# Health Survey for England 2016
# Adult health trends

**Published 13 December 2017**

This report provides updates to key statistics and measurements for adults aged 16 and over with commentary on trends over time.

## Key findings

- The proportion of adults with untreated hypertension decreased from 2003 to 2016 for both sexes (20% to 14% among men and 16% to 11% among women).
- The proportion of adults who were obese has increased since 1993 and was 26% in 2016. It has been at a similar level since 2010; between 25% and 27%.
- Since 1993 there has been a steady decline in the proportion of men and women who were current smokers, from 28% to 20% in 2016 among men, and from 26% to 16% among women.
- In 2016, 31% of men and 16% of women drank at a level indicating increased or higher risk of harm (more than 14 units per week). The proportion of both men and women drinking at increased or higher risk of harm decreased between 2011 and 2016 (from 35% of men and 18% of women).
- The proportion of women meeting the current guideline level of physical activity increased from 53% to 56% between 2008 and 2016.The proportion of men meeting the guideline in the same period remained at similar levels (66% in 2008 and 65% in 2016).

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# Contents

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This report may be of interest to members of the public, policy officials, people working in public health and to commissioners of health and care services to see changes over time in the prevalence of obesity, some health conditions and health related behaviours like smoking and drinking alcohol among adults in England.

# Introduction

## The Health Survey for England series

The Health Survey for England is a series of annual surveys designed to measure health and health-related behaviours in adults and children living in private households in England. The survey is currently commissioned by NHS Digital (formerly the Health and Social Care Information Centre (HSCIC)), and before April 2005 was commissioned by the Department of Health. Since 1994, the survey has been carried out by NatCen Social Research and the Research Department of Epidemiology and Public Health at UCL.

The survey consists of an interview and nurse visit. It has a series of core elements that are included every year or alternate years, and special topics that are included in selected years. These topics are currently included every year:

- General health
- Social care
- Smoking
- Alcohol consumption
- Height measurements
- Weight measurements
- Prescribed medicines
- Doctor diagnosed hypertension and diabetes
- Waist and hip measurements
- Blood pressure measurements
- Adult blood samples
- Child saliva samples.

Other topics are covered regularly, including overall health (EQ-5D), well-being, fruit and vegetable consumption, and saliva and urine samples from adults. Special topics covered in selected years include cardiovascular disease (CVD), physical activity, accidents, lung function measurement and certain blood analytes.

Each annual survey has covered the adult population aged 16 and over living in private households in England. Since 1995, the surveys have also covered children aged 2 to 15, and since 2001, infants aged under 2 have been included. In some years a boost sample is used to increase the proportion of participants from certain population groups. There was no sample boost in 2016.

In 2016, interviews were completed with 8,011 adults and 2,056 children.

## Trend tables

The trend tables focus on core topics and measurements. Trend tables present the results within the general population sample, although in some years boost sample data have been included. For example, some estimates for 2002, 2005 to 2010 and 2015 are based on data from children and young adults in both boost and general population samples to increase the precision of the results. For 2005, the boost

sample of older people is included in the estimates for people aged 65 and over. In these years, boost sample cases have been excluded from the estimates for all men, all women and all adults.[1]

## Changes to adult trend tables[2]

The trend tables were revised in 2006, and some new tables were introduced while others were not continued in the series. Full details of the changes were given in the commentary to the 2006 tables, available at http://content.digital.nhs.uk/catalogue/PUB00480. Two new tables were introduced for adults in 2013: one showing estimated weekly consumption of alcohol for 2011 onwards, and one showing well-being, based on the Warwick-Edinburgh Mental Well-being Scale from 2010.

Changes were made in 2015 to the table showing estimated weekly alcohol consumption, to show the proportion of men drinking above 14 units per week, to monitor the revised Chief Medical Officer's advice on low risk drinking. The median number of units drunk per week was added to this table in 2016.

## Technical details

The commentary in this report focuses on key trends in the health of adults aged 16 and over since 1993, or the earliest year for which comparable data are available. The Health Survey for England, in common with other surveys, collects information from a sample of the population. The sample is designed to represent the whole population as accurately as possible within practical constraints, such as time and cost. Consequently, statistics based on the survey are estimates, rather than precise figures, and are subject to a margin of error, also known as a 95% confidence interval. For example the survey estimate might be 24% with a 95% confidence interval of (22% to 26%). A different sample might have given a different estimate, but we expect that the true value of the statistic in the population would be within the range given by the 95% confidence interval in 95 cases out of 100.

Where differences are commented on in this report, these reflect the same degree of certainty that these differences are real, and not just within the margins of sampling error. These differences can be described as statistically significant.[3]

Confidence intervals are quoted for key statistics within this report and are also shown in more detail in the Excel tables accompanying the Methods report.[4] Confidence intervals are affected by the size of the sample on which the estimate is based. Generally, the larger the sample, the smaller the confidence interval, and hence the more precise the estimate.

Since 2013, standard errors (shown in some tables) have been calculated for all survey years using a complex samples module of the statistical package. In 2014,

[1] Data from older people in care homes collected for the 2000 survey are not included in trend tables as there are likely to be significant differences in the health of older people living in private households and in care homes.

[2] In 2016, a separate report includes tables and commentary on key trends in children's health.

[3] Statistical significance does not imply substantive importance; differences that are statistically significant are not necessarily meaningful or relevant.

[4] Available on the HSE 2016 report web pages at https://digital.nhs.uk/pubs/hse2016 .

standard errors for adult estimates in years up to 2002 were also recalculated using the complex samples module. This complex samples module takes account of the complex survey design and weighting used in the HSE rather than assuming a simple random sample.[5] In the earlier trend tables, standard errors for years up to 2002 did not use a complex samples module, and therefore indicated narrower margins of error than those shown in the tables from 2013 onwards.

In 2003, non-response weighting was introduced for the first time in the HSE series. Since the weighted data provide more accurate information for the individual years for which they are available, the analysis of trends in this report focuses on the weighted estimates for 2003 onwards.[6]

The impact of the weighting can be seen in the 2006 adults' trend tables, available at http://content.digital.nhs.uk/catalogue/PUB00480. These present unweighted estimates (directly comparable with previous years) and weighted estimates for 2003 to 2006.

In the tables, '-' represents zero, and '0' represents a percentage less than 0.5 but not zero.

## Population number estimates

Separate tables have been produced for key variables showing estimates of the numbers of people in the population, using prevalence data. These number estimate tables are available for adults for body mass index (BMI) categories, smoking, alcohol consumption, fruit and vegetable consumption and physical activity. The tables are accompanied by an introduction which provides technical information on how they are produced.[7]

[5] Full details of the HSE sample can be found in the HSE 2016 Methods report at http://digital.nhs.uk/pubs/hse2016.

[6] In 2003, key survey variables using weighted and unweighted estimates were compared. This comparison showed that there are small differences between weighted and unweighted results, which are generally larger for men than women. See Blake, M. *Weighting the data*. Section 7.4.2, in Sproston K, Primatesta P (eds). *Health Survey for England 2003. Volume 3: Methodology and documentation.* The Stationery Office, London, 2004.

[7] 2016 population estimates are available on the HSE 2016 report web pages at https://digital.nhs.uk/pubs/hse2016.

## List of tables



# Main findings

- The prevalence of high blood pressure (hypertension) in 2016 was 30% among men and 26% among women, with little change over the last few years.
- The proportion of adults with untreated hypertension decreased from 2003 to 2016 for both sexes (20% to 14% among men and 16% to 11% among women).
- The proportion of adults with a normal BMI decreased between 1993 and 2016, from 41% to 33% among men and from 49% to 41% among women. Most of the drop took place in the 1990s.
- The prevalence of obesity among adults increased steeply between 1993 and around 2000, and there was a slower rate of increase after that, with very little change in recent years. Prevalence of obesity has generally fluctuated between 24% and 27% from 2010 to 2016 for men and women.
- Following the same pattern as for BMI, there were noticeable increases between 1993 and 2016 for both men and women in mean waist circumference, and in the proportion with a very high waist circumference. In 2016 34% of men and 46% of women had a 'very high' waist circumference (more than 102 cm for men, more than 88cm for women).
- Since 1993 there has been a steady decline in the proportion of men and women who were current smokers, from 28% to 20% in 2016 among men, and from 26% to 16% among women.
- 31% of men and 16% of women drank at a level indicating increased or higher risk of harm (more than 14 units per week). The proportion of both men and women drinking at increased or higher risk of harm decreased between 2011 and 2016 (from 35% to 31% of men, and from 18% to 16% of women).
- The proportions of men and women consuming five or more portions of fruit and vegetables a day have remained at similar levels since 2008, at around 24% to 25% of men and 27% to 29% of women.
- Between 1993 and 2016, the proportion of adults reporting very good and good general health has fluctuated between 74% and 78% among men and between 73% and 76% among women (76% and 74% respectively in 2016).
- The prevalence of doctor-diagnosed diabetes increased between 1994 and 2016, with some year-on-year fluctuation, from 2.9% to 7.6% among men and from 1.9% to 6.2% among women.
- The proportion of women meeting the current guideline level of physical activity increased from 53% to 56% between 2008 and 2016.The proportion of men meeting the guideline in the same period remained at similar levels (66% in 2008 and 65% in 2016).
- Mean well-being scores fell slightly in 2016 (49.9 for adults in 2016, compared with 51.0 in 2010 and 51.6 in 2015).

# Blood pressure

## Introduction

Hypertension (high blood pressure) is an important public health challenge worldwide because of its high prevalence and the associated increase in risk of other diseases. It is one of the most important modifiable risk factors for cardiovascular, cerebrovascular and renal disease, and one of the most preventable and treatable causes of premature deaths worldwide.[8]

Clinical guidelines for hypertension emphasise the importance of physicians providing advice on modifiable lifestyle risk factors to reduce the overall risk[9] of serious cardiovascular events.[10] The environmental risk factors that have driven the epidemic of CVD include smoking, diets high in calories, saturated fats, carbohydrate and salt, and low fruit and vegetable consumption, with the effects exacerbated by sedentary lifestyles.[11] Management of people with hypertension, diabetes, or otherwise at substantial CVD risk includes assessing their risk of CVD and addressing other modifiable risk factors. Initially this involves lifestyle changes such as smoking cessation, reducing alcohol consumption, increasing physical activity, weight loss if overweight, and improved diet. These may be followed by drug treatment of hypercholesterolaemia (high blood cholesterol), hyperglycaemia (high blood sugar levels), and/or hypertension, as appropriate.

Table 1 shows blood pressure level by survey year, age and sex; the trend is shown in Figures 1 and 2. High blood pressure is defined as a systolic blood pressure at or above 140mmHg or diastolic blood pressure at or above 90mmHg or on medication prescribed for high blood pressure, as described in the 2003 report.[12] Participants were classified into one of four groups as follows:

- Normotensive untreated: SBP below 140mmHg and DBP below 90mmHg, not currently taking medication for blood pressure.
- Hypertensive controlled: SBP below 140mmHg and DBP below 90mmHg, currently taking medication for blood pressure.
- Hypertensive uncontrolled: SBP at or greater than 140mmHg and DBP at or greater than 90mmHg, currently taking medication for blood pressure.
- Hypertensive untreated: SBP at or greater than 140mmHg and DBP at or greater than 90mmHg, not currently taking medication for blood pressure.

[8] World Health Organization. *Global Health Observatory (GHO) Data, Raised blood pressure: Situation and Trends. 2016*; http://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/.

[9] Giuseppe M, De Backer G, Doniniczak A et al. *Guidelines for the Management of Arterial Hypertension: The Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC).* J Hypertens. 2007;**25**:6:1105-1187.

[10] National Institute for Health and Care Excellence (NICE). *Clinical management of primary hypertension in adults.* NICE Clinical Guideline 127. NICE, London, 2011 (updated 2016). https://www.nice.org.uk/guidance/cg127

[11] National Institute for Health and Care Excellence (NICE). *Cardiovascular disease: risk assessment and reduction, including lipid modification.* NICE Clinical Guideline 181. NICE, London, 2014 (updated 2016). https://www.nice.org.uk/guidance/cg181

[12] Sproston K, Primatesta P (eds). *Health Survey for England 2003. Volume 3: Methodology and documentation.* The Stationery Office, London, 2004.

Data are presented for 2003 to 2016, using the Omron monitor to measure blood pressure, and using the 2003 survey definition.[13]

## Table 1 – Blood pressure level using Omron values and 2003 definition, by survey year, age and sex

- The prevalence of hypertension among adults in 2016 was 28%, with little change over the last few years.[14]
- The prevalence of hypertension in 2016 was 30% among men and 26% among women.[15] The small differences between men and women in the prevalence of hypertension are not statistically significant, but these figures have been reported because they are of interest.
- Between 2003 and 2016, the proportion of the population with controlled hypertension increased from 5% to 10% among men, and 6% to 10% among women. In 2016, 10% of adults had controlled hypertension.
- The proportion of adults with untreated hypertension decreased from 2003 to 2016 for both sexes (20% to 14% among men and 16% to 11% among women). In 2016, 12% of adults had untreated hypertension. This proportion has fallen since 2003 when it was 15%.

There are no general population figures for blood pressure in 2004 as only the boost sample was measured in that year.

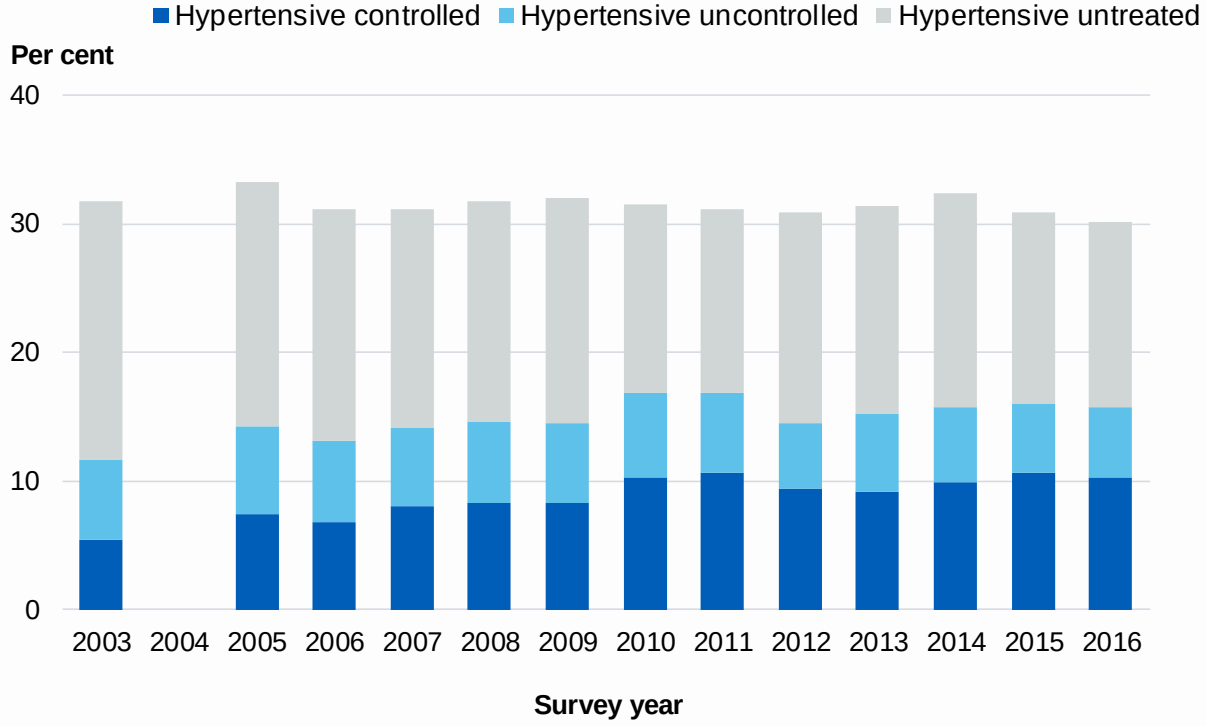
[13] Before 2003, blood pressure was measured using a Dinamap monitor, and the definition included use of medication which affects blood pressure, rather than medication for blood pressure, as used since 2003. The 2006 trend tables presented blood pressure using Dinamap values (with a conversion from Omron to Dinamap from 2003 to 2006) and the earlier definition; these tables can be found at http://digital.nhs.uk/catalogue/PUB00480.

[14] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that the proportion of adults in the population with hypertension was between 27% and 30%.

[15] It is likely that the proportion of men in the population with hypertension was between 28% and 33%, and the proportion of women was between 25% and 28%.

## Figure 1: Blood pressure levels among men, 2003-2016

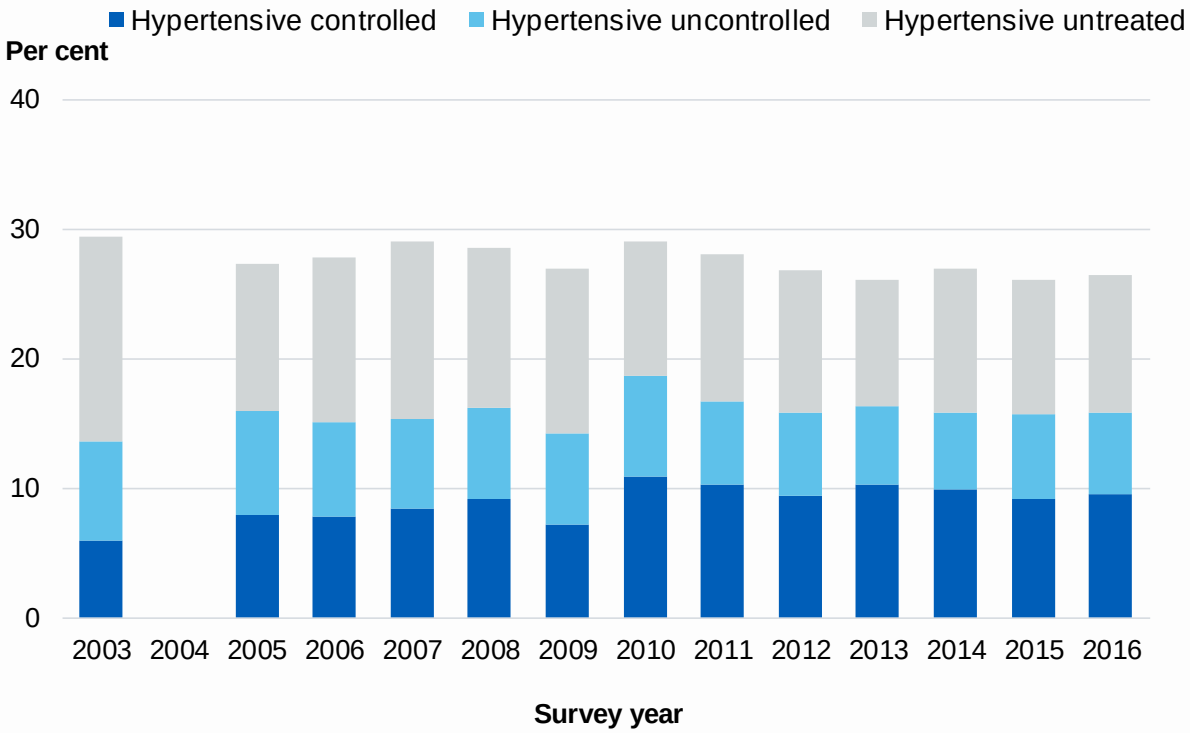
Base: Men aged 16 and over




Source: NHS Digital

## Figure 2: Blood pressure levels among women, 2003-2016

Base: Women aged 16 and over




Source: NHS Digital

# Height and weight

## Table 2 – Mean height, by survey year, age and sex

- In 2016 the mean height of men was 175.6cm, and of women was 161.9cm. Between 1993 and 2016, mean height varied little from year to year.

## Table 3 – Mean weight, by survey year, age and sex

- Between 1993 and 2016, mean weight increased from 78.9kg to 84.6kg among men, and from 66.6kg to 71.3kg among women.
- Among men, mean weight increased least among those aged 16 to 24 (an increase of 2.5kg, from 73.1kg to 75.6kg between 1993 and 2016), and most among those aged 65 to 74 (an increase of 8.1kg from 77.7kg to 85.8kg).
- Among women, mean weight increased least among those aged 16 to 24 (an increase of 3.0kg, from 62.6kg to 65.6kg between 1993 and 2016), and most among those aged 75 and over (an increase of 6.0kg from 62.0kg to 68.0kg).

# Obesity

## Introduction

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health.[16] Being overweight or obese is associated with an increased risk of a number of the most prevalent diseases and causes of death including diabetes, cardiovascular disease and some cancers.[17,18] For individuals with excess weight, the risk of poor health increases sharply with increasing body mass index (BMI).[19] Obesity is estimated to be the fourth largest risk factor contributing to deaths in England (after hypertension, smoking, and high cholesterol) according to the NHS Atlas of Risk.[20]

BMI is a widely used value of weight that takes into account the individual's height, and is defined as weight in kilograms divided by the height in metres squared ($kg/m^2$).[21] It has the advantage of being age-independent for adults, and comparable between men and women. However BMI does not distinguish between mass due to body fat and mass due to a muscular physique. It also does not take account of the distribution of fat. It has therefore been suggested that waist circumference, waist to hip ratio or waist to height ratio may be useful supplements to BMI to identify central (abdominal) obesity, which increases the health risk from being overweight.[22,23] More recently, waist circumference has been identified as the most useful of these three measures of central obesity in determining health risk.[24,25]

To address the issue of obesity, a number of government policies and initiatives are in place, aimed at individuals, the NHS, local authorities and food manufacturers and retailers. Physical activity and 'eatwell' guidelines give informed advice for a healthier lifestyle, including a healthier weight.[26,27] The 2016 childhood obesity action plan

[16] World Health Organization. *Fact Sheet No 311 Obesity and Overweight.* WHO, Geneva, 2012 (updated 2016). www.who.int/mediacentre/factsheets/fs311/en/index.html

[17] Prospective Studies Collaboration. *Body-mass index and cause-specific mortality in 900,000 adults: collaborative analyses of 57 prospective studies.* The Lancet 2009;**373**:1083-96.

[18] Calle E, Rodriguez C et al. *Overweight, Obesity, and Mortality from Cancer in a Prospectively Studied Cohort of U.S. Adults.* New England Journal of Medicine 2003;**348**:1625-38.

[19] Butland B, Jebb S, McPherson K et al. *Tackling Obesities: Future Choices – Project report*. Government Office for Science, London, 2007.

[20] NHS. Atlas of Risk. http://www.nhs.uk/Tools/Documents/risk.swf

[21] Keys A, Fidanza F, Karvonen M et al. *Indices of relative weight and obesity.* Journal of Chronic Diseases 1972;**25**:329–343.

[22] Lean M, Han T, Morrison C. *Waist circumference as a measure for indicating need for weight management.* BMJ. 1995;**311**:158-61.

[23] Schneider HJ, Friedrich N, Klotsche J et al. *The Predictive Value of Different Measures of Obesity for Incident Cardiovascular Events and Mortality*. Journal of Clinical Endocrinology and Metabolism. 2010;**95**:1777–1785.

[24] National Institute of Health and Care Excellence. *Obesity: Identification, assessment and management of overweight and obesity in children, young people and adults.* NICE, London, 2014. www.nice.org.uk/guidance/cg189/chapter/1-recommendations#identification-and-classification-of-overweight-and-obesity

[25] National Heart, Lung and Blood Institute Obesity Education Initiative. *The Practical Guide. Identification, Evaluation, and Treatment of Overweight and Obesity in Adults.* National Institutes of Health, 2000. www.nhlbi.nih.gov/files/docs/guidelines/prctgd_c.pdf

[26] Department of Health. *UK physical activity guidelines for adults (19-64 years) and (65+ years)*.Department of Health, London, 2011. https://www.gov.uk/government/publications/uk-physical-activity-guidelines

includes many measures that affect all ages, including a levy on producers and importers of soft drinks with added sugar, and a sugar reduction programme led by Public Health England (PHE).[28] The Public Health Responsibility Deal involves voluntary participation from food manufacturers and retailers in a number of areas including calorie reduction and improving food labelling systems.[29] The *Change4Life* public information campaign aims to improve diet and activity levels of parents and children.[30] The *Living Well for Longer* policy document aims to encourage local authorities and clinical commissioning groups (CCGs) to follow the lead of PHE in acting on obesity.[31] In particular, local authorities are being encouraged to use their powers to curb fast-food outlets[32] and to promote exercise and active travel.[33]

A Topic report, including detailed findings on adults' overweight and obesity in 2016 is available on the HSE 2016 report website.[34]

## Table 4 – Body mass index (BMI), by survey year, age and sex

BMI is defined as weight in kilograms divided by the square of height in metres. Adult participants can be classified into the following BMI groups: [35]

| *BMI (kg/m$^2$)* | *Description* |
|---|---|
| Under 18.5 | Underweight |
| 18.5 to less than 25 | Normal |
| 25 to less than 30 | Overweight |
| 30 and over | Obese |

A further category, 40kg/m$^2$ and over, representing those morbidly obese, is also shown.

[27] Public Health England. *Eatwell guide.* Public Health England, London, 2016. https://www.gov.uk/government/publications/the-eatwell-guide

[28] HM Government. *Childhood Obesity: A Plan for Action* London, 2016. https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action/childhood-obesity-a-plan-for-action

[29] Department of Health. *Public Health Responsibility Deal.* Department of Health, London, 2011. https://responsibilitydeal.dh.gov.uk/wp-content/uploads/2012/03/The-Public-Health-Responsibility-Deal-March-20111.pdf

[30] NHS. *Change4Life campaign.* www.nhs.uk/Change4Life/Pages/why-change-for-life.aspx

[31] Department of Health. *Living Well for Longer.* Department of Health, London, 2013. https://www.gov.uk/government/publications/helping-people-live-well-for-longer

[32] Public Health England. *Obesity and the environment briefing – regulating the growth of fast-food outlets.* Public Health England, London, 2014. www.gov.uk/government/publications/obesity-and-the-environment-briefing-regulating-the-growth-of-fast-food-outlets

[33] Public Health England. *Obesity and the environment briefing – increasing physical activity and active travel.* Public Health England, London, 2013. www.gov.uk/government/publications/obesity-and-the-environment-briefing-increasing-physical-activity-and-active-travel

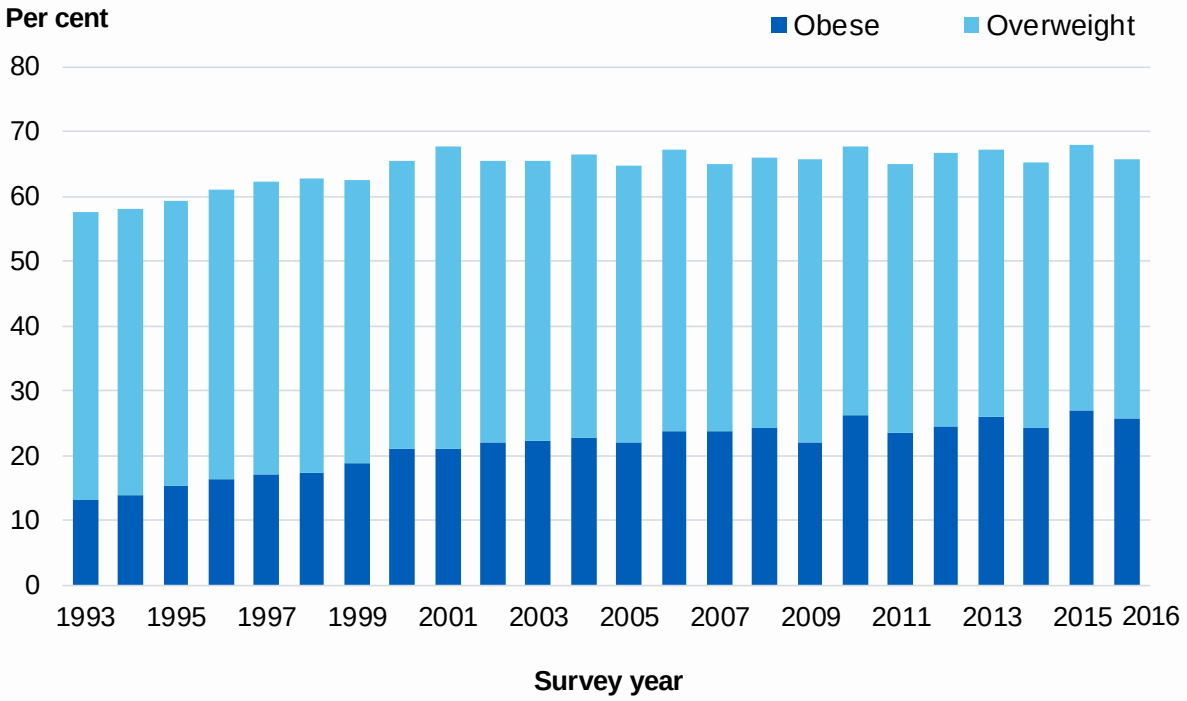
[34] At https://digital.nhs.uk/pubs/hse2016.

[35] In HSE 2003, the categorisation of BMI changed to reflect recent medical opinion which now regards it as more appropriate to define 18.5 to under 25kg/m$^2$ as desirable or 'normal' and less than 18.5 as undesirable or underweight. Reports for HSE 2003 onwards have used this revised definition, and for the purpose of trends analysis the revised definition has also been used for 1993 to 2002. This replaces the earlier definition of desirable weight of over 20 to 25kg/m$^2$. See Hirani V, Chapter 6: *Anthropometric measures, overweight, and obesity* in Sproston K, Primatesta P (eds). *Health Survey for England 2003. Volume 2: Risk factors for cardiovascular disease.* The Stationery Office, London, 2004.

- The proportion of adults with a normal BMI decreased between 1993 and 2016, from 41% to 33% among men and from 49% to 41% among women. Most of the drop took place in the 1990s.
- Throughout the period, men were more likely than women to be overweight. Since 2003, the proportions who were overweight have declined from 43% to 40% of men and from 33% to 30% of women.[36]
- Between 1993 and 2010, there was a marked increase in the proportion who were obese. This increased from 13% of men and 16% of women in 1993, to 26% of both men and women in 2010. Obesity prevalence increased steeply between 1993 and around 2000, and then more gradually after that, with very little change in recent years. Prevalence of obesity has generally fluctuated between 24% and 27% from 2010 to 2016 for men and women, and in 2016 stood at 26% of men and 27% of women.[36]

**Figure 3: Proportion of men who were obese and overweight, 1993-2016**

Base: Men aged 16 and over



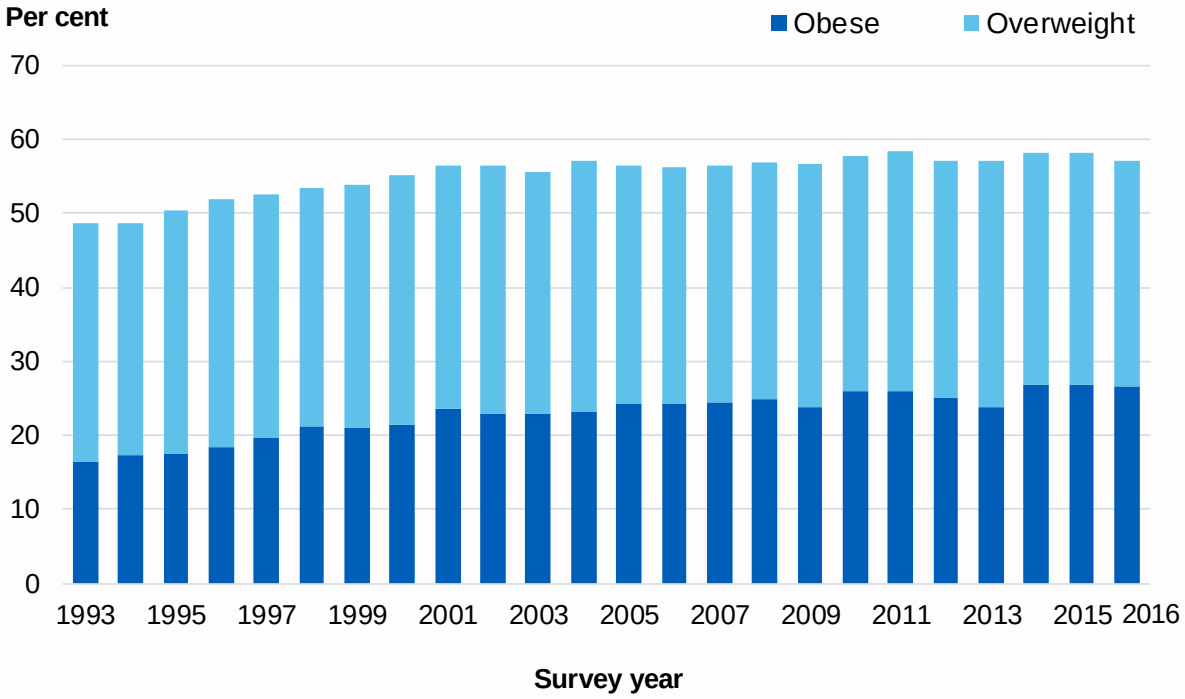

Source: NHS Digital

[36] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that in 2016 the proportion of men in the population who were overweight was between 38% and 42% and the proportion of women who were overweight was likely to be between 29% and 32%. It is likely that in 2016 the proportions of adults in the population who were obese were between 24% and 28% of men and between 25% and 28% of women.

**Figure 4: Proportion of women who were obese and overweight, 1993-2016**

Base: Women aged 16 and over




Source: NHS Digital

Estimates of the number of adults in the population for BMI categories from 2003 to 2016 are available in the population number estimates tables.

## Table 5 – Mean waist circumference and proportion with very high waist circumference, by survey year, age and sex

Waist circumference, a measure of central adiposity (body fat), has been measured in the core sample in most years of the HSE since 1993. Table 5 shows the proportion of the population that has a 'very high' waist circumference, which is defined as greater than 102cm in men and greater than 88cm in women.

Prior to the HSE 2015 report, 'very high' waist circumference was categorised as 'raised'. The change was only to the name of the variable and the threshold for waist measurement remained unchanged. The 'very high' category was used in a National Institute for Health and Care Excellence (NICE) classification of health risk based on BMI and waist circumference.[37] Note that this 'very high' definition is also used in Table 6.

- Consistently over the period of measurement, a higher proportion of women than men have had a very high waist circumference.
- Following the same pattern as for BMI, there were noticeable increases between 1993 and 2016 for both men and women in mean waist circumference, and in the

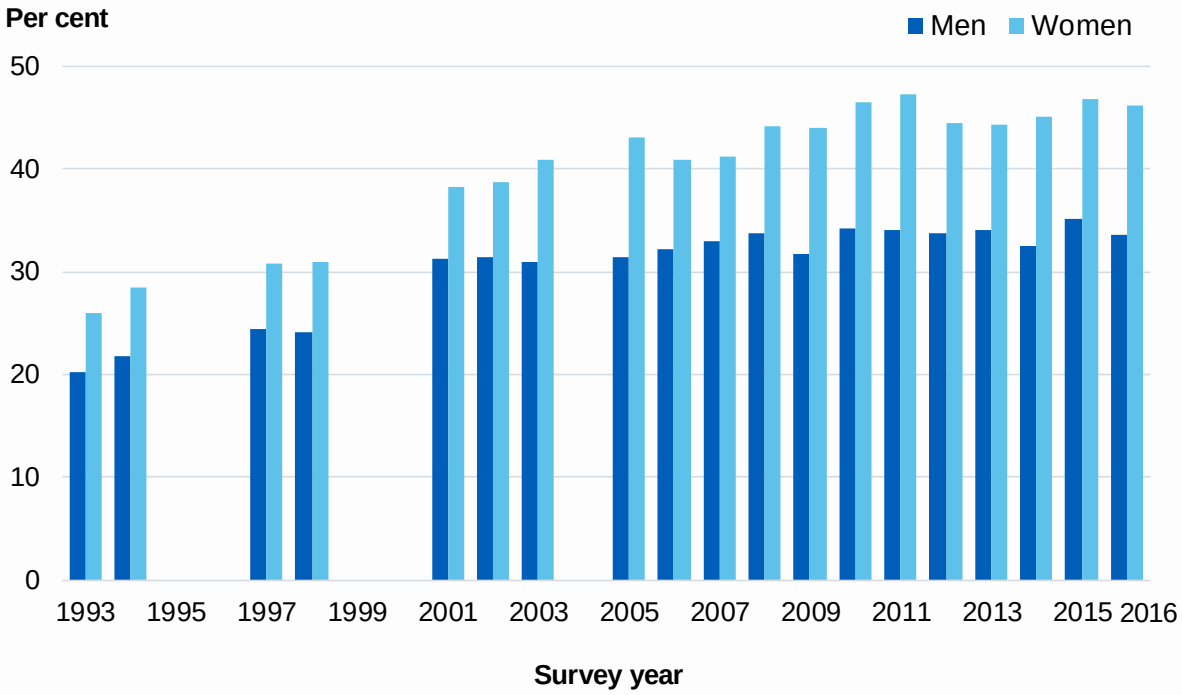
[37] See more detail about waist measurement in the HSE 2016 report, *Health Survey for England 2016: Adult overweight and obesity*, at http://digital.nhs.uk/pubs/hse2016

proportion with a very high waist circumference. As with BMI, the figures have been similar in recent years.

- Among men, the mean waist circumference rose from 93.2cm in 1993 to 97.0cm in 2016, and the proportion with a very high waist circumference (more than 102cm) rose from 20% to 34%.[38]
- Among women, the mean waist circumference rose from 81.7cm in 1993 to 88.1cm in 2016, and the proportion with a very high waist circumference (more than 88cm) rose from 26% to 46%.[38]

**Figure 5: Proportion of adults with a very high waist circumference, 1993-2016**

Base: Aged 16 and over




Source: NHS Digital

[38] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that in 2016 the proportions of adults in the population with a very high waist circumference were between 31% and 36% of men, and between 44% and 48% of women.

## Table 6 – Body mass index (BMI), waist circumference and health risk, by survey year and sex

Guidance from the National Institute for Health and Care Excellence (NICE)[39] states that the assessment of the health risks associated with being overweight or obese should be based both on BMI and waist circumference in adults as follows:

| | Waist circumference | | |
|---|---|---|---|
| **BMI classification** | **Low** | **High** | **Very high** |
| Normal weight | No increased risk | No increased risk | Increased risk |
| Overweight (25 to less than 30kg/m$^2$) | No increased risk | Increased risk | High risk |
| Obesity I (30 to less than 35kg/m$^2$) | Increased risk | High risk | Very high risk |
| Obesity II (35 to less than 40kg/m$^2$) | Very high risk | Very high risk | Very high risk |
| Obesity III (40kg/m$^2$ or more) | Very high risk | Very high risk | Very high risk |

For men, low waist circumference in this classification is defined as less than 94cm, high as 94–102cm, and very high as greater than 102cm. For women, low waist circumference is less than 80cm, high is 80–88cm and very high is greater than 88cm. Note that for adults with a BMI of 35kg/m$^2$ or more, risks are assumed to be very high with any waist circumference.

- There have been increases for both men and women in the proportion found to be at very high risk and at high risk, although most of the increase took place between 1993 and 2001 (from 22% to 32% for men, and from 26% to 37% for women).
- Since 2001, there has been some fluctuation but little change for men, with 13% at high risk and 22% at very high risk in 2016, giving a combined total of 35%.
- The picture is similar for women, with some fluctuation since 2001 but also a gradual increase overall to 43% being at high or very high risk in 2016.

[39] National Institute for Health and Care Excellence (NICE). *Obesity: Guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children.* Page 222. NICE, London, 2006 (updated 2015). www.nice.org.uk/guidance/cg43/chapter/guidance

# Cigarette smoking

## Introduction

Cigarette smoking in England has been in long-term decline. Since 1998, when *Smoking kills: a White Paper on tobacco* was published,[40] cigarette smoking prevalence among adults has fallen from 28% to 18%. However, tobacco use remains the leading cause of preventable illness and premature death in England and worldwide.[41] Tobacco use contributed to around 21% of deaths in men and 13% of deaths in women aged over 35 in England in 2014.[42]

Smoking is the biggest contributor to health inequalities. It has been estimated that tobacco use accounts for around half of the difference in life expectancy between the richest and poorest groups.[43] In 2013, around 35% of unemployed people were current smokers compared with 19% of those in employment, according to the Opinions and Lifestyle Survey.[42]

To tackle the health burden related to smoking, a series of laws have come into force in the past 15 years. This included a ban on tobacco advertising on billboards and in printed publications in 2003.[44] In addition, tobacco displays at the point of sale have been prohibited in supermarkets and large shops since April 2012, and ceased in small shops from April 2015.[45]

To reduce exposure to the harmful effects of secondhand smoke, a smokefree law was implemented in July 2007, banning smoking in workplaces and enclosed public places.[46]

In 2017, the government published *Towards a smoke-free generation: a tobacco control plan.*[47] This set out a five-year plan to reduce the harms of smoking, including a target to reduce adult smoking to 12% or less by the end of 2022.

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[40] Department of Heath. *Smoking kills: a White Paper on tobacco*. DH, London, 1998. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4006684

[41] World Health Organization. *WHO Report on the Global Tobacco Epidemic 2017* WHO, Siwtzerland, 2017. http://www.who.int/tobacco/global_report/2017/en/

[42] Health and Social Care Information Centre. *Statistics on Smoking: England, 2016*. HSCIC, Leeds, 2016. http://content.digital.nhs.uk/catalogue/PUB20781/stat-smok-eng-2016-rep.pdf.

[43] Marmot M, Allen J, Goldblatt P et al. *Fair Society, Healthy Lives: Strategic review of health inequalities in England post-2010*. The Marmot Review, London, 2010. https://www.gov.uk/dfid-research-outputs/fair-society-healthy-lives-the-marmot-review-strategic-review-of-health-inequalities-in-england-post-2010

[44] HM Government. *The Tobacco Advertising and Promotion Act*. Her Majesty's Stationary Office (HMSO), London, 2002. www.legislation.gov.uk/ukpga/2002/36/contents

[45]Action on Smoking and Health. *Advertising and Promotion.* ASH, London, 2012. www.ash.org.uk/current-policy-issues/advertising-and-promotion

[46] Bauld L. *The Impact of Smokefree legislation in England: Evidence Review.* Department of Health, London, 2011. www.gov.uk/government/uploads/system/uploads/attachment_data/file/216319/dh_124959.pdf

[47] Department of Health. *Towards a smoke-free generation: a tobacco control plan for England*. DH, London, 2011. www.gov.uk/government/publications/towards-a-smoke-free-generation-tobacco-control-plan-for-england

## Table 7 – Self-reported cigarette smoking status and consumption, by survey year and sex

- Current smoking among men declined slowly between 1993 and 2006 (from 28% to 24%), and there was little overall change in prevalence between 2006 and 2013. In 2016 current smoking prevalence had fallen further to 20%, continuing the gradual downward trend.
- The proportion of men who had never smoked regularly increased from 39% in 1993 to 53% in 2016.[48]
- The proportion of men who smoked 20 or more cigarettes per day fell from 11% in 1993 to 4% in 2016, and the proportion who smoked 10 to 19 cigarettes a day also fell from 10% to 7%. The proportion who smoked fewer than 10 cigarettes showed little change over the same period (8% in 2016).
- The proportion of women who were current smokers decreased from 26% in 1993 to 16% in 2016, while the proportion who had never regularly smoked increased from 52% to 62% in the same period.
- As with men, there were no statistically significant changes in the proportion of women who smoked fewer than 10 cigarettes per day (7% in 2016). However, there was a decrease among women in those who smoked 10 to 19 cigarettes per day (11% in 1993 to 7% in 2016) and in those who smoked 20 or more cigarettes per day (from 8% to 2% over the same time period).

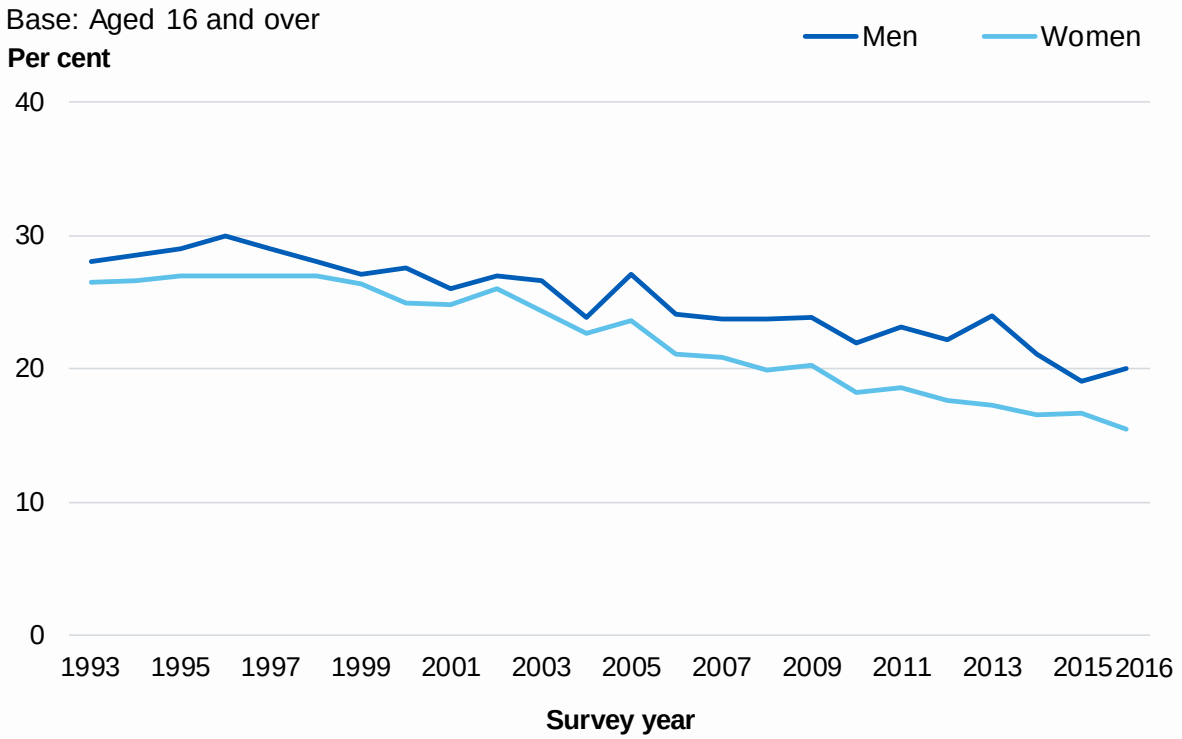
[48] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that the proportion of men in the population who had never smoked regularly was between 51% and 55%, and the proportion who were current smokers was between 18% and 22%. Similarly, it is likely that the proportion of women in the population who had never smoked regularly was between 60% and 64%, and the proportion who were current smokers was between 14% and 17%.

## Table 8 – Self-reported cigarette smoking status, by survey year, age and sex

- The prevalence of cigarette smoking has consistently been highest among men aged 25 to 34 (25% in 2016). Older adults have always been the least likely to be current smokers (11% among those aged 65 to 74, 6% aged 75 and over in 2016).
- The prevalence of cigarette smoking has decreased between 1993 and 2016 in all age groups among both men and women.

Estimates of the number of adults in the population for self-reported cigarette smoking status from 2003 to 2016 are available in the population number estimates tables.

**Figure 6: Proportion of adults who currently smoke cigarettes, 1993-2016**




Source: NHS Digital

# Alcohol consumption

## Introduction

Over the past few decades an increasing awareness and understanding of the health impacts of regular alcohol consumption, along with changes in drinking patterns and behaviour, have given rise to concern amongst policy makers, health professionals and the general public. Governments have published successive strategies for promoting sensible drinking and reducing alcohol-related harm: the 2004 *Alcohol Harm Reduction Strategy for England;*[49] *Safe. Sensible. Social. The next steps in the national alcohol strategy* in 2007;[50] and *The Government's Alcohol Strategy* in 2012.[51]

The World Health Organization (WHO) places alcohol as the third biggest global risk for burden of disease,[52] and alcohol is identified as a causal factor in more than 60 medical conditions,[53] as well as some cancers including breast, throat and liver.[54,55] The risk of alcohol-related harm increases with the amount drunk on a regular basis. Short-term health risks include accidents and injuries,[56] and alcohol-related hospital admissions continue to increase. In 2015/2016 there were 1.1 million hospital admissions where an alcohol-related disease, injury or condition was the primary reason for admission or a secondary diagnosis,[57,58] with men more likely than women to be admitted for these reasons.[59] The risks are not just to those consuming alcohol, however; alcohol consumption has wider detrimental impacts on society, including harm caused to third-parties, crime, and anti-social behaviour.[57]

[49] Strategy Unit. *Alcohol Harm Reduction Strategy for England*. Cabinet Office, London, 2004.

[50] Department of Health, Home Office et al. *Safe. Sensible. Social. The next steps in the national alcohol strategy*. London, 2007. http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publichealth/Healthimprovement/Alcoholmisuse/DH_085386

[51] HM Government. *The Government's Alcohol Strategy.* TSO, London, 2012. www.gov.uk/government/publications/alcohol-strategy

[52] Mathers C, Stevens G and Mascarenhas M. *Global health risks: mortality and burden of disease attributable to selected major risks.* Geneva: World Health Organization. 2009. www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf

[53] Alcohol Concern. *Statistics on alcohol*. https://www.alcoholconcern.org.uk/alcohol-statistics.

[54] Department of Health. *Alcohol Guidelines Review – Report from the Guidelines development group to the UK Chief Medical Officers*. Department of Health, London, 2016. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/489797/CMO_Alcohol_Report.pdf

[55] The International Agency for Research on Cancer now recognises alcohol as a cause of particular cancers. IARC. *Consumption of Alcohol Beverages. In Personal habits and indoor combustions volume 100 E. A review of human carcinogens.* IARC, Lyon, 2012. http://monographs.iarc.fr/ENG/Monographs/vol100E/mono100E-11.pdf

[56] NHS Choices. *Alcohol misuse – Risks*. NHS Choices http://www.nhs.uk/Conditions/Alcohol-misuse/Pages/Risks.aspx

[57] NHS Digital. *Statistics on alcohol, England 2017*. NHS Digital, 2017. https://www.gov.uk/government/statistics/statistics-on-alcohol-england-2017

[58] Nearly half of these admissions were for CVD conditions related to alcohol consumption and almost one fifth (19%) were for mental or behavioural disorders caused by alcohol, cited in *Statistics on alcohol, England 2017*; see note 57.

[59] In 2014/15 men accounted for 65% of hospital admissions for an alcohol related disease, injury or condition, cited in *Statistics on alcohol, England 2017*; see note 57.

The increase in alcohol-related morbidity and mortality has largely been attributed to the rise in alcohol consumption since the post-war years. Per head of the adult population, alcohol consumption more than doubled between the mid-1950s and 1990s.[60] There have also been changes to consumption behaviour, with an increase in alcohol purchased from off-licences and consumed at home as opposed to licenced establishments. This long-term trend is thought to be largely due to the increasing affordability of alcohol from off-licence sellers.[60]

The publication of *Drinking Sensibly* in 1981[61] defined alcohol misuse and introduced the concept of 'sensible drinking'. 'Sensible limits', that is, the amount people should limit their drinking to in order to avoid damage to health, were set at up to 21 units per week for men and 14 units per week for women.[62] The guidance was revised in the 1995 *Sensible Drinking* report[63] and linked to daily rather than weekly consumption. Regular consumption of between three and four units per day for men and between 2 and 3 units per day for women was deemed to be of lower risk of alcohol-related harm.

In 2016 the UK Chief Medical Officers (CMOs) published new guidelines on low risk drinking.[64] In a move away from daily limits, it is now recommended that men and women should not regularly (defined as most weeks) drink more than 14 units a week. Drinking at this level is considered to be 'low risk', and adults who regularly drink up to this amount are advised to spread their drinking over three or more days. Above this level is considered to be 'increased risk', for men this is now above 14 units and up to 50 units, and for women over 14 units and up to 35 units per week. Men who regularly drink more than 50 units a week and women more than 35 units, are described as 'higher risk drinkers' and are considered to be at particular risk of alcohol-related health problems.[64]

## Methods and definitions

Trends in alcohol consumption between 1998 and 2016 are shown in Table 9, based on the maximum amount drunk on any day in the last week. Up to 2002, and from 2011 to 2016, questions were also asked about usual weekly alcohol consumption, and Table 10 shows the data from 2011. Trend tables from 1992 to 2002 based on weekly consumption were included in the 2005 trend tables.[65] Since then there have been changes in the strength of beers and wines, and the conversion to alcohol units

[60] Institute of Alcohol Studies. *Alcohol consumption factsheet*. Institute of Alcohol Studies, 2013. http://www.ias.org.uk/uploads/pdf/Consumption%20docs/Alcohol%20consumption%20factsheet%20August%202013.pdf

[61] Department of Health and Social Security (1981) *Prevention and Health. Drinking Sensibly. A discussion document prepared by the Health Departments of Great Britain and Northern Ireland.* HMSO. London

[62] Introduced as part of the government's 1992 White paper. Department of Health. (1992) *The health of the Nation – a strategy for health in England.* Her Majesty's Stationery Office.

[63] Department of Health. *Sensible drinking: report of an inter-departmental working group*. DH, London,1995. http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_4084702.pdf

[64] UK Chief Medical Officers. *Low Risk Drinking Guidelines*. Department of Health, London, 2016 https://www.gov.uk/government/publications/alcohol-consumption-advice-on-low-risk-drinking

[65] *Health Survey for England – 2005, Latest Trends*. Health and Social Care Information Centre, Leeds, 2006. http://content.digital.nhs.uk/catalogue/PUB01178

in the HSE had changed (see below), so no comparisons are drawn between the data up to 2002 and from 2011.

In 2011 the HSE questions on alcohol consumption were supplemented by a seven day drinking diary. While results are not shown in the trend tables, both interview and diary estimates of weekly drinking, and comparisons between the two, are presented in the 2011 report.[66]

The method used by the HSE to convert drinks to units remained essentially unchanged from 1991 until 2005, based on assumptions introduced by the General Household Survey (GHS) in 1990.[67] By the mid-2000s, it became clear that these assumptions were no longer valid. The average strengths of beers and wines had increased in the intervening years, and pubs, bars and restaurants now serve drinks in a broader range of measures.[68] From 2006, changes have been made in the way the HSE and other surveys estimate alcohol consumption.[69]

[66] Ng Fat L, Fuller E. *Drinking patterns* and Boniface S, Fuller E. *Drinking diary.* Chapters 6 and 7 in Craig R, Mindell J (eds). *Health Survey for England 2011.* Health and Social Care Information Centre, Leeds, 2012 http://content.digital.nhs.uk/catalogue/PUB09300

[67] Smyth M, Browne F. *General Household Survey 1990.* HMSO, 1992.

[68] Goddard E. *Estimating alcohol consumption from survey data: improved method of converting volume to units.* ONS, 2007. http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/method-quality/specific/gss-methodology-series/index.html

[69] The table below shows the original conversion factors used by the HSE until 2005 and the revised conversion factors used from 2006.

| Type of drink | Measure | Original equivalent units of alcohol | Revised equivalent units of alcohol |
|---|---|---|---|
| Normal strength beer, lager, stout, cider, shandy (less than 6% ABV) | Pint | **2** | **2** |
| | Can or bottle | amount in pints multiplied by 2 | amount in pints multiplied by 2 |
| | Small cans (size unknown) | **1** | **1.5** |
| | Large cans or bottles (size unknown) | **2** | **2** |
| Strong beer, lager, stout, cider (6% ABV or more) | Pint | 3 | 4 |
| | Can or bottle | amount in pints multiplied by 3 | amount in pints multiplied by 4 |
| | Small cans (size unknown) | **1.5** | **2** |
| | Large cans or bottles (size unknown) | **3** | **3** |
| Spirits and liqueurs | Glass (single measure) | 1 | 1 |
| Sherry, martini and other fortified wines | Glass | 1 | 1 |
| Wine | Glass | 1 | 2 |
| Alcopops | Small can or bottle | 1 | 1.5 |

The changes have an impact on the estimated consumption of beer, wine and alcopops; the most significant of these is the revision to the unit equivalent of a glass of wine. In 2006, the conversion for a glass of wine was changed from one unit to two units; in 2007, a further adjustment was made and separate conversion rates were used for 125ml, 175ml and 250ml wine glasses.[70] Table 9 shows both the original and revised estimates for 2006, and the revised estimates for 2007 onwards; the revised methodology has been used to measure trends in subsequent years.[71]

## Table 9 – Estimated maximum alcohol consumption on any day in the last week, by survey year, age and sex

- The proportion of men drinking more than 4 units on any day in the last week was lower in 2016 (34%) than in 2006 (41%). There has been a gradual decline from a peak of 43% in 2009.
- The proportion of men who drank more than 8 units in a day dropped from 24% in 2006 to 19% in 2016, with a gradual decline since 2009.[72]
- There was a similar pattern of decrease among women: between 2006 and 2013 the proportion consuming more than 3 units on any day in the last week dropped from 33% to 27%. Since 2013 this proportion has fluctuated between 25% and 27%; in 2016 it was 27%.
- The proportion of women drinking more than 6 units in a day decreased between 2006 and 2016 from 16% to 12%.[72]

Estimates of the number of adults in the population consuming different amounts of alcohol (on their heaviest drinking day in the last week) from 2003 to 2016 are available in the population number estimates tables.

[70] From 2007 the unit conversions for glasses of wine were as follows:

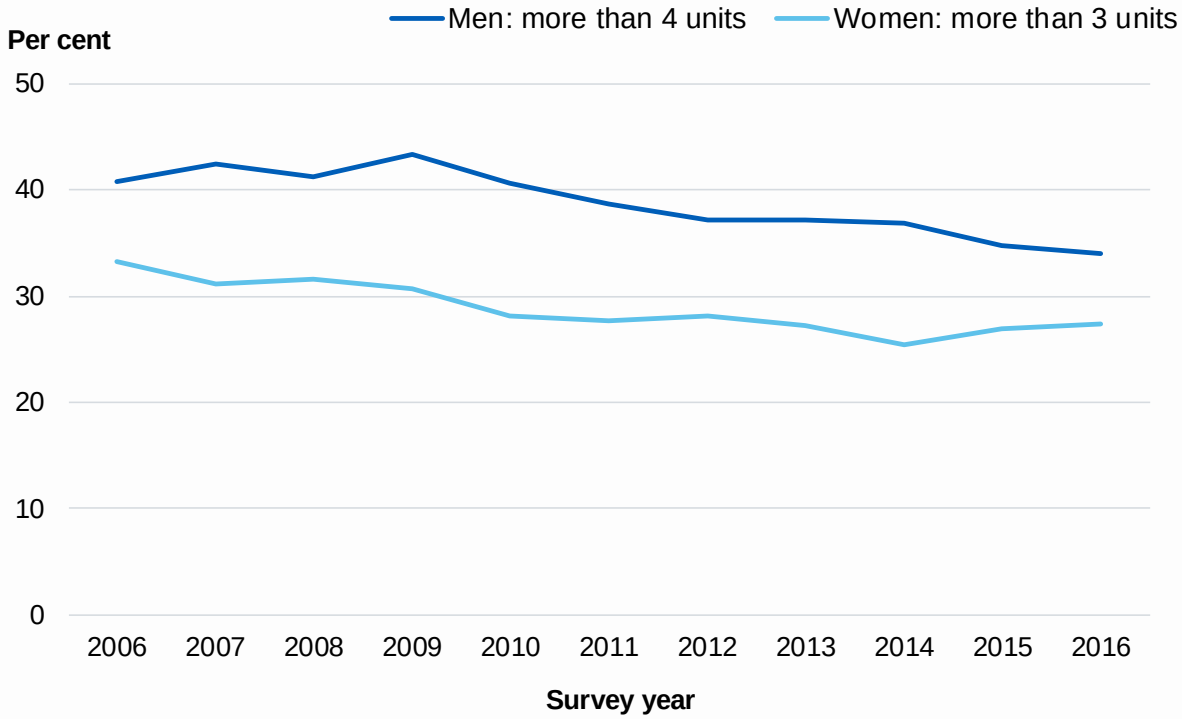
| | |
|---|---|
| Large glass 250ml | 3.0 units |
| Standard glass 175ml | 2.0 units |
| Small glass 125ml | 1.5 units |

[71] For information on trends using the original method, and differences between the original and revised estimates for 2006, see the 2006 trend tables commentary, available at http://content.digital.nhs.uk/catalogue/PUB00480

[72] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that the proportion of men in the population who drank more than 8 units of alcohol in a single day in the last week was between 17% and 20%, and the proportion of women who drank more than 6 units in a single day in the last week was between 11% and 14%.

**Figure 7: Maximum amount drunk on any day in the last week, 2006-2016**

Base: Aged 16 and over




Source: NHS Digital

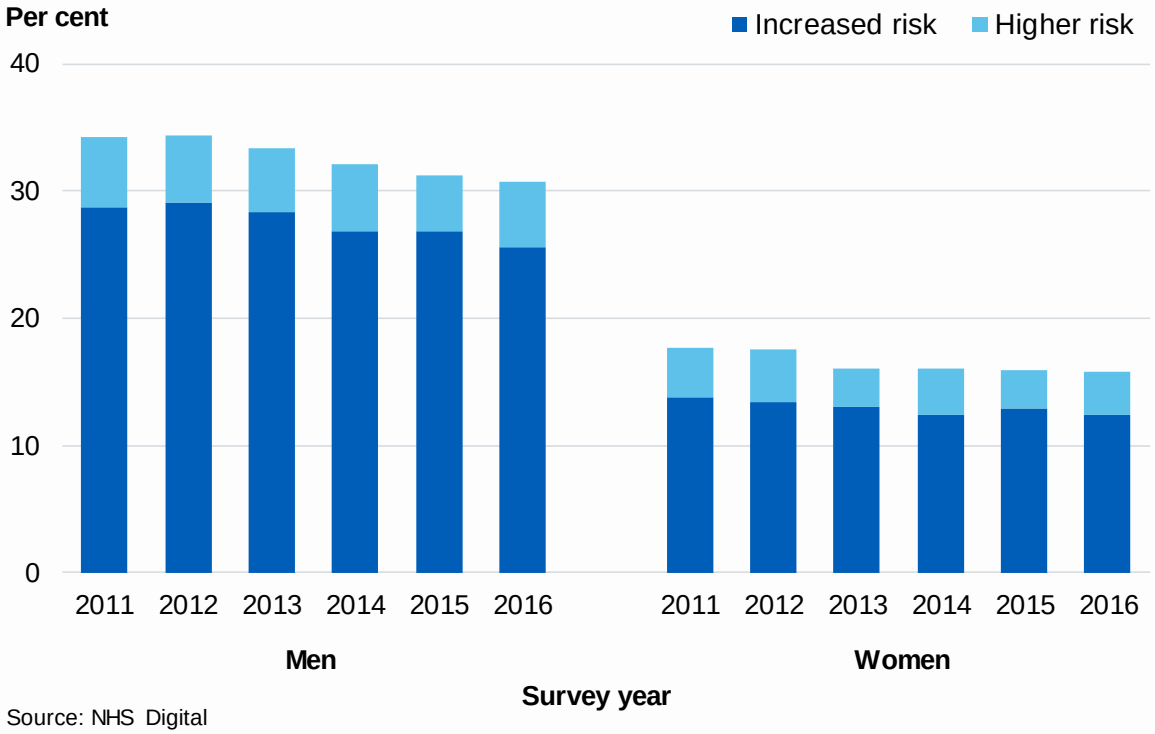
## Table 10 – Estimated weekly alcohol consumption, by survey year, age and sex

To reflect the change in the low-risk drinking guidelines, Table 10 was amended in 2015 to show the proportion of men drinking above 14 units per week. In 2016 the median number of units per week was included.

- There has been no statistically significant change since 2011 in average weekly consumption of alcohol by either men or women. In 2016, mean consumption was 16.0 units per week for men and 9.1 units per week for women.
- In 2016, 17% of men and 22% of women reported that they did not drink any alcohol in the last year. A higher proportion of women (62%) than of men (53%) drank at a level indicating a lower risk of harm (up to 14 units per week).
- 26% of men drank at a level indicating an increased risk of harm (more than 14, up to 50 units per week), and 5% drank at higher risk levels (more than 50 units per week). Overall 31% of men drank at increased or higher risk levels.
- The proportion of women drinking at an increased risk level (more than 14, up to 35 units per week) was lower than that of men at 12%, and 3% of women drank at higher risk levels (more than 35 units per week). Overall 16% of women drank at increased or higher risk levels.
- The proportion of both men and women drinking at increased or higher risk of harm decreased between 2011 and 2016 (from 34% to 31% of men, and from 18% to 16% of women).

**Figure 8: Proportion of adults drinking at increased or higher risk of harm, 2011-2016**

Base: Aged 16 and over




Source: NHS Digital

# Fruit and vegetable consumption

## Introduction

In 2002 the World Health Organization (WHO) began to develop a global strategy on diet, physical activity and health in the context of the rising burden of chronic diseases. Diseases like cardiovascular disease, stroke, diabetes and cancer present a major challenge to public health, particularly in developed countries. These diseases, and the associated unhealthy behaviours, cluster among poor communities and contribute to social and economic inequalities.[73]

A 2005 report estimated that food-related ill-health in the UK is responsible for about 10% of deaths and illness, costing the NHS £6 billion annually. The vast majority of this burden is due to unhealthy diets rather than food-borne diseases.[74] Dietary goals to prevent chronic diseases emphasise eating more fresh vegetables, fruits, and pulses.[75] The 5 A DAY guidelines were developed based on the recommendation from WHO that consuming 400g fruit and vegetables a day can reduce risks of chronic diseases, e.g. heart disease, stroke, and some cancers.[76] These guidelines state that everyone should eat at least five portions of a variety of fruit and vegetables every day.[77] Fruit and vegetables may also play an important role in weight management when combined with reduced fat intake,[78] and may reduce the risk of Type 2 diabetes[79] and impaired cognitive function.[80]

Questions about fruit and vegetable consumption were first included in the HSE in 2001, and are designed to assess fruit and vegetable consumption in terms of portions per day (roughly 80g per portion). The questions were not included in 2012 or 2014.

[73] World Health Organization. *Global strategy on diet, physical activity and health.* The Fifty-seventh World Health Assembly, World Health Organization, Geneva, 2004. www.who.int/dietphysicalactivity/strategy/eb11344/strategy_english_web.pdf

[74] Rayner M, Scarborough P. *The burden of food related ill health in the UK.* J Epidemiol Community Health 2005;**59**:1054-1057.

[75] Commission on Social Determinants of Health. *Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health.* World Health Organization, Geneva, 2008. www.who.int/social_determinants/thecommission/finalreport/en/index.html

[76] *Diet, nutrition and the prevention of chronic diseases: report of a Joint FAO/WHO Expert Consultation.* WHO Technical Report Series, No. 916. World Health Organization, Geneva, 2003. www.who.int/dietphysicalactivity/publications/trs916/en/

[77] www.nhs.uk/livewell/5aday/pages/5adayhome.aspx/

[78] Tohill B. *Dietary intake of fruit and vegetables and management of body weight.* Background paper for the Joint FAO/WHO Workshop on Fruit and Vegetables for Health, World Health Organization, 2004. www.who.int/dietphysicalactivity/publications/f&v_weight_management.pdf

[79] Bazzano L, Li T, Kamudi J, Hu F. *Intake of Fruit, Vegetables, and Fruit Juices and Risk of Diabetes in Women.* Diabetes Care 2008;**31**:7:1311-1317.

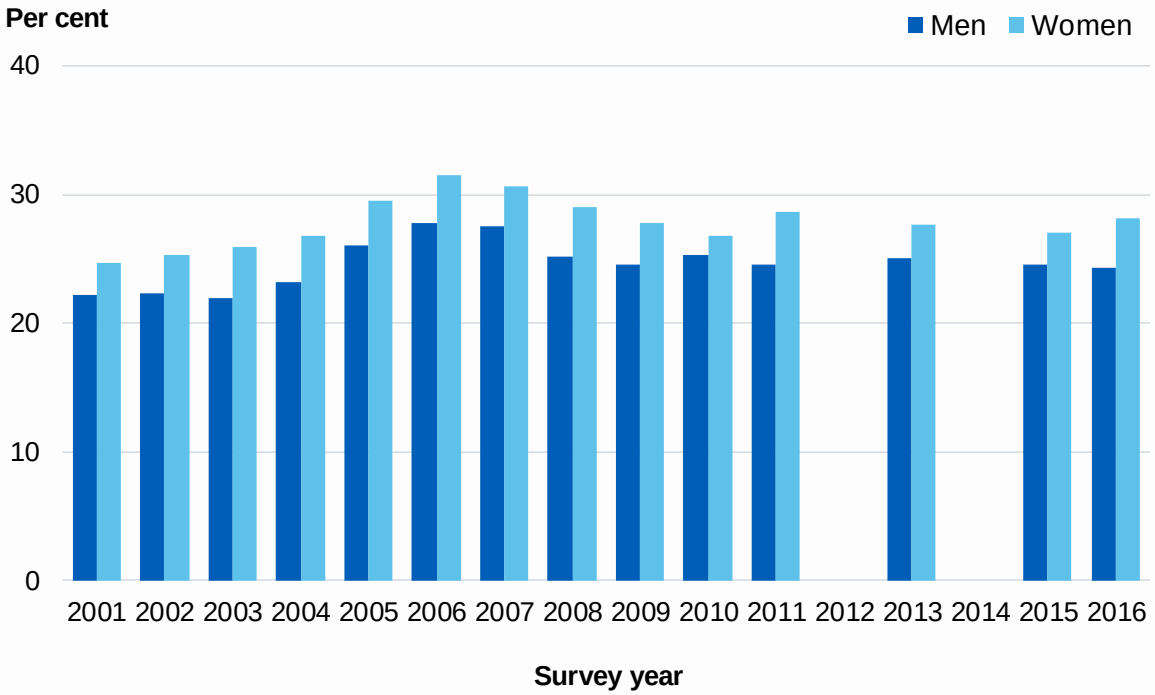
[80] Loef M, Walach H. *Fruit, vegetables and prevention of cognitive decline or dementia: a systematic review of cohort studies.* J Nutrit Health Aging. 2012 Jul;**16**(7):626-30.

## Table 11 – Fruit and vegetable consumption, by survey year, age and sex

- In 2016, 26% of adults ate five or more portions of fruit and vegetables a day. There was a slight difference between men and women: 24% of men and 28% of women ate five or more portions a day.
- For both men and women, the proportion consuming five or more portions per day increased from 22% among men and 25% among women in 2001 to a peak of 28% and 32% respectively in 2006. Since then, the proportion has dropped slightly, and since 2008 the proportions have remained at similar levels, around 24% to 25% of men and 27% to 29% of women meeting the recommendation.
- The mean number of portions of fruit and vegetables consumed by adults has been 3.5 or 3.6 per day since 2009. In 2016 it was 3.6 portions (3.4 for men and 3.7 for women).

**Figure 9: Proportion of adults who ate five or more portions of fruit and vegetables per day, 2001-2016**

Base: Aged 16 and over




Source: NHS Digital

Estimates of the number of adults in the population with different levels of fruit and vegetable consumption from 2003 to 2016 are available in the population number estimates tables.

# General health

## Introduction

Self-assessed general health is an important indicator of the general health of the population. It is a valid measure for predicting future health outcomes and can be used to project use of health services and provide information useful for policy development. In older people, self-assessment of poor overall health has been associated with increased risk of mortality,[81] and has also been reported to be predictive of functional decline.[82]

Like self-reported general health, longstanding illness is a valuable indicator of the health of the population, and is also an important indicator of inequalities, with strong links between poverty, social class and self-assessed longstanding illness. As the population ages, the number of people with a longstanding illness or condition is expected to rise.

In 2012, the questions on longstanding illness were changed to be consistent with the harmonised disability questions designed for use in social surveys, as recommended by the Disability, Health and Carers Primary Standards in 2011.[83] The new questions meet government requirements for the classification of disability for the core population with rights under the Equality Act. These questions explicitly ask about physical and mental health, separate the concept of disability from illnesses or health conditions, and refer to illnesses or conditions 'lasting or expected to last 12 months or more' rather than 'over a period of time'.[84]

## Table 12 – General health, longstanding illness and acute sickness, by survey year and sex

- Between 1993 and 2016, the proportion reporting very good and good general health fluctuated between 74% and 78% among men and between 73% and 76% among women (76% and 74% respectively in 2016), with no clear pattern of variation. The prevalence of very bad or bad general health ranged from 4% to 8% across both sexes over the same period.[85]
- The prevalence of longstanding illness among men increased overall from 40% in 1993 to around 44% between 1997 and 2003, but has decreased gradually over the last few years. It was 38% in 2011, with the original questions, and 40% in 2016 with the new questions.

[81] Mossey JM, Shapiro E. *Self-rated health: a predictor of mortality among the elderly.* Am J Public Health 1982;**72**:800-808.

[82] Idler EL, Kasl SV. *Self-ratings of health: do they also predict change in functional ability?* J Gerontol. Soc Sci. 1995;**50B**:S344-S353.

[83] Office for National Statistics. *Harmonised Concepts and Questions for Social Data Sources: Primary Standards. Long-lasting Health Conditions and Illnesses; Impairments and Disability.* ONS, Newport, 2011. http://webarchive.nationalarchives.gov.uk/20160106185646/http://www.ons.gov.uk/ons/guide-method/harmonisation/primary-set-of-harmonised-concepts-and-questions/index.html.

[84] Further details about the change to the longstanding illness questions are provided in the 2012 report, Volume 2, Chapter 3, Section 3.4 and in Appendix D to Volume 2. http://content.digital.nhs.uk/catalogue/PUB13218

[85] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that the proportion of adults in the population who assessed their general health as very good or good was between 75% and 78% of men and between 72% and 75% of women.

- Among women, prevalence of longstanding illness increased from 40% in 1993 to 47% in 2004, but has since decreased and was 41% in 2011. It remained at a similar level between 2012 and 2016 using the new questions (43% in 2016).
- Acute sickness is defined as any illness or injury (including any longstanding condition) that has caused the participant to cut down in the last two weeks on things they usually did. The prevalence of acute sickness ranged from 12% to 16% of men and from 14% to 19% of women over the period 1993 to 2016.

# Cardiovascular disease

## Introduction

Cardiovascular disease (CVD) is one of the leading contributors to the global disease burden. The single most common cardiovascular disease is ischaemic heart disease (IHD, also called coronary heart disease (CHD) or coronary artery disease (CAD)). IHD includes myocardial infarction (MI, heart attacks) and angina (chest pain on exertion due to inadequate blood flow to the heart muscle). The vast majority of CVD in England is caused by atherosclerosis ('furring' of the arteries). This is not only the case for IHD and for stroke, the two main diseases, but also for aortic aneurysm and peripheral vascular disease, with impaired blood flow to the limbs.

Over the second half of the 20th century, there was a fairly steady decrease in mortality due to CVD in England and Wales.[86] In 1999, CHD was made a government priority,[87] with the introduction of the National Service Framework for CHD following in 2000.[88] The goal was to reduce death from CHD and related illnesses in the under 75s by 40% by the year 2010. This target was reached ahead of schedule.[89] Between 2000 and 2010, age-standardised CVD mortality rates in England and Wales for males and females fell by 40% and 38% respectively.[86]

In England and Wales in 2011, CVD accounted for 29% of all deaths.[90] This included the 16% of male deaths and 11% of female deaths which were due to IHD, the leading cause of death in both sexes. Stroke was the second leading cause of death for both men and women in England and Wales in 2011, accounting for 6% of male and 9% of female deaths. 25,122 men and 11,456 women under 75 died from CVD, 26% and 18% of deaths respectively in men and women under 75 in 2011.[90]

Mortality rates from CVD have continued to fall, however circulatory diseases, such as heart disease and stroke remained the second most common broad cause of death, and accounted for just over a quarter (25.5%) of all deaths registered in England and Wales in 2016.[91]

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[86] National Statistics. *Mortality Statistics: Deaths registered in England and Wales 2010.* Office for National Statistics, 2011. http://webarchive.nationalarchives.gov.uk/20160107154525/http://www.ons.gov.uk/ons/rel/vsob1/mortality-statistics--deaths-registered-in-england-and-wales--series-dr-/2010/stb-deaths-by-cause-2010.html.

[87] Department of Health. *Saving lives: Our Healthier Nation.* DH, London, 1999. www.gov.uk/government/publications/saving-lives-our-healthier-nation

[88] Department of Health. *National Service Framework for Coronary Heart Disease.* DH, London, 2000. www.gov.uk/government/publications/quality-standards-for-coronary-heart-disease-care

[89] Department of Health Coronary Heart Disease Policy Team. *The Coronary Heart Disease National Service Framework: Building on excellence, maintaining progress. Progress report for 2008.* Department of Health, London, 2009. http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Healthcare/Longtermconditions/Vascular/Coronaryheartdisease/Nationalserviceframework/index.htm

[90] National Statistics. *Death Registrations Summary Statistics, England and Wales 2011.* https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathregistrationssummarytablesenglandandwalesreferencetables.

[91] National Statistics *Deaths Registered in England and Wales: 2016* https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/bulletins/deathsregistrationsummarytables/2016

The HSE estimates of cardiovascular disease are based on self-reported doctor-diagnosed conditions. Detailed questions about cardiovascular disease were included in the HSE in 1994, 1998, 2003, 2006 and 2011.[92]

## Table 13 – Prevalence of IHD, stroke, IHD or stroke (ever), by survey year, age and sex

- In both men and women there was an increase in prevalence of IHD between 1994 and 1998, when the highest prevalence of IHD was recorded (7.1% for men and 4.6% for women). Prevalence of IHD fell between 1998 and 2011, to 5.7% among men and 3.5% among women in 2011.
- Prevalence of stroke in women followed a similar pattern, with an increase between 1994 and 1998 (from 1.6% to 2.1%); however prevalence was fairly constant between 1998 and 2011, being 2.1% in 2011. In contrast the prevalence of stroke in men increased over this time, rising by nearly one percentage point from 1.8% in 1994 to 2.7% in 2011.

[92] Comparable data have been collected in 2017 and will be published in late 2018.

# Diabetes

## Introduction

Diabetes is characterised by high blood glucose levels (hyperglycaemia). Untreated, hyperglycaemia is associated with damage and possible failure of many organs, especially the eyes, kidneys, nerves, heart, and blood vessels. Diabetes substantially increases the risk of cardiovascular disease (CVD),[93] and tends to worsen the effect of other risk factors for CVD such as dyslipidaemia (abnormal levels of blood fats), hypertension, smoking and obesity. Being overweight or having a very high waist measurement are risk factors for Type 2 diabetes.[94,95] Diabetes mellitus (including Types 1 and 2) is a leading cause of avoidable mortality; the 2015/16 National Diabetes Audit estimated that the additional risk of death among people with diabetes in England of 32%, chiefly amongst those with Type 1 diabetes.[96]

The Department of Health's *National Service Framework for Diabetes*, published in 2003, set out a ten-year programme of change to deliver world class care and support for people with diabetes.[97] This recommended an agreed care plan, a personal diabetes record and named contact within the local service for all people diagnosed with diabetes, or with poor blood glucose control (glycated haemoglobin above 7.5%). In 2011, the National Institute for Health and Care Excellence (NICE) published quality standards for the care of people with diagnosed diabetes in addition to those set out in the National Service Framework.[98]

The HSE interview makes no distinction between Type 1 and Type 2 diabetes because of changing patterns of the disease. In earlier years (up to HSE 2003) it was assumed that participants who reported having doctor-diagnosed diabetes before the age of 35 and who were having insulin therapy at the time of the survey had Type 1 diabetes, and all other participants with doctor-diagnosed diabetes were classified as having Type 2 diabetes. However, small but increasing numbers of people are now being diagnosed with Type 2 diabetes below the age of 35,[99,100,101,102] and some

[93] Garcia MJ, McNamara PM, Gordon T, Kannel WB. *Morbidity and mortality in the Framingham population. Sixteen year follow-up.* Diabetes 1974;**23**:105-111.

[94] Diabetes UK. *Preventing Type 2 diabetes*. https://www.diabetes.org.uk/Preventing-Type-2-diabetes/.

[95] Klein S, Allison DB, Heymsfield SB et al. *Waist circumference and cardiometabolic risk: a consensus statement from Shaping America's Health: Association for Weight Management and Obesity Prevention; NAASO, The Obesity Society; the American Society for Nutrition; and the American Diabetes Association*. Am J Clin Nutr. 2007;**85**:5:1197-202.

[96] National Diabetes Audit 2015-16. *Report 2a: complications and mortality.* NHS Digital 2017. https://digital.nhs.uk/catalogue/PUB30030

[97] Department of Health. *National Service Framework for Diabetes: Delivery Strategy.* DH, London, 2002. www.yearofcare.co.uk/sites/default/files/images/national%20service%20-%20delivery%20strategy.pdf

[98] National Institute for Health and Care Excellence. *NICE Quality Standard Programme: Diabetes in adults.*NICE, London, 2011. www.nice.org.uk/guidance/qs6

[99] Ehtisham S, Barrett TG, Shaw NJ. *Type 2 diabetes mellitus in UK children-an emerging problem.* Diabetic Medicine, 2000;**17**:867-71.

[100] Drake A, Smith A, Betts P et al. *Type 2 diabetes in obese white children.* Archives of disease in childhood, 2002;**86**:207-8.

[101] Diabetes UK. *Facts and stats.* London, 2016. https://diabetes-resources-production.s3-eu-west-1.amazonaws.com/diabetes-storage/migration/pdf/DiabetesUK_Facts_Stats_Oct16.pdf

adults with Type 2 diabetes are now prescribed insulin therapy,[103,104] so these distinctions are no longer reliable.

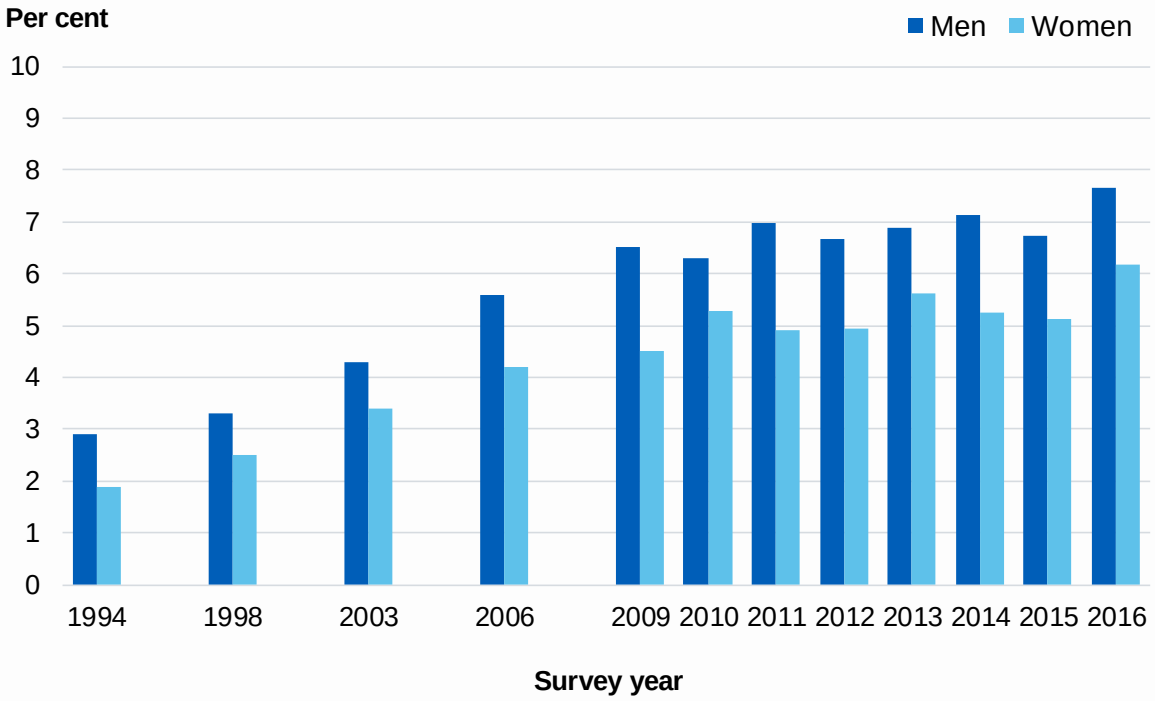
Prevalence of doctor-diagnosed diabetes was measured in 1994, 1998, 2003, 2006, and each year from 2009 onwards.

## Table 14 – Prevalence of doctor-diagnosed diabetes, by survey year, age and sex

- Prevalence increased between 1994 and 2016, with some year-on-year fluctuation, from 2.9% to 7.6% among men and from 1.9% to 6.2% among women.[105]

**Figure 10: Proportion of adults with doctor-diagnosed diabetes, 1994-2016**

Base: Aged 16 and over




Source: NHS Digital

[102] Wilmot E, Idris I. *Early onset type 2 diabetes: risk factors, clinical impact and management.* Therapeutic Advances in Chronic Disease. 2014;5(6):234-244. doi:10.1177/2040622314548679.

[103] Barnett A, Begg A, Dyson P et al. *Insulin for type 2 diabetes: choosing a second-line insulin regimen.* International Journal of Clinical Practice 2008;**62**:1647-53.

[104] Rubino A, McQuay LJ, Gough SJ et al. *Delayed initiation of subcutaneous insulin therapy after failure of oral glucose-lowering agents in patients with Type 2 diabetes: a population-based analysis in the UK.* Diabetic Medicine 2007;**24**:1412-8.

[105] As explained in the Introduction to this report, survey estimates are subject to a margin of error. It is likely that the proportion of adults in the population with doctor-diagnosed diabetes was between 6.8% and 8.5% of men and between 5.5% and 6.9% of women.

- There was a different pattern among younger and older adults. There was little change in prevalence over the period in those aged 16 to 24 (among whom diabetes has remained below 1% throughout). Among those aged 25 to 34 there has been some small fluctuation since 1994, but diabetes prevalence in 2016 was relatively low at 1.3% among men and 1.0% among women. An increase in prevalence was seen among every other age group over the period, with larger increases in older age groups. Between 1994 and 2016, prevalence rose from 7.5% to 19.3% among men aged 75 and over, and from 5.2% to 17.2% among women in this age group.
- The trend of increasing prevalence over time of doctor-diagnosed diabetes is mostly related to an increase in diagnosis, as well as a smaller true increase in prevalence of diabetes.[106] The HSE provides an estimate of the prevalence of undiagnosed diabetes, identified from analyses of glycated haemoglobin ($HbA_{1c}$) in blood samples taken from survey participants. This was most recently reported in the 2011 report.[106]
- Increases both in doctor-diagnosed and undiagnosed diabetes are probably related to rising levels of obesity among the general population in England; obesity has increased substantially since the early 1990s (see Tables 4 and 5). This continuing increase in the prevalence of diabetes within HSE data is supported by findings taken from the Quality and Outcomes Framework (QOF). For example the prevalence of doctor-diagnosed diabetes among adults in HSE 2006 was 4.9%; the prevalence of diabetes among adults in England in the QOF 2006/7 was 3.7%. In the 2015/16 QOF the prevalence of diabetes among adults in England was 6.6%, similar to the HSE 2016 figure for prevalence of doctor-diagnosed diabetes among adults of 6.9%.[107]

[106] Moody A. *Diabetes and hyperglycaemia.* Chapter 4 in Craig R, Mindell J (eds). *Health Survey for England 2011*. Health and Social Care Information Centre, Leeds, 2012. http://content.digital.nhs.uk/catalogue/PUB09300

[107] Quality and Outcomes Framework 2006-07, NHS Digital 2007. https://www.digital.nhs.uk/catalogue/PUB05998; Quality and Outcomes Framework 2015-16. NHS Digital, 2016. http://digital.nhs.uk/pubs/qof1516

# Physical activity

## Introduction

Physical activity is important for cardiovascular health. The UK analysis of the Global Burden of Diseases, Injuries and Risk Factors Study found physical inactivity and low physical activity to be the fourth leading risk factor contributing to deaths and the burden of disease globally, ranking ahead of overweight or obesity.[108] Physical inactivity was estimated in that study to contribute to almost one in ten premature deaths from coronary heart disease (CHD) and one in six deaths from any cause.

In addition to the health burden, physical inactivity imposes a significant financial burden, with the direct costs to the National Health Service estimated to be more than £900 million in 2009/10.[109] Regular physical activity is also beneficial for mental well-being and for reducing the risk of developing depression.[110] Among older people, physical activity is associated with better health and cognitive function[111] and can reduce the risk of falls in those with mobility problems.[112,113]

As evidence accrues about the amount, type, and pattern of physical activity that is beneficial for health, the guidelines from expert groups and governments have been modified to take account of new knowledge. From 1994 the recommendation for adults was at least 30 minutes of activity that was of at least moderate intensity on at least five days each week.[114] This was modified in 2004 to allow the 30 minutes within a day to be accrued in bouts of at least 10 minutes' duration.[115] In 2011, the Chief Medical Officers of the four UK countries introduced revised guidelines for physical activity[116] that reflect current evidence on what is needed to benefit health and the incremental benefits from undertaking physical activity. Guidelines were revised to encourage adults to meet the recommendation through undertaking specified amounts of vigorous or moderate activity each week: at least 150 minutes of moderate activity,

[108] Lee IM, Shiroma EJ, Lobelo F, et al. *Effect of physical inactivity on major non-communicable diseases worldwide: An analysis of burden of disease and life expectancy*. Lancet 2012;**380**:219-229.

[109] Townsend N, Wickramasinghe K, Williams J, et al. *Physical activity statistics 2015*. British Heart Foundation, 2015.

[110] Mammen G and Faulkner G. *Physical Activity and the Prevention of Depression: A Systematic Review of Prospective Studies*. Am J Prev Med 2013;**45(5)**:649-657.

[111] Paillard T, Rolland Y, de Souto Barreto P. *Protective effects of physical exercise in Alzheimer's disease and Parkinson's disease: A narrative review*. J Clin Neurol 2015;**11**:212-219.

[112] Lusa Cadore E, Rodríguez-Mañas L, Sinclair A, et al. *Effects of Different Exercise Interventions on Risk of Falls, Gait Ability, and Balance in Physically Frail Older Adults: A Systematic Review.* Rejuvenation Research 2013;**16**:105-114.

[113] Bauman A, Merom D, Bull FC. *Updating the Evidence for Physical Activity: Summative Reviews of the Epidemiological Evidence, Prevalence, and Interventions to Promote "Active Aging"*. The Gerontologist 2016;**56** Suppl 2:S268–S280.

[114] Killoran A, Fentem P, Caspersen C (eds). *Moving on. International perspective on promoting physical activity.* Health Education Authority, London, 1994.

[115] Department of Health. *A Report of the Chief Medical Officer: At least five a week: evidence on the impact of physical activity and its relationship to health.* HM Government, London, 2004. http://webarchive.nationalarchives.gov.uk/+/dh.gov.uk/en/publicationsandstatistics/publications/publicationspolicyandguidance/dh_4080994

[116] Department of Health. *Start Active, Stay Active. A report on physical activity for health from the four home countries' Chief Medical Officers*. DH, London, 2011. https://www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers

in bouts of 10 minutes or longer, or 75 minutes of vigorous activity, or a combination of the two. This should preferably be spread over the week, for example by being moderately active for 30 minutes on at least five days a week.[117] This recognises that the overall volume of physical activity is more important than the specific type of activity or frequency of sessions.[116] As well as the guidelines for aerobic activity there are also guidelines for muscle-strengthening activities; and activities to improve balance and co-ordination.

A Topic report, including detailed findings on adults' physical activity in 2016 is available on the HSE 2016 report website.[118]

## Methods and definitions

Table 15 shows the proportion achieving different levels of physical activity in 1997, 1998, 2003, 2004, 2006, 2008, 2012 and 2016. These levels are based on self-reported activities in the last four weeks. For 2008, the module of questions on physical activity was revised and an enhanced questionnaire was developed. Full details of the questionnaire revisions are provided in the 2008 report;[119] the main changes for 2008 were:

- Additional questions to provide more accurate data on occupational activity and sedentary time
- More detail about certain types of exercise
- Allowing bouts of 10 minutes of activity to be accrued towards meeting government physical activity recommendations.

Minor further revisions were made in 2012, as described in the 2012 report.[120] Results for 2008 onwards are calculated in two ways: using the 'original' method directly comparable with previous years and based on the previous government recommendations for physical activity; and in a 'revised' method using the enhanced questionnaire and the revised government recommendations.

Before 2008 the physical activity levels were labelled high, medium and low; in 2008 the categories were renamed to describe more accurately what they represent. The category formerly labelled 'high' is in fact the group that meets government recommendations for the minimum level of activity to achieve health benefits (e.g. reduction in the relative risk for cardiovascular morbidity). Definitions of the categories are as follows for the original and revised estimates:

[117] Bull FC, *Expert Working Groups. Physical Activity Guidelines in the UK: Review and Recommendations.* Loughborough University, Loughborough, 2010. www.gov.uk/government/uploads/system/uploads/attachment_data/file/213743/dh_128255.pdf

[118] At https://digital.nhs.uk/pubs/hse2016.

[119] Roth M. *Self-reported physical activity in adults* Chapter 2 in Craig R, Mindell J, Hirani V (eds). *Health Survey for England 2008. Volume 1: Physical activity and fitness.* Health and Social Care Information Centre, Leeds, 2009. http://content.digital.nhs.uk/catalogue/PUB00430

[120] Scholes S, Mindell J. *Physical activity in adults.* Chapter 2 in Craig R, Mindell J (eds). *Health Survey for England 2012.* Health and Social Care Information Centre, Leeds, 2013. http://content.digital.nhs.uk/catalogue/PUB13218

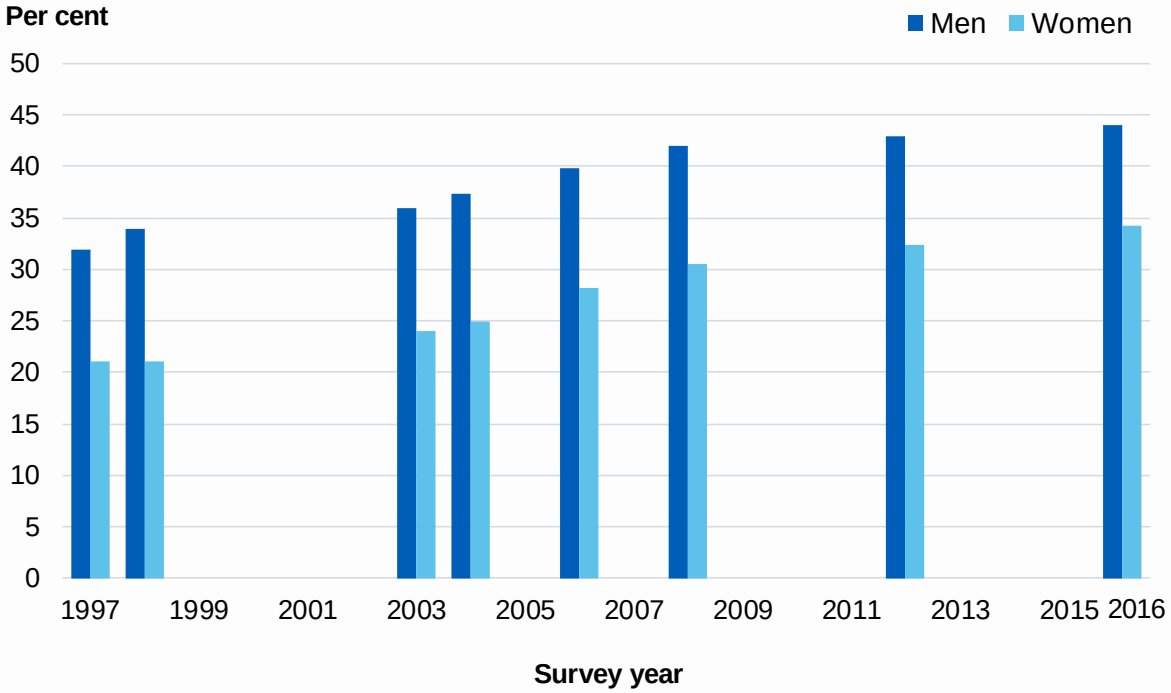
| | |
|---|---|
| **Meets recommendations** | |
| *Original* | 30 minutes or more of moderate or vigorous activity on at least five days per week |
| *Revised* | At least 150 minutes moderate or 75 minutes vigorous activity per week or an equivalent combination of these |
| **Some activity** | |
| *Original* | 30 minutes or more of moderate or vigorous activity on one to four days per week |
| *Revised* | 60-149 minutes moderate or 30-74 minutes vigorous activity per week or an equivalent combination of these |
| **Low activity** | |
| *Original/ Revised* | Lower levels of activity |

## Table 15 – Levels of physical activity, by survey year, age and sex

- Using the original method to obtain directly comparable measures between 1997 and 2016, the proportion of adults meeting recommendations for levels of physical activity increased among both men and women. There has been a steady increase over the period, from 32% in 1997 to 44% in 2016 for men, and from 21% to 34% for women.

**Figure 11: Proportion of adults meeting original physical activity guidelines (old method), 1997-2016**

Base: Aged 16 and over




Source: NHS Digital

The following findings are based on the revised method for estimating adults' levels of physical activity, taking advantage of the 2008 questionnaire enhancements and using the new guidelines. This method provided higher estimates of the proportion of adults

meeting government recommendations for physical activity than the original method.[121]

- Following the revised method, 65% of men aged 16 and over met these new guidelines in 2016, compared with 44% using the original method and the previous guidelines. Similarly for women, 56% met the revised guidelines in 2016 using the new method, compared with 34% using the original method and guidelines.
- Men were more likely than women to report carrying out the recommended level of physical activity (65% compared with 56% in 2016 met the revised guideline level, and there was a similar pattern in previous years).
- The proportion of women meeting the current guideline level of activity increased from 53% to 56% between 2008 and 2016.The proportion of men meeting the new guidelines in the same period remained at similar levels (66% in 2008 and 65% in 2016).

An objective measure of physical activity, using accelerometry, was also obtained in 2008. Details are provided in Chapter 3 of the 2008 report.[122] The 2008 and 2012 reports also provide information about sedentary behaviour.[119,120]

Estimates of the number of adults in the population for physical activity categories for 2008, 2012 and 2016 are provided in the population number estimates tables, using both the original and the revised methods. Estimates based on the original methods are also available for 2003, 2004 and 2006.

[121] In order to enable comparisons with data from 2008, the 2012 and 2016 revised criteria differ from the criteria used in the HSE 2016 topic report on Physical Activity. Hence the estimates for 2012 and 2016 are not the same as those discussed in the topic report. See note 4 to Table 15 for further details.

[122] Chaudhury M, Esliger D. *Accelerometry in adults.* Chapter 3 in Craig R, Mindell J, Hirani V (eds). *Health Survey for England 2008. Volume 1: Physical activity and fitness.* Health and Social Care Information Centre, Leeds, 2009. http://content.digital.nhs.uk/catalogue/PUB00430

# Well-being

## Introduction

Well-being is an important element of people's overall health. Mental well-being is not just the absence of mental ill health; it includes the way that people feel about themselves and their lives. While there is no one definition of mental well-being, it is generally thought to be made up of things like positive affect (experience of positive emotions), people's perceptions that the things they do in their lives are meaningful and worthwhile, and life satisfaction.

Well-being is an area of focus for the government and in developed countries stands alongside more traditional measures such as gross domestic product (GDP) in telling the story of how well a nation is doing. The white paper *Healthy Lives, Healthy People: our strategy for public health in England*[123] sets out the government's strategy to improve the health and well-being of the nation in the coming years. Part of this strategy involves a 'radical new approach' to the challenge of inequalities in health and well-being, by shifting power and responsibility for public health to a local level. The emergence of statutory health and well-being boards will bring key leaders in health and social care together to discuss how to work together to improve health and well-being of the local population and reduce inequalities.[124]

Positive mental well-being is predictive of quality of life, improved life expectancy and greater life satisfaction. It is also linked to people's physical health and recovery from both physical and mental ill health.[125]

The HSE has included the Warwick-Edinburgh Mental Well-being Scale (WEMWBS)[126] since 2010. The WEMWBS was developed to capture a broad concept of positive mental well-being.[127] WEMWBS has 14 statements which cover different aspects of well-being, and a Well-being Index or score is calculated, which can range from 14 to 70. Chapter 5 in the 2012 HSE report provides details of the scoring, and examines the relationships found between subjective mental well-being and a range of health and health related lifestyle factors in the adult population of England.[128]

Mean well-being scores and selected centiles are shown in Table 16. Centiles are values of a distribution that divide it into 100 equal parts. For example, the 10th centile

[123] Department of Health. *Healthy Lives, Healthy People: our strategy for public health in England.* DH, London, 2010. www.gov.uk/government/publications/healthy-lives-healthy-people-our-strategy-for-public-health-in-england

[124] More information about health and wellbeing boards can be found at http://webarchive.nationalarchives.gov.uk/20130805113047tf_/http://healthandcare.dh.gov.uk/hwb-guide/

[125] *Wellbeing and Health.* Department of Health, 2013 www.gov.uk/government/publications/wellbeing-and-health

[126] The Warwick-Edinburgh Mental Well-being Scale was funded by the Scottish Government National Programme for Improving Mental Health and Well-being, commissioned by NHS Health Scotland, developed by the University of Warwick and the University of Edinburgh, and is jointly owned by NHS Health Scotland, the University of Warwick and the University of Edinburgh.

[127] Tennant R, Hiller L, Fishwick R, Platt S, Joseph S et al. *The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation.* Health and Quality of Life Outcomes 2007;**5**:1-13.

[128] Bridges S. *Well-being.* Chapter 5 in Craig R, Mindell J (eds). *Health Survey for England 2012.* Health and Social Care Information Centre, Leeds, 2013. http://content.digital.nhs.uk/catalogue/PUB13218

is the value of a distribution where 10% of the cases have values at or below the 10th centile and 90% have values above it. The 50th centile is the median.

A topic report, including detailed findings on adults' well-being and mental health in 2016 is available on the HSE 2016 report website.[129]

## Table 16 – Well-being scores (WEMWBS), by survey year, age and sex

- Mean well-being scores were at similar levels from 2010 to 2015, between 51 and 53 for both men and women.
- Mean well-being scores fell slightly in 2016 (49.9 for adults in 2016, compared with 51.0 in 2010 and 51.6 in 2015). Additional years' data will be required to show whether this is the start of a downward trend, or year-on-year fluctuation.
- Mean well-being scores for men and women were similar in 2016 (50.1 and 49.6 respectively).
- In 2016, the 90th centile score for adults was 60, while the 10th centile score was 39 (with very similar scores for men and women).

[129] At https://digital.nhs.uk/pubs/hse2016.

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