

## IV The importance of being active.

### Sporting activity links to longer life expectancy

This article examines the relationship between taking part in sport and active recreation and life expectancy in local authorities in England. Data from the Active People Survey<sup>1</sup> is used in conjunction with data on life expectancy and healthy lifestyle behaviour to examine the interplay between such variables.

#### The Active People Survey<sup>2</sup>,

The Active People Survey, sponsored by Sport England, is the largest ever survey of sport and active recreation to be undertaken in Europe. The first survey, Active People Survey<sup>1</sup>, was conducted between October 2005 and October 2006, and was a telephone survey of 363,724 adults in England (aged 16 years and over). The survey is unique in providing reliable statistics on participation in sport and active recreation for all local authorities in England.

The survey reports on the percentage of the adult population in a local authority area who regularly take part in sports and active recreation. Regular participation is defined as doing an activity, at moderate intensity, for at least 30 minutes on at least 3 or more days per week. Moderate intensity includes activities which raise the breathing rate, such as brisk walking, cycling, swimming, jogging and some lighter intensity activities for those aged 65 years and over - eg yoga; pilates; indoor and outdoor bowls; archery and croquet.

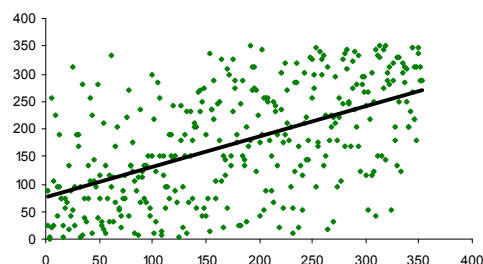
Active People Survey<sup>1</sup> found substantial variation between local authorities in the proportion of adults regularly participating in sports and active recreation. The highest level of regular participation was observed in the London Borough of Richmond upon Thames (29.8%) compared with the lowest level of 14.3% in Boston in the East Midlands.

### Activity and life expectancy

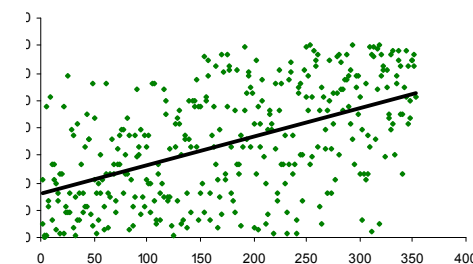
The rank order of local authorities in terms of active sports participation was compared with their rank order in terms of male and female life expectancy to determine whether any relationship between physical activity and life expectancy was present at local authority level. A rank of 1 was given to the authority with the highest level of sport participation or life expectancy and a rank of 353 to that with the lowest<sup>3</sup>

A Spearman's rank order correlation coefficient (Spearman's rho, denoted by the Greek letter  $\rho$ ) was calculated to assess the statistical significance of any apparent relationship. Correlation coefficients indicate the strength and direction of a linear relationship between two variables, by expressing the relationship as a number between -1 and +1. A correlation of +1 would indicate a perfectly increasing linear relationship whereby as one variable increased by a given amount the other increased by the same amount, while a correlation of -1 would indicate a perfectly decreasing relationship. In practice perfect correlations are rare and some value in between -1 and +1 is observed, indicating the degree of linear dependence between the variables. The closer the coefficient is to either -1 or +1, the stronger the correlation between the variables.

Relationship between active sports participation and male life expectancy



Relationship between active sports participation and female life expectancy



Statistically significant correlations were found between the local authority ranking for active sports participation and both male ( $\rho = +0.55$ ) and female ( $\rho = +0.52$ ) life expectancy.

Both correlations are positive indicating that local authorities with higher rankings for active sports participation tend to also have high rankings for life expectancy. The correlations are not perfect, so we cannot expect an exact match between rankings for sports participation and life expectancy. However, correlations above 0.5 are moderately strong, indicating a general tendency for authorities with higher rankings for active sports participation to also have higher rankings for life expectancy.

The table below illustrates this point by showing the 10 highest and lowest ranking local authorities in terms of active sports participation alongside life expectancy estimates and ranks. The table does indicate a general trend whereby the highest ranked authorities in terms of life expectancy tend to be among the highest ranked authorities in terms of active sports participation, with a similar pattern observed for the lowest ranks. There are some exceptions to this rule, but this is to be expected given that the observed correlation does not indicate a perfect linear relationship.

**Local authorities in England with the highest and lowest rankings for active sports participation and life expectancy estimates and ranks**

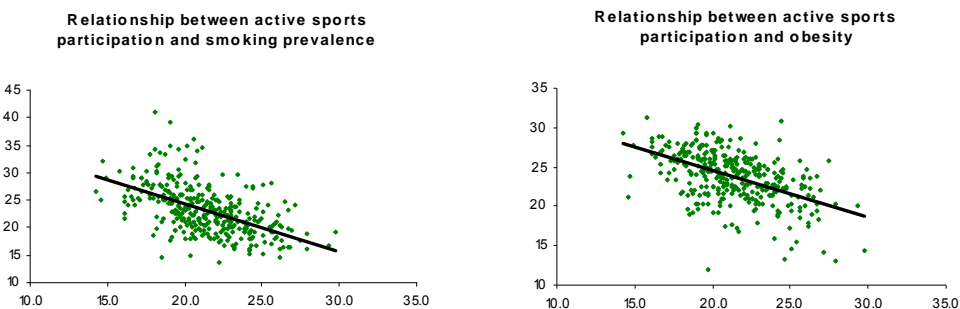
Rank for active sports participation 2005/06	Local authority	Proportion of active sports participation 2005/06	Male life expectancy 2005-2007	Male life expectancy rank	Female life expectancy 2005-2007	Female life expectancy rank
1	Richmond upon Thames	29.8	80.0	29	83.8	28
2	Macclesfield	29.3	79.2	93	82.8	115
3	Kensington & Chelsea	27.9	83.7	1	87.8	1
4	Hart	27.9	81.0	5	84.7	4
5	Rutland	27.4	80.1	25	84.7	3
6	Wandsworth	27.2	76.9	263	81.4	242
7	Test Valley	26.9	79.0	109	83.2	69
8	St Albans	26.8	80.0	32	83.3	63
9	Durham	26.8	77.5	226	81.2	259
10	Chichester	26.7	79.1	104	82.6	142
344	Blackburn with Darwen	16.3	74.2	349	79.2	341
345	Tendring	16.2	77.7	220	81.8	213
346	Wolverhampton	16.1	75.7	318	80.3	314
347	Walsall	16.1	75.7	314	81.3	250
348	South Holland	16.1	78.1	187	81.7	218
349	Stoke-on-Trent	15.8	75.0	340	80.0	328
350	Sandwell	14.9	74.2	348	80.0	326
351	Barking & Dagenham	14.7	76.3	290	80.3	315
352	Newham	14.5	75.7	317	79.8	334
353	Boston	14.3	76.3	289	81.2	262

Sources: Sport England, Active People Survey 1  
ONS, Life expectancy at birth in local authorities 2005-2007

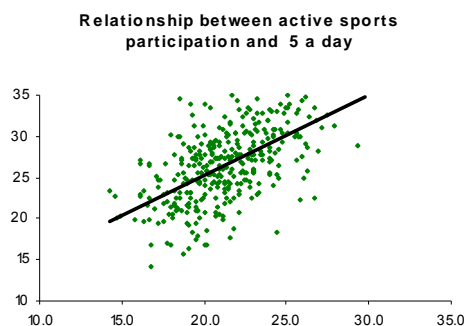
**Other factors that may contribute to life expectancy**

A correlation between two variables cannot be used to infer a direct causal relationship between the variables. The actual causes underlying the correlation, if any, may be indirect and unknown. Or it may be that other additional factors are at work that also contribute to an observed relationship between two variables. Exercise may not be the only factor contributing to increased life expectancy. Indeed, a recently published study from the European Prospective Investigation of Cancer (EPIC) study found that four lifestyle changes in combination, taking exercise, not drinking too much alcohol, eating enough fruit and vegetables and not smoking, could add up to 14 years to life expectancy.<sup>4</sup>

It is possible to examine the relationship between active sports participation in local authorities and rates of smoking, drinking and eating adequate fruit and vegetables. The NHS Information Centre for health and social care commissioned the National Centre for Social Research to produce model based estimates of healthy lifestyle behaviours at local authority level, using data from the Health Survey for England 2003-05.



Pearson’s correlation coefficients between the proportion of adults in each authority engaging in healthy lifestyle behaviours and active sports participation were calculated. Active sports participation showed a significant negative correlation with rates of smoking ( $r = -0.58$ ) and obesity ( $r = -0.50$ ) and a significant positive correlation with eating five or more portions of fruit and vegetables per day ( $r = +0.575$ ).



There was no relationship between sporting activity and levels of binge drinking in local authorities.

It appears that local authorities with a high proportion of residents who engage in regular physical activity tend to also have lower proportions of residents who smoke and are obese and higher proportions of people eating five or more portions of fruit and vegetables per day. It is likely that the combined effect of these variables contributes to increases in life expectancy.

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<sup>1</sup> Active People Survey 1 data was downloaded from the ESDS data archive.

<sup>2</sup> Sport England, Active People Survey,:

[http://www.sportengland.org/index/get\\_resources/research/active\\_people.htm](http://www.sportengland.org/index/get_resources/research/active_people.htm)

<sup>3</sup> The Isles of Scilly were not included in the analysis since life expectancy data was not available.

<sup>4</sup> *Combined Impact of Health Behaviours and Mortality in Men and Women: The EPIC-Norfolk Prospective Population Study* Public Library of Science Medicine Jan 2008.