



## Obesity and Physical Activity: Adults

This fact sheet highlights recent key facts and figures on obesity levels of adults aged 16+ and the potential health benefits of physical activity.

### What is overweight and obesity?

Overweight and obesity are terms used to describe increasing degrees of excess body fat which can lead to adverse health effects.<sup>1</sup>

### Measuring obesity

**Body Mass Index (BMI):** is commonly used as the measure to classify levels of obesity. This is calculated by dividing weight (kg) by height squared ( $m^2$ ) ( $kg/m^2$ ). The following categories of BMI have been used to indicate levels of overweight and obesity and risk of co-morbidities.<sup>2</sup>

BMI ( $kg/m^2$ )	Classification	Risk of co-morbidities
< 18.5	Underweight	Low
18.5 to 24.9	Desirable weight	Average
25 to 29.9	Overweight	Increased
30 to 34.9	Obesity I	Moderate
35 to 39.9	Obesity II	Severe
$\geq 40$	Obesity III (morbidly obese)	Very severe

**Waist circumference:** is commonly used as it gives a useful measure of central adiposity in adults as BMI does not distinguish between body fat mass and mass due to muscular physique.<sup>3</sup> The following table identifies waist circumference and the associated risk of health.

	Waist Circumference (cm)	Risk
MEN	$\geq 94$	Increased risk of health problems
	$\geq 102$	but have healthy weight (BMI 18.5-25 $kg/m^2$ ) increased risk of health problems
WOMEN	$\geq 80$	Increased risk of health problems
	$\geq 88$	but have healthy weight (BMI 18.5-25 $kg/m^2$ ) increased risk of health problems

## Causes of Obesity?

**Energy Imbalance:** is the fundamental cause of overweight and obesity. When energy intake (*food*) **exceeds** energy expenditure (*physical activity*) then weight gain will occur. <sup>4</sup>

**Physical Inactivity:** Leading a sedentary lifestyle can cause an increase in weight gain <sup>5</sup>

**Diet:** Consuming an increased amount of energy dense foods which are high in sugar and fat and low in minerals, vitamins and other micronutrients can lead to weight gain. <sup>4</sup>

**Environmental:** the conditions for pedestrians have deteriorated over the last 50 years and fear of crime keeps people increasingly indoors. Labour-saving devices such as escalators and lifts, inactive leisure activities such as computer games and less manual occupations have all lead to a reduction in physical activity levels and have been associated with increased obesity levels. <sup>6</sup>

**Genetics:** Although rare, some individuals are predisposed to obesity through genetic disorders such as Prader-Willi syndrome and Bardet-Biedl syndrome.

## Health consequences of obesity:

It is estimated that obesity is responsible for over 9,000 premature deaths in England each year. <sup>7</sup>

**Obesity is a major risk factor for a number of diseases including:**

- **Cardiovascular disease** - Mainly coronary heart disease (CHD) and stroke. Inactive and unfit individuals have almost double the risk of dying from CHD compared to more active people. <sup>5</sup> Men and women with a BMI of 26 kg/m<sup>2</sup> are one and a half and twice as likely to develop CHD than men and women with a BMI of 21 kg/m<sup>2</sup>, respectively.
- **Type 2 Diabetes** – has become an epidemic in recent years, WHO predict that deaths caused by diabetes will increase by 50% in the next 10 years. <sup>4</sup> Obese women are 13 times more likely to develop type 2 diabetes than non obese women and obese men are 5 times more likely to develop the disease than non-obese individuals. <sup>8</sup>

- **Some cancers** – Obesity increases the risk of breast (postmenopausal), colon, endometrial, ovary, cervical and gall bladder cancer in women and colon, rectum and prostate cancers in men.<sup>9</sup> Research has shown clear associations between colon cancer and obesity which increases the risk in both men and women by almost 3 times.
- **Musculoskeletal disorders**– Research has found that overweight and obese individuals suffer more from musculoskeletal pain compared to non-obese individuals. Osteoarthritis which is a joint disorder largely effecting the lower back, knee and hip joints is exacerbated by weight gain. Weight gain increases pressure on these joints which causes the protective cartilage to be worn away.<sup>6</sup>
- **Gallbladder disease** – the risk of developing gallbladder disease increases with weigh gain. The most common form of the disease is gallstones. Gallstones occur due to higher cholesterol output in bile and lower concentration of bile salts therefore the bile is at risk of forming gallstones.<sup>9</sup> research has found that 30% of overweight and obese individuals have gallstones compared to 10% of normal weight individuals.<sup>10</sup>
- **Psychological factors** – including social exclusion, depression, low self-esteem and cognitive functioning.<sup>9</sup> Obese and overweight adults are three to four times more likely to suffer from anxiety and depression than non-obese adults.<sup>11</sup>
- **Obstructive sleep apnoea (OSA)**– obesity can cause inefficiency of respiratory function by narrowing the individuals upper airway which causes short repetitive episodes of impaired breathing during sleep.<sup>9</sup>

## Current levels of obesity:

**Globally:** the latest predictions from The World Health Organisation (WHO) are that approximately 1.6 billion adults (15 years+) are overweight and at least 400 million are obese. By 2015 it has been predicted that 2.15 billion adults will be overweight and 700 million will be obese.<sup>4</sup>

**UK:** The Health Survey for England (HSE) 2005<sup>8</sup> reported that between 1993 and 2005:

- The number of adults with a desirable BMI (18.5-24.9 kg/m<sup>2</sup>) has decreased from 41.0% to 32.2% in men and from 49.5% to 40.7% among women.
- The number of obese (BMI over 30) men has increased from 13.2% to 22.1% and from 16.4% to 21.9% in women.

- Almost two-thirds of adults – approximately 31 million adults are either overweight or obese in England.
- It is predicted that by 2010, a third of men and over a quarter of women will be obese in England.<sup>3</sup>

### Obesity levels and physical activity:

#### The relationship between obesity and inactivity was highlighted in the HSE 2005

- The prevalence of obesity was higher in men who reported low activity levels compared to those who were more active (28.3% and 17.8% respectively)<sup>8</sup>
- This was also true for women, 29.2% of women reporting low levels of activity were obese compared to 16.0% among women who reported high levels of activity.<sup>8</sup>

### Populations at greater risk of obesity

Statistics have shown that the risk of obesity/overweight varies according to age, gender, ethnicity and social class.

**Age:** In both men and women obesity has been shown to increase with age. Among those aged 25-74 years, almost three-quarters (71.6%) of men and more than half of women (61.1%) are overweight or obese.<sup>8</sup>

**Gender:** Average BMI levels are similar for men and women (26.9kg/m<sup>2</sup>).<sup>8</sup> More men (42.6%) are overweight than women (32.1%) BUT a higher proportion of women are morbidly obese (2.7% vs 0.9% respectively).<sup>8</sup>

**Ethnicity:** Female minority ethnic groups have levels of central obesity that are higher than the general female population. The highest prevalence of obesity was found among Black African (38.5%), Black Caribbean (32.1%) and Pakistani (28.1%) women when compared to the general population (23.2%). Chinese women have the lowest levels of obesity (7.6%).<sup>12</sup> Bangladeshi (5.8%) and Chinese (6.0%) men have lowest prevalence of obesity compared to the general population (22.7%).<sup>12</sup> Black Caribbean (25.2%) men have the highest prevalence of obesity compared to the general population (22.7%).<sup>12</sup>

**Social Class:** Manual classes tend to have higher BMI than non-manual classes which has been shown to be associated with lower educational attainment and years studied; these relationships are stronger with females than for males.<sup>9</sup> In 2003, 28% of women in the lowest income quintile were obese compared to 15% of women in the highest income quintile. No relationship was found between men and household income.<sup>13</sup>

## Economic costs of obesity

The rise in obesity levels puts a significant financial burden on the NHS.

- In 2002 the direct cost of treating obesity was estimated to be between £46 and £49 million. <sup>13</sup>
- Treatment for diseases caused as a direct result of obesity is estimated to be between £945 and £1075 million. <sup>13</sup>
- The Health Select Committee estimated that in 2002 the total economic costs of obesity was between £3.3 billion and £3.7 billion and the cost of overweight plus obesity was £6.6 – £7.4 billion per year. <sup>6</sup>
- The indirect costs of obesity in 2002 was estimated at £1-1.1 billion for premature mortality and £1.3 – 1.45 billion for sickness absence
- Since 1999 there has been a 585% increase in the number of prescriptions given out for drugs in the treatment of obesity with over 871,000 prescriptions dispensed in 2005 compared to 127,00 in 1999. # <sup>13</sup>

## Key policy drivers

### Choosing Health: making healthy choices easier <sup>7</sup>

This major public health policy published in 2004 as a public sets out the governments commitments for action on obesity with an emphasis on health prevention rather than treatment of disease. It highlights areas across society to encourage and support individuals to choose a healthy lifestyle. Following this publication the governments delivery plan was outlined in the following reports published in 2005 *Delivering Choosing Health: Making healthier choices easier* <sup>14</sup>, *Choosing a better diet: A food and health action plan* <sup>15</sup> and *Choosing activity: A physical activity action plan*.<sup>16</sup> These reports provide details on the further action that needs to be taken at national, regional and local levels to improve peoples health through diet and increased physical activity.

### Public Service Agreement (PSA) <sup>17</sup>

There is a shared Department of Health (DoH), Department for Education and Skills (DfES) and Department for Culture, Media and Sport (DCMS) PSA target to: 'half the year-on-year rise in obesity among children under 11 by 2010, in the context of a wider strategy to tackle obesity in the population as a whole.'

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*#Obesity drugs only started to be dispensed in late 90s due to lack of clinical evidence therefore a sharp rise in prescriptions may have been expected.*

## **National Service Framework (NSF)**

While there is currently not a separate NSF for obesity, obesity care is currently part of the NSF for CHD (Standards 1, 3 & 4), Diabetes (Standards 1, 3, 4, 8-12) and Mental Health (Standard 1).<sup>18, 19, 20</sup>

## **Local policy drivers**

Local policy drivers are likely to tackle obesity through local area agreements, targets, standards, policies and strategies which promote healthy lifestyles. The Priorities Planning Framework<sup>21</sup> for primary care trusts (PCTs) includes advice on diet and physical activity.

## **National Institute for Health and Clinical Excellence (NICE)**

The NICE physical activity public health intervention guidance covers four commonly used methods to increase the population's physical activity levels: brief interventions in primary care, exercise referral schemes, pedometers and community-based walking and cycling programmes. The guidance is aimed at professionals working in the NHS, local authorities and the voluntary sector who have a direct or indirect role for physical activity or health improvement.<sup>22</sup>

## **Physical activity in the prevention of obesity**

### **Current recommendations from the Chief Medical Officer:<sup>5</sup>**

- For general health benefits 30 minutes of at least moderate intensity physical activity is recommended on 5 or more days of the week.
- This can be achieved by doing all the activity in one session or through several shorter bouts of activity of 10 minutes or more. The activity can be structured sport or lifestyle activity (part of everyday life e.g. climbing stairs, brisk walking) or combination of both.
- To prevent obesity 45-60 minutes of moderate intensity physical activity each day may be needed.
- To maintain weight loss 60-90 minutes of moderate intensity physical activity each day may be required in people who have been obese and have lost weight.

## Benefits of physical activity for overweight and obese

**Physical activity has a wide range of benefits for the overweight and obese:**

- Regular physical activity alone can result in weight loss of 0.5-1kg per month however a combination of physical activity and diet is more effective to maximise weight loss.<sup>5</sup>
- Physical activity helps to reduce visceral and total body fat and improves cardiovascular risk by reducing total cholesterol, low density lipoprotein (LDL) cholesterol and increasing high density lipoprotein (HDL) cholesterol levels.<sup>23,24,25</sup>
- Physical activity may reduce the risk of cancers of the colon and breast, especially in overweight and obese patients.<sup>5</sup>
- Physical activity improves insulin sensitivity and blood glucose uptake and control (diminishes resistance).<sup>25</sup> Physically active people have 33-50% lower risk of developing type 2 diabetes compared with in-active people.<sup>5</sup> The preventative effect of physical activity is strong for those at high risk of developing type 2 diabetes, as it can reduce the risk by up to 64% irrespective of weight loss.<sup>5</sup>
- Overweight and obese individuals are at a higher risk of suffering from anxiety and depression.<sup>11</sup> Physical activity can reduce anxiety and stress and improve mood, confidence, self regulation and programme adherence.<sup>5</sup>
- Physical activity increases lean body mass resulting in greater energy expenditure by increasing metabolism.<sup>26</sup>
- All treatment strategies for obesity should include lifestyle changes involving increased physical activity.
- Physical activity that can be included into everyday life, such as walking or cycling, appears to be as effective for weight loss as supervised exercise programmes.<sup>5</sup>
- Maintenance of physical activity is one of the best predictors of long-term weight management.<sup>2, 26, 27</sup>

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