

Active Travel Toolbox

# The Role of Active Travel in Improving Health

Toolkit Part 1: How active travel can improve health and wellbeing in the workforce



Delivered by Sustrans in partnership with:



Toolkit Part 1: How active travel can improve health and wellbeing in the workforce  
Health And Wellbeing Toolkit  
Active Travel Toolbox

Written by Sustrans with support from Dr Adrian Davis, The TAS Partnership Limited and Living Streets.



# About Sustrans

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Sustrans is the charity making it easier for people to walk and cycle.

We are engineers and educators, experts and advocates. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute.

Sustrans works in partnership, bringing people together to find the right solutions. We make the case for walking and cycling by using robust evidence and showing what can be done.

We are grounded in communities and believe that grassroots support combined with political leadership drives real change, fast.

Join us on our journey. [www.sustrans.org.uk](http://www.sustrans.org.uk)

Head Office  
Sustrans  
2 Cathedral Square  
College Green  
Bristol  
BS1 5DD

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# This is the first part of the Active Travel toolkit on The Role of Active Travel in Improving Health.

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## The Active Travel toolkits aim to help LEPs and their local delivery partners to:

- 1 Develop your business case for investment in cycling and walking schemes.
- 2 Link walking and cycling schemes to your strategic economic growth priorities, housing growth and planning, and public health.
- 3 Support the planning and delivery of cycling and walking schemes in your local area.

## This toolkit will cover the following areas:

- 1 The benefits of regular physical activity for health
- 2 The health costs of physical inactivity for society and employers
- 3 Transport modes, physical activity and health
- 4 Case studies focusing on workplaces and the commuter journey that demonstrate increased physical activity through sustainable transport

A slide pack on *how sustainable transport can improve health and wellbeing in the workforce* can be downloaded separately. It summarises the key evidence base and statistics to help you prepare presentations, funding bids and reports.

## Our key messages include:

- 1 Physical activity is associated with many improvements in health and wellbeing, including lower death rates, and lower risk of heart problems and depression.
- 2 The economic costs of absence and presenteeism to business, the economy and the employee are also significant.
- 3 Active travel is one of the easiest forms of physical activity that can be incorporated into our day to day lives to meet governmental guidelines and improve our health whilst reducing economic costs for businesses and society.

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# 1. The benefits of regular physical activity for health

Physical activity is associated with many improvements in health and wellbeing, including lower death rates, lower risk of heart problems and depression. It benefits people of all ages, ranging from helping children maintain a healthy weight to reducing conditions such as hip fractures in frail older people. As the former Chief Medical Officer has noted:

*“The potential benefits of physical activity to health are huge. If a medication existed which had a similar effect, it would be regarded as a ‘wonder drug’ or ‘miracle cure’.”*

The health benefits gained by regular physical activity can be very substantial indeed. Table 1 illustrates some of these.

Table 1. Summary of the relationship between physical activity and health<sup>2</sup>

| Health topic            | Evidence of the effect of physical activity  | Strength of Evidence |
|-------------------------|--|----------------------|
| Overall death rate      | Approximately 30% risk reduction for the most active compared with the least active  | Strong               |
| Cardiovascular health   | 20% to 35% lower risk of cardiovascular disease, coronary heart disease and stroke   | Strong               |
| Metabolic health        | 30% to 40% lower risk of type 2 diabetes in at least moderately active people compared with those who are sedentary                  | Strong               |
| Musculo-skeletal health | 36% to 68% risk reduction of hip fracture at the highest level of physical activity (weight bearing exercise only)                   | Moderate             |
| Falls                   | Older adults who participate in regular physical activity have an approximately 30% lower risk of falls                              | Strong               |
| Cancer                  | Approximately 30% lower risk of colon cancer and 20% lower risk of breast cancer for adults participating in daily physical activity | Strong               |
| Mental health           | Approximately 20% to 30% lower risk for depression and dementia for adults participating in daily physical activity.                 | Strong               |

Despite the proven benefits from physical activity over time many western societies have gradually adopting more physically inactive lifestyles.

The UK guidelines for physical activity for adults (aged 19 to 64 years) are as follows:

*“Adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.”*

In England in 2012 only 67% of men and 55% of women met physical activity recommendations.

## 2. The health costs of physical inactivity for society and employers

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### Costs for the health sector

The cost of ill-health and unhealthy lifestyles is significant and increasing across the UK, in 2015/16 the overall NHS budget in the UK was £116.4 billion<sup>3</sup>. Lifestyle diseases cost society significantly, for example coronary heart disease alone costs us £4bn a year.<sup>4</sup> A feasible increase in physical activity could lead to major cost savings for the nation for lifestyle related diseases, both for the health sector and for employers.

### The costs for employers and in the workplace

The costs of absence and presenteeism (working whilst sick which can cause productivity loss, poor health, exhaustion and the spread of infections across workplaces) to business, the economy and the employee are too significant to be ignored. Absence is a major cost to business at £14bn per annum<sup>5</sup>. The CBI's 2013 absence survey found the average total cost for each absent employee in 2012 was £975, while the median cost of absence per employee totalled £622.<sup>6</sup> Furthermore presenteeism may cost even more.<sup>7</sup>

At least one third of absenteeism costs i.e. around £5bn are attributable to physical inactivity. Minor illnesses are identified by employers as the most common causes of short-term absence with colds and flu as the single most common cited reason for work absence.<sup>8</sup> These are associated with low immune function, i.e. the body's immune system is not working optimally in order to fend off common causes of absenteeism including colds. Physical fitness and physical activity through walking and cycling are strongly linked with boosting immune response and a lower risk of ill-health from infections such as the common cold.<sup>9</sup>

### The costs for academic attainment

In addition, physical activity is well documented as contributing to better academic attainment. Public Health England notes that "children and young people who are aerobically fit have higher academic scores".<sup>10</sup> The rationale for the improved academic performance is simply that improved oxygenated blood flow to the brain enhances brain function. Studies have reported that physically fitter children and adolescents have better cognition (the mental activities that are involved in learning, remembering, and using knowledge) than less fit peers.<sup>11</sup>

A recent study, for example, reported on using physical activity in the teaching of academic lessons, a relatively new way of learning. The aim of this study was to investigate the effects of an innovative physically active academic intervention on academic achievement of children.<sup>12</sup> After two years, analysis showed that children in the intervention group had significantly greater gains in a mathematics speed test, general mathematics, and spelling scores. This equates to four months more learning gains in comparison with the control group.

## 3. How transport relates to physical activity

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Over the past 60 years the design of urban environments and transport systems have favoured private motorised transport. Whilst this has brought some benefits it has also imposed high health and societal costs.

The rise of private motorised transport and a corresponding reduction in walking and cycling has reduced everyday opportunities for physically active lifestyles through travel. Many people now spend long periods of time inactive at work, and only a large minority choose a significant amount of active recreation. This means physical activity has fallen for many of us in day to day life. At the same time however travel remains an important and achievable way through a significant part of the population can exercise and achieve recommended physical activity levels.

In addition to increased disease due to reduced levels of physical activity the dominance of private motorised transport can also lead to other negative impacts for our health and wellbeing:

- road traffic collisions and injuries
- air pollution
- noise
- reduced social cohesion and increased social isolation for many<sup>13</sup>

There is increasing evidence of the link between adult obesity levels and travel behaviour. For example Western countries with the highest levels of active travel generally also have the lowest obesity rates.<sup>14</sup> Researchers have noted that changes in travel behaviour to active travel may be as effective as dietary changes.<sup>15</sup>

### Physically active travel

One approach to increasing physical activity levels is to promote active travel, i.e. walking and cycling.

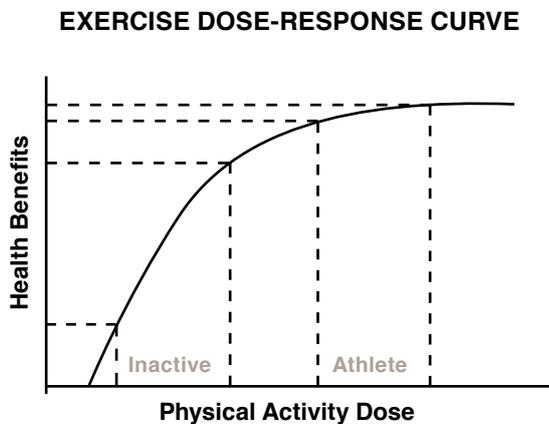
Today, promoting active travel is a primary aim of most European cities for improving the quality of the environment at a local level and with the further aim to increase residents' health and wellbeing.

The Chief Medical Officers of the UK, for example stated:

*“For most people, the easiest and most acceptable forms of physical activity are those that can be incorporated into everyday life. Examples include walking or cycling instead of travelling by car, bus or train. However, a larger quantity of activity at higher intensity (such as playing sport) can bring further benefits, and this might be the aspiration for many people.”<sup>16</sup>*

When it comes to physical activity a little is better than none, and more is better still in protecting against the risks of illness and disease. This dose-response to

physical activity (Figure 2) means that helping people to move from inactivity to low or moderate activity will produce the greatest benefit. So, while, of course, the higher the level of physical activity or fitness, the lower the risk of disease, doing a little more rather than very little helps disproportionately more.



*Figure 2: The dose response curve*

Beyond the direct impact of physical activity on physical health it is also an effective means of combating workplace stress and of improving wellbeing at work. Studies have found that physically fit staff tend to be associated with a wide range of positive work attitudes and perspectives including self-esteem, workplace tasks and towards their colleagues. This is also linked to improved workplace performance.<sup>17</sup>

The Active People Survey (Sport England) has shown that people who cycle for travel purposes (i.e. rather than simply for recreation) are four times as likely to meet physical activity guidelines as those who don't.<sup>18</sup> For those with a low initial fitness level, cycling just three kilometres, four days each week is enough to improve physical performance.<sup>19</sup>

Evidence suggests that switching to active travel for short motor vehicle trips could save £17bn in NHS costs over a 20 year period although benefits would accrue within two years for some conditions. The largest cost savings would come through reductions in the expected number of cases of type 2 diabetes (annual cost to NHS from diabetes is £9bn).<sup>20</sup>

## Public transport also brings benefits

Many public transport users walk or cycle to the bus stop or rail station. A significant minority of public transport users, often around 25-30%, obtain the minimum recommended 150 minutes of physical activity each week just through using public transport combined with walking (see case study).<sup>21,22,23</sup> Switching from private motor transport to active travel or public transport is also associated with a significant reduction in weight. In contrast, switching from active travel or public transport to private motor transport is associated with a significant weight increase.<sup>24</sup> The evidence for the prevention of weight gain or facilitating weight loss is strongest for cycling.<sup>25</sup>

## 3.1 Influencing travel choices and behaviour

Transport systems and the wider built environment play a crucial role by either promoting or hindering physical activity.

### Transport systems

People are influenced by transport provision and infrastructure. Generally, if attractive, safe and convenient routes are provided for walking, cycling and public transport people will use them.

### Tool: The Health Economic Assessment Tool (HEAT)

HEAT is an interactive web-based tool which can generate Benefit to Cost Ratio calculations which consider the total cost of an intervention to promote walking or cycling with the costed health benefits accrued through additional physical activity undertaken as the result of the scheme and costed savings by reducing the number of premature deaths. It is incorporated within the DfT's Transport Analysis Guidance (TAG Unit 3.14.1) and its application by local authorities to cycling and walking interventions is now recognised as increasingly valuable in capturing the quantifiable benefits of walking and cycling. The tool is designed to help conduct an economic assessment of the health benefits of walking and cycling by estimating the value of reduced premature deaths that results from specified amounts of walking and cycling as exercise. As a consequence of only including premature mortality and not also illness (morbidity) the tool is conservative in the estimates that it makes. While HEAT does take account of reduced absenteeism due to increased exercise through walking and cycling and other costs incurred by businesses due to low physical activity levels, WHO have suggested that the benefit may be double if reductions in illness were included rather than just reductions in premature deaths.<sup>26</sup>

The tool can be used for a number of different situations, for example:

- when planning a new piece of cycling or walking infrastructure to help to test the case for investment
- to value the reduced deaths from past and/or current levels of cycling or walking, such as a single route, as well as across an authority
- to provide input into more comprehensive economic appraisal exercises (such as large schemes which may impact on walking and cycling levels), or prospective health impact assessments

Local Highway authorities may wish to revisit TAG to ensure that they have fully taken account of Unit 3.14.1 (or ask any external consultant teams they use), not least because the evidence of the overall benefits consistently shows that many walking and cycling interventions score very highly in terms of Benefit to Cost Ratios and that as much as 70% of the overall benefit is derived from the health gains.<sup>27</sup> For example, in the DfT assessment of the first six Cycle Demonstration Towns the 'physical fitness' benefit was 70.7%. For walking the 'physical fitness' benefit also tends to reach similar levels. England and Sweden are examples where the tool has been incorporated into national departments for transport recommended methodological approaches for estimating the health impact of walking and cycling.<sup>28</sup>

[For more information about the HEAT tool.](#)

## The wider built environment

People are also influenced by the wider built environment around them. For example people tend to walk more in places with mixed land use (such as shops and housing), higher population densities and highly connected street layouts. These urban environments are associated with between 25% and 100% greater likelihood of walking.<sup>29</sup>

More generally in the context of considering new developments how we design our neighbourhoods is key to promoting healthy travel habits (see linking housing growth and sustainable transport toolkit) not least in terms of:

- mixed use developments, where local facilities such as shops, GP practices, schools and other services are located, are important in providing short trip distances amenable to routine walking and cycling
- ‘filtered permeability’ (road design that still allows through-access for walking and cycling, but removes it for motor traffic) to provide direct and attractive routes for these modes<sup>30</sup>

Commute mode changes are primarily driven by alterations to the distance to work which occur in association with changing job or moving home (life events). Increases in distances have a stronger effect than reductions in distance on changes in commute mode, e.g. an increase from two miles or less, to at least two miles increases the likelihood of switching to car by 31 times, while switching to non-car commuting becomes much more likely (9.2 times) as the distance drops below three miles.

High quality public transport links to employment centres are shown to encourage switches away from car commuting and mixed land uses are shown to encourage switches to active travel. Switching mode of travel within the working week or for day to day journey’s is significantly less common for car commuting than other mode users.<sup>31</sup>

## 4. Case studies focusing on workplaces and the commuter journey that demonstrate increased physical activity through sustainable transport

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In a UK Evidence Review for the health impacts of increased physical activity through the commute the most significant finding was that an increase in physical activity of more than one hour per week, easily achieved by many people by walking or cycling to work, would be expected to lead to a measurable reduction in levels of absenteeism.<sup>32</sup> The authors noted that this is of clear commercial benefit to employers and supports the business case for investing in workplace travel plans.

Many cities in mainland Europe have demonstrated that, by investing in infrastructure for cycling and adopting strong pro-bike policies, levels of cycling can be increased so that over four out of 10 journeys are made by bike. Encouraging starts have been made in the UK too: programmes in England (Cycling Demonstration Towns), in Wales (Sustainable Travel Towns) and Scotland (Smarter Choices, Smarter Places) have all demonstrated that, working in partnership with willing local authorities, investment in cycling infrastructure and promotional programmes would lead to an increase in levels of cycling across towns. Central to this is the need for cycling to be prioritised as part of local authority transport plans.<sup>33</sup>

The following four case studies illustrate some of the workplace related interventions for increasing physical activity through active travel and public transport.

- 1 Health through stealth: The Bristol University Travel Plan
- 2 Improving health through cycling in North Tyneside
- 3 Reducing absenteeism costs to employers through cycling
- 4 The role of public transport in increasing routine physical activity levels

## Case study 1: Health through stealth - The University of Bristol Travel Plan

*The University of Bristol Transport Plan has been shown to have had a positive impact in reducing commuting by car and increasing active travel. Many commuters at the University of Bristol are meeting or contributing towards recommended levels of physical activity through their daily commute.*

The University of Bristol Transport Plan was initiated to reduce congestion and parking. The plan focuses on both staff and students and was adopted in 2009. The plan has helped to change travel mode by making parking more limited and expensive, whilst simultaneously increasing the attractiveness of alternative modes of transport to the car.

A study was undertaken to investigate the effect on a workplace of the University of Bristol's Travel Plan. The research focused on restricting car parking opportunities, on levels of active commuting and its potential to contribute to public health (response rates around 50%).<sup>34</sup> The main survey variable selected for trend analysis was employees' usual mode of transport to work. Between 1998 and 2007 the survey found:

- the percentage of respondents who reported that they usually (four to five times per week) walk to work increased from 19% to 30%
- the percentage of respondents who reported that they usually cycle to work increased from 7% to 12%
- the percentage of respondents who usually commuted by car decreased from 50% to 33%

The conservative estimates of time taken suggest that approximately 70% of these commuters usually cycling or walking were meeting at least 80% of the weekly recommended guidelines of 150 minutes of physical activity. In addition, approximately 70% of 'sometimes' walkers and cyclists (two to three times per week) were estimated to be meeting >40% of their physical activity requirement.

## Case study 2: Improving health through cycling in North Tyneside

*The Cobalt Business Park active travel programme resulted in significant reductions in car-commuting journeys, and a rise in active travel and public transport commutes.*

Colbolt Business Park, located in Tyneside has 14,000 employees. The Get Moving - Cobalt Business Park (GMBCP) initiative was developed as part of the wider 'Get Moving North Tyneside' program which aims to improve the health of people within these communities through promoting cycling and walking as means of accessing local resources and employment. For GMBCP the main aims were:

- to reduce the number of employees travelling to work as solo car drivers
- to increase the number of staff choosing to walk or cycle to work at the business park

- to create more opportunities for staff to engage in active travel and physical activity during their working day
- to improve overall workforce health through promotion of physical activity at work

In implementing the programme GMCBP introduced a range of activities and events to encourage staff to cycle and walk, and to remove the barriers that were preventing staff from travelling actively to work. These included:

- adult cycle skills training and free Dr Bike sessions
- a weekly lunchtime walk group
- evening guided cycle rides
- a cycle buddy system
- a Bike User Group (BUG)
- personalised route planning
- active travel awareness events - e.g. Bike to Work days
- information and advice sessions
- pool bike loan

In addition to the regular activities, a number of high profile and targeted Active Travel events have been held. For instance events aimed squarely at women looked at ways to tackle particular barriers perceived or faced by women when considering cycling to work.

The project was funded by The UK Big Lottery Fund, North Tyneside Council and Cobalt Business Park, and supported by Sustrans.

The main results achieved were:

- 425 people registered to take part in Active Travel activities;
- In 2010, 7% fewer employees travel to work by car, as solo drivers than in 2005;
- Over 80 staff now cycle regularly (a 15% increase);
- A regular walking group formed with over 40 active members;
- Cycle Skills training resulted in more confident cyclists;
- In 2012, over one-third of employees travelled to work using sustainable transport modes.

A key to the success of the scheme was the funding made via the Big Lottery Fund, partners involved (North Tyneside Council and Sustrans) and the vision and willingness of the Business Park to participate.<sup>35</sup> The programme continues with on-going support of travel advisers.

### Case study 3: Reducing absenteeism costs to employers through cycling

*This Dutch study demonstrates the benefits from regular cycling for reducing absenteeism at work.*

There is a significant economic cost arising from absenteeism in the Netherlands. To better understand the effect of cycling to work on absenteeism two Dutch ministries commissioned TNO (a government research agency) to undertake research in this area through a questionnaire of three large Dutch organisations that was compared to absenteeism data from the year preceding the survey. The research additionally studied the motives and current cycling behaviour of Dutch employees, as well as how many Dutch employers encourage cycling to work and their reasons for doing so.

Of the 1,236 employees who took part in the study 64% were regular cyclists and 36% were non-cyclists. Regular cyclists had significantly lower rates of absenteeism (on average 7.4 days per year) than non-cyclists (on average 8.7 days per year).<sup>36</sup>

The study also found that the more often an employee cycled and the longer the distance travelled, the lower the rate of absenteeism.

The potential benefits of cycling to work are considerable. If the number of employees cycling regularly to work were to increase by 1%, this would generate an annual cost saving to employers of around £32.5 million per year in the Netherlands.<sup>37</sup>

### Case study 4: The role of public transport in increasing routine physical activity levels

*Research from the USA suggests many public transport users achieve 30 minutes of physical activity daily solely by walking to and from public transport stops.*

A US study estimated the total daily time spent walking to and from stops and the predictors of achieving 30 minutes of physical activity daily by doing so.

Public transport-associated walking times for 3,312 users were examined among the 105,942 US adult respondents to the 2001 National Household Travel Survey, a telephone-based survey sponsored by the U.S. Department of Transportation to assess American travel behaviour. This reported that Americans who use public transport spend a median of 19 minutes daily walking to and from public transport and that 29% achieve 30 minutes of physical activity a day solely by walking to and from public transport.

The researchers concluded that walking to and from public transport can help physically inactive populations attain the recommended level of daily physical activity. Therefore increased access to public transport may help promote and maintain active lifestyles. In this regard, frequency and quality of public transport is important and higher land use densities mean that public transport services and higher frequencies are more viable than where low land use densities exist.

More recent studies have also report that between 20-30% of public transport active travel users achieve all of their 150 minutes minimum physical activity solely by these

means.<sup>38</sup> Efforts to increase public transport accessibility and usage may therefore likely achieve various co-benefits and become part of normal everyday life. This includes decreased road congestion and air pollution and the added health benefit derived from increasing the proportion of adults who increase the total amount of minutes of daily physical activity. Add to this the reductions in costs to employers from reduced absenteeism and it is clear that the benefits are many and substantial.

## 5. Acknowledgements

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This toolkit was written by Adrian Davis, Independent Consultant on Health and Transport and Sustrans, in partnership with Living Streets and The TAS Partnership. The toolkit was peer reviewed by Stephen Watkins, Director of Public Health at Stockport Council.

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