

# Active travel and adult obesity

The impact of travel choices on our weight and health

INFORMATION SHEET FH14

## Foreword

“Physical activity is the key to stopping this country becoming the obesity capital of the world – and people who live active lives also feel better. To get more of us doing the magic 30 minutes, five days a week, we need to make it easier to choose physically active ways of living; for most people, choosing walking and cycling instead of sedentary transport is among the most practical and realistic healthy options.”

*Dawn Primarolo, Minister of State for Public Health  
Department of Health*

“Obesity is one of the biggest threats to Scotland’s health – today’s young people are at risk of being the first generation in our history to live shorter lives than their parents. The Scottish Government has made tackling obesity a priority and one of the most effective ways to achieve this, alongside a focus on diet, is to advocate active living. By encouraging physical activity, and specifically that which is achievable and sustainable such as people walking and cycling more in their everyday lives, we can act to secure the future health of Scotland.”

*Nicola Sturgeon, Deputy First Minister and Cabinet Secretary for Health and Wellbeing, Scottish Government*

“Most of us are familiar with the difficulties of maintaining a healthy and active lifestyle in an ‘obesogenic’ environment. We are increasingly sedentary and more than half the population is overweight or obese. We need to find more effective ways of enabling healthier eating and drinking and significantly increasing levels of physical activity.”

*Dr Tony Jewell, Chief Medical Officer, Welsh Assembly Government*



## Introduction

In recent years the issue of obesity has risen from being one among many health concerns to attain the status of an ‘epidemic’<sup>(1)</sup> and to top the UK health agenda. This situation is mirrored in other developed nations, fuelled by post-war lifestyle and dietary changes that have led to us gaining excessive body weight.

UK obesity rates have trebled since 1980<sup>(2)</sup>. Today, nearly one in four adults in England are obese<sup>(3)</sup>, with similar levels in Scotland<sup>(4)</sup> and Wales<sup>(5)</sup>. Based on current trends it has been estimated that nearly 60% of the UK population could be obese by 2050 – a mainly obese society<sup>(2)</sup>. Ironically, obesity is a problem affecting rich countries, but whose effects are felt most by the poorest within those

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societies – by 2012, obesity rates among adults in manual social classes will be 43% higher than for adults in non-manual social classes<sup>(6)</sup>.

The severe increase in obesity has far-reaching consequences for the UK, as it does for other countries. Obesity is a grave public health concern precisely because it is implicated in the causation of many chronic and serious illnesses including heart disease, cancers, diabetes, stroke and mental health problems. The economic implications are immense: by 2050, a seven-fold increase in the direct healthcare costs of overweight and obesity is anticipated, with wider costs to society reaching over £50 billion (at 2007 prices)<sup>(2)</sup>.

However, it is not a problem without a solution. Everyday physical activity – 30 minutes at least five times a week<sup>(7)</sup> – is enough to significantly reduce a person's risk of many of the major diseases associated with physical inactivity and to effectively extend their life expectancy. To address weight gain the Chief Medical Officer for England notes that 45-60 minutes of moderate intensity physical activity a day is necessary<sup>(7)</sup>.

Evidence in this information sheet suggests that investment in transport infrastructure and environments that support walking and cycling pays dividends in terms of public health. Moreover, the health benefits to be gained by prioritising active travel will be backed up by the contribution of travel behaviour change to other major national and international concerns such as climate change.

## Defining adult obesity

Obesity is most commonly defined by body mass index (BMI), calculated by dividing a person's body weight in kilograms by the square of their height in metres. A BMI of 30 or more is considered obese and a BMI between 25 and 29.9 is considered overweight.

Our society is beginning to see obesity as normal, and to have difficulty recognising when individuals are overweight or obese. Research examining changes in public perceptions of overweight in the UK over an eight year period between 1999 and 2007 found that more people now underestimate their weight than previously. Despite media and health campaigns aiming to raise awareness of healthy weight, increasing numbers of overweight people fail to recognise that their weight, and that of their children, is a cause for concern. This makes it less likely that they will see Government messages about weight as being personally relevant<sup>(8)</sup>.

## The impact of obesity on health

A recent international study funded by the UK Medical Research Council and the British Heart Foundation amongst others followed the health of almost 1 million people from middle age. It found a strong association between body mass and mortality, with obesity itself a strong predictor of life expectancy. Moderate obesity (BMI 30-35) was found to be associated with three years' loss of life, while those with extreme obesity (BMI 40-50) lost 10 years – equivalent to the impact of lifetime smoking<sup>(9)</sup>.

This increased overall risk of premature death through obesity is a product of increased risks for the many specific health problems with which it is associated<sup>(2)</sup>:

- 90% of Type 2 diabetics have a BMI of 23+
- 85% of hypertension is associated with excess weight
- hypertension increases risk of stroke and other conditions such as left ventricular hypertrophy
- atherosclerosis progressively develops above a BMI of 21. Obesity is a contributing factor to cardiac failure in at least 10% of patients



- coronary artery disease: 2.4 fold risk in obese women and 2 fold in obese men under the age of 50
- 10% of all cancer deaths among non-smokers are related to obesity
- obesity is also a significant factor in liver and gall bladder disease, loss of male and female reproductive function, breathing difficulties, and osteoarthritis amongst older people.

## The causes of obesity

The growth in obesity across post-war western societies is driven by important changes in two main areas of our lifestyles. These are the quantity and type of food we eat (energy intake), and the amount of physical activity we undertake (energy expenditure). Both of these areas of our lives are greatly influenced by the physical environment in which we live and work, including the ways in which we choose or are encouraged to travel.

### Energy intake and energy expenditure

When the human body consistently takes in more energy than it expends, the result is weight gain which can lead to an individual becoming overweight or obese. It is this energy imbalance, at a population level, that underpins the significant rise in obesity seen in recent decades.

While genetics are important in determining a person's susceptibility to weight gain, the overwhelming influence is environmental<sup>(10)</sup>. Changes to our societies, the places we live and the types of foods we eat are driving the obesity epidemic.

A key 1995 research paper by Prentice and Jebb was one of the first to highlight the likely dominant role played by a decline in energy expenditure towards rising obesity. The authors concluded that it was likely that low levels of physical activity prevalent in Great Britain must play an important, perhaps dominant, role in the development of obesity by greatly reducing our energy needs from foods<sup>(11)</sup>.

Researchers have come to define the sum of the changes in food provision, physical activity at work, and transport policies as resulting in an 'obesogenic' environment<sup>(12)</sup>. In the obesogenic environment we are increasingly reliant on labour-saving devices from washing machines to cars<sup>(13)</sup> and tempted by the availability and attractiveness of home entertainment. Researchers have noted that this has led to a tendency to move less, perform less physical work and to sit down more during leisure time. Over extended periods, this sedentary behaviour can make a substantial difference to energy balance and therefore weight gain<sup>(14)</sup>.

### The impact of motor transport and land use on obesity

The ways in which we choose to travel impact on our health, weight and well-being. Car use has risen steadily over the past 30 years, while modes of travel such as walking and cycling that involve significant energy expenditure have declined. Until the 21st century, however, little academic attention was paid to the links between these trends and the correspondingly sharp rise in obesity.

Australian research has highlighted how, since the 1980s, the proportion of overweight, obese and inactive people had increased in close parallel with greater car reliance<sup>(15)</sup>. Similarly, research from China – where there has been a rapid growth in car ownership from the late 1980s – reported that adults who purchased cars or motorbikes to travel to work doubled their likelihood of becoming overweight, in comparison to those who made no change in their mode of transportation<sup>(16)</sup>.

The growth in car ownership in the second half of the last century was also accompanied by radical changes in land-use patterns to accommodate increased car use. Car friendly environments, however, have not proven to be friendly to human health; the opposite, in fact, is true<sup>(13)</sup>. Evidence suggests that a car-dominated infrastructure makes active forms of transportation and healthy food options relatively inconvenient, and more costly in terms of time and money than less healthy alternatives<sup>(17)</sup>.



This evidence is corroborated by research highlighting the importance of land-use densities in enabling everyday journeys to be walked or cycled trips. When neighbourhoods were classified as high-walkable or low-walkable according to density and layout, residents in the former took more steps per day than those in the latter, and walked more for transport<sup>(19)</sup>.

The fact that our environments influence our behaviour is now accepted and made explicit in official guidance such as that from the National Institute for Health and Clinical Excellence (NICE) on 'Promoting and creating built or natural environments that encourage and support physical activity'<sup>(19)</sup>. A direct association between the built environment and obesity has been reported through a number of studies in both the US and Australia<sup>(20)(21)</sup>. Mixed use developments, at high density, with good connectivity for walking and cycling significantly affect body weight and reduce the risk of weight gain<sup>(22)</sup>.

## Making active travel part of the solution

Analysis of national travel survey data from countries in North America, Europe and Australasia found that countries with the highest levels of active transportation had the lowest obesity rates<sup>(23)</sup>. Research on commuting, for example, suggests that those who walk or bicycle to work are significantly negatively associated with overweight and obesity<sup>(24)</sup>.

US research found that each additional kilometre walked per day is associated with a 4.8% reduction in the likelihood of obesity, whereas each additional hour spent in a car per day is associated with a 6% increase in the likelihood of obesity<sup>(25)</sup>. The amount of time spent in cars appears to be a key factor and has been reported in a number of studies<sup>(26)</sup>.

## Walking and cycling for a healthy lifestyle

Prevention is better than cure, and in the case of obesity it is important to help people prevent and reverse weight gain, as reducing

and maintaining weight loss once obese is harder to achieve and maintain.

There is now widespread agreement that the simplest preventive measure for obesity is to incorporate physical activity such as walking or cycling into the everyday routine. The Foresight 'Tackling Obesities' report put it like this: "The top five policy responses assessed as having the greatest average impact on levels of obesity [include]: - increasing walkability / cyclability of the built environment....."

As noted above, in order to maintain a healthy weight, the Chief Medical Officer for England recommends a minimum of 30 minutes of moderate physical activity on most days of the week; for many people, 45-60 minutes of moderate intensity physical activity a day is necessary to prevent obesity<sup>(7)</sup>. In general, the more physically active people are the better.

It is clear, however, that preventing and reversing the future obesity trends outlined in the Foresight report cannot be achieved just by telling people to live healthier lives. Advice on physical activity and active living must go hand in hand with changes to our transport infrastructure and built environments, making it easier for people to incorporate walking or cycling into routine journeys. Examples of, and guidance on, how this can be achieved are easily found.

## Creating activity-friendly environments

European countries and cities which have already successfully promoted active travel have done so by investing at a level commensurate with the priority they attach to clean and healthy transport. For example, in Copenhagen in 2002, of a DKK 60 million budget for roads (approximately £5.4 million), one-third was allocated to improving cycling conditions<sup>(27)</sup>. Amsterdam, many people's vision of a cycling city, is spending €26.95 per capita per annum on cycling between 2006 and 2010 (even in these more advanced cities, it is often difficult to identify spend on walking)<sup>(28)</sup>. By comparison, the total spend on cycling in England for 2006 – 07 was £60.3 million, £1.20 per capita and just 0.3% of total transport spending<sup>(29)</sup>;

## Useful reading

**Foresight, 2007** Tackling Obesities – Future Choices

**DH, 2008** Healthy Weight, Healthy Lives

**DH, 2009** Healthy Weight, Healthy Lives: One Year On

**DH, 2009** Be active be healthy, a plan for getting the nation moving

**NICE, 2008** Physical activity and the environment

**NICE, 2006** Overweight and obesity in adults and children

**National Heart Forum, 2007** Building Health, a Blueprint for Action

**World Health Organisation / Food and Agriculture Organization of the United Nations, 2003** Expert consultation on diet, nutrition and the prevention of chronic diseases

**DfT, 2007** Manual for Streets

**Sustrans/Association of Directors of Public Health et al, 2008** Take action on active travel

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spend on walking was not identifiable. In Scotland, walking and cycling accounted for around 1% of the transport budget in 2006/07 – around £4 per capita<sup>(30)</sup>.

Transport planning has to take a strong lead in helping to create environments which support active living. Guidance has been issued by a range of organisations including NICE<sup>(19)</sup>, the Commission for Architecture and the Built Environment (CABE)<sup>(31)</sup> as well as by the Department for Transport<sup>(32)</sup>. NICE's obesity guidance urges local authorities to work with local partners, such as industry and voluntary organisations, to create and manage more safe and attractive spaces for incidental and planned physical activity<sup>(33)</sup>.

Many public health professionals now believe investment in creating environments conducive to active living to be more effective at countering obesity than interventions centred on structured activities such as aerobics<sup>(34)</sup>.

## Recommendations

There is strong evidence that inactive lifestyles are an important cause of overweight and obesity. The changing patterns of modern life, which affect both physical activity and food consumption, make it increasingly hard for people to maintain a healthy weight.

Historically the UK has invested heavily in facilitating sedentary forms of transport. This balance must now change, with investment priority being given to active, healthy modes such as walking and cycling. The benefits of this will be profound and straightforward: countries with the highest levels of active travel generally have the lowest obesity rates.

Governments have made steps in this direction, with policies on public health, but also on transport, planning and climate change all advocating measures to promote growth in active travel. What they have not yet done is to transfer the investment necessary to make these policies reality.

Government, at all levels, should set ambitious new targets for walking and cycling and commit to a serious effort to meet them. As is already the case in many other European countries, walking and cycling should be normalised into daily routines from childhood and maintained throughout the lifecourse.

There is now overwhelming expert support for a shift to healthy transport policies. Almost 100 organisations, including all significant UK public health bodies, have signed a policy call – 'Take action on active travel' – developed by the Association of Directors of Public Health. They call on governments immediately to commit 10% of transport budgets to active travel.

Interestingly, given today's difficult financial climate, investment in active travel is significantly cheaper and better value than traditional motor traffic schemes, with cost benefit ratios seven to ten times better<sup>(35)</sup>. The transport planning decisions which encourage and support active and healthy travel will save money at the point of investment and save again in healthcare costs in the future. We can save millions now, and billions later.



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## Further information

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