

## Notes and Definitions

This document provides information about the Department for Transport (DfT) statistical release *Local Area Walking and Cycling*, which was published for the first time in August 2012.

The publication provides figures on the proportion of adults participating in walking and cycling by area of residence, broken down by frequency, duration, and purpose.

### These Notes and Definitions include:

● The Active People Survey	1
● Definitions	4
● Data processing and statistical reliability	5
● Comparison with the National Travel Survey	8
● Uses of Local Area Walking and Cycling Statistics	10
● Other statistics on walking and cycling	10

### 1. The Active People Survey

The statistics in the release are derived from the Active People Survey (APS). The APS is an annual household telephone survey administered by Sport England, an agency of the Department of Culture Media and Sport (DCMS).

The APS is designed to measure participation in sport and active recreation but includes some questions about all walking and cycling activity. The APS has a sample size of over 160,000 and at least 500 persons per local authority, which is sufficient to enable detailed analysis at local authority level.

The first APS was conducted between October 2005 and October 2006. The second APS ran between October 2007 and October 2008, and it has been run annually since then. The survey has always included questions about walking and cycling, but historically only asked about cycle rides that were at least 30 minutes in length. For the fifth Active People Survey (APS5), which ran from October 2010 to October 2011, the DfT funded two additional survey questions asking about **any** cycling, irrespective of length. The first release of Local Area Walking and Cycling, which was published by DfT on 30 August 2012 is based on APS5.

Further information about the Active People Survey and published sports participation measures for APS5, can be found on Sport England's website:

[http://www.sportengland.org/research/active\\_people\\_survey.aspx](http://www.sportengland.org/research/active_people_survey.aspx)

The sixth Active People Survey (APS6) (fieldwork October 2011 to October 2012) contains the two additional survey questions about any cycling funded by DfT.

---

## Questions relevant to walking and cycling

APS5 included the following questions which have been used to develop the measures published in Local Area Walking and Cycling Statistics:

### Walking

- Q1.** Firstly, I would like you to think about all the walking you have done. Please include any country walks, walking to and from work or the shops and any other walks you may have done. Please exclude time spent walking around shops. In the last four weeks, that is since *[date four weeks ago]*, have you done at least one continuous walk lasting at least 5 minutes?
- Q2.** In the last four weeks, that is since *[date four weeks ago]*, have you done at least one continuous walk lasting at least 30 minutes?
- Q3.** On how many days in the last four weeks have you walked for at least 30 minutes?
- Q5.** You said that you had walked for 30 minutes on *[answer from Q3]* day(s) since *[date four weeks ago]*. Can I ask, on how many of those days were you walking for the purpose of health or recreation not just to get from place to place. Again, please exclude time spent walking around shops?

### Cycling

- Q6a.<sup>1</sup>** I would now like you to think about any cycling you may have done. Please include any casual cycling in your local area, any cycling in the countryside or on cycling routes, cycling to or from work or any competitive cycling. In the last four weeks, that is since *[date four weeks ago]* have you done any cycling?
- Q6b.<sup>1</sup>** On how many days in the last 4 weeks have you done any cycling?
- Q6.** In the last four weeks, that is since *[date four weeks ago]* have you done at least one continuous cycle ride lasting at least 30 minutes?
- Q7.** On how many days in the last four weeks have you cycled for at least 30 minutes?
- Q8.** You said that you had cycled for 30 minutes on *[answer from Q3]* day(s) in the last four weeks. Can I ask, on how many of those days were you cycling for the purpose of health, recreation, training or competition not to get from place to place?

### Sports and active recreation

In the main part of the survey (questions 10 onwards) about sport participation, respondents are asked to list any sports or physical recreational activity they have done in last four weeks, the number of days that they did this on and how long they normally did it for. Where respondents mention recreational walking (including hill walking, backpacking, hill trekking, rambling, cliff walking and gorge walking) or cycling (including BMX, cyclo-cross, mountain biking, downhill / gravity riding and stunt riding) in answer to these questions, they are asked whether this is in addition to any recreational walking and cycling mentioned in questions Q1 – Q8. Where this is the case, the answers have been added to those for Q1 – Q8 above.

A copy of the APS5 questionnaire will be available via the UK data archive in September 2012.

---

<sup>1</sup> Question 6a and 6b were funded by the Department for Transport for APS5.

---

## Active People Survey data collection and proposed changes

APS5 was a telephone survey, covering adults aged 16 and over in England. The survey ran from October 2010 to October 2011. Interviews in each local authority were spread over the 12 month period to avoid seasonal bias. Data collection for APS5 was carried out by TNS BMRB.

The standard sample size is around 500 interviews in each county district, metropolitan borough or unitary authority. A small number of local authorities funded a “boost” to give a larger sample size in their area. These are: Blackburn & Darwen, Gateshead, Hounslow, Stoke, and Liverpool. The Isles of Scilly and the City of London are the two smallest local authorities by population, with around 1,000 and 4,000 households respectively. For these authorities, the target was to achieve as many interviews as possible. 150 interviews were achieved in the Isles of Scilly. 83 interviews were achieved in the City of London.

Households were selected using random digit dialling. An eligible individual (i.e. aged 16 or over) from the household was randomly selected to complete the survey. As the sampling frame only includes landline telephone numbers, the 15% of households in England that are mobile-only<sup>2</sup> are excluded from the survey, which may introduce bias into the sample. A comparison of sports participation measures derived from a telephone survey and a face-to-face survey revealed some small but systematic differences between the reporting of walking and cycling between the two modes. Work is ongoing by Sport England and the Department for Culture, Media and Sport (DCMS) to better understand these modal differences, with a view to redesigning the future format of the Active People Survey. Between June and August 2012, Sport England and DCMS ran a consultation on proposed changes to the format for APS7 (to run from Autumn 2012 to 2013) onwards. The proposals included:

- Combining APS with the Taking Part Survey (a survey of face-to-face household interviews about participation in the arts, heritage and sport) to give a combined telephone and face-to-face data collection
- Extending the age range of the survey to include 14 and 15 year olds
- Exploratory work on the introduction of online and mobile data collection

More detailed information about the data collection methodology can be found in the technical note for the first Active People Survey (APS1), which is available on this page:

[http://www.sportengland.org/research/active\\_people\\_survey/active\\_people\\_survey\\_1.aspx](http://www.sportengland.org/research/active_people_survey/active_people_survey_1.aspx)

Details of changes considered for the format of the Active People Survey in future can be found here: [http://www.sportengland.org/research/active\\_people\\_survey/consultation.aspx](http://www.sportengland.org/research/active_people_survey/consultation.aspx)

## Availability of underlying data

Following the completion each survey wave, APS microdata is placed in the UK Data Archive<sup>3</sup>. APS5 data will be submitted to the UK Data Archive, along with supporting technical documentation, during September 2012.

---

<sup>2</sup> See paper commissioned from the Office for National Statistics Methodology Advisory Service available on this page: [http://www.sportengland.org/research/active\\_people\\_survey/consultation.aspx](http://www.sportengland.org/research/active_people_survey/consultation.aspx)

<sup>3</sup> <http://www.data-archive.ac.uk/>

---

## 2. Definitions

For the purposes of the Local Area Walking and Cycling Statistics, the following definitions are used:

### Walking

“Walking” covers all types, including a number of specific recreational types: hill walking, backpacking, hill trekking, rambling, cliff walking and gorge walking. However, “walking around shops” is excluded.

In tables CW0101 and CW0102, “walking” refers to any continuous walk of at least five minutes.

In tables CW0301 to CW0802, “walking” refers to any continuous walk of at least 30 minutes.

### Cycling

“Cycling” includes a number of specific recreational types: BMX, cyclo-cross, mountain biking, downhill / gravity riding and stunt riding.

In tables CW0101 to CW0202, “cycling” refers to any cycle ride.

In tables CW0301 to CW0802, “cycling” refers to any continuous cycle ride of at least 30 minutes.

### Utility purposes

"Utility" refers to walking or cycling that is for purposes other than recreation, health, competition or training purposes - i.e. just for getting from place to place. The utility measures only cover walks and cycle rides of at least 30 minutes.

Estimates of utility walking are made by comparing the answers to questions 3 and 5 (number of days walked for at least 30 minutes and number of days on which this was for recreational purposes). i.e.

$$\text{Number of days of utility walking} = \text{Total number of days walking} - \text{Number of days recreational walking}$$

Questions 7 and 8 are used in the same way to derive estimates of utility cycling.

### Frequency of cycling and walking

In questions 1, 2, 6a and 6b, survey respondents are asked whether they have done a particular walking or cycling activity in the past four weeks (28 days). These answers are used to derive the “at least once per month” measures presented in tables CW0101 to CW0222.

In other questions, respondents are asked to state the number of days in the past 4 weeks (28 days) that they did that activity for. These answers are used to derive the other frequency measures in tables CW0111 to CW0312. We assume that the number of days relates to frequency as follows –

- At least once per month = at least one day in 28
- At least once per week = at least four days in 28
- At least 3 times per week = at least 12 days in 28
- At least 5 times per week = at least 20 days in 28

The same assumption is used by Sport England when deriving the “3 x 30” measures of sports participation.

---

## Area of residence

Estimates are grouped according to the region / county / local authority where respondents live, which may not be the same as the area where they walk or cycle. Therefore, caution is needed when interpreting the figures, particularly in large urban areas where there are multiple local authorities in a relatively small area.

## Local authorities

The local authorities shown in tables are the administrative districts, counties, metropolitan boroughs and unitary authorities following re-organization in April 2009. The unitary authorities of County Durham, Northumberland, Shropshire, Cornwall, Wiltshire, Bedford, Central Bedfordshire, Cheshire East and Cheshire West and Chester were created in April 2009 and their constituent districts were abolished. Results are also presented for former metropolitan counties.

## 3. Data processing and statistical reliability

### Data weighting

The APS data is weighted to ensure the results are representative of the population. For local authorities (districts, unitary authorities and metropolitan boroughs) data is weighted by socio-demographic factors - age, gender, ethnicity, household size, working status and socio-economic group. For larger geographies (counties, regions and England), weights are applied by applying the individual local authority weights and then weighting the local authorities within the larger geography by their population. More detailed information about the weighting methodology can be found in the technical report for APS1<sup>4</sup>.

The results presented in tables CW0101 to CW0312 were derived using **weighted** data. The results in CW0701 to CW0802 use **unweighted** data, because they present results for a specific **sub-set** of the sample (those who walk / cycle at least once per month) and therefore the survey weights, which are designed to make the **whole sample** representative of the population, are not appropriate.

### Sample sizes

The sample sizes quoted in the tables are unweighted sample sizes. Respondents who answered “don’t know” to the relevant question(s) are excluded from the sample for each measure, but those who stated that they are unable to walk are included.

### Data suppression and rounding

The percentages in the main tables have been rounded to the nearest percent. Values lower than 0.5 per cent have been suppressed and replaced with the symbol “-”. For a sample size of 500, a rate of less than 0.5 per cent corresponds to fewer than 3 persons.

Percentages in Tables CW0701 to CW0802 may not sum to 100 per cent due to rounding.

---

<sup>4</sup> APS1 technical report is available from this page:

[http://www.sportengland.org/research/active\\_people\\_survey/active\\_people\\_survey\\_1.aspx](http://www.sportengland.org/research/active_people_survey/active_people_survey_1.aspx)

---

## The Isles of Scilly and City of London

In APS5, the sample sizes for the Isles and Scilly (IoS) and the City of London (CoL) are 150 and 83, respectively. These are far smaller than for other areas and therefore results for these areas may not be statistically robust, which is reflected in the wide confidence intervals given. The unusually small populations of IoS and CoL<sup>5</sup> also mean that they are not directly comparable with other authorities. Therefore, although results for the IoS and CoL are presented in the tables, caution is needed when interpreting these and they have been excluded from the “top ten” lists in the commentary on the results.

## Statistical reliability and confidence intervals

The proportions for walking and cycling participation are estimated from finite samples of people and as such, they may not be exactly the same as the true proportion existing in the population. If a different sample were drawn from the population, the result obtained would differ slightly, due to sampling variability.

Confidence intervals are presented in the tables to demonstrate the statistical reliability of the results. They are 95 per cent confidence intervals – that is, if the sample were to be drawn repeatedly, we would expect the result to lie within the confidence interval 95 per cent of the time.

The confidence intervals are presented in the tables as the difference between the estimated value and the upper and lower bounds of the confidence interval:

$$p_{Lower} - p, p_{Upper} - p$$

where  $p$  is the proportion estimated from the survey  
the range  $p_{Lower}$  to  $p_{Upper}$  is the 95 per cent confidence interval.

Confidence intervals for proportions can be calculated using the binomial distribution. The standard approach is to approximate the binomial distribution to a normal distribution, but this approach is not appropriate for small sample sizes or extreme proportions. The Association of Public Health Observatories (APHO) recommends the Wilson Score method as an alternative<sup>6</sup> and this has been used here.

For a simple random sample, the Wilson Score interval is given by:

$$p_{Lower} = \frac{2O + z^2 - z\sqrt{z^2 + 4Oq}}{2(n + z^2)}$$

$$p_{Upper} = \frac{2O + z^2 + z\sqrt{z^2 + 4Oq}}{2(n + z^2)}$$

---

<sup>5</sup> According to the 2011 Census, the populations are 2,200 persons (IoS) and 7,400 persons (CoL), compared to 37,400 persons for the next smallest authority (West Somerset).

<sup>6</sup> See APHO report on Commonly used public health statistics and their confidence intervals:  
<http://www.apho.org.uk/resource/view.aspx?RID=48457>

where  $O$  is the number of individuals observed in the sample with the characteristic of interest  
 $n$  is the sample size  
 $q$  is the proportion without the characteristic of interest ( $q = 1-p$ )  
 $z$  is the relevant percentile value from a standard normal distribution (1.96 for a 95 per cent confidence interval).

The APS does not have a simple random sample and a design effect was applied to the calculation above to account for the effects of weighting and stratification of the sample. In practice, this was achieved by replacing  $z^2$  by  $d^2 z^2$  in the equations above to give<sup>7</sup>:

$$p_{Lower} = \frac{2O + d^2 z^2 - dz\sqrt{d^2 z^2 + 4Oq}}{2(n + d^2 z^2)}$$

$$p_{Upper} = \frac{2O + d^2 z^2 + dz\sqrt{d^2 z^2 + 4Oq}}{2(n + d^2 z^2)}$$

where  $d$  is the design effect.

The design effects published in the APS1 technical report<sup>8</sup> have been used here.

### Further information

1. For an introduction to the concept and use of confidence intervals, see:

<http://www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey/ConfidenceIntervals>

2. A discussion of various methods for calculating confidence intervals, including the Wilson Score interval, can be found in the following paper: Newcombe RG, Two-sided confidence intervals for the single proportion: comparison of seven methods. *Statistics in Medicine*, 1998; 17:857-72.

<sup>7</sup> We are grateful for advice from the Survey Methodology & Statistical Computing Division on the use of design effects with the Wilson Score interval.

<sup>8</sup> APS1 technical report is available from this page:

[http://www.sportengland.org/research/active\\_people\\_survey/active\\_people\\_survey\\_1.aspx](http://www.sportengland.org/research/active_people_survey/active_people_survey_1.aspx)



## 4. Comparison with the National Travel Survey

The National Travel Survey (NTS) is the DfT's primary source of data on personal travel patterns in Great Britain. The NTS is an annual household survey of around 8,100 households, covering over 19,000 individuals. Although this sample size is insufficient for analysis at local level, NTS provides a useful comparison with the England-level APS results.

NTS consists of face-to-face interviews with respondents and a diary that they keep for a week to record their travel. The interview includes questions about how often respondents cycle and walk:

**How frequently do you walk anywhere for 20 minutes or more without stopping? Please count each single trip as one journey and each return trip as two.**

INCLUDE ALL WALKS, WHETHER FOR PLEASURE OR WITH A PURPOSE. IF ROUND TRIP, COUNT AS ONE JOURNEY

1. 3 or more times a week
2. Once or twice a week
3. Less than that but more than twice a month
4. Once or twice a month
5. Less than that but more than twice a year
6. Once or twice a year
7. Less than that or never

**How frequently do you use a bicycle? Please count each single trip as one journey and each return trip as two.**

1. 3 or more times a week
2. Once or twice a week
3. Less than that but more than twice a month
4. Once or twice a month
5. Less than that but more than twice a year
6. Once or twice a year
7. Less than that or never

An analysis of the 2010 NTS data from the above questions on walking and cycling data (for those aged at least 16 in England) has been performed for comparison with the 2010/11 APS results.

Table 1 compares results from the 2010 NTS for “how frequently do you use a bicycle?” and APS5 for “on how many days in the last 4 weeks have you done any cycling?”. The NTS and APS results in Table 1 are broadly in agreement, although the NTS results are higher than APS for the once per month and 3 times per week.

**Table 1: Comparison of APS and NTS results for cycling frequency**

Cycle at least	APS	NTS*
Once per month	15%	18%
Once per week	10%	10%
3 times per week	4%	6%

\* Note: The “at least once per month / once per week / 3 times per week” measures for the NTS are derived by aggregating the relevant frequency categories in the interview questions (i.e. “at least once per week” = “3 or more times per week” plus “once or twice per week”).

Sources: APS – Local Area Walking and Cycling: England 2010/11 (cycle rides of at least 30 minutes)  
NTS – National Travel Survey 2010 (cycle rides of at least 20 minutes)



Table 2 presents a similar comparison, but for walking frequencies. The NTS frequencies are for walks of at least 20 minutes, but as there is no equivalent question in the APS, the frequencies are for walks of at least 30 minutes. The results are broadly consistent for the once per month and once per week measures, but there is a greater discrepancy for the 3 times per week measure.

**Table 2: Comparison of APS and NTS results for walking frequency**

Walk at least	APS	NTS*
Once per month	71%	73%
Once per week	55%	61%
3 times per week	29%	39%

\* Note: The “at least once per month / once per week / 3 times per week” measures for the NTS are derived by aggregating the relevant frequency categories in the interview questions (i.e. “at least once per week” = “3 or more times per week” plus “once or twice per week”).

Sources: APS – Local Area Walking and Cycling: England 2010/11 (walks of at least 30 minutes)  
NTS – National Travel Survey 2010 (walks of at least 20 minutes)

Differences in the results for cycling and walking may arise for a number of reasons:

- 1. Treatment of return trips** – The NTS asks respondents to treat return trips as two journeys, whereas APS simply asks for the number of days on which the respondent did any walking or cycling. Therefore, NTS is likely to report higher frequencies, as observed, particularly for the higher frequency “at least 3 times per week” measure.
- 2. Question time frame** – The NTS question asks respondents to describe their typical behaviour over approximately one year, whereas APS constrains the question to the previous four weeks. There may be some mismatch between respondents’ perceptions of their typical frequency over a year and the actual number of days they cycle in a single month.
- 3. Mode effect** – The NTS interview is conducted face-to-face, whereas APS is a telephone interview. A comparison of sports participation measures derived from a telephone survey and a face-to-face survey revealed some small but systematic differences between the reporting of walking and cycling for the two modes and a similar effect is likely to occur between the NTS and APS.
- 4. Walk length** – NTS asks about walks of at least 20 minutes, whereas APS asks about walks of at least 30 minutes, making an exact comparison impossible.

### Further information

1. The latest results from the National Travel Survey, along with a detailed technical note, can be found here:

<http://www.dft.gov.uk/statistics/series/national-travel-survey/>

---

## 5. Uses of Local Area Walking and Cycling Statistics

Uses for these statistics within the Department for Transport are likely to include:

- evaluation of local area interventions to encourage sustainable travel
- background information in the development and targeting of walking and cycling policies
- ministerial briefing and to answer public enquiries

Outside the Department, we anticipate users will include local authorities, who may be interested in studying the prevalence of walking and cycling in their area and comparator areas and for evaluating interventions. Other users are likely to include Parliamentary Groups, organizations, researchers and individuals with an interest in walking and cycling.

## 6. Other statistics on walking and cycling

Information about walking and cycling also appears in several other statistical releases produced by the Department for Transport:

- Public attitudes to walking and cycling
- Road accidents involving cyclists and pedestrians
- Travel to work by walking and cycling
- Traffic counts of pedal cycles
- Access to services by cycling

These statistics can be accessed from the Walking and Cycling Statistics page:

<http://www.dft.gov.uk/statistics/series/walking-and-cycling/>