

OBESITY

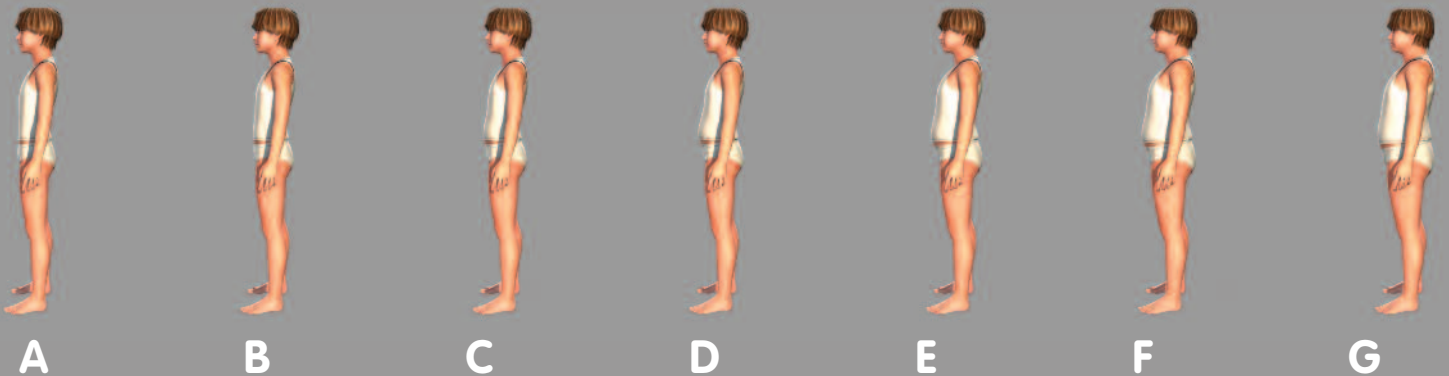
An issue too big to ignore... or too big to mention?

Report of the Director
of Public Health
County Durham

2015



Which child, or children are underweight, healthy weight, overweight or obese?



Answers

- A underweight
- B healthy weight
- C healthy weight
- D healthy weight
- E overweight
- F overweight
- G obese

Newcastle University Map Me Study.



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Acknowledgments:

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Introduction



This year my Director of Public Health Annual Report focuses on obesity and how we can tackle the issue. I realise this is a sensitive area for many people but we really need to stop dancing around the edges of this issue.

Overweight and obesity continue to be a high priority for County Durham and I am sure will be for the foreseeable future. We continue to grapple with the issue and prevent the many health conditions associated with being overweight and obese. At the present time we are going in the wrong direction with our obesity trends and need to try new and innovative approaches as well as implementing evidence based interventions. The evidence is very clear - we need to learn from progress we have made in relation to tackling tobacco and smoking. We need national legislation, regulations, advertising controls and other measures such as a tax on sugar if we are to make significant in-roads to tackling and reducing obesity. In the absence of these there is much that can be achieved both at a local levels as well as striving to influence and change national policy. I am convinced that change is only possible if we do this collectively, sharing resources and harmonising our efforts to meet a common goal.

This report focusing on obesity could easily be a lengthy affair full of detailed data and referenced research. The subject is extremely well researched and there is a large amount of data and evidence to underpin the work we want to take forward. However, I do not want a report that is full of graphs and tables but one that reaches out to you, the reader to explain our direction of travel and what we can do together.

Obesity is a complex issue and as I was thinking about this report's structure I found myself drawn back to the powerful Foresight Report first published in 2007¹. The Foresight Report¹ highlighted the wide range of factors that contribute towards obesity. These factors can be largely grouped into seven domains: energy balance, physical activity, the activity environment, food consumption, food environment, individual psychology and social influences. For ease of reading the sections of this report will be broadly built around these domains.

Whilst we await the new national strategy to reduce obesity in children due out in early 2016 this report has drawn upon the most up to date evidence available on the links between sugar and obesity and also on some fascinating research being conducted by Newcastle University on parental perceptions of childhood obesity. I am delighted to include a guest contribution in the report from Professor Ashley Adamson and her team at the Institute of Health & Society, Newcastle University.

Overweight and obesity continue to be a high priority for County Durham and will be for the foreseeable future.

In County Durham we already have a Healthy Weight Alliance and members are working together to deliver the County Durham Healthy Weight Framework. We are also on the cusp of launching a physical activity framework which will galvanise partners to mobilise our residents to become more physically active. This is also really important if we are serious about tackling obesity in County Durham.

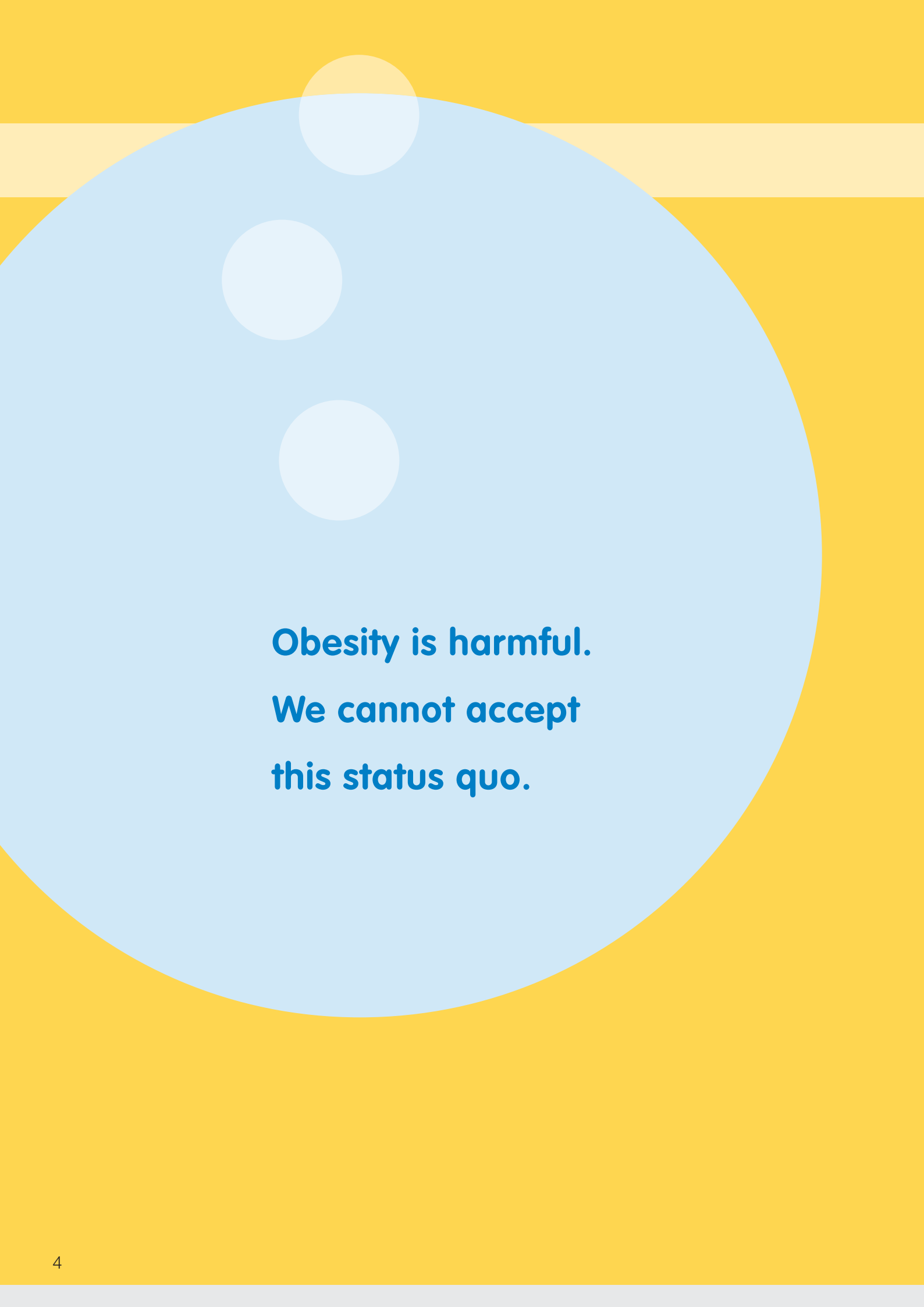
This report predominantly focuses on the power and influence of food and, more specifically, on sugar and energy dense food. This is not only about the food we eat as an individual or family but also about community influence and ways we can work together as a whole system. I also touch upon the influence of the food industry and suggest ideas about how we might approach this in County Durham.

Throughout the report there are some examples of good practice I want to share, both existing and planned, showing how we are striving to tackle overweight and obesity issues with a range of partners.

There is already a vast amount of good work taking place across County Durham and I don't want this report to be seen as a criticism of current and previous activities. We are making some progress but need to do even more. As you read the report you will hopefully become aware of the challenges we face and the complexity of tackling obesity. I want to acknowledge and thank all of our partners who have been supporting efforts to prevent overweight and obesity for many years and I hope we can continue to work together for the foreseeable future.

Throughout the report you will see examples of action that we can take forward locally and make progress. We cannot sit back and wait for national policy to change.

I want this report to be a call to action. As a County Durham community we need it to be a call to action. We must prevent the continuing rise in overweight and obesity and we need to work together to understand the barriers our residents face and focus on how to support and enable them to live healthy and fulfilling lives. I look forward to working with you on this challenging area of the public's health over the next few years.



**Obesity is harmful.
We cannot accept
this status quo.**

Background

Obesity levels are on the rise. This statement alone is hardly new. Most of us are aware of the rising levels of obesity, but frequently the views surrounding the agenda are created through media or cultural norms and stereotypes. We are all aware of the overly simple approaches to the problem and the incorrectly held belief that there is a quick and simple solution. There is not!

This challenge requires a sustained response. We need to influence at all levels and across a range of areas if we are to address an issue that is having profound long term consequences for the health and wellbeing of our communities in County Durham.

Obesity is harmful. We cannot accept this status quo. The crux of the problem is an imbalance between energy intake and energy expenditure, yet this is impacted by a complex mix of biology, social and environmental factors over a period of time. As human beings we evolved in a world of relative food scarcity and hard physical work. Many believe obesity is the result of our biology interacting with the modern world where energy dense food is readily available and the world around us helps us move less and less¹. This is often called the obesogenic environment.

Tackling obesity is a challenge for society and for policy makers. It is not simply a matter of individual choice. The factors that contribute towards obesity are complex and multiple. They interact with each other in a way that means tackling any of them in isolation will have limited effect in improving our population's health and wellbeing.

Weight, once gained, is challenging to lose. It requires a change in mind set for the individual and, for some, possibly services and interventions to help them achieve their weight loss goals. There are already significant numbers of obese people in County Durham and action is required to help them lose weight and to reduce the chance of them developing further health complications associated with their weight.

We must take a preventative approach to stop the rising tide of obesity. To do this requires a systemic shift to really change our current pattern and trends. Change needs to be made at many levels across County Durham if we are to have the impact on the population that is needed. This presents many challenges for partners and organisations and our communities.

Hopefully, this report will help to create that collective action and response we so badly need.

What do we mean by obesity and how do we measure it?

Adults

Obesity is a term used to define someone who is very overweight, with a high degree of body fat that may have an adverse effect on health and wellbeing.

It is more than an issue of appearance. The body mass index (BMI) gives a measure which provides an indication of whether a person is a healthy weight for their height, and allows categorisation of weights into what is normal and healthy, overweight, or obese for someone of a particular height and gender. This allows for trends in population levels of obesity to be tracked over time².

The measure uses weight as measured in kgs divided by height in metres squared (m²):

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m)} \times \text{height (m)}}$$

Adult classification	BMI range (kg/m ²)	What it means for you
Underweight	Under 18.5	Being underweight is not healthy. If you have a BMI under 18.5 this may mean that you need to build your weight up.
Healthy weight	18.5 to 24.9	Being a healthy weight means you are at a lower risk of heart disease, stroke and type 2 diabetes than someone who is overweight or obese.
Overweight	25.0 to 29.9	If you are overweight, you are at a higher risk of diseases such as heart disease, stroke and type 2 diabetes.
Obese	30.0 to 39.9	Being obese or morbidly obese means you are at a greater or increased risk of health problems.

After www.nhs.uk/conditions/obesity/pages/introduction.aspx

Body fat can be measured in several ways, with each assessment method having pros and cons. The method most widely adopted and used within this report is the body mass index (BMI), though it is acknowledged that it is not a perfect measure.

Other approaches such as waist circumference, waist to hip ratio, skinfold thickness, bioelectroic impedance through to more complex approaches associated with research settings, may be used to provide measures of body fat and implications for the individual's health.

What do we mean by excess weight?

Excess weight is a term used to describe a combined population above the healthy weight range. This is used intermittently throughout this report.

Overweight + obese = excess weight

The method of assigning a BMI classification is different for children and adults.

Defining overweight and obesity in children

Defining children as overweight or obese is a complex process, given that their height and weight changes quickly. The method of assigning a BMI classification is different for children than for adults. This difference is important and explained on this page.

Measuring and interpreting BMI in children

It is important when using BMI in children that age and gender appropriate growth references are used to correctly determine weight status. In England the British 1990 (UK90) growth reference charts are used to determine the weight status of an individual child and population of children.

A review of the issues around the use of BMI centile thresholds for defining underweight, overweight and obesity in children aged 2-18 years in the UK, was published in 2012³.

Measuring an individual child:

Clinical definitions of weight status: When measuring an individual child (for example in clinic or feeding back the National Child Measurement Programme (NCMP) results to parents) weight status is defined using the UK90 clinical cut points which are as follows:

Clinically very under weight: \leq 0.4th centile

Clinically low weight: \leq 2nd centile

Clinically healthy weight: > 2 - $<$ 91th centile

Clinically overweight: \geq 91st centile

Clinically obese*: \geq 98th centile

Clinically extremely obese: \geq 99.6th centile

*This is also called 'very overweight' in the NCMP parental feedback letters.

What is the national child measurement programme (NCMP)?

The National Child Measurement Programme (NCMP) measures the height and weight of children in reception class (aged 4-5 years) and year 6 (aged 10-11 years) to assess overweight and obesity levels in children within primary schools. This data can be used to support local public health initiatives and inform the local planning and delivery of services for children. Local authorities are mandated under the Health & Social Care Act 2012 to ensure the delivery of this programme at a local level.

The programme is recognised internationally as a world-class source of public health intelligence and holds UK National Statistics status⁴.

The NCMP was set up in line with the Government's strategy to tackle obesity and to:

- ✓ **inform** local planning and delivery of services for children.
- ✓ **gather** population-level data to allow analysis of trends in growth patterns and obesity.
- ✓ **increase** public and professional understanding of weight issues in children and be a vehicle for engaging with children and families about healthy lifestyles and weight issues.

Children's heights and weights are measured and used to calculate a body mass index (BMI) centile. The measurement process is overseen by trained healthcare professionals in schools.

The current picture in England and County Durham

This section highlights the national trend data in obesity and also County Durham data for both adults and children.

Adults

In England most adults (around 65%) are overweight or obese⁵.

In every 100 adults in England...



More women than men are a healthy weight

Having too much weight increases risk of **diabetes, heart disease and cancer**

In England, **average weight** is now **overweight**

Source: After Public Health England

Nationally, 65% of adults have excess weight⁵. Prevalence was higher for men (65.3%) than women (58.1%). This has seen little change since 1993.

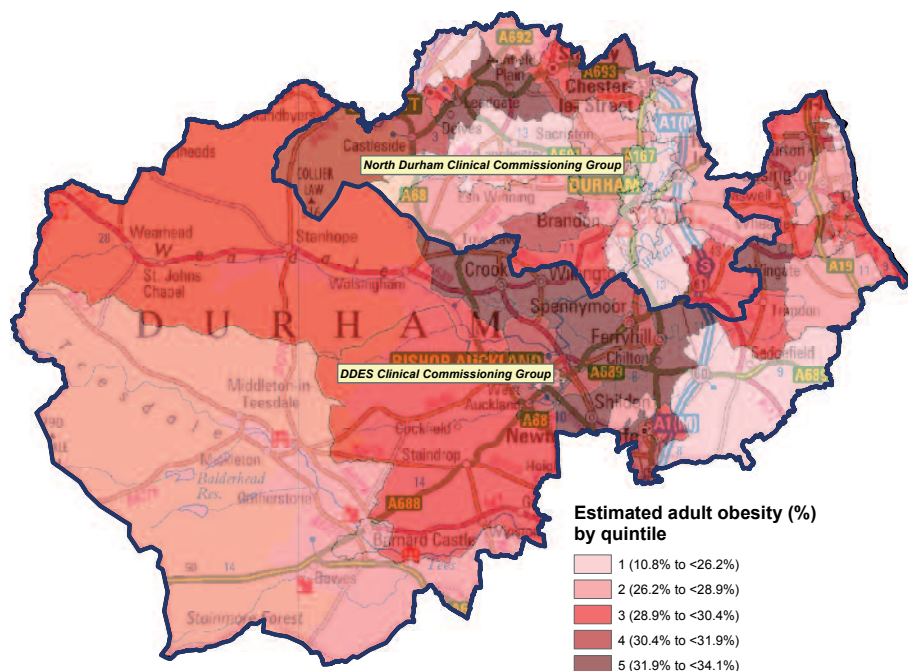
Whilst the proportion of adults with excess weight has seen little change since 1993 the prevalence of obesity has increased substantially: for men a rise from 13% to 24%, for women a rise from 16% to 27%⁶.

In County Durham



Percentage of the population of County Durham aged 16+ with a BMI of 30+, modelled estimates, 2006-2008.

Source: PHE, NHS IC, 2010



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The 2015 County Durham Health Profile⁷ shows that:

The level of **adult obesity** (27.4%) is higher than the England average (23.0%).

The level of **excess weight** (72.5%) is higher than the England average (65%).

The level of **physically active adults** in County Durham (52.2%) is lower than the England average (56.0%).

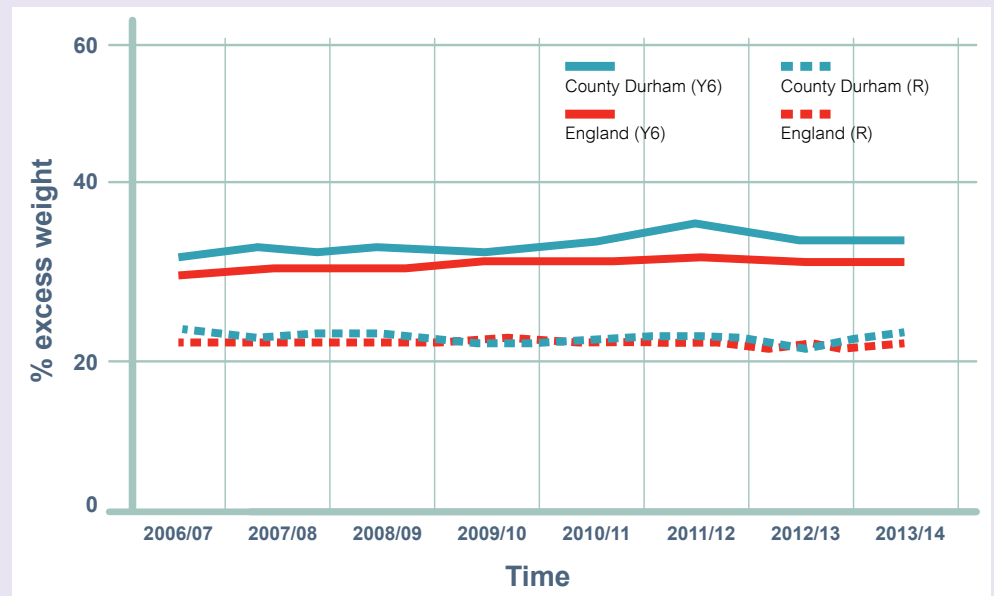
Diabetes prevalence (6.8%) is higher than England (6%), and has risen locally from 4.1% in 2007/08. This increase places a significant burden on local health care costs. There is more information about diabetes in County Durham on pages 41-42.

Children

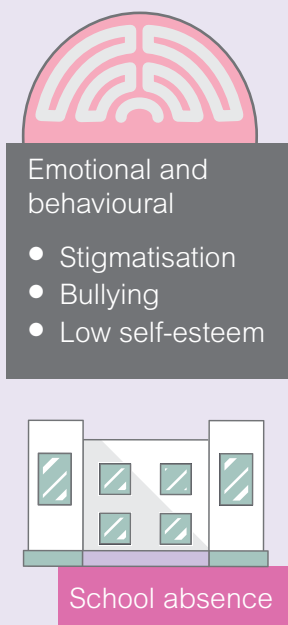
Childhood obesity – the national picture

The prevalence of childhood obesity has more than doubled in the UK in the last 25 years. Those who are obese as children are more likely to be obese in adulthood. Of those who are obese at preschool age, research suggests that between 26% and 41% will go on to be obese in adulthood¹. Addressing obesity during early years is therefore an important prevention opportunity.

Percentage of children with excess weight, and change over time, Reception and Year 6, 2006/07-2013/14, NCMP⁴

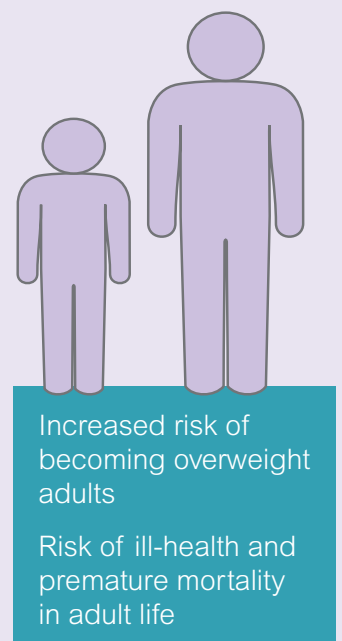
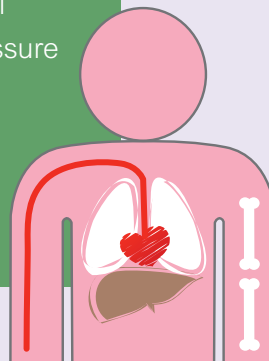


Source: After Public Health England



Obesity harms children and young people

- High cholesterol
- High blood pressure
- Pre-diabetes
- Bone and joint problems
- Breathing difficulties



Source: After Public Health England

The World Health Organisation (WHO) regards childhood obesity as one of the most serious global public health challenges for the 21st century. Obese children and adolescents are at an increased risk of developing various health problems and also more likely to become obese adults⁸.

Nationally, the Government has set an ambition for local areas to **‘achieve a sustained downward trend in the level of excess weight in children by 2020’**.

Childhood obesity – the local picture

Latest figures from the National Child Measurement Programme identified the prevalence of obesity in County Durham to be 9.3% at reception and 21.4% at year 6 and prevalence of excess weight (overweight and obese) as 23.0% and 36.5% respectively in 2014/15.

Levels of excess weight and obesity in County Durham in both reception and year 6 are significantly higher than England⁴.

	Reception (age 4-5 years)				Year 6 (age 10-11 years)			
	Number excess weight	% excess weight	Number obese	% obese	Number excess weight	% excess weight	Number obese	% obese
England		21.9%		9.1%		33.2%		19.1%
County Durham	1,339	23.0%	542	9.3%	1,879	36.5%	1,104	21.4%



Significantly higher than England

See time series chart on page 11 for NCMP over time.

Obesity in children and young people has been identified through the Joint Strategic Needs Assessment, the County Durham Children, Young People and Families Plan, Health and Wellbeing Strategy for County Durham and Clinical Commissioning Groups’ commissioning intentions as a priority for improving health outcomes for children and young people.

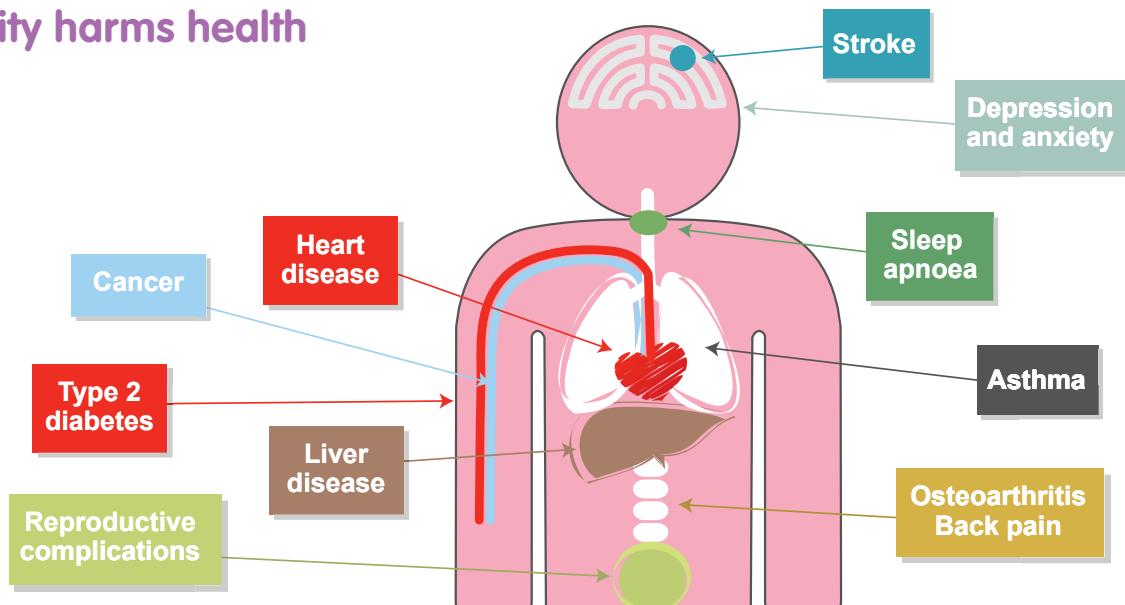
The impact of obesity

The impact of obesity can be felt at an individual level through to a societal scale due to the social and economic burden it can cause.

Obesity and health

If an individual is overweight or obese they are more prone to a range of serious health problems. These include cardiovascular disease; type 2 diabetes; endometrial, breast and colon cancer⁹; as well as psychological and social problems such as stress, low self-esteem, depression, stigma, prejudice and bullying¹⁰.

Obesity harms health



Source: After Public Health England

The costs of overweight and obesity

There are significant health and social care costs associated with the treatment of obesity and its consequences, as well as costs to the wider economy arising from chronic ill health.

The House of Commons Health Select Committee estimated that the total annual cost of obesity and overweight for England was nearly £7 billion of which £1 billion is the direct health service costs attributable to obesity alone¹.

The National Audit Office highlighted significant indirect costs due to the higher levels of sickness and absence from work that obese people suffer, reducing productivity and imposing costs on business¹¹.

It has been estimated that lost earnings attributable to obesity are around £2.3-3.6 billion per year nationally¹². The costs for an organisation employing 1,000 people, could equate to £126,000 a year in lost productivity¹³ and on average, obese people take four extra sick days per year¹⁴. The estimated annual social care costs* of obesity to local authorities is estimated at £352m¹⁵.

The costs of decreased household incomes, earlier retirement and higher dependence on state benefits such as ill health or unemployment benefits that arise from obesity-related conditions also need to be considered. In 2013 welfare costs were estimated to be between £1 billion and £6 billion¹⁶.

In addition, there is evidence that obesity may reduce the wage levels of those in employment^{17,18} and that obese people are less likely to be in employment than people of a healthy weight.

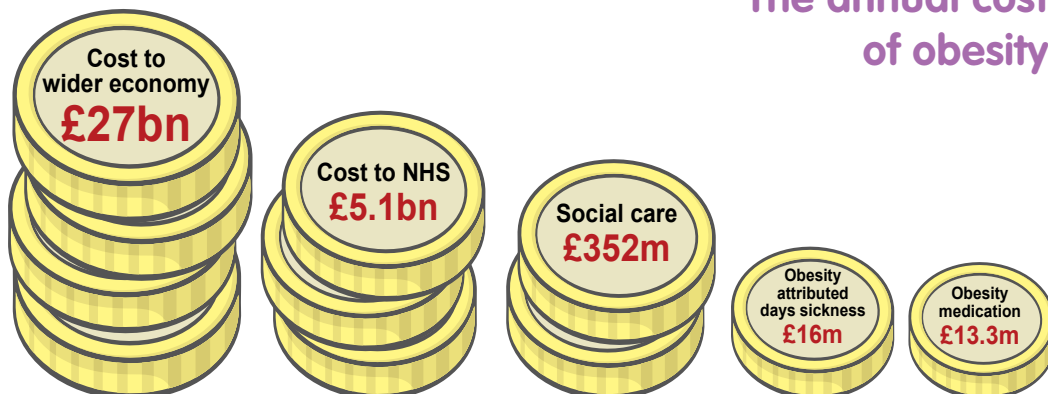
**Cost of extra formal hours of help for severely obese compared to healthy weight people.*

Children

These costs will be compounded as the weight problems of children and teenagers lead to increased levels of chronic disease, mental health and other social costs¹⁹. For example, studies have shown that compared with adolescents of normal weight, overweight and obese adolescents had over a third more sick days annually²⁰.

The rise in childhood obesity is also a concern as overweight and obese youth have an increased risk of becoming overweight adults which could further increase the scale of the issue²¹.

The annual cost of obesity



Source: After Public Health England

Obesity and mental health

There is a relationship between common mental health disorders and obesity. An obese person has a 55% increased risk of developing depression over time, whereas a depressed person has a 58% increased risk of becoming obese.

A report from the National Obesity Observatory highlighted that there is not enough emphasis on the association between mental health, emotional wellbeing and obesity. The relationship is complex with some researchers suggesting that obesity can lead to common mental health disorders, whilst others have found that people with mental health problems are more prone to obesity¹⁰.

Obesity and social care

Severely obese people are over three times more likely to need social care than those who are a healthy weight²².

Obese adults may have physical difficulties which affect day to day living. This can have implications for social care services such as housing adaptations for example toilet frames, hoists and stair lifts²³.

Specialist carers trained in the manual handling of severely obese people are required for people who are house bound and have difficulties caring for themselves.

The provision of appropriate transport and facilities, such as bariatric patient transport and specialist hospital beds are also required.

Obesity and the link with inequalities

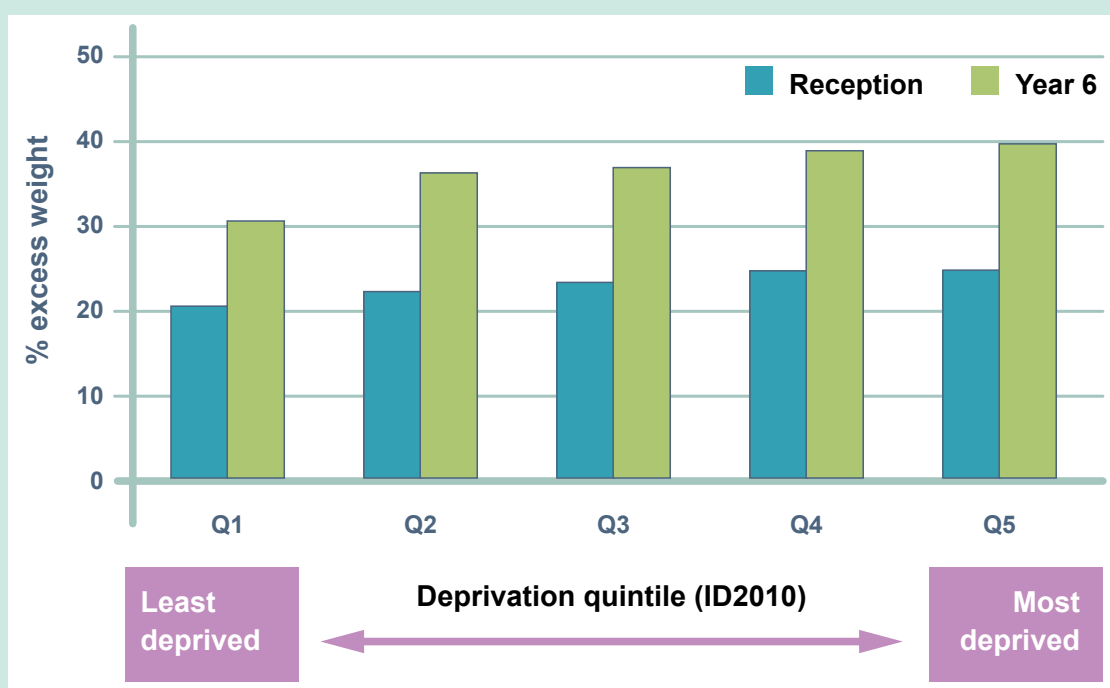
Obesity prevalence in England is known to be associated with many indicators of socioeconomic status, with higher levels of obesity found among more deprived groups. The association is stronger for women than for men. Overall, for women, obesity prevalence rises with increasing levels of deprivation, regardless of the measure used. Nationally, women living in more deprived areas are more likely to be obese. Obesity prevalence rises from 20.1% in the least deprived quintile to 33.0% in the most deprived quintile. For men, only occupation based and qualification-based measures show differences in obesity rates by levels of deprivation²⁴.

Factors associated with a healthy diet also show the impact of deprivation. Fruit and vegetable consumption is greater in those living in higher income households. Data from the Health Survey for England shows that children living in households with the highest income levels eat the most fruit and vegetables²⁵. There is also evidence that a high sugar intake is associated with deprivation. The National Diet Nutrition Survey²⁶ found there to be higher sugar intakes in adults with the lowest income compared to all other income groups. Consumption of sugary soft drinks in particular was found to be higher among adults and teenagers in the lowest income group.

Physical activity levels are related to household income. Nationally, men and women from the lowest income group are least likely to meet the Government recommendations of a minimum of 150 minutes of moderate intensity per week in bouts of at least ten minutes²⁷. Low levels of physical activity in children can be statistically associated with household income, with those in the lowest income bracket more likely to report low levels of activity. Among boys, 47% in the lowest income group and 26% in the highest did less than 30 minutes of moderate activity each day²⁸.

Nationally, in children aged 4-5 years and 10-11 years, obesity prevalence in the most deprived tenth of the population is approximately twice that in the least deprived tenth⁴.

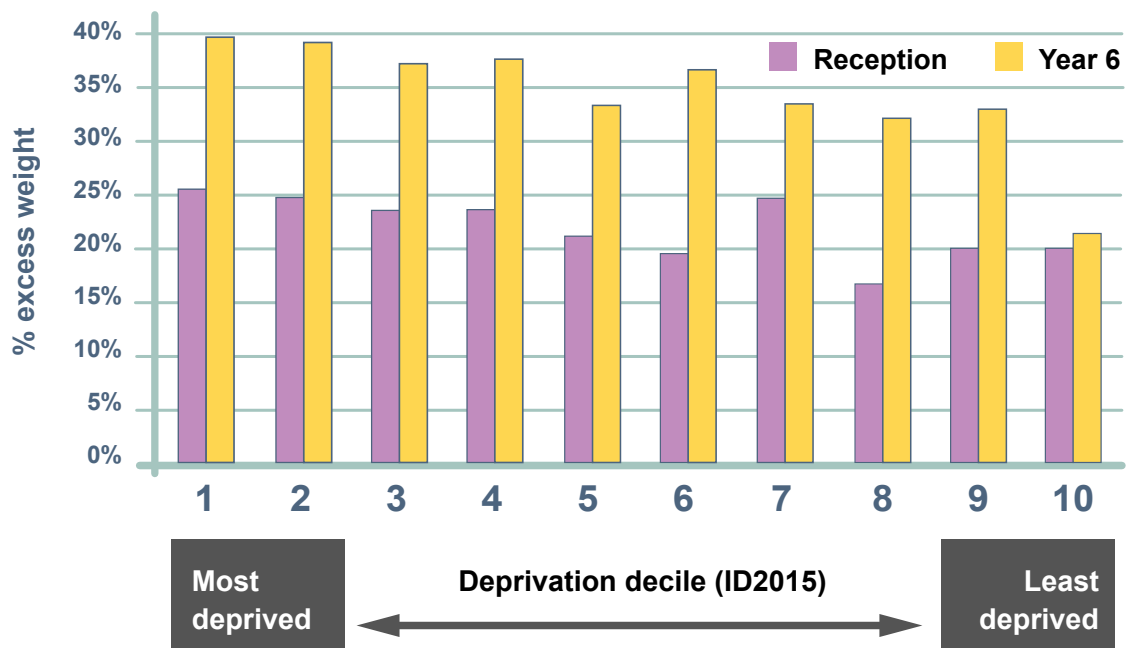
National prevalence of excess weight by deprivation decile and school year, 2011/12 to 2012/14, NCMP⁴



Source: NCMP

Locally the picture in County Durham is not quite as pronounced but still indicates inequalities among our communities.

Excess weight in Reception and Year 6 (%), by deprivation decile (ID2015 overall score), County Durham Middle Super Output Areas*, 2011/12 to 2013/14



Source: NCMP

* Middle super output areas are local populations based on minimum 5,000 and 7,200 people.

The future

If we fail to halt the rise in obesity then by 2050, obesity, in England is predicted to affect 60% of adult men, 50% of adult women and 25% of children¹.

Recently reported modelling suggests that by 2030 41-48% of men and 35-43% of women could be obese, if the trends continue²⁹.

NHS costs attributable to overweight and obesity are projected to reach £9.7 billion by 2050, with wider costs to society estimated to reach £49.9 billion per year¹.

What are the causes of obesity?

The rest of this report showcases some of the challenges and the breadth and complexity of this agenda using the Foresight factors. The report also highlights some of the good practice already taking place in County Durham. The report is not intended to be an exhaustive list of everything that contributes towards achieving a healthy weight but hopefully will stimulate discussion and gain commitment from many partners to work collectively to tackle obesity in County Durham.

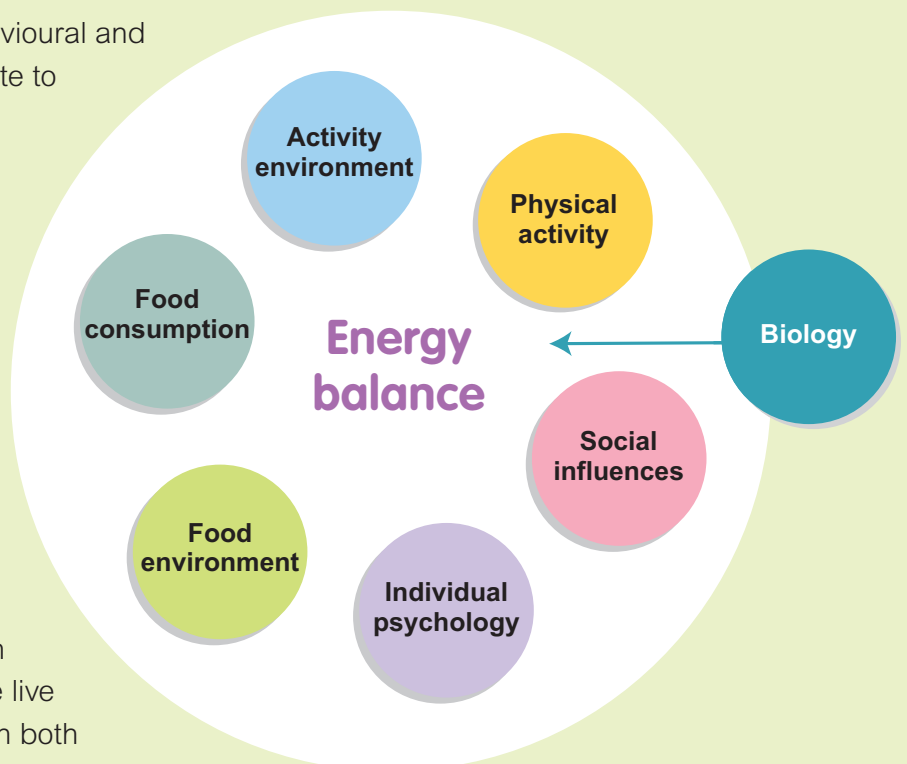
Energy balance

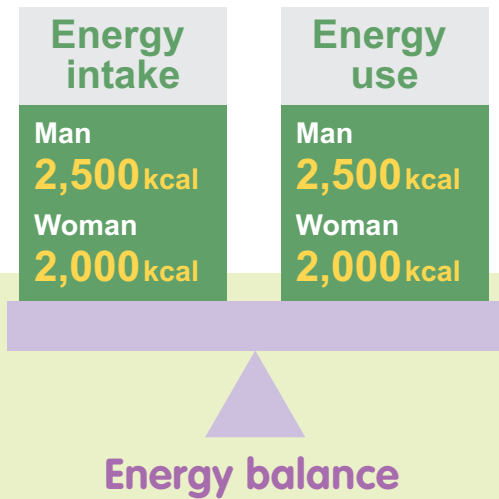
Obesity develops when energy intake from food and drink consumption is greater than energy expenditure through the body's metabolism and physical activity over a period of time.

There are, however, many complex behavioural and societal factors that combine to contribute to the causes of obesity.

The Foresight Report¹ suggested the wide range of factors that contribute towards obesity. These can be loosely grouped into seven main categories. Apart from the individual's own biological make up, all factors have the potential for change. This is where the opportunity to make a difference in County Durham lies.

Foresight developed the concept that it was not as simple as the energy taken in and the energy expended. The world we live in greatly impacts the choices we have in both those areas. Access to shops, the volume of unhealthy food available, access to green space are all factors which impact upon obesity and over which the individual has little control. A review by the Department of Health's Expert Advisory Group on Obesity in 2011, concluded that the new evidence generally confirmed the analysis of the causes of obesity in the Foresight Report and that it remains a robust foundation for future action³⁰.





Yet, even where access to shops etc is excellent, there are a number of other factors that impact our choices. These include the cultural norms in relation to obesity, the promotion and advertising of unhealthy products, the rise of convenience food and even stress. Only when looking across all of the possible factors does the scale and complexity of the issue and challenge become clear.

Biology

Obesity can be a consequence of a biological system that battles to maintain energy balance to keep the body at a constant weight. Food is fundamental and the human body has evolved to make sure that its needs are met. The hunger drive is very powerful but by contrast, there is limited biological sensitivity to abundance. The feelings of having had enough are weak and easily overridden³¹.

Whilst there is a well-established body of evidence highlighting the importance of controlling energy intake to avoid weight gain, research into the metabolic aspects of energy expenditure in humans has shown little to explain the impairment of the regulatory mechanism that governs energy balance³².

Whilst human biology plays a very important and complex role in obesity, it is not something that is easily modifiable. The remaining focus of this report is the 'outside' world, much of which, we can attempt to influence and change.

Spotlight on: Activity environment

Aspects of the environment found to be associated with physical activity include:

- access to physical activity facilities
- distance to destinations
- levels of residential density
- type of land use
- urban walkability
- perceived safety
- availability of exercise equipment

One important action is to modify the environment so that it does not promote sedentary behaviour. The aim is to enable people to make the healthy choice the easy choice. By creating an environment where people actively choose to walk and cycle as part of everyday life a significant impact can be made at an individual and population level³³.

The role of planners is crucial in ensuring that new developments create opportunities that encourage active rather than sedentary behaviour.

Durham County Council has recently started a programme to develop part time 20mph speed limits in areas of County Durham. The purpose of this scheme is to reduce traffic speeds around schools during drop off and pick up times. This will improve road safety for vulnerable road users as well as making walking, cycling and outdoor play more attractive. In conjunction with the school based road safety programme, children will have increased knowledge and skills to enable them to be safer pedestrians and cyclists.



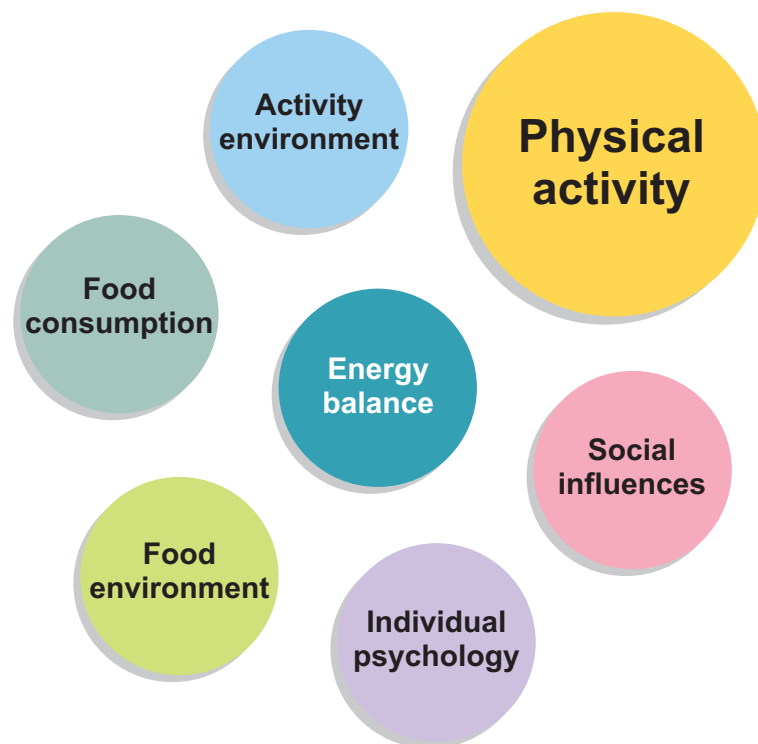
A physically active environment includes aspects that may help or block access to physical activity such as the cost, safety in the surrounding environment, ease of walking etc. It also includes areas that reflect cultural values associated with activity patterns, such as the dominance of the car.

Spotlight on: Physical activity

The physical activity cluster consists of variables such as an individual's level of recreational, domestic, occupational and transport activity and parental modelling of activity. The higher the level of fitness, the easier it is to engage in physical activity and conversely, for someone who is physically unfit, physical activity is difficult.

Physical activity is a key determinant of energy expenditure and a fundamental part of energy balance and weight control. Regular physical activity can reduce the risk of obesity, as well as many chronic conditions including coronary heart disease, stroke, type 2 diabetes, cancer, mental health problems and musculoskeletal conditions.

Physical activity includes all forms of activity, such as walking or cycling for everyday journeys, active play, work-related activity, active recreation (such as working out in a gym), dancing, swimming, housework, gardening or playing games as well as competitive and non-competitive sport. The evidence is very clear that it can also reduce costs by significantly easing the burden of chronic disease on the health and social care system. Even relatively small increases in physical activity are associated with some protection against chronic diseases and an improved quality of life.



The Health Survey for England 2012 showed that **67% of men and 55% of women meet new government recommendations for levels of physical activity** (minimum of 150 minutes of moderate intensity per week in bouts of at least ten minutes)²⁷.

Nationally **more boys (21%) than girls (16%) aged 5-15 years met the national physical activity target in 2012**, achieving an hour of moderate activity every day²⁸.

In County Durham the recent Student Voice Survey for Secondary Schools (2015) showed that **30% of students sampled (N = 8,148) stated that they were physically active for 60 mins, every day in the last week, with only 7% stating that this never occurred**.

The Government recommends that adults spend minimal time being sedentary for long periods. The Health Survey for England (2012) showed that on weekdays **31% of men and 29% of women spend six hours or more being sedentary, increasing to 40% of men and 35% of women on weekend days**²⁷.

Whilst physical activity is clearly an important factor in our plans to tackle obesity, its benefits to an individual's health are such that it warrants a focus in its own right. The County Durham Physical Activity Framework is a collective strategic approach to this agenda which aims to make a significant impact on the quality of life in County Durham. However for the purpose of this report, the focus remains primarily around energy intake. Readers interested in the physical activity framework can access it on the council website.

Physical activity benefits for adults and older adults

- ✓ Benefits health
- ✓ Improves sleep
- ✓ Maintains healthy weight
- ✓ Manages stress
- ✓ Improves quality of life

Reduces your chance of:

- Type 2 diabetes **-40%**
- Cardiovascular disease **-35%**
- Falls, depression and dementia **-30%**
- Joint and back pain **-25%**
- Cancers (colon and breast) **-20%**
















What should you do?

For a healthy heart and mind

To keep your muscles, bones and joints strong

To reduce your chance of falls

Be active
Sit less
Build strength
Improve balance

<p>VIGOROUS</p>  <p>RUN</p>  <p>SPORT</p>  <p>STAIRS</p>	<p>MODERATE</p>  <p>WALK</p>  <p>CYCLE</p>  <p>SWIM</p>	 <p>TV</p>  <p>SOFA</p>  <p>COMPUTER</p>	 <p>GYM</p>  <p>YOGA</p>  <p>CARRY BAGS</p>	 <p>DANCE</p>  <p>TAI CHI</p>  <p>BOWLS</p>	
<p>MINUTES PER WEEK</p> <p style="font-size: 2em;">75 OR 150</p> <p>VIGOROUS INTENSITY (breathing fast, difficulty talking)</p> <p>MODERATE INTENSITY (increased breathing, able to talk)</p> <p>OR</p> <p>A COMBINATION OF BOTH</p>		<p>Break up sitting time</p>		<p>2 days per week</p>	
<p>Something is better than nothing.</p> <p>Start small and build up gradually: just 10 minutes at a time provides benefit.</p> <p>MAKE A START TODAY: it's never too late!</p>					

Source: UK Chief Medical Officers' Guidelines 2011 Start Active, Stay Active: <http://bit.ly/startactive>

Spotlight on: Individual psychology

Food intake

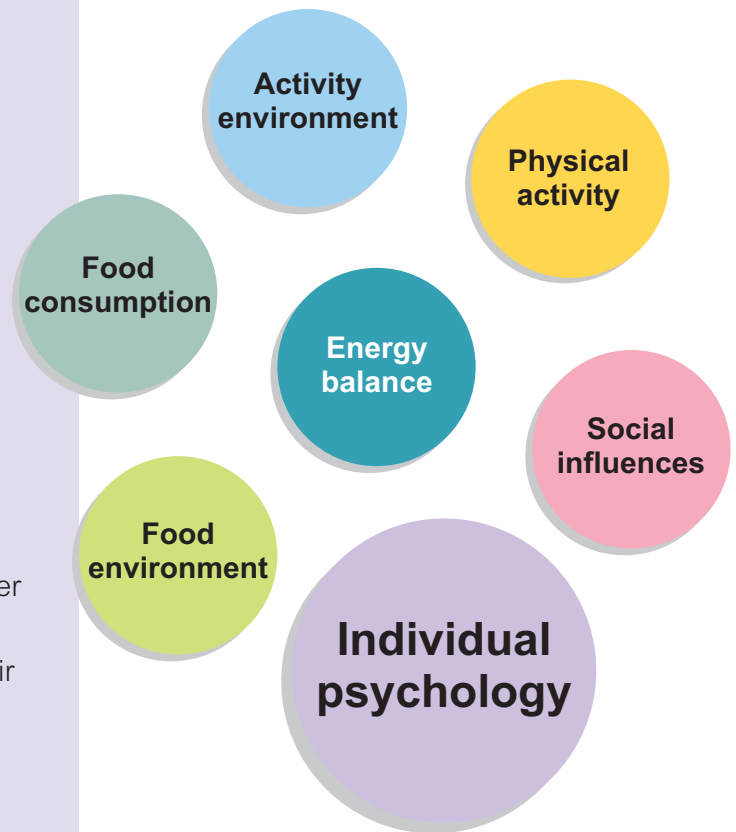
Research suggests the majority of adults and children have an understanding of what constitutes a healthy diet³⁴. Eating lots of fruit and vegetables is the most frequently cited component whilst the reduction of sugar and fat also figures highly. The majority of adults consider healthy eating to be important and would like to improve their own eating habits and those of their children.

Yet the majority of adults do not eat the recommended minimum of five portions of fruit and vegetables per day and neither do the majority of children. Across all age and income groups, both men and women consume less than the recommended daily amount of fibre.

As the majority of people know what they should be eating for a healthy diet then we need to understand what factors are making it difficult to achieve this goal.

Stress

Long-term stress from a range of pressures, can affect eating behaviour in different ways. It is estimated that around 30% of people eat less than normal when stressed, but most individuals will eat more³⁵.



Individual psychology describes a number of psychological attributes from stress to the demand for indulgence. It also covers aspects such as the level of children's control over their diet.

Food labelling

Nutrition literacy is the term used to describe people's understanding of food, especially the complexity of food labelling. Whilst the 'traffic light system' is now present on a great deal of food packaging, this is not universal on all foods and may not be far reaching enough.

If individuals are to make informed choices about what they eat then any mechanism to make this as easy and accessible as possible should be promoted and welcomed. The traffic light system for food labelling is one example which could be rolled out to simplify choice for people.

Resilience

The choices we make are influenced – perhaps more than we realise – by the day-to-day pressures we face, the behaviour of those around us, the sort of neighbourhood we live in and the prevailing culture relating to food and physical activity. This unfortunately favours overconsumption and inactivity. Going against the ‘norm’ can be challenging for most people.

The County Durham school nursing service will deliver health improvement interventions as part of a schools planned and progressive curriculum. Resilience building work will support life skills including decision making, managing peer pressure and risk taking behaviours. The County Durham resilience programme is working with schools across the county to enable them to support and develop resilient children and young people.

Targeted weight management programmes

The Family Initiative Supporting Children’s Health (FISCH) programme provided by Durham County Council, Leisureworks and County Durham and Darlington Foundation Trust is a weight management programme delivered mainly to primary school aged children, targeted at those with a BMI at or above the 91st centile.

The programme consists of a 10 week school based group intervention during curriculum time and pre/after school club sessions. In addition one to one family interventions for children with BMI at 95th centile or above are delivered. The programme aims to maintain the weight (body mass)/BMI of participants and promote behavioural change. (See description of BMI and centiles on page 6.)

A recent evaluation assessed the effectiveness of the programme and the impact on BMI trends.

It was found that,

- the school based intervention led to a reduction in both excess weight and obesity prevalence over a 12 month period. One case study school also showed a sustained reduction at 18 months;
- There was a 6% and 4% decline in prevalence of excess weight and obesity respectively across the participants included in the evaluation;
- A 40% increase in knowledge for proposed behavioural changes was achieved at 12 months; and
- The family intervention achieved a sustained reduction or stabilisation of BMI in over 90% of participants at 12 months.

The programme was effective in reducing excess weight and obesity prevalence among participants.

- We continue to strengthen and explore further partnership working with other agencies in order to increase coverage of this programme.
- The programme is being expanded to include five health trainers. This approach acknowledges the social complexity of obesity and the reality of the challenges facing families in County Durham. The health trainers will work closely with the whole family to help them achieve a healthy weight. This will be monitored after 12 months to establish the effectiveness of this approach.

Making Every Contact Count (MECC)

There are thousands of opportunities every day for frontline staff across a range of partner organisations to help tackle obesity and reduce health inequalities. Every contact with a resident should be seen as an opportunity to encourage healthier lifestyle choices.

MECC encourages conversations based on behaviour change approaches, empowering healthier lifestyle choices and exploring the wider social determinants that influence our health.

To make every contact count organisations should:

- Build a culture and operating environment that supports continuous health improvement around obesity through the contacts it has with individuals³⁶. Insight from MECC initiatives across the country have shown that service users expect to be asked about their health³⁷.
- Create the culture in which MECC operates through vision and mission statements and through strong leadership.
- Offer staff a suitable environment and the skills and knowledge to deliver MECC.

The whole system should align itself towards the prevention of obesity. Providers of care should build the prevention of obesity and promotion of healthy living into their day-to-day business. Service commissioners could require providers to do this through contracts, payment, incentives and pathway design, and the priorities set for commissioners should reflect this responsibility³⁸.

The wellbeing for life service uses a 'strengths based' approach that acknowledges and builds upon the strengths, skills and capacities of people to live healthy lives alongside the assets within their local community. Part of the local approach is the delivery of MECC training to members of the community and front line partners, to help develop the skills needed for this approach.



Obesity has much in common with many of other public health challenges.

Wellbeing approaches

Obesity has much in common with many of other public health challenges. Many of the wider determinants of health that impact upon obesity, such as educational attainment and income, are the same for other areas of poor health. The social, infrastructural and environmental factors that impact on obesity are the same for many other public health issues. Current programmes in County Durham are taking a collective approach to tackling obesity, mindful that the evidence demonstrates a many pronged approach will have the greatest impact.

We know that people's lifestyles and the conditions in which they live and work act together to influence their health and wellbeing. Poor socio-economic circumstances can affect health and wellbeing throughout life, resulting in persistent and pervasive health inequalities. Behaviour change policy and practice must be addressed in a more integrated and holistic manner to have the greatest impact.

The evidence indicates that 70% of adults currently engage in two or more of the main unhealthy behaviours, and the situation is even more pronounced for those in lower socio-economic groups³⁹.

A holistic wellbeing approach provides support to people to live well by addressing the factors that influence their health. It also builds their capacity to be independent, resilient and maintain good health for themselves and those around them⁴⁰.

Many existing solutions focus on single issues, e.g., weight management, food and health etc. The wellbeing approach goes beyond looking at single-issue healthy lifestyle services and instead aims to take a whole-person and community approach to improving health⁴¹.

What is a wellbeing service?

Wellbeing services provide support to people in order to improve their health and wellbeing. There are different national models for wellbeing services, however, they all share common features:

- ◆ Promote positive health that can empower individuals, enabling them to maintain and improve their own health and wellbeing.
- Where necessary services and programmes facilitate lifestyle adjustments e.g., healthy eating.
- The focus is on promoting quality of life not just length of life.
- Rather than considering just the specific issue, the service considers the whole person and issues impacted by the wider determinants of health such as lifestyle, social environment and living conditions as these may be preventing them from reaching their optimum health. If poverty is the fundamental issue, then the wellbeing for life service will provide meaningful guidance into the appropriate services.
- ◆ Wellbeing services take into consideration inequalities in health and actively seek out those individuals who do not usually benefit from mainstream health services.



County Durham's Wellbeing for Life Service

The Wellbeing for Life service adheres to the principles of a general wellbeing model as described above. More information about the Wellbeing for Life service in County Durham can be found at www.wellbeingforlife.net or contact 0800 8766887.

Spotlight on: Social influences

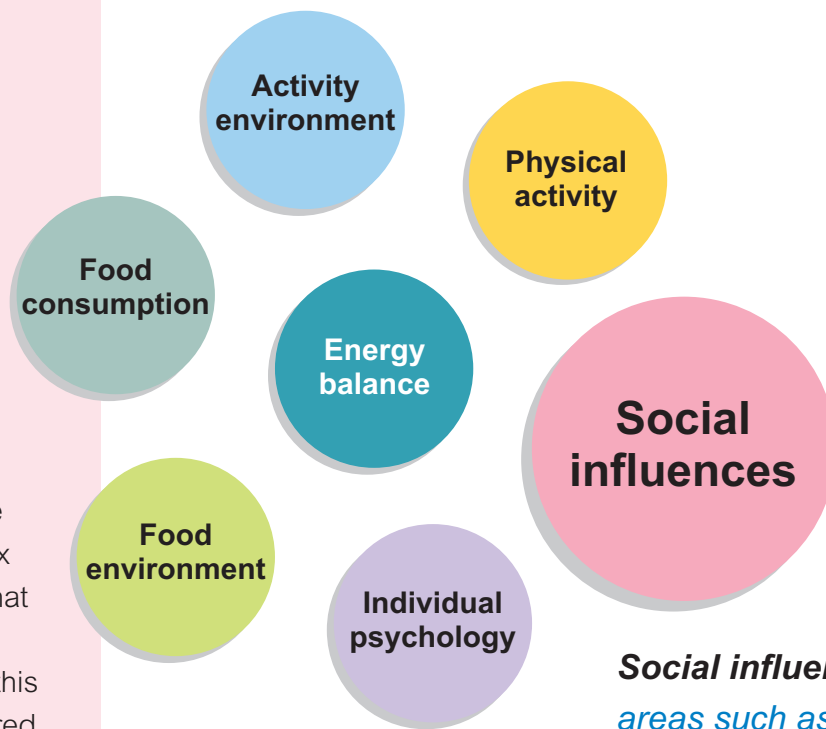
Who is obese?

Nationally most adults (around 65%) are overweight or obese⁵. It's not surprising that the average body mass index in the UK is now above that considered to be in the healthy range. Arguably this shift in the norm has altered people's perception of obesity. Innovative work by Newcastle University seeks to explore this issue and create approaches which can help parents to identify overweight and obesity outside of any specific measurement programme.

Food and culture

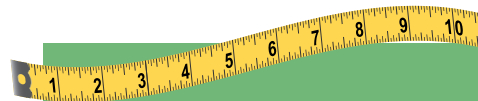
Food is an enjoyable part of life and plays an important part in many cultural celebrations from birthdays through to Christmas. However, many of these important occasions are becoming heavily linked with the consumption of unhealthy foodstuffs and alcohol, in ways no longer associated with the occasion itself.

Further information on the impact of alcohol on weight, is found on page 37.



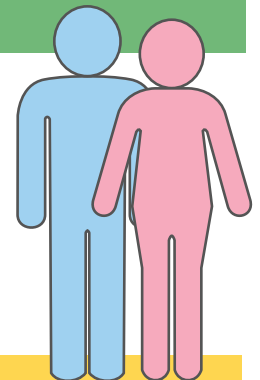
Social influences cover areas such as education and the impact of the media. It also includes societal attitudes to overweight such as its acceptance or not.

We may not see ourselves or our children as obese...



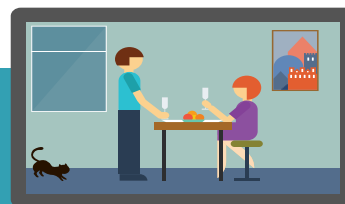
Adults tend to underestimate their own weight

Half of parents do not recognise their children are overweight or obese



If we do not recognise obesity we are less likely to prioritise tackling it

The media tend to use images of extreme obesity to illustrate articles about obesity



GPs may underestimate their patients' BMI



MapMe body image scales

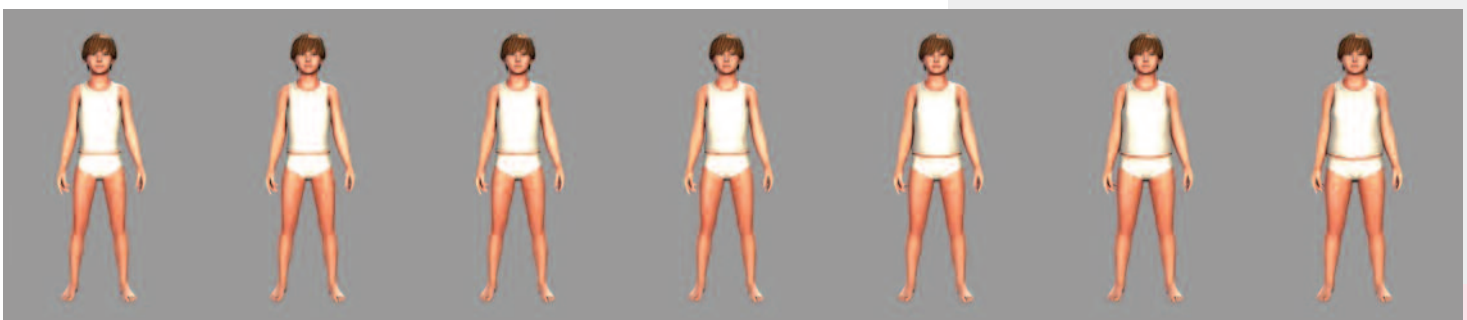


Guest contribution from Professor Ashley Adamson and team at the Institute of Health & Society Newcastle University

Childhood obesity is an important public health problem worldwide and identifying effective preventive strategies remains a priority. Parents are central to the development of their child's health-related behaviours and play a key role in both the development and implementation of prevention strategies. However, many studies show that many of us do not recognise when a child is overweight compared with guidance on healthy body weights for children. For example, previous work in the North East showed that over two thirds of parents of overweight children described their child as being of 'normal weight' at seven years. In common with most people parents tend to use how their children look compared with others who may be more overweight, to identify their weight status. So this means that in the context of a high prevalence of childhood overweight, many of us rely on extreme cases as a reference point for our understanding of what 'overweight' means.

Addressing the difference between parents' perceptions and actual child weight status is important. If parents do not perceive their child as overweight they are unlikely to make appropriate changes to their child's lifestyle. However there is evidence that parents are more likely to make such changes if they perceive their child's weight as being a health problem. So increasing parents' knowledge of what an overweight child does look like, plus increasing their knowledge about the health consequences of childhood overweight is a strategy worth exploring.

Body image scales are visual images of body shapes ranging from underweight to obese (very overweight). These were developed using portable 3D body scanning technology to obtain body scans from 800 children (boys and girls aged 4-5 and 10-11 years). Parents and health professionals throughout the North East were consulted extensively and helped to develop the body image scales as a method to improve parents' ability to recognise overweight in children and to develop supporting information to increase parental knowledge of the consequences of childhood overweight. The results are being tested in a large trial with almost 3,000 families.



A study at Newcastle University funded by the Medical Research Council (MRC) - National Prevention Research Initiative has developed and tested visual tools (body image scales) designed to improve parents' ability to correctly assess their child's weight status as well to improve knowledge of the health consequences of childhood overweight.

Next steps

During 2016/2017 public health will be working with Newcastle University, wider health partners and Durham County Council's One Point Service to implement the 'body scans' project, to try and alter perceptions of excess weight and impact upon the prevalence of obesity of reception age children.



Change4Life is a national initiative that brings together a range of stakeholders

Change4Life

Change4Life is a national initiative that brings together a range of stakeholders with the shared aims to improve diets and levels of activity so reducing the threat to the individual's future health and wellbeing. The promotion of 'unhealthy' behaviour and foodstuffs is commonplace and it is important to have a recognisable brand to help our communities make healthier choices.

The goal of Change4Life is to help every family eat well, move more and live longer.

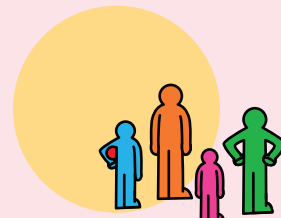
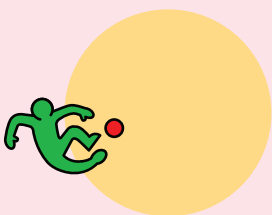
Change4Life seeks to change behaviour by providing support for families and individuals to make small but significant changes to their diets, activity levels and alcohol consumption.

In County Durham, Change4Life has expanded beyond the confines of traditional marketing, to be the public face of positive intervention around obesity. There are Change4Life branded cooking courses, sports clubs in schools, fun runs and events.

It has even been adopted by the local health check programme, Check4Life, which can help people make changes to their behaviour through one recognisable, consistently branded programme.

The Healthy Weight Strategic Framework for County Durham acknowledges the importance and power of Change4Life and recommends its adoption for all healthy weight initiatives across the county. National activity provides a significant platform for local initiatives to utilise as well as the free national programme that is full of useful tips and tools for our residents.

Too often campaigns used by the health community compete with each other for attention and recognition. In an often cluttered health environment, the collective use across County Durham of Change4Life, which is a recognised and trusted brand, could help to make the healthy choice easier for our communities.



Spotlight on:

Food consumption

Food consumption

Surveys show that nationally, the majority of children do not eat the recommended minimum of five portions of a variety of fruit and vegetables per day²⁵. For children aged 11-18 years only 10.1% of boys and 7.5% of girls actually eat five portions daily.

Children aged 11-18 years consume an average of 2.9 portions of fruit and vegetables per day which is significantly lower than the recommended minimum of five portions.

For children aged 5-15 years, those aged 11-12 years consume the smallest number of portions of fruit and vegetables per day, 2.3 portions for boys and 2.8 portions for girls.

Children living in households with the highest incomes eat the most fruit and vegetables per day, 3.9 portions for girls and 3.5 portions for boys.

Food consumption

Activity environment

Physical activity

Energy balance

Social influences

Food environment

Individual psychology

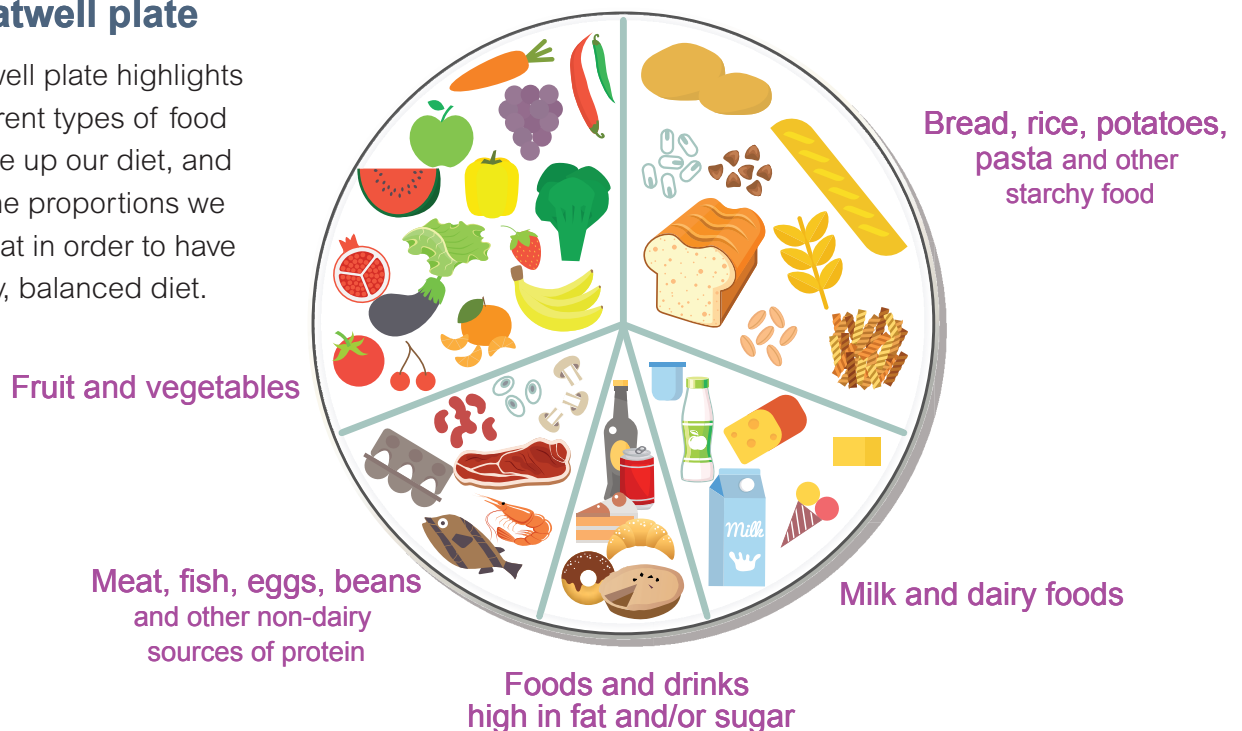
Food consumption includes many characteristics of the food market and of food products, such as the nutritional quality of food and drink, the energy density of food, and portion size.

Food intake

The eatwell plate

The eatwell plate highlights the different types of food that make up our diet, and shows the proportions we should eat in order to have a healthy, balanced diet.

Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



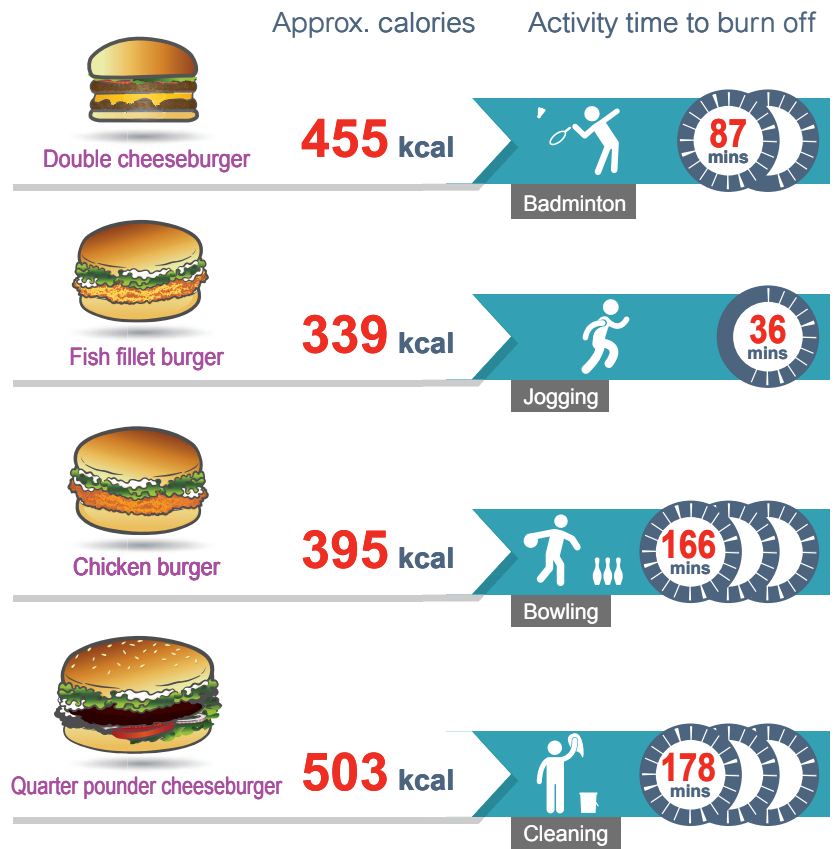
Energy dense foods

The energy density of food and drink (the amount of energy per unit weight of food or beverage) has been identified as an important factor in weight control in both adults and children. **Foods high in fat tend to be energy dense** as dietary fat provides the greatest amount of energy per gram, whereas foods that contain a lot of water or are high in fibre tend to be less energy dense.

People with access to less energy dense foods have been shown to consume less energy overall (making it easier to maintain a healthy weight) and conversely evidence suggests that consumption of energy dense foods can lead to people eating food containing more energy than they need, before feeling full^{42,43}. Indeed a recent review concluded that for adults “consuming a diet higher in energy density is associated with increased body weight, whereas consuming a diet that is relatively low in energy density improves weight loss and weight maintenance”⁴².

There is also a relationship between the energy density of foods and cost, such that cheaper foods tend to be more energy dense^{44,45}. Therefore attempts to eat a healthy diet based on lean meat, fish, fresh fruit and vegetables may represent an increased cost. Obesity itself has been shown to be socio-economically patterned with those from more deprived backgrounds being most at risk^{24,25}.

Energy dense foods



This observation may be at least in part due to efforts to manage food budgets^{46,47}.

Taste, often a consequence of added fats and sugars and convenience, may also predispose people towards food choices which include processed and pre-packaged foods⁴⁸. However, when the economic picture is also considered it is possible to see how wider factors create the conditions that make it difficult not to over consume, leading to excess weight. This is often called the obesogenic environment.

Sugar

The recent report *Sugar Reduction: The evidence for action*⁴⁹ highlighted that consuming too much sugar in food and drinks can lead to weight gain and its related health problems.

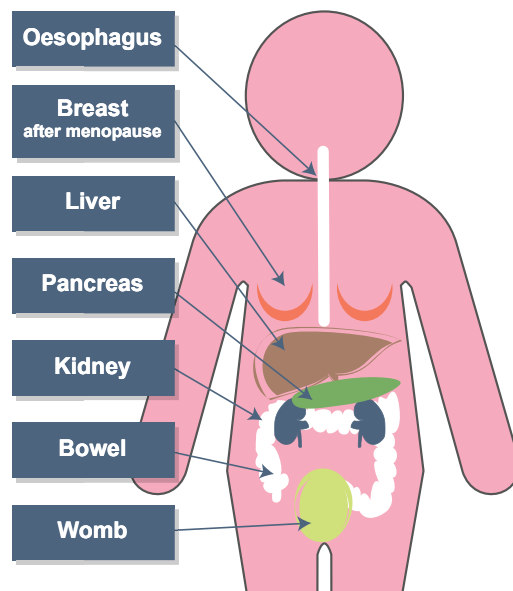
A high sugar diet can lead to weight gain

A high sugar diet can lead to weight gain, which increases the risk of cancer

Overweight and obesity can cause 10 types of cancer

1 IN 20
UK cancers are linked to weight

Being overweight may also cause gallbladder, aggressive prostate and ovarian cancer



Source: After Cancer Research UK

Key Facts on Sugar from Scientific Advisory Committee on Nutrition (SACN)⁵⁰

SACN has recommended that:

the average population maximum intake of sugar should be halved:

it should not exceed 5% of total dietary energy.

The emerging breakfast drinks market, often labelled as convenience, contains products which contain as much as 25g of sugar per serving (6 teaspoons).

Currently sugar intakes for all population groups are above the recommended levels, contributing between 12 to 15% of total energy intake.

This is the first time Scientific Advisory Committee on Nutrition (SACN) has made a recommendation to minimise consumption of a specific food and its significance and importance must not be underestimated.




Consumption of sugar and sugar sweetened drinks in school age children is particularly high.

Sugar consumption also tends to be highest among our most disadvantaged communities who also experience higher prevalence of obesity and its health consequences.

A systematic review of the association between body weight and the intake of sugar-containing foods and beverages, commissioned by the World Health Organisation found that reducing sugar intake in adults without imposing any other food restriction led to a decrease in body weight⁵¹.

what's the maximum amount of sugar we can have?

A typical 8 year old shouldn't have more than 6 cubes of added sugar* per day ⁵²

Age	Recommended maximum added sugar intake	Sugar cubes [†]
4-6yrs	no more than 19g per day	5 cubes 
7-10yrs	no more than 24g per day	6 cubes 
From 11yrs	no more than 30g per day	7 cubes 

The number of sugar cubes featured is based on total sugar in grams per portion/100g/pack divided by 4 grams (the weight of one 4g sugar cube). Images are a representation only.

Sugar intake

Nationally representative data on the carbohydrate intakes of the UK population drawn from the National Diet and Nutrition Survey (NDNS)²⁶ rolling programme highlights the sources of sugar as below:

Adults 19-64 years

Table sugar, biscuits, buns, cakes, pastries and puddings and soft drinks are the main sources of sugar.

Age 11-18 years

Soft drinks (excluding fruit juice) are the largest single source of sugar and on average those who consume them drink around 336ml per day. This is roughly equivalent to one can of a sugary drink daily.

On average soft drinks provide 29% of daily sugar intake for this age group. Table sugar and confectionery at 21% and fruit juice at 10% are also large contributors to the sugar intake of 11 to 18 year olds.

Age 4-10 years

For younger children soft drinks, biscuits, buns, cakes, pastries and puddings, breakfast cereals, confectionery and fruit juice are the major sources.

Whilst it is not news that too much sugar is bad for us, the amount of it we eat, the impact on our health and the number of factors sustaining our consumption are certainly worth exploring. Sugar features in so much of what we eat and clearly is enjoyable but the newest evidence is very clear – we must reduce our intake quite drastically.

Public Health England state in very stark terms that “this is too serious a problem to be solved by relying only on individuals to change their behaviour in response to health education or to rely simply on food labelling. No single action will be effective in reducing sugar intakes”⁴⁹.

A broad programme of measures to affect the areas that influence our sugar consumption, reduce the sugar content of our food and drinks as well supporting people to make healthier choices would have significant impact across population health.

Whilst some of the report's recommendations might require Government interventions, many can be tackled in our communities through working together. We can bring about local change to reduce our unhealthy consumption of sugar.

Sugar swaps

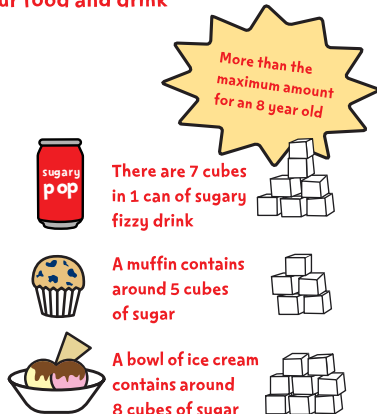
Change4Life have recently created a sugar swap app available for smartphones. This app allows the user to scan the bar code on a food product and the app will display the number of cubes of sugar within the food or drink. It's a quick, easy and fun way to keep a check on sugar intake. Visit www.nhs.uk/change4life/Pages/change-for-life

The sugar reduction challenge

What could be tackled at a local level in County Durham	What might require national action (which we could support)
Look at choices such as 'kids meals' in local retail venues i.e. providing water with a meal instead of a sugary drink. Work with retailers to bring about changes.	Tighter regulations and controls on catering provision.
Look at what is promoted in venues such as leisure centres and canteens i.e. branded fridges in retail environments with high fat and sugar snacks and drinks. Work with providers on healthy options.	Significantly reduce opportunities to market and advertise high sugar food and drink products to children and adults across all media including digital platforms and through sponsorship.
Adopt agreed standards for a range of food and drink related issues where these are available.	Legislation.
Look at any environment where food is sold i.e. staff canteens, visitor and tourist sites, cafes etc. and explore increasing healthy options with providers.	Nationally introduce a broad, structured and transparently monitored programme of gradual sugar reduction in everyday food and drink products, combined with reductions in portion size.
Support the call for a tax on sugar. Explore with local caterers and providers of food a local initiative to charge more for high sugar products with the increased margin being collected for charity.	Introduction of a price increase of a minimum of 10-20% on high sugar products through the use of a tax or levy such as on full sugar soft drinks, based on the emerging evidence of the impact of such measures in other countries.
Adopt, implement and monitor the government buying standards for food and catering services (GBSF) across the public sector, including national and local government and the NHS to ensure provision and sale of healthier food and drinks in hospitals, leisure centres, public sector environments and commissioned services.	
Ensure that accredited training in diet and health is routinely delivered to all of those who have opportunities to influence food choices in the catering, fitness and leisure sectors and others within local authorities.	
Continue to raise awareness of concerns around sugar levels in the diet to the public as well as health professionals, employers, the food industry etc. Encourage action to reduce intake and provide practical steps to help people lower their own and their family's sugar intake.	

watch the sugar

You might be surprised to see how much sugar is in your food and drink*



*Based on Kantar data 2014

Energy drinks

Energy drinks are non-alcoholic beverages promoted as a way to improve performance and relieve fatigue. They can contain high levels of caffeine and sugar as well as other ingredients with stimulant properties, such as guarana, taurine or herbal substances⁵³.

Due to the increasing popularity and their high caffeine and sugar content, consumption of energy drinks by children and young people is a growing concern for many. There are no clear recommendations for caffeine intake, although the Food Standards Agency recommends that it should only be consumed by children in 'moderation'. Anecdotal evidence suggests that young people who regularly consume energy drinks can become dependent on them and even moderate consumption may be detrimental^{54,55,56}. Caffeine when consumed in larger doses, can cause anxiety, agitation, sleeplessness, gastrointestinal problems and arrhythmias⁵⁷.

Almost 29% of 11-18 year olds' sugar intake is through sugar sweetened beverages and is three times higher than is recommended.

The reduction of these alone could lead to a decrease in sugar consumption for our next generation.

Much work has taken place to reduce sugary drinks in our schools across County Durham, with many schools prohibiting them on their premises. The journey to school and what a child eats before their first lesson is being explored elsewhere in the country.

Energy drinks are frequently high in sugar and there are health implications associated with excessive sugar intake, such as dental erosion, obesity and type 2 diabetes.

The HYPER! study found that young people in County Durham consume energy drinks before, during or after school and discussions with young people, parents and teachers imply that consumption is widespread⁵⁸.

There have been calls to restrict the sale of energy drinks to under-18s in recognition that childhood is a period of rapid growth and the final stages of brain development, when sleep and good nutrition are especially important⁵⁶.

It is likely that many people are simply unaware of the possible negative effects of energy drink consumption.

Raising awareness of these issues should help but elsewhere in the UK, organisations have begun to explore how they can tackle the availability of energy drinks.

The RRED (Responsible Retail of Energy Drinks) campaign in Edinburgh has successfully encouraged a number of local retailers to sign up to a voluntary code of practice restricting sales of energy drinks to children⁵⁹.

Alcohol and calories



Source: After www.12wbt.com

'Empty calories' in alcohol

On average, alcohol makes up 10% of the calorie intake among adults who drink. Drinking alcohol regularly can form a significant part of daily calorie consumption⁶⁰.

According to Alcohol Concern, there is a lack of public awareness about the calorific content of alcoholic drinks and about how alcohol intake should be managed in order to maintain a healthy weight.

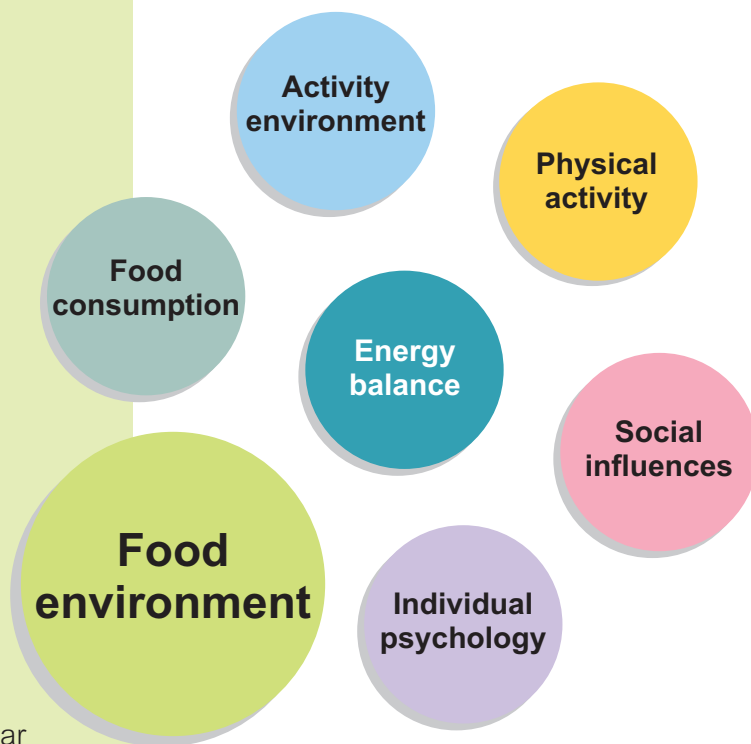
Alcoholic drinks lack most essential nutrients and vitamins, so if alcohol is providing many or most of the calories in the diet then there is a risk of nutritional deficiencies. Saving calories from food for alcohol i.e. drinking alcohol rather than eating to prevent putting on weight – sometimes termed 'drunkorexia' – should clearly be avoided.

Many people forget to include alcoholic drinks when watching what they eat. It's easy for calories from alcohol to add up quickly and be unnoticed as they are being consumed as a liquid. To achieve and maintain a healthy weight it is far better to moderate alcohol intake.

Alcoholic drinks are made by fermenting and distilling natural starch and sugar. Calories from alcohol are 'empty calories', they have no nutritional value. Drinking alcohol also reduces the amount of fat the body burns for energy⁶¹. Whilst the body can store nutrients such as protein, carbohydrates and fat it cannot store alcohol. The body system needs to process the alcohol and doing so takes priority. Other processes that should be taking place including burning fat, are halted whilst the liver is processing alcohol.

Recent evidence of a strong link between obesity and liver cirrhosis in people with excess weight demonstrates the compounding effects of both obesity and alcohol, highlighting the need to look at the complexity of issues that impact upon levels of obesity⁶².

Spotlight on: Food environment



Takeaways

Reducing salt and saturated fat intakes for the population could reduce morbidity and mortality rates from cardiovascular disease. Sections of the population who regularly eat fast-food may be consuming substantially higher amounts of trans fats, industrially-produced trans fatty acids. Analysis by Public Health England shows a strong association between deprivation and the density of fast food outlets, with more deprived areas having a higher proportion of fast food outlets per head of population than others⁶³.

Durham County Council has powers to prevent new fast-food outlets being provided and street trading consents close to schools and other children's educational facilities.

Portion size

Research into portion sizes by the British Heart Foundation has suggested that when people are presented with more food, they eat more. Larger portion sizes tend to increase the total amount of food eaten over the day as people do not compensate by eating smaller portions at other times⁶⁴.

Food environment includes the food industry and the pressure for profitability and the cost of ingredients. It also includes aspects reflecting the wider social and economic situation in the UK, such as purchasing power and societal pressure to consume.

Whilst the British Heart Foundation is seeking national action, there exists the opportunity to make changes at a local level. Local workplaces that serve food can contribute by controlling portion sizes and providing relevant information to allow employees to understand their intake during meal and snack times.

Purchasing power

Research by Cambridge University showed that since 2002, healthier foods and beverages have consistently been more expensive than less healthy ones. In 2012, healthy foods were three times more expensive per calorie than less healthy ones. This trend is likely to make healthier diets less affordable over time, which may have implications for population health and social inequalities in health⁶⁵.

School Food Plan

The School Food Plan has the support of the Secretary of State for Education and of diverse organisations supporting head teachers to improve food in their schools. As part of the School Food Plan, a new set of standards for all food served in schools was launched by the Department for Education. These standards became mandatory in all maintained schools, new academies and free schools from January 2015.

Welcomed by the Save Our Standards Campaign, the new standards are designed to make it easier for school cooks to create imaginative, flexible and nutritious meals. Many schools in England have already started using the new standards and are really enthused by the possibilities. In some areas, improvements have been dramatic leading to more nutritious meals for children and young people.

Durham County Council is supporting schools in the education system locally to adopt the school food plan. For further information contact publichealth@durham.gov.uk

School growing clubs

County Durham has 44 school growing clubs that incorporate learning with the provision and consumption of healthier foods. The Growing Healthy Project works with a number of schools to use spare space to grow fruit, vegetables and herbs.

Children are also involved in creating recipes to try at home with the produce they have grown. This encourages their family to share in the healthy meal and potentially expand diet choices. Cooking on a budget can be challenging and may prevent parents from experimenting with new foods as they do not want any waste when money is tight.

School growing clubs can help to introduce children to healthier foods in an interactive and enjoyable way and 10 more clubs are planned for 2016/2017.

FACT:

Currently County Durham has a school meals uptake rate of approximately **64%** across primary schools.

84% of key stage one children access the free school meals offer.

The school food environment alone may not change the lunchtime culture. The support of local parents to ensure the success of this plan is essential if it is to have a lasting impact on the health of our children.

Sustainable food

Food Durham is the name for the County Durham Food Partnership that was launched in May 2014 and brought together organisations, individuals and groups involved or interested in sustainable food. The strategy has six main themes; supporting the local economy, environmental sustainability, health and wellbeing, resilient and active communities, education and skills and food fairness.

Two areas have been prioritised - research into how to make the local food supply chain more efficient and increasing opportunities for people to grow their own food. The former is a study to explore the efficiency of the local food supply chain for business to business trade. Achieving this will provide a more secure route to market for growers and producers wanting to sell for local consumption, give confidence of growth for new food producers and make it easier for local businesses to source locally produced food.

Growing Durham aims to support more people to grow food in their local community and it covers a range of options including people getting together to plant fruit trees on public land where anyone can pick them to starting a social enterprise.

**Growing Durham
aims to support
more people to
grow food in their
local community...**

The following are examples of local partners who are influencing the food environment.

Case study: **Durham University food procurement**

Durham University have implemented a procurement strategy to ensure a sustainable source from local growers for fruit and vegetables. The university catering team worked with key local providers to identify a group of local growers of seasonal produce that were sourced within 25 miles of the university.

One provider has now become a hub for local producers identified by the university to supply bread, milk, yoghurt and free range eggs. The university now sources milk and yoghurt from locally based businesses.

There are many challenges to eating healthily and helping to ensure the sustainability of local producers can bring locally sourced food closer to our communities. If people are to eat healthier food such as fruit and vegetables then clearly they need to be able to access it. This is just one of many approaches to help achieve that.

Case study: **Durham County Council Sustainable Buying Standard**

As part of Durham County Council's commitment to delivering its services in a sustainable manner, a sustainable buying standard for food contracts, for both direct food supplies and catering purposes was agreed in May 2015. The standard provides the council with an opportunity to build into its vending machine re-procurement exercise, tighter nutritional standards for both hot and cold drinks.

Case study: **Durham County Council restriction of fast food takeaways**

In England, there is considerable access to cheap, palatable, energy-dense food that may lack nutritional value. Evidence from high-income countries has shown that the level of fast food consumption is an independent predictor of obesity.

Food from takeaway outlets is often high in salt, fat and sugar making it difficult to make a healthy choice. Around 40% of the calories in meals and snacks eaten outside the home tend to come from fat. A health needs assessment undertaken in County Durham revealed a greater concentration of fast food takeaways in our more deprived neighbourhoods. Restricting the siting of new takeaways proposed within 400 metres of schools can help to address this.

The next step from individual project success would be to work with takeaway outlets and trading standards to improve the quality of the food offered in local communities to improve access to healthier options.

So what are we doing in County Durham?

We know that 'one-off' interventions may work in isolation for some individuals but are not having the necessary impact on levels of excess weight. The evidence is clear, we need to work as a system tackling overweight and obesity on all fronts. This section gives the reader some insight into what we have been doing. We need however to build on this work and be braver if we are to make a difference.

Partnerships

The Healthy Weight Alliance, accountable to the County Durham Health & Wellbeing Board, is County Durham's main partnership that is tackling the healthy weight agenda. The overarching purpose of the alliance is to develop and improve strategic partnerships that are committed to reducing the prevalence of obesity in County Durham.

The alliance developed the Healthy Weight Strategic Framework for County Durham. The aims and objectives are detailed below:

Aim

Develop and promote evidence based multi-agency working and strengthen local capacity and capability to achieve a sustained upward trend in healthy weight for children and adults in County Durham by 2020.

Objectives

- To develop a supportive built environment so that it is less inhibiting of healthy lifestyles such as walking, cycling and access to healthy food and nutrition;
- Provide information and practical support needed for individuals to make healthier choices;
- Provide effective programmes and services to help individuals and families achieve and maintain a healthy weight; and
- Develop a workforce which is competent, confident and effective in promoting healthy weight.

On the back of new evidence, publication and research, the Healthy Weight Strategic Framework will be refreshed and relaunched in 2016.

If you would to join the Healthy Weight Alliance please contact publichealth@durham.gov.uk

Diabetes in County Durham

In County Durham we have been piloting some innovative work to identify those most at risk of type 2 diabetes and work with them to reduce their risk.

Excess weight and having a large waist (94cm or 37 inches for men of White or Black ethnicity, 90cm or 35 inches for men of Asian ethnicity and 80cm or 31.5 inches for women) are risk factors for developing type 2 diabetes⁶⁶.

11.5 million people in the UK are at increased risk of type 2 diabetes and that number is rising every year. **What is startling is that 80% of type 2 diabetes is preventable.**

It is estimated that 3.9 million people in the UK have diabetes, with around **700 people being diagnosed each day**.

If nothing changes, by 2025 **five million people** in the UK may have diabetes⁶⁷.

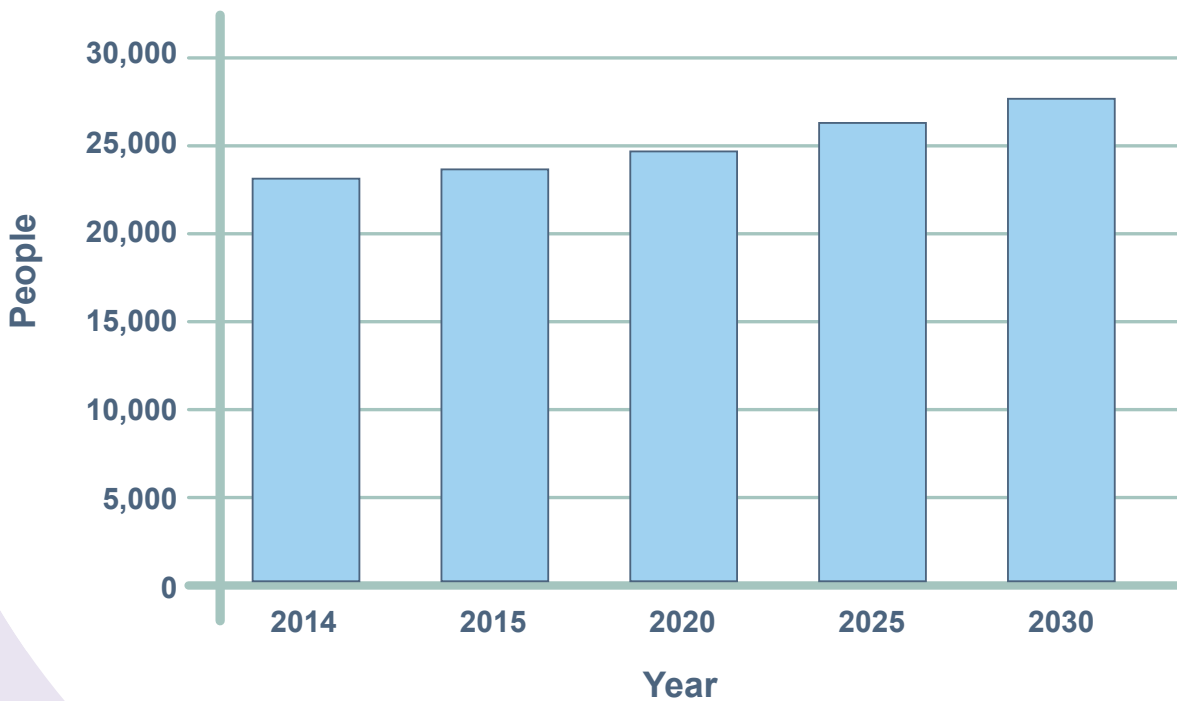
In **County Durham 23,743** are known to have diabetes now.

If no action is taken to slow the increase **27,472** will have developed the disease by 2030.

Source: www.pansi.org.uk data

Excess weight is a consequence of unhealthy diets that are high in calories coupled with increasing sedentary lifestyles. Steps can be taken to make a positive change and reduce the risk of developing diabetes. In addition to the modifiable risk factors of weight and waist size there are a number of other factors that may increase the likelihood of developing the condition, these include being over 40 or over 25, if of Black or Asian ethnicity, having a close family member with type 2 diabetes (parent, brother or sister), being south Asian or Afro-Caribbean, having polycystic ovary syndrome, having previously had gestational diabetes or having impaired fasting glycaemia or impaired glucose tolerance. Since it is not possible to change most of these characteristics people in these groups should pay particular attention to maintaining a healthy weight⁶⁶.

Over 18s predicted to have Type 1 or Type 2 diabetes in County Durham



Source: *pansi*

National diabetes prevention programme

County Durham is hoping to be part of the first wave NHS National Diabetes Prevention Programme. The programme was announced in the NHS Five Year Forward View, which set out an ambition for England to be the first country to implement a national evidence-based diabetes prevention programme, modelled on proven UK and international models and linked, where appropriate, to the new NHS Health Check.

The NHS National Diabetes Prevention Programme aims to deliver at a large scale, services which identify people with non-diabetic hyperglycaemia who are therefore at high risk of developing type 2 diabetes. The programme will offer them a behavioural intervention to lower their risk of type 2 diabetes.

The programme has been progressed locally by a partnership between Durham County Council, Durham Dales, Easington and Sedgefield Clinical Commissioning Group and North Durham Clinical Commissioning Group.

Check4Life

During 2014, a new approach to the delivery of Health Checks in County Durham, Check4Life was developed. As well as providing an opportunity to help people achieve and maintain a healthy weight, be physically active, eat healthily, stop smoking and cut down alcohol consumption.

Check4Life also establishes each individual's risk of heart disease and diabetes.

This information is then used to signpost at risk people into the relevant programme.

For further information on Check4Life visit www.impact.cdd.nhs.uk

Area Action Partnerships (AAP)

Durham County Council's 14 Area Action Partnerships cover all areas of the county. They deliver local services and give local people and organisations the opportunity to influence how services are provided. The AAPs ensure that the services provided by a range of organisations, including the town and parish councils, health and voluntary and community sector to meet the needs of local communities. Area Action Partnerships support local communities in tackling their obesity challenges by helping to secure funding for local sports clubs or creating and maintaining places for children to play such as skate parks and play areas. They also contribute towards the healthy eating agenda through supporting allotment programmes, kitchen facilities in community venues or working with partners to deliver healthy eating courses in the community.

Children's centres

A network of children's centres across the county provide support on health, education and social issues to families but is specifically focused on supporting those families in most need. Many children's centres run initiatives around healthy eating and encourage activity through play and learn sessions.

Healthy Child Programme

The World Health Organisation concluded that breastfeeding appears to provide some level of protection against childhood overweight and obesity. Together with other targeted nutritional interventions, breastfeeding can be an important component of strategies to reduce the risk of overweight and obesity in children. The healthy child programme delivered through health visitors includes universal visits to all families. During these visits advice and guidance for families about infant and child nutrition is provided at the appropriate time.

Obesity and oral health

Eating too much sugar is a risk factor both for obesity and oral health. The Scientific Advisory Committee on Nutrition concluded that higher consumption of sugar is associated with a greater risk of dental caries⁵⁰.

Dental caries impacts significantly on the quality of life of young children. Poor oral health can affect an individual's ability to eat, speak, smile and socialise normally^{68,69}. Tooth decay was the most common reason for hospital admissions in children aged five to nine years old in 2013-14⁷⁰.

There is a strong relationship between deprivation and both obesity and dental caries in children. Data from the National Child Measurement Programme shows an almost linear relationship between obesity prevalence in children and the Index of Multiple Deprivation 2010 (IMD) decile for the area where they live. Please refer to pages 16 and 17 of the report for more information.

Because deprivation and high intakes of sugar are known risk factors for dental caries and for obesity^{71,72,73}, it is likely that interventions that reduce these common risk factors have the potential to impact both conditions.

Interventions that impact the social determinants of health and create supportive food environments are recommended as part of a common approach to health improvement⁷⁴. Certain approaches may actually benefit more than one agenda and as such it is important that cross cutting initiatives are co-ordinated strategically and operationally across County Durham. Good oral health such as tooth brushing and regular visits to the dentist are clearly vital but reducing the amount of sugar in food and drink will also help maintain good oral health.

An oral health strategy is currently being developed for County Durham and it is expected to also impact on levels of obesity across County Durham due to the focus on sugar reduction.

Obesity and oral health are clearly linked and a concerted effort to reduce sugar intake will have multiple benefits to the health of our communities.

Dental caries impacts significantly on the quality of life of young children.

Whole systems approaches

There is broad agreement that tackling obesity requires a focus on multiple projects, at multiple levels, in multiple settings and for many groups of people and programmes. Expecting behaviour change by solely focusing on the individual is unlikely to be successful⁷⁵.

The evidence is clear that a whole systems approach is the most effective way to tackle obesity. We need to work across many professional disciplines and sectors to really make a difference.

Previous universal approaches to tackling obesity have often taken place in isolation or been a collection of individual interventions that have failed to mobilise and engage the entire system. Whole systems approaches release the potential for creative solutions which already exist within the system and need to be surfaced.

Our obesity challenge in County Durham needs people from across this complex system to bring their knowledge and specific expertise together as peers in a shared purpose. We need to work together to tackle obesity, generating healthy outcomes and doing so in a way that builds our community capacity that fosters resilience and sustainability.

Durham County Council has been identified as one of four local authorities across England to work with Leeds Beckett University for the next three years on approaches to tackle obesity. The purpose of the project is to understand how partners in County Durham can work together to reduce obesity and to halt the upward increase. This is a fantastic opportunity and success will rely on everyone playing their part.

A systems approach in County Durham

Some exciting work has already started. A group that represents the wider community and wants to tackle obesity has been brought together in the Four Together Area Action Partnership (AAP) area. Through a collective approach, the group is exploring the potential for creative solutions, drawing on the knowledge, experience and information already in the community. The initial group includes voluntary sector leaders, public health and physical activity professionals, elected members, teachers, primary care staff and children's services.

The challenge is to try and tackle the complex and integrated issue of obesity in children as a whole system, working together with a common goal.

A community of practice where people come together to share the work they are doing and generate ideas about future solutions is being progressed. The community of practice is linking together currently unconnected people and projects and opening the possibility of developing initiatives that are more integrated and coordinated.

Everyone in this community is welcome and all are encouraged to become involved with what will be a long term programme to improve the health of our children in County Durham. Anyone interested in joining this group in the Four Together AAP area that covers Ferryhill, Chilton, West Cornforth and Bishop Middleham, please contact publichealth@durham.gov.uk

So what next?

This is the million dollar question! I really hope this report has been able to show the complexity and challenge we face to tackle obesity in County Durham and I hope it will spur us all into greater action. I know there are already many initiatives and activities taking place across County Durham and being progressed by a whole range of partners. Can we do more? Can we work together as a system? I hope so.

You will already have ideas about actions you can take and the following recommendations will hopefully build on these. These are not the only actions and you may have some great ideas. Come along and join the Healthy Weight Alliance, share your experiences and learn from others. To find out more please contact publichealth@durham.gov.uk

Remember, this is everyone's business!

Recommendations

Elected members

Elected members have an influential role and could:

- Support the inclusion of changes that impact on obesity in appropriate strategies and plans. These plans may not always be directly about obesity but may still have an impact.
- Consider lobbying government over issues such as a sugar tax, or advertising restrictions on unhealthy foods and drinks aimed at children.
- Think about championing a healthy diet and a more active lifestyle in your community. Does the local neighbourhood make it easy for everyone to be active? Are there plenty of places for children to play?

Employers

Initiatives aimed at our workplaces may help to create a healthy and productive workforce. Employers could:

- Promote physical activity in the workplace especially those aimed at every day activity e.g., use stairs not lifts.
- How healthy is your canteen? Is having a healthy choice enough or should the majority of the food provision be healthy? Do you promote healthy options?
- Is water readily available to drink? Are unhealthy drinks heavily promoted?
- Do all policies consider the impact upon the health of your workforce, customers or your community?
- Review your vending machine procurement.

Workplace canteens

- Consider using the Government Buying Standard for Food and Catering, to improve quality and sustainability.
- How appropriate are the food portion sizes?
- Could you reduce the sugar content in the food and drinks you serve?
- How healthy or appropriate are your vending machines? Do they provide healthy alternatives?
- Is nutritional information available so that your colleagues can make informed choices about what they eat or drink?
- Can you promote healthier choices or initiatives such as the Change4Life sugar smart or snack swap initiatives?

Health professionals

All health professionals have a role in helping their patients to improve their health related behaviour.

- Midwives, GPs, health visitors, school nurses and their teams should provide information and advice to pregnant women and parents of young children about nutrition and physical activity for the whole family.
- Consider closer working with the public health team to explore all opportunities to tackle obesity.
- Health professionals should look at every contact with a patient as a health promoting opportunity and use this opportunity to provide guidance around healthier lifestyles and specifically around obesity.

Takeaways, cafes and local shops

There is no reason why this sector cannot consider healthier options.

- Consider healthy catering standards and provide food labelling.
- Could you join with your local community in their efforts to make the healthy choice easier?
- Promote healthy options in partnership with local schools or workplaces.
- Contact the public health team to explore opportunities to provide greater choice to your customers.

Child care settings

All settings where children spend time such as schools, child-care settings, children's sports facilities and events should have healthy food environments.

- Ensure only healthy foods, beverages and snacks are consumed on the premises. Use water not juice.
- Champion being physically active and explore all opportunities for active play and learning.
- Use Change4Life and capitalise on the national approach to tackling obesity.
- Involve parents and the wider community in healthy eating projects.

Social care and carers

- Provide clear guidance and support to carers and service users around healthier nutrition.
- Ensure that staff have basic and current nutrition training.
- Promote all opportunities to be active.

Planning

Planners have an important role in creating an environment that makes the healthy behaviour easier.

- New developments should create opportunities for physical activity.
- Ensure there are always opportunities for active travel such as cycling and walking routes.
- Explore how regulations and byelaws may help to make the healthy choice the easiest choice?

Procurement

Procurement often influences and determines the choices people make.

- All establishments that provide food should consider healthy and sustainable food procurement.
- Consider the impact of policies that inadvertently promote unhealthy choices and make the healthy option difficult.

Area Action Partnerships, parents and communities

There are many examples of communities that are making a real effort to improve health and wellbeing.

- Consider what you could champion in your local area.
- Could allotments or green places be used as a community garden to share skills and produce?
- Could you support your local school or community organisation in their efforts to make their environment healthier?
- Join Change4Life, the fun and friendly way to make the healthy choice.
- Work with local retailers to promote healthy options.
- Organised community events can promote healthier choices and options.

References

- 1 Government Office for Science. Foresight Tackling Obesity: Future Choices - Project report. [internet]. 2007 (cited Oct 2015). Available from: <http://www.bis.gov.uk/assets/foresight/docs/obesity/17.pdf>
- 2 NHS Choices. (internet). 2015 (cited 2015 Nov); Available from: <http://www.nhs.uk/conditions/obesity/pages/introduction.aspx>
- 3 SACN and Royal College of Paediatrics and Child Health. Consideration of issues around the use of BMI centile thresholds for defining underweight, overweight and obesity in children aged 2-18 years in the UK. (2012). (cited 2015 Nov). Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/339411/SACN_RCPCH_defining_child_underweight_overweight_and_obesity_in_the_UK_2012.pdf
- 4 Health & Social Care Information Centre. National Child Measurement Programme data source: Health and Social Care Information Centre.(cited Jan 2016) Available from: <http://www.hscic.gov.uk/ncmp>
- 5 Public Health England. Public Health England Outcomes Framework. 2016 (cited Jan 2016); Available from: <http://www.phoutcomes.info/public-health-outcomes-framework#page/0/gid/1000042/pat/6/par/E12000004/ati/102/are/E06000015>
- 6 Health & Social Care Information Centre. Health Survey for England – 2014: Trend tables. 2014. (Cited Nov 2015): Available from: <http://www.hscic.gov.uk/catalogue/PUB16077>.
- 7 Public Health England. County Durham Health Profile 2015. (cited Nov 2015). Available from: <http://www.apho.org.uk/resource/item.aspx?RID=171626>
- 8 World Health Organization. Childhood overweight and obesity. 2015 (cited Oct 2015). Available at: <http://www.who.int/dietphysicalactivity/childhood/en/>
- 9 Lim SS et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*; 2012.
- 10 Gatineau M, Dent M. Obesity and Mental Health. Oxford: National Obesity Observatory. 2011. (cited Nov 2015) Available at: http://www.noo.org.uk/uploads/doc/vid_10266_Obesity%20and%20mental%20health_FINAL_070311_MG.pdf
- 11 National Audit Office. Tackling Obesity in England. 2001. London: The Stationery Office.
- 12 McCormack, B. and Stone, I. Economic Costs of Obesity and the Case for Government Intervention. Short Science Review. Foresight Tackling Obesity: Future Choices. *Obesity Reviews*, 2007. 8(s1):161–164 (<http://www.foresight.gov.uk>).
- 13 National Institute for Care and Health Excellence, Workplace health. NICE advice[LGB2] July 2012
- 14 Harvey S, N. Glozier N, Carlton O, Mykletun A, Henderson M, Hotop M, Holland-Elliott K. Obesity and sickness absence: results from the CHAP study. *Occupational Medicine*. 2010. 60,5:362-368
- 15 Public Health England. Preliminary analysis of Health Survey for England combined data 2011 and 2012. *Obesity Knowledge and Intelligence*. 2014.
- 16 National Institute for Health and Care Excellence. Preventing obesity and helping people to manage their weight. NICE advice [LGB9] 2013.
- 17 Morris, S. Body Mass Index and Occupational Attainment. *Journal of Health Economics*, 2006. 25:347-364.
- 18 Eriksson, J., Forsen, T., Osmond, C. and Barker, D. 2003. Obesity from Cradle to Grave. *International Journal of Obesity*. 2003. 27:722-727
- 19 Lang, T. and Rayner, G. Overcoming policy cacophony on obesity: an ecological public health framework for policymakers. *Obesity Reviews*, 2007. 8: 165-181
- 20 Pan L, Sherry B, Park S, Blanck HM. The association of obesity and school absenteeism attributed to illness or injury among adolescents in the United States, 2009. *Adolescent Health*. 2013 Jan;52(1):64-9.
- 21 Singh AS, Mulder C, Twisk JW, van Mechelen W, Chinapaw MJ. Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obesity Reviews*. 2008 Sep;9(5):474-88.
- 22 National Obesity Observatory. Why invest in obesity. 2015 (cited Oct 2015). Available from: https://www.noo.org.uk/slide_sets
- 23 Local Government Association. Social Care and Obesity. 2013. (cited Oct 2015). Available from: <http://www.local.gov.uk/documents/10180/11463/Social+care+and+obesity+-+a+discussion+paper+-+file+1/3fc07c39-27b4-4534-a81b-93aa6b8426af>
- 24 National Obesity Observatory. Adult Obesity and Socioeconomic Status. 2010(cited Jan 2016). Available from: http://www.noo.org.uk/uploads/doc/vid_7929_Adult%20Socioeco%20Data%20Briefing%20October%202010.pdf
- 25 National Obesity Observatory. Child Diet Factsheet. 2012. (cited Jan 2016). Available from: http://www.noo.org.uk/securefiles/160215_1143/Child-dietfactsheetDec2015.pdf
- 26 Public Health England and The Food Standards Agency. National Diet and Nutrition Survey Results from Years 1, 2, 3 and 4 (combined) of the Rolling Programme (2008/2009 - 2011/2012).2014. (cited Dec 2015). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/310995/NDNS_Y1_to_4_UK_report.pdf
- 27 Public Health England. Adult Physical Activity Data Factsheet. 2015. (cited Jan 2016). Available at: http://www.noo.org.uk/uploads/doc/vid_17580_AdultPAFactsheet.pdf
- 28 Public Health England. Child Physical Activity Data Factsheet. 2014. (cited Jan 2016). Available at: http://www.noo.org.uk/securefiles/160225_0953/PA_Factsheet_Child_Aug2014_v2.pdf
- 29 Health and economic burden of the projected obesity trends in the USA and the UK, Wang y, McPherson K, Marsh T et al. *Lancet* 2011; 378: 815-825.
- 30 Department of Health. Healthy Lives Healthy People. 2011. (cited Nov 2015) Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213720/dh_130487.pdf
- 31 Bloom. S. Hormonal Regulation of Appetite. Short Science Review. Foresight Tackling Obesity: Future Choices. *Obesity Reviews*, 2007. 8 (s1): 67-72.(cited Oct 2015) Available at: <http://www.foresight.gov.uk>
- 32 Prentice, A. Are defects in Energy Expenditure Involved in Causation of Obesity? Short science review. Foresight Tackling Obesity: Future Choices. *Obesity Reviews* 2007, 8 (s1): 89-91. (cited Oct 2015) Available at: <http://www.foresight.gov.uk>

- 33 Public Health England and the Local Government Association. Healthy people, healthy places briefing. Obesity and the environment: increasing physical activity and active travel. 2013. (cited Nov 2015). Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/256796/Briefing_Obesity_and_active_travel_final.pdf
- 34 National Obesity Observatory. Knowledge and attitudes towards healthy eating and physical activity: what the data tell us. 2011. (cited Jan 2016). Available at: http://www.noo.org.uk/uploads/doc/vid_11171_Atitudes.pdf
- 35 European Food Information Council. Stress and food intake. (internet) 2016. (cited 2016). Available from: http://www.eufic.org/article/en/artid/Stress_and_food_intake/
- 36 Local Government Association. Making every contact count: Taking every opportunity to improve health and wellbeing. 2014. (cited Jan 2016). Available from: <http://www.local.gov.uk/documents/10180/5854661/Making+every+contact+count+-+taking+every+opportunity+to+improve+health+and+wellbeing/c23149f0-e2d9-4967-b45c-fc69c86b5424>
- 37 Department of Health. The NHS's role in the public's health: A report from the NHS Future Forum. 2012. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216423/dh_132114.pdf
- 38 NHS. An Implementation Guide and Toolkit for Making Every Contact Count: Using every opportunity to achieve health and wellbeing. 2014. (cited Jan 2016). Available from: <https://www.england.nhs.uk/wp-content/uploads/2014/06/mecc-guid-booklet.pdf>
- 39 Buck D, Frosini F. Clustering of unhealthy behaviours over time Implications for policy and practice. 2012. Cited (Nov 2015). Available from: http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/clustering-of-unhealthy-behaviours-over-time-aug-2012.pdf
- 40 Wilkinson R, Marmot M. Introduction in World Health Organization. Social Determinants of Health. The Solid Facts. 2003. (cited Nov 2015). Available at: http://www.euro.who.int/__data/assets/pdf_file/0005/98438/e81384.pdf
- 41 Liverpool Public Health Observatory Wellness Services – Evidence based review and examples of good practice. 2010. (cited Nov 2015). Available from: <http://www.apho.org.uk/resource/item.aspx?RID=105856>
- 42 Pérez-Escamilla, R., Obbagy, J.E., Altman, J.M., Essery, E.V., McGrane, M.M., Wong, Y.P., Spahn, J.M., Williams, C.L., Dietary Energy Density and Body Weight in Adults and Children: a Systematic Review. *Journal of the Academy of Nutrition and Dietetics*, 2012. 122 (5), pp. 671-684.
- 43 Bell, E.A., Rolls, B.J. Energy density of foods affects energy intake across multiple levels of fat content in lean and obese women. *American Journal Clinical Nutrition*, 2001. 73, pp. 1010-1018.
- 44 Drewnowski, A., Specter, S.E. Poverty and obesity: the role of energy density and energy costs. *American Journal Clinical Nutrition*, 2004. 79, pp. 6-16.
- 45 Monsivais, P., Drewnowski, A. The Rising Cost of Low-Energy-density Foods. *Journal of the American Dietetic Association*, 2007. 107, (12), pp. 2071-2076.
- 46 Drewnowski, A., Darmon, N., The economics of obesity: dietary energy density and energy cost. *American Journal of Clinical Nutrition*, 2005. 82(suppl), pp. 265S-273S.
- 47 Drewnowski, A., 2004. Obesity and the Food Environment Dietary Energy Density and Diet Costs. *American Journal of Preventative Medicine*, 2004. 27, pp. 154-162.
- 48 Grimm ER, Steinle NI. Genetics of Eating Behavior: Established and Emerging Concepts. *Nutrition reviews*. 2011;69(1):52-60.
- 49 Public Health England Sugar reduction The evidence for action. 2015. (cited Dec 2015). Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/470179/Sugar_reduction_The_evidence_for_action.pdf
- 50 Scientific Advisory Committee on Nutrition. Carbohydrates and Health [Internet]. London: The Stationary Office; 2015. Available from: <https://www.gov.uk/government/publications/sacn-carbohydrates-and-health-report>
- 51 Te Morenga L, Mallard S, Mann J. Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. 2013 *BMJ* 2013; 346: e7492
- 52 Public Health England: Change4Life sugar swap. 2015 (cited Nov 2015). Available from: https://www.nhs.uk/change4life-beta/campaigns/sugar-smart/home?gclid=CM_lwrT2-coCFekp0wod-fwDGA&gclid=aw.ds
- 53 Nomisma-Arete Consortium. External scientific report. Gathering consumption data on specific consumer groups of energy drinks. European Food Safety Authority: Parma, Italy. 2013
- 54 Tibbetts G. In *The Telegraph*. Teenager collapsed after becoming addicted to Red Bull. 2008.
- 55 Oddy W, O'Sullivan T. Energy drinks for children and adolescents. *BMJ*, 340: 64. 2009
- 56 Smithers R. In *The Guardian*. Call for ban on selling 'addictive' energy drinks to children. 2015.
- 57 Nawrot P, et al . Effects of caffeine on human health. *Food Additives and Contaminants*, 20: 1-30. 2003
- 58 Durham University. The HYPER! (Hearing Young People's Views on Energy Drinks: Research) Study. (internet) (cited Dec 2015). Available from: <https://www.dur.ac.uk/public.health/projects/current/hyper/>
- 59 Responsible Retailing of Energy Drinks. (internet) (cited Nov 2015) Available from: <http://www.rredcampaign.org.uk/>
- 60 National Obesity Observatory. Obesity and alcohol: an overview. 2012. (cited Dec 2015). Available at: http://www.noo.org.uk/uploads/doc/vid_14627_Obesity_and_alcohol.pdf
- 61 Leiber CS. Alcohol: Its Metabolism and Interaction With Nutrients.' *Annual Review of Nutrition* Vol. 20: 395-430, July 2000. (cited Dec 2015) Available at: <http://www.annualreviews.org/doi/pdf/10.1146/annur.ev.nutr.20.1.395>
- 62 Alcohol concern. Alcohol and calories. 2010. (cited Dec 2015). Available at: http://www.alcoholconcern.org.uk/wp-content/uploads/woocommerce_uploads/2015/02/Alcohol-and-calories-final.pdf
- 63 Public Health England. Healthy people, healthy places briefing Obesity and the environment: regulating the growth of fast food outlets. 2014 (cited Jan 2016) Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296248/Obesity_and_environment_March2014.pdf

- 64 British Heart Foundation. Portion Distortion Report. 2013. (cited Jan 2016). Available from: <https://www.bhf.org.uk/publications/policy-documents/portion-distortion-report-2013>
- 65 Jones NRV, Conklin AI, Suhrcke M, Monsivais P. The Growing Price Gap between More and Less Healthy Foods: Analysis of a Novel Longitudinal UK Dataset. *PLoS ONE* 2014. 9(10):
- 66 Diabetes UK, 2015. Diabetes: Facts and Stats [online]. (cited Oct 2015). Available from: <https://www.diabetes.org.uk/Documents/Position%20statements/Facts%20and%20stats%20June%202015.pdf> > [last accessed 22/10/15].
- 67 PANSI, 2014. Diabetes [online]. (cited Oct 2015) Available from: <http://www.pansi.org.uk/index.php?pageNo=415&PHPSESSID=176k4n820fg5pf6qf3i1m31ig6&sc=1&loc=8640&np=1> > [last accessed 22/10/15].
- 68 Ramos-Jorge J, Alencar BM, Pordeus IA, Soares MEDC, Marques LS, Ramos-Jorge ML, et al. Impact of dental caries on quality of life among preschool children: emphasis on the type of tooth and stages of progression. *European Journal Oral Science* [Internet]. 2015; 123(2):88–95. Available from: <http://doi.wiley.com/10.1111/eos.12166>
- 69 Milsom KM, Tickle M, Blinkhorn A S. Dental pain and dental treatment of young children attending the general dental service. *British Dental Journal* [Internet]. 2002 Mar 9;192(5):280–4. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/11924955>
- 70 Public Health England. National Dental Epidemiology Programme for England : oral health survey of five-year-old children A report on the prevalence and severity of dental decay [Internet]. London; 2013. (cited Oct 2015). Available from: [http://www.nwph.net/dentalhealth/Oral Health 5yr old children 2012 final report gateway approved.pdf](http://www.nwph.net/dentalhealth/Oral%20Health%205yr%20old%20children%202012%20final%20report%20gateway%20approved.pdf)
- 71 Moynihan PJ, Kelly SAM. Effect on Caries of Restricting Sugars Intake: Systematic Review to Inform WHO Guidelines. *Journal Dental Res* [Internet]. 2014 Jan [cited 2014 Jan 22];93(1):8-18. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24323509>
- 72 Morenga L Te, Mallard S, Mann J. Dietary sugars and body weight: systematic review and meta-analyses of randomised controlled trials and cohort studies. *BMJ* [Internet]. 2013 [cited 2014 Jan 22];7492 (January):1–25. Available from: <http://www.bmj.com/content/346/bmj.e7492?view=long&pmid=23321486>
- 73 Watt RG, Sheiham A. Integrating the common risk factor approach into a social determinants framework. *Community Dental Oral Epidemiology* [Internet]. 2012 Aug [cited 2014 Jun 14];40(4):289–96. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22429083>
- 74 Public Health England. Local authorities improving oral health : commissioning better oral health for children and young people An evidence-informed toolkit for local authorities [Internet]. London; 2013. (cited Oct 2015) Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321503/CBOHMaindocumentJUNE2014.pdf
- 75 Peninsula Technology Assessment Group, Garside et al. Preventing obesity using a 'whole system' approach at local and community level: PDG1 Identifying the key elements and interactions of a whole system approach to obesity prevention. 2010. (cited Oct 2015). Available from: <https://www.nice.org.uk/guidance/ph42/documents/evidence-review-1-identifying-the-key-elements-and-interactions-of-a-whole-system-approach-to-obesity-prevention2>

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