opportunity.

This research pulls together the top psychological tools and nudges into five clear action points that can be used to promote healthier choices in foodservice to create a blueprint of best practice to guide and drive the industry.

Action point 1: Redesign the menu

Action point 2: Change the food layout

Action point 3: Makeover restaurants and outlets

Action point 4: Get into their heads

Action point 5: Rethink what is on offer

Nudge, nudge, wink, wink

Nudges themselves, such as a suggestive glance at the washing up, have been used for millennia, but nudge theory was named and popularised as a concept by the book "Nudge: Improving Decisions About Health, Wealth and Happiness" by Cass Sunstein and Richard Thaler. Nudge theory has since been adopted by governments to influence policy and behaviour, led by the UK Cabinet Office's Behavioural Insights Team, or 'Nudge Unit'.



Designed with health in mind infographic: top nudges to promote healthier behaviours

Redesign the menu



'Hearty three bean chilli' Use descriptive words to sell dishes

'Crisp summer salad' Be careful of the word healthy – crisp, fresh and light can be safer

Draw attention to healthier dishes with boxes, bold text, logos and notations

Use clear, colour-coded labelling on menus and menu boards

'Not that hungry? Why not try our half sandwich, crisp salad and sparkling fruit juice meal deal' Run healthy promotions

Change the food layout

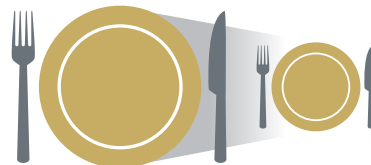
Put healthy products first and make unhealthy ones more inaccessible

Make the unconscious, conscious

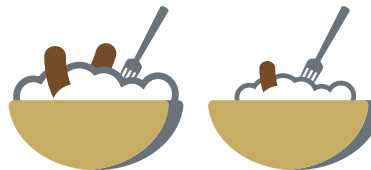


Offer half portions where possible

Make it look good



Reduce plate and glass size



Reduce oversize portions

Makeover restaurants and outlets



Install tables not booths or bar stools

Ditch TVs and put on soothing music



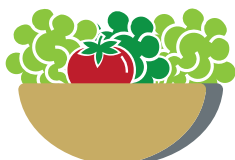
Put in good lights and bigger windows

Rethink what is on offer



Make food healthier by default

Offer healthy sides such as salads or vegetables as standard



Choice edit

Offer healthy snacking



Get into their heads



Action point 1: Redesign the menu

Menu design and layout play an important part in guiding people's choices, ranging from how items are described to their positioning on the page.

Descriptive words sell dishes



28% more in fact. Research by eating behaviour expert Professor Brian Wansink and his team have found that adding descriptive words to healthy dishes increased sales by 28%²³. Just one extra word was enough to turn a previously ignored veggie burrito into a bestseller. Wansink's research has led him to conclude that effective descriptions fall into four categories.

- Sensory names that describe the texture, taste, or smell, like 'crisp snow peas'.
- Nostalgic names that trigger happy, wholesome associations, such as 'Grandma's chicken dumplings'.
- Geographic names that create an association to a place, such as 'Chart Farm pork'.
- Brand names that create an association with a popular brand, such as 'Jack Daniel's® BBQ ribs'.



But be careful of the word 'healthy'

This is because whilst the word 'healthy' appeals to health conscious consumers, and can increase uptake in some situations²⁴, it can turn others off. Research has shown that some people do not perceive healthy options to be tasty²⁵. It can be safer to use similar taste-related words like 'fresh' and 'crisp' which can convey the idea of healthy, without any potential negative connotations. It is important to check though that any words used comply with any relevant marketing regulations for that particular product category.

The prejudice against products just because they are 'healthier' can also be the case within the food industry, and there are instances where healthier products, such as reduced sugar and salt beans, have been initially rejected by food development teams, only to be selected as the tastiest in blind taste tests later. Healthy labels are also worth using with care because 'health halos' can backfire causing consumers to over consume foods they believe to be healthy²⁶.

Draw attention to healthier dishes with boxes, bold text, logos and notations

Boxes, bold text, logos and notations draw the eye to that item and increase the number of diners who will order it. However, it may be worth avoiding specifically 'healthy logos' though to prevent putting off those consumers who may find a healthy label off putting.

Putting healthy, high margin items in boxes is a great way to increase sales, and profits²⁷. Creating a section of house favourites, with healthy options listed first, can also be really effective. For example, Jamie's Italian found its superfood salad became one of its bestsellers when it was moved from the salad section to a newly created 'superfood' section.

Icons that convey positive emotions could also be effective. For example, smiley emoticons have

been shown to encourage consumers to choose a cereal bar over chocolate²⁸. They can even influence flavour, with consumers rating snacks more tasty when they were labelled with a smiling, not frowning, emoticon²⁹.

Consumers also read menus in a Z shape, so put healthy options in the four corners of the Z to catch their attention³⁰.



Use clear, colour-coded labelling on menus and menu boards

Clear labelling assists consumers in making healthy and informed choices. The introduction of food labelling in retail has been shown to increase the sales of healthier products and decrease the sales of unhealthy products³¹. A survey by the Food Ethics Council found that 43% of adults would be more likely to eat in a venue that displayed information about the nutritional content of the meal³². Traffic light style colour coding has been shown to be an effective way to simplify health claims for consumers³³, whilst helping them to make healthier choices.

One example of a good labelling system is the one used by Compass Group. This combines nutrition labelling using Reference Intake information to provide consumers with the energy, fat, saturated fat, sugar and salt in food to allow them to make informed choices. This is then backed up by 'Know Your Food' boards and information to help consumers understand the foods they choose in the wider context of diet and health.

Another example of a clear and simple labelling system that has worked is Dine Contract Catering. It introduced one, two or three heart ratings for its dishes, with three hearts signifying the healthiest dishes. Each month, the number of three heart options grows as the caterer reformulates more popular one heart dishes to make them healthier, such as by replacing the oil in a chicken peri-peri marinade with yoghurt to reduce the saturated fat by 50% with no impact on flavour.

Run healthy promotions

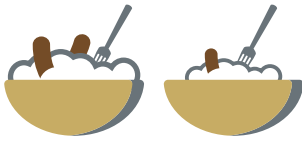
Consumers are often attracted to whatever seems to offer the largest portion and best value for the lowest price³⁴. In Britain, 41% of shopper expenditure is spent on price promotions³⁵. Meal deals and offers which bundle starters, mains and desserts together, or a sandwich, crisps and drink in a cheaper deal than buying each item separately tempts consumers into buying, and consuming, more than they need.

According to the McKinsey Global Institute (2014), changing price promotions by restricting promotional activity in high-calorie impulse foods will decrease consumption and have a positive health impact across the population³⁶.

However, promotions to guide consumers to healthier options do not necessarily have to be solely focused on price. Posters, table talkers, QR codes, fact sheets and wellbeing boards, often tied in to national awareness campaigns such as Diabetes Awareness Week – have all also been shown to help drive healthier consumption.

Sadly, thus far, few operators have tracked the impact of promotional campaigns to see which strategies are most effective, though this data will hopefully be tracked in the future.

Action point 2: Change the food layout



Research has shown that “choice architecture can be used to alter people’s behaviour in predictable ways”³⁷. The way food is presented and physically positioned has a massive impact on what is chosen and eaten. This means that a few simple tweaks can nudge diners into making healthier choices.



Put healthy products first and unhealthy ones further away

Consumers are seven times more likely to choose the first thing they see³⁸. A simple nudge such as moving a dish of sweets six feet away makes people eat half as many³⁹. Making something a little more difficult or making people more aware of what they are doing creates a pause point that can be enough to make people change, or at least consider, their behaviour, especially because so much of what we do is done by habit.

This is why many caterers have removed salt cellars from tables, and introduced a ‘six foot rule’ around the till, where unhealthy products are displayed at least six feet away so it is slightly harder work to purchase them, whilst healthier products, such as fruit, are placed by the till instead.

In a display environment, such as a self-service salad bar, moving more calorie dense items 10 inches away whilst changing the serving utensil from a spoon to tongs reduces intake by 8-16%⁴⁰. Another study found that colour-coding food and beverages red and green, and then making the unhealthy options slightly more inconvenient, decreased the sales of ‘unhealthier’ red items and increased sales of ‘healthier’ green. For example, sales of red beverages decreased by 16.5% when they were colour-coded, but by 28% when they were colour-coded AND inconvenient. The initiative had a big impact on bottled water sales too. The water, which had been coded green and made more easily available, saw sales increase by 25%⁴¹.

This means sugary drinks and snacks should be placed above the eye line, and healthier options such as water, juices or lower calorie options should be positioned at eye level and in the most prominent spots.



Make the unconscious, conscious

Other cues can also cause consumers to pause and become aware of what they are doing. For example, just dying every seventh or 14th Pringle red was enough to create a pause point that reduced the amount people ate⁴². So ideas that create pause points in foodservice environments could help facilitate healthier eating.

Diners also get used to always going to the same display or menu item, so rearranging products and menus can often be all that’s needed to break habits so people try a different, healthier choice.

Another trick that can help in self-service environments is putting the desserts in a separate queuing system, an action which creates a small but powerful disincentive by creating the necessity to queue twice. Removing trays, as the University of Brighton did, can also help, because it makes it more work for diners to go back to get extra side dishes, desserts and other items they could not carry in their first trip.

Reduce oversize portions



44% of consumers find large portions off-putting

Portions in foodservice have grown steadily over the last few decades. Yet numerous studies have shown that larger portions lead to adults eating more⁴³. 44% of consumers find large portions off-putting⁴⁴, whilst McKinsey identified portion control as an intervention likely to have a significant impact on lifestyle-related health⁴⁵. Reducing portions back down from oversized to nutritionally appropriate is therefore a triple win, saving food costs, satisfying consumers and improving health.



The Cochrane Review estimated that larger plate sizes and portions across the board could be leading adults to eat 12-16%

more⁴⁶. This is partly because the prevalence of oversize portions leads to portion distortion – that is, people think that overconsumption is appropriate because the size of what they are presented with sets consumption norms, affecting how much they consume⁴⁷.

Larger portions in one eating event also tend to increase the amount that people consume over a day because people do not compensate by eating smaller portions at other times to manage their overall intake⁴⁸. Even the amount available in the serving or pack appears to influence people to eat more⁴⁹.

Sometimes, portion sizes have crept up just because serving staff are not adhering to set specifications⁵⁰. Reverting back to specification levels and ensuring the careful use of portion scoops is a simple and easy way to get portion sizes back on track.

Contract caterers such as Vacherin and Sodexo are starting to think about what portions they are serving, the overall balance of volumes on the plate, and what plates/bowls they are using.

Alongside this, dish presentation styles can be tweaked, such as serving items in ramekins, chips in buckets, or using longer, thinner cuts of fish or meat, so that portion sizes can be reduced to healthier levels without impacting on the overall impression of a good value plateful of food.

Recommended serving sizes for:



Carbs



Meat



Cheese

Offer half portions where possible

But don't call them half portions – instead use words like 'moderate' or 'smaller portions for lighter appetites'. Studies⁵¹ have shown that offering half size portions of popular dishes can increase sales, and smaller main meals mean that people buy more starters or sides dishes. It also attracts diners who are not that hungry or who do not want to spend too much.

One restaurant that introduced half-size portions found that within three months, more diners went to the restaurant; and it sold more main courses, more salads (435 more every month) and three times as many half-sized main courses⁵².

"Businesses say they are happy to do smaller portions. But they don't specify it. Customers don't like asking for things that aren't on the menu so it needs to be clearly advertised. Otherwise there is an awkwardness around asking for something different and being unsure what it costs."

**Harriet Knights, Senior Café Worker,
Brighton and Hove City Council**



This commercial success is likely to be because diners often feel over-faced by overly large portions, and prefer venues where they can get something more manageable. WRAP research⁵³ found that 44% of people find large portions off-putting, with people reporting they felt "portion sizes are predetermined and not something they have control over". The report concluded that: "People want to feel comfortable asking for different portion sizes and getting the size of meal they want... People expect to pay less for smaller portions - between 20% to 30% cheaper."

This type of thinking is catching on. Carluccio's offers reduced-size portions on many popular dishes. Greene King has launched several children's sizes, as well as a pensioner offering for lighter senior appetites. Meanwhile, Pizza Express's pizza-with-a-salad-filled-hole, and similar lighter pizza options offered by Zizzi, Prezzo and others, continue to be popular.

Perfectly portioned

Smaller portions appear popular with customers. Jamie's Italian introduced a lighter portion for its pasta dishes, and nearly 10% of pasta sales are now in the smaller size. It also introduced two sizes of children's meals to cater for the two versus 12 year-old appetite, and, so far, around 70% of consumers have ordered the smaller "little kids" portion size.

Reduce plate and glass size

Plate size has grown dramatically in the last few decades, from a modest 8.5 inch to a 12 inch standard today. But bigger plates and glasses mean people eat and waste more⁵⁴.

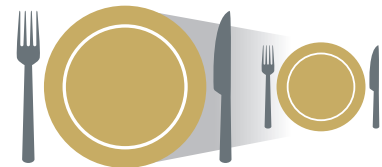


Plate and glass size impacts the amount people eat firstly because they "delineate norms for appropriate amounts to eat at a meal"⁵⁵. Secondly, they play an important role in the perception of how much food is consumed or served⁵⁶. This is because of the visual illusion that a large plate makes a larger portion look smaller, and a smaller plate makes a smaller portion look larger. Even

the size of a serving bowl impacts how much people take and eat – with larger bowls leading to larger servings⁵⁷.

Reducing tableware sizes can make a smaller portion look just as generous, and has been shown to have no impact on consumer satisfaction⁵⁸.

Reducing plate size can be particularly successful in a buffet environment and does not need to impact on customer satisfaction. One study, which reduced the plate size whilst putting up signs that encouraged restaurant guests to help themselves as many times as they liked, reduced the amount people took and ate, as well as reducing restaurant food waste by 20%⁵⁹. This meant the initiative not only helped people be healthier but it also had a significant impact on reducing food costs.



Make it look good

It's said that when it comes to food, "We eat with our eyes first." So making healthy food visually appealing is an important way to increase uptake. Even tap water can be made more appealing by creating hydration stations stocked with infused water.

This is why operators such as BaxterStorey are looking at creative ways to make healthy food more attractive, for example, by moving toward colourful, vibrant, Ottolenghi-style composite salads which burst with colour, vibrancy and flavour.

This is because creating a composite salad of, say, lettuce, beetroot, broccoli and feta can look much more appealing than the individual ingredients on their own.

Action point 3: Makeover restaurants and outlets

People pick up clues from their eating environment on how much to eat⁶⁰ so changing the eating environment can alter their eating behaviour.

Behavioural eating expert Professor Brian Wansink has spent his career studying how people eat, and how their choices can be influenced. His research⁶¹ suggests that the following modifications to the foodservice environment should help people eat less and order more healthily.

Install tables not booths or bar stools



Wansink's research⁶¹ has shown that diners at high tables eat more salads and fish and order fewer desserts. Meanwhile, those who eat in booths or dark areas eat more. So ditch the booths and bar area in favour of tables. Even sitting near the bar can affect how much you consume. People sitting within two tables of the bar also ordered an average of three more drinks per table of four than those sitting just one table further away⁶¹.

Ditch TVs and put on soothing music



Turn off the TV, and ensure any music is soothing and relaxing, like jazz. In one study⁶¹ a fast food restaurant relaxed the lighting and put on jazz to create a more “fine dining style” experience. People still ordered the same food, but the ambience affected how much they ate and how much they

liked it. It slowed them down, and the result was that diners eating in the ‘fine-dining style’ area ate 18% less and rated what they did eat as tasting a lot better. Research has also shown that the closer people sit to a TV screen, the more fried food they eat.



Put in good lights and bigger windows



Ensure your restaurant is well lit, or design it with lots of windows. Diners who sit near windows in a well-lit part of the restaurant eat more healthily⁶¹. Research has found that diners who sit at tables near a window consume fewer drinks and eat

more side salads. Brian Wansink, who conducted the research, infers this is because “the darker it is, the more ‘invisible’ you might feel, the less easy it is to see how much you’re eating, and the less conspicuous or guilty you might feel.”⁶¹

Out of sight, out of mind

In self-service, buffet environments, diners eat less when screens, plants or other items partially block their view of the buffet area.

In addition, giving diners the chance to examine the whole selection of dishes available before they collect a plate and start serving themselves also means that people take and eat less. This is because it gives them the chance to hone in on the options they really want.

**ALL YOU
CAN EAT
BUFFET**

Action point 4: Get into their heads

Adults make about 200 decisions about food each day but only a small proportion – about 14 – of these are under conscious control⁶². This means that interventions that encourage change on a conscious level will be limited by the fact that so many of these choices are made on an unconscious level⁶³. Targeting interventions that work at an unconscious level is likely to have a much greater impact on improving health⁶⁴.

"Information is useful but there is so much evidence that on its own, it's not enough. This is why this behaviour change research is so important – to change the default, to make healthier choices the norm. Foodservice is well placed to help make it easy and delicious at the same time."

Sue Dibb, Co-ordinator, Eating Better



Meet unexpressed consumer demand

The rising sales of healthier products demonstrates growing consumer interest. But how much do customers want to know and what is a turn off? As Steve Jobs said, "It isn't the consumer's job to know what they want."

When it comes to health, many consumers are not making the choices that are best for them. This means whilst knowing your customer is important, it is important not to make assumptions about which audiences will purchase healthy offerings. For example, it might not be an audience that is usually associated with health, but when Compass Group put in a nutritious offer on an oil rig, it led to a 30% take up. Sodexo's experience with students at Southampton Solent, who embraced salads, soups, jacket potatoes and healthy vending, is another example of a stereotype – in this case one of the chip-obsessed student – failing to live up to expectations.

Use social norms

Social norms are the informal understandings that govern human behaviour. Eating is an integral part of social identity, making social norms an effective tool for changing behaviour. A meta-analysis of social norms research⁶⁵ found that being given information indicating that others were making low-calorie or high-calorie food choices, significantly increased the likelihood that participants made similar choices. Social norms also influence the quantity eaten, with more eaten by those who believed others ate more too.

"I'll have what she's having"
Quote from *When Harry Met Sally*

And this has been demonstrated in practice. In a CH&Co Group study, the number of people who chose vegetables with their meal on site was recorded to reveal that a majority of people took a vegetable. This social norm was then advertised by putting table talkers and posters up that simply told diners that most people had vegetables with their meal. This increased the number of people who took vegetables by 7%. This type of initiative, which is cheap and easy to implement, could make a big difference in national diets.

Make them feel good about themselves

Expressing a desire to eat healthily might not lead to consumers making healthy choices⁶⁶, but linking food to status can help. Using symbolic self-completion – i.e. what does my food say

about me – is one way to cultivate a response. This can be positive – i.e. engaging in a ‘Meat-free Monday’ shows I’m ethical. Or it can also work when it has negative connotations, for example by grouping foods together in a traffic light system to subtly steer people away from choosing the red options.



Educate when and where you can

Many consumers are confused about how to eat healthily and may not really understand what a healthy diet is. For example, research has shown that consumers are unsure whether they should be cutting fat, sugar or both⁶⁷, despite repeated government messaging to limit intake of both. A YouGov poll⁶⁸ showed how confused consumers were about nutrition labelling. This means that even when consumers want to make a healthy choice, they may get it wrong.

Consumers can also indulge in compensatory behaviours if they believe they have been healthy. It is true that a few indulgences are OK, and in fact, occasional treats tend to mean people stick to healthier eating plans overall. But operators can help by promoting a better understanding of what is needed to make an overall healthy diet. This can increase consumer knowledge about how they can make healthy choices in the absence of labelling, as well as enabling them to consume appropriate levels of treats and indulgences, and promote a greater understanding of what should and should not be put together to create a balanced diet.

“A proper understanding of a healthy diet is really important,” explains Nutritionist Roz Witney, Dine Contract Catering. “For example, Dine Contract Catering have had great success in making choosing healthier options easier for consumers by using a one-to-three healthy heart rating for dishes. But take the salad bar. There are plenty of three heart healthy options on offer, but if you choose certain combinations of those three heart options, the overall dish may no longer be three-heart healthy.”

The contract caterers have done a great job with taking multi-channel approaches to educating consumers. Roadshows, lunchtime talks, seminars and talks at mother and toddler groups are some examples of approaches being taken. Compass Group has also partnered with MyFitnessPal so that diners can add Compass Group meals to their food diaries, allowing them to understand the health impact of their food choices.



Action point 5: Rethink what is on offer

Make food healthier by default



Some parts of foodservice have embraced the health agenda, responding to the wellness trend. The majority of this focus has been on ingredients and recipes with players from contract caterers and high street chains to manufacturers revising their



recipes and cooking techniques to make products and dishes as healthy as they can be. Some, such as Compass Group's 'Know Your Food', Sodexo's 'Green & Lean', CH&Co Group's 'Wellbeing Light' and BaxterStorey's 'Healthy Me', have created new menu ranges totally focused on healthy credentials. This is great for those consumers who are motivated to choose healthier options, but to have the biggest impact, the ideal would be to make all offers as healthy as they can be so that as many consumers as possible benefit.

"Healthier options have gone mainstream so there's been a change in approach. It used to be that we offered a healthier option, alongside other concepts, such as Indian, Italian, whatever. Now people are saying, I want Italian, but healthy Italian. So now, whatever concept we bring in, there will always be a healthier choice in each of those concepts."

Michael Hickman, Foodservice Director, Compass Group UK & Ireland

This is why a lot of reformulation, such as cutting fat, sugar and salt and switching from frying to baking for example, has been done as standard, and without much fanfare. This has enabled many consumers who eat the effected dishes to eat more healthily without having to work hard at it.

"Health by stealth is an approach that allows people to continue to eat their favourite foods whilst making them as nutrient dense as possible," explains Nicky Martin, Head of Nutrition, Compass Group UK & Ireland. "Reformulation of recipes and clever recipe engineering ensures that the levels of salts, fats and sugars are kept to a minimum; and positive nutrients - for example fibre, vitamins and minerals - are increased wherever possible in all the food that we serve."

Jamie's Italian, Union Jack and Jamie's Diners have also tried to make more of their menus healthier as standard by reformulating 30% of starters, mains and side courses to meet internal standards of a healthy dish. For a main course, that has been specified as containing less than 35% of an adult's Reference Intake (RI) for calories and saturated fat, and less than 25% of an adult's RI for salt⁶⁹. Yet thus far, consumers are likely to be none-the-wiser as the healthier choices are only highlighted on the website.

Offer healthy sides such as salads or vegetables as standard



People tend to order what's easy and takes the least effort, so it's worth making the default side a healthier choice, for example by offering salads or vegetables as standard instead of fries. After all, the customer still has the choice to change the salad or vegetables back to fries.



Choice edit

Operators tend to be wedded to the concept of choice, insisting that customers must be given what they want, or they will take their business elsewhere. Some industry insiders see this as one of the industry's biggest barriers to change. Whilst some factory canteens might struggle to take an item like traditional fish and chips off the menu, choice editing can be successful.

Sodexo and Southampton Solent University stealthily moved from a campus that would provide cheap and cheerful food for students to one that provided healthy options without increasing prices. Sodexo realised that students wanted more healthy food and were going elsewhere because they were bored with only having one healthy option and a salad bar. They started by engaging with the Soil Association's Food for Life scheme, working their way up to Gold in three years. This led to them changing the volume of vegetarian food, and changing purchasing streams to more fresh, local, UK and traceable products, and higher quality meat.



They moved from having one vegetarian dish to three, significantly extended the salad bar and introduced a bespoke salad box concept with over 30 options to choose from. This turned the salad offer into their biggest bit of business. They also introduced homemade soups and jacket potatoes, which were very successful, especially with male students. These efforts extended sales by 340%.

Offer healthy snacking

With 86% of millennials snacking during the working day and with lunchtimes shrinking, vending cannot be ignored as it makes up an increasing part of the modern diet. Studies have shown that pricing and availability are effective strategies at improving the nutritional quality of food and beverages purchased from vending machines⁷⁰.

From Compass Group trialling healthy pot noodles in its vending offer to serving quinoa brownies and protein balls, providing healthy snacking is vital. Some corporate environments have even removed vending outright when they have felt unable to find an option that was healthy enough.

Providing a healthier offer can also be more profitable. At Southampton Solent, Sodexo found that replacing high calorie, low nutritional value vending with health-conscious, locally-sourced, low-calorie organic options such as juices, popcorn and baked vegetable crisps led to a 20% uplift in sales.



Conclusion: Leading change, driving sales



Foodservice is at the cusp of a paradigm shift. With diet-related diseases one of the largest threats to public health, the vanguard have recognised that foodservice can play an important role in tackling the crisis. It is time to rethink the role the industry can play in helping to improve national diets by using nudges and the psychology of behavioural change to help make healthier choices the easiest, most automatic choice when eating out of home.

There is plenty of evidence that visual, social and environmental cues alter what people choose to eat, and how much of that food they choose to consume. Changing these cues can often change consumption behaviour without the need for willpower, making it much easier for people to eat healthily.

Using nudges and psychological approaches to help consumers to make healthier choices is not just the right thing to do, it also makes good business sense. It taps into overriding health and wellbeing trends, enhancing brands and distinguishing offers, drawing in consumers as it does so. It can also help to win tenders and maintain clients.

This research describes the psychological tools and nudges that can be used to promote healthier choices in foodservice to create a blueprint of best practice to guide and drive the industry. These action points be summarised as:

Action point 1: Redesign the menu as layout and descriptions can all work together to highlight and draw attention to healthier choices.

Action point 2: Change the food layout to make healthier options more available, whilst reducing oversize portions and tableware.

Action point 3: Makeover restaurants and outlets to create a healthier eating environment, for example by changing lighting, music and seating options.

Action point 4: Get into their heads to guide unconscious food decisions by using nudges such as social norms and positive associations.

Action point 5: Rethink what is on offer to make offerings healthier by default, for example by reducing salt, fat and sugar or making healthier side orders the norm.

From research report... to common practice

The evidence and knowledge is out there – this report allows it to be harnessed and applied. Taking the lead and adopting psychological approaches now provides the opportunity for operators at the forefront to be the front runners of a new future where healthier options become the new norm, enabling people to live happier, healthier, longer lives.

Thank you

Our thanks go to those who generously gave their time and insights for in depth interviews and at the focus group. Our thanks also go to those who didn't wish to be credited.

Gelf Alderson	Head Chef River Cottage HQ	Prof. Susan Jebb	Professor of Diet and Population Health University of Oxford
Katie Ayling	Confectionary Nutritionist Nestlé UK & Ireland	Harriet Knights	Senior Café Worker Brighton and Hove City Council
Tom Allen	Food Development Director Sodexo UK & Ireland	Dr Knut Ivar Karevold	Director of GreeNudge, Associate Professor, Medical Faculty at University of Oslo and Associate Professor at BI Norwegian Business School
Franco Beer	Founder Boka Food	Pav Kalsi	Senior Clinical Advisor Diabetes UK
Julie Barker	Director of Accommodation & Hospitality Services University of Brighton	Steffen Kallbekken	Board Member GreeNudge and Senior Research Fellow, Cicero
Rebecca Bailey Scott	Assistant Nutritionist Jamie Oliver Group	Claire Marriott	Academic University of Brighton
Chloe Clarke	Project Manager Brighton & Hove Food Partnership	Eleanor Morris	Programme Area Manager - Hospitality & Foodservice WRAP
Malcolm Clark	Co-ordinator, Children's Food Campaign Sustain	Nicky Martin	Head of Nutrition Compass Group UK & Ireland
Prof. Martin Caraher	Professor of Food and Health Policy - Centre for Food Policy City, University of London	Wan Mak	Head of Nutrition and Dietetics Sodexo UK & Ireland
Shirley Duncalf	Head of Sustainability, People & Sustainability Bidvest Foodservice	Eretia O'Kennedy	Head of Nutrition Jamie Oliver Group
Sue Dibb	Coordinator Eating Better	Louise Pilkington	Marketing Director Compass Group UK & Ireland
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Beth Hooper	Nutrition Manager Nestlé Professional & Food Nestlé UK & Ireland	Gabriella Roberts	Nutritionist BaxterStorey
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Charlotte Jarman	Foodsave Project Officer Sustain Children's Health fund		
David Jones	Director of Technical Services Bidvest		

References

- 1 Food Standards Agency (2010) *Healthy catering*. Available at: <http://collections.europarchive.org/tna/20100927130941/http://food.gov.uk/healthiereating/healthycatering/> (Accessed: 15 December 2016)
- 2 NHS Choices (2014) *Restaurant dining 'as calorific as fast food'*. Available at: <http://www.nhs.uk/news/2014/08August/Pages/restaurant-dining-as-calorific-as-fast-food.aspx> (Accessed: 15 December 2016)
- 3 Food Ethics Council (2015) *From individual to collective action. Exploring business case for addressing sustainable food security*. Surrey: World Wide Fund for Nature. Available at: http://assets.wwf.org.uk/downloads/wwf030_foodsustainabilityreport_final.pdf (Accessed: 9 December 2016)
- 4 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 5 NHS Digital (2016) *Health Survey for England, 2015*. Available at: <http://content.digital.nhs.uk/searchcatalogue?productid=23711&q=health+survey+for+england+2015&sort=Relevance&size=10&page=1#top> (Accessed: 21 Feb 2017)
- 6 Kings College London (2015) *A third of children in England are overweight/obese*. Available at: <https://www.kcl.ac.uk/newsevents/news/newsrecords/2015/January/A-third-of-children-in-England-are-verweightobese.aspx> (Accessed: 15 December 2016)
- 7 WHO, n.d. *Media Centre: Top ten causes of death*. Available at: <http://www.who.int/mediacentre/factsheets/fs310/en/index2.html> (Accessed 12 January 2017)
- 8 McKinsey (2014) *How the world could better fight obesity*. Available at: http://www.mckinsey.com/insights/economic_studies/how_the_world_could_better_fight_obesity
- 9 British Nutrition Foundation n.d. *Healthy weight loss*. Available at: <https://www.nutrition.org.uk/healthyliving/healthissues/healthy-weight-loss.html> (Accessed: 15 December 2016)
- 10 Food Standards Agency (2010) *Healthy catering*. Available at: <http://collections.europarchive.org/tna/20100927130941/http://food.gov.uk/healthiereating/healthycatering/> (Accessed: 15 December 2016)
- 11 NHS Choices (2014) *Restaurant dining 'as calorific as fast food'*. Available at: <http://www.nhs.uk/news/2014/08August/Pages/restaurant-dining-as-calorific-as-fast-food.aspx> (Accessed: 15 December 2016)
- 12 The Telegraph (2016) *Fish & chips overtaken by salads on British pub and restaurant menus*. Available at: <http://www.telegraph.co.uk/news/2016/08/03/fish--chips-overtaken-by-salads-on-british-pub-and-restaurant-me/> (Accessed: 9 December 2016)
- 13 University of Cambridge. (2016) *'Healthy vs unhealthy food: the challenges of understanding food choices'*. Available at: <http://www.cam.ac.uk/research/features/healthy-vs-unhealthy-food-the-challenges-of-understanding-food-choices> (Accessed: 15 December 2016)
- 14 The Telegraph (2016) *Pret a Manger to keep veggie-only pop-up open permanently*. Available at: <http://www.telegraph.co.uk/business/2016/09/06/pret-a-manger-to-keep-veggie-only-pop-up-open-permanently/> (Accessed: 15 December 2016)
- 15 Food Ethics Council (2015) *From individual to collective action. Exploring business case for addressing sustainable food security*. Surrey: World Wide Fund for Nature. Available at: http://assets.wwf.org.uk/downloads/wwf030_foodsustainabilityreport_final.pdf (Accessed: 9 December 2016)
- 16 European Food Information Council (2013) *Small changes to prevent weight gain*. Available at: <http://www.eufic.org/article/en/page/FTARCHIVE/artid/Small-changes-to-prevent-weight-gain/> (Accessed: 9 December 2016)
- 17 Locke, E.A. Latham, G.P. (2002) *'Building a practically useful theory of goal setting and task motivation: A 35-year odyssey'*, *American Psychologist*, 57(9), pp.705-717
- 18 Lutes, L.D. Winett, R.A. Barger, S.D. et al. (2008) *'Small Changes in nutrition and physical activity promote weight loss and maintenance: 3-month evidence'*, *Annals of Behavioral Medicine*, 35(3), pp.351-357 and Zinn, C. Schofield, G.M. Hopkins, W.G. et al. (2012) *'A "small-changes" workplace weight loss and maintenance program: examination of weight and health outcomes'*, *Journal of Occupational and Environmental Medicine*, 54(10), pp.1230-1238
- 19 Peters, J.C. Lindstrom, R.C. Hill, J.O. et al. (2012) *'Stepping up across America: the small changes approach'*, *Childhood Obesity*, 8(1), pp.76-78
- 20 Mintel (2016) *Attitudes towards Healthy Eating*. Available at: http://store.mintel.com/attitudes-towards-healthy-eating-uk-february-2016?cookie_test=true (Accessed: 9 December 2016)
- 21 Future thinking (2015) *Consumers are confusing sugar and fat*. Available at: <http://futurethinking.com/consumers-are-confusing-sugar-and-fat/> (Accessed: 9 December 2016)

- 22 YouGov (2014) Consumer confusion over food labelling. Available at: <https://yougov.co.uk/news/2014/03/25/consumer-confusion-over-food-labelling/> (Accessed: 9 December 2016)
- 23 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 24 Wansink, B. Park, S-B. (2002) 'Sensory suggestiveness and labeling: do soy labels bias taste?', *Journal of Sensory Studies*, 17, pp.483-491
- 25 Forwood, S.E. Walker, A.D. Hollands, G.J. et al (2013) 'Choosing between an Apple and a Chocolate Bar: the Impact of Health and Taste Labels', *PloS ONE*, 8(10), doi: 10.1371/journal.pone.0077500
- 26 Wansink, B. Chandond, P. (2006) 'Can "Low-Fat" Nutrition Labels Lead to Obesity?', *Journal of Marketing and Research*, 43(4), pp.605-617, doi: 10.1509/jmkr.43.4.605
- 27 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 28 Vasiljevic, M. Pechey, R. Marteau, T.M. (2015) 'Making food labels social: The impact of colour of nutritional labels and injunctive norms on perceptions and choice of snack foods', *Appetite*, 91, pp.56-63
- 29 Vasiljevic, M. Pechey, R. Marteau, T.M. (2015) 'Making food labels social: The impact of colour of nutritional labels and injunctive norms on perceptions and choice of snack foods', *Appetite*, 91, pp.56-63.
- 30 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 31 John Hopkins Bloomberg School of Public Health (2015) *Food Labeling Intervention Increases Sales of Healthy Foods*. Available at: <http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/news-room/News-Releases/2015/food-labeling-intervention-increases-sales-of-healthy-foods.html> (Accessed: 15 December 2016)
- 32 Food Ethics Council (2016) *Eating Meal Outside the Home Survey*. London: Food Ethics Council. Available at: <http://www.foodethicscouncil.org/uploads/publications/OmEating-Meat-Outside-The-Home%2018-34-1.pdf> (Accessed: 9 December 2016)
- 33 Hieke, S. Wilczynski. (2011) 'Colour Me In – an empirical study on consumer responses to the traffic light signposting system in nutrition labelling', *Public Health Nutrition*, 15(5), pp.773-82. doi: 10.1017/S1368980011002874
- 34 Wansink, B. (2007) *Eating. Why we eat more than we think*. USA: Bantam Books
- 35 Public Health England (2015) *Sugar Reduction: The evidence for action*. Available at: <https://www.gov.uk/government/publications/sugar-reduction-from-evidence-into-action> (Accessed: 9 December 2016)
- 36 McKinsey Global Institute (2014) *Overcoming obesity: an initial economic analysis*. London: McKinsey & Company. Available at: <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-the-world-could-better-fight-obesity> (Accessed: 9 December 2016)
- 37 Kallbekken, S. Hakon, S. (2013) 'Nudging' hotel guests to reduce food waste as a win-win environmental measure', *Economic Letters*, 119, pp.325-327, doi: 10.1016/j.econlet.2013.03.019
- 38 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 39 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 40 Rozin, P. Scott, S. Dingley, M. et al (2011) 'Nudge to nobesity I: Minor changes in accessibility decrease food intake', *Judgment and Decision Making*, 6(4), pp.323-332
- 41 Thorndike, A.N. Sonnenberg, L. Riis, J. et al. (2012) 'A 2-Phase Labeling and Choice Architecture Intervention to Improve Healthy Food and Beverage Choices', *American Journal of Public Health*, 102(3), pp. 527-533, doi: 10.2105/AJPH.2011.300391
- 42 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 43 Hollands, G.J. Shemilt, I. Marteau, T.M. (2015) 'Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco', *Cochrane Database of Systematic Reviews*, 9(CD011045), doi: 10.1002/14651858.CD011045.pub2
- 44 Waste & Resources Action Programme (WRAP) n.d. *Resource pack for Hospitality and Food service sector. Engaging with consumers to help reduce plate waste*. London: Waste & Resources Action Programme. Available at: http://www.wrap.org.uk/sites/files/wrap/UK%20LFHWHospitalityResourcePack_0.pdf (Accessed: 9 December 2016)
- 45 McKinsey Global Institute (2014) *Overcoming obesity: an initial economic analysis*. London: McKinsey & Company. Available at: <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/how-the-world-could-better-fight-obesity> (Accessed: 9 December 2016)

- 46 Hollands, G.J. Shemilt, I. Marteau, T.M. (2015) 'Portion, package or tableware size for changing selection and consumption of food, alcohol and tobacco', *Cochrane Database of Systematic Reviews*, 9(CD011045), doi: 10.1002/14651858.CD011045.pub2
- 47 Raynor, H. Wing, R. (2007) 'Package Unit Size and Amount of Food: Do Both Influence Intake?', *Obesity*, 15(9), pp.2311-9, doi: 10.1038/oby.2007.274
- 48 Kral, T.V. Roe, L.S. Rolls, B.J. (2004) 'Combined effects of energy density and portion size on energy intake in women', *American Journal of Clinical Nutrition*, 79(6), pp.962-8 and Young, L.R. Nestle, M. (2002) 'The contribution of expanding portion sizes to the U.S. obesity epidemic', *American Journal of Public Health*, 92(2), pp.246-249
- 49 Raynor, H. Wing, R. (2007) 'Package Unit Size and Amount of Food: Do Both Influence Intake?', *Obesity*, 15(9), pp.2311-9, doi: 10.1038/oby.2007.274
- 50 Waste & Resources Action Programme (WRAP) n.d. *Greene King drives down food costs in pub chain*. London: Waste & Resources Action Programme. Available at: <http://www.wrap.org.uk/sites/files/wrap/Greene%20King%20case%20study.pdf> (Accessed: 9 December 2016)
- 51 Wansink, B. (2012) 'Package Size, Portion Size, Serving Size... Market Size: The Unconventional Case for Half-Size Servings', *Marketing Science*, 31, pp.54-57, doi: 10.1287/mksc.1110.0699b
- 52 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 53 Waste & Resources Action Programme (WRAP) n.d. *Resource pack for Hospitality and Food service sector. Engaging with consumers to help reduce plate waste*. London: Waste & Resources Action Programme. Available at: http://www.wrap.org.uk/sites/files/wrap/UK%20LFHWHospitalityResourcePack_0.pdf (Accessed: 9 December 2016)
- 54 Freedman, M.R. Brochado, C. (2010) 'Reducing portion size reduces food intake and plate waste', *Obesity*, 18, pp.1864-1866
- 55 Sobal, J. Wansink, B. (2007) 'Kitchenscapes, tablescape, platescapes, and foodscapes', *Environment and Behavior*, 39, pp.124-142
- 56 Ittersum, K.V. Wansink, B. (2012) 'Plate size and color suggestibility: the Delboeuf illusion's bias on serving and eating behavior', *Journal of Consumer Research*, 39, pp.215-228
- 57 Ittersum, K.V. Wansink, B. (2012) 'Plate size and color suggestibility: the Delboeuf illusion's bias on serving and eating behavior', *Journal of Consumer Research*, 39, pp.215-228
- 58 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 59 Kallbekken, S. Hakon, S. (2013) 'Nudging' hotel guests to reduce food waste as a win-win environmental measure', *Economic Letters*, 119, pp.325-327, doi: 10.1016/j.econlet.2013.03.019
- 60 Herman, C.P. Polivy, J. (2005) 'Normative influences on food intake', *Physiology & Behavior*, 86, pp.762-772
- 61 Wansink, B. (2014) *Slim by Design. Mindless eating solutions for everyday life*. London: Hay House UK
- 62 British Nutrition Foundation n.d. *Obesity and Weight Management. Behaviour Change*. Available at: <https://www.nutrition.org.uk/nutritionscience/obesity-and-weight-management/918-behaviour-change.html?limit=1&start=3> (Accessed: 15 December 2016)
- 63 British Nutrition Foundation (2012) *Behaviour Change*. Available at: www.foodafactoflife.org.uk/attachments/c19b03ba-aebb-4e50790b9e24.ppt (Accessed: 9 December 2016)
- 64 Marteau, T.M. Hollands, G.J. Fletcher, P.C. (2012) 'Changing Human Behavior to Prevent Disease: The Importance of Targeting Automatic Processes', *Science*, 337(6101), pp.1492-1495. doi: 10.1126/science.1226918
- 65 Robinson, E. Thomas, J. Aveyard, P. et al. (2014) 'What Everyone Else Is Eating: A Systematic Review and Meta-Analysis of the Effect of Informational Eating Norms on Eating Behavior', *Journal of the Academy of Nutrition and Dietetics*, 114(3), pp.414-429, doi: 10.1016/j.jand.2013.11.009
- 66 Vyth, E.L. Steenhuis, I.H. Heymands, M.W. et al (2011) 'Influence of placement of a nutrition logo on cafeteria menu items on lunchtime food Choices at Dutch work sites', *Journal of the American Dietetic Association*, 111(1), pp.131-6. doi: 10.1016/j.jada.2010.10.003
- 67 Future thinking (2015) *Consumers are confusing sugar and fat*. Available at: <http://futurethinking.com/consumers-are-confusing-sugar-and-fat/> (Accessed: 9 December 2016)

- 68 YouGov (2014) *Consumer confusion over food labelling*. Available at: <https://yougov.co.uk/news/2014/03/25/consumer-confusion-over-food-labelling/> (Accessed: 9 December 2016)
- 69 Jamie's Italian (2016). *Nutrition*. Available at: <https://www.jamieoliver.com/italian/menu/nutrition/> Accessed: 12 January 2017.
- 70 Grech, A. Allman-Farinelli, M. (2015) 'A systematic literature review of nutrition interventions in vending machines that encourage consumers to make healthier choices', *Obesity Reviews*, 16(12), pp.1030-41, doi: 10.1111/obr.12311



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