

# A PHYSICALLY ACTIVE LIFE THROUGH EVERYDAY TRANSPORT

WITH A SPECIAL FOCUS ON

CHILDREN  
AND



OLDER  
PEOPLE

AND

EXAMPLES AND APPROACHES  
FROM EUROPE

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# A PHYSICALLY ACTIVE LIFE THROUGH EVERYDAY TRANSPORT

WITH A SPECIAL FOCUS ON  
CHILDREN AND OLDER PEOPLE

AND  
EXAMPLES AND APPROACHES FROM EUROPE

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## Foreword

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Evidence and awareness of the high burden of disease associated with physical inactivity is increasing. This has become the second most important risk factor for ill health in industrialized countries, after tobacco smoking, and is estimated to be related to about 2 million deaths per year worldwide. Society has great costs arising from the increasing prevalence of serious noncommunicable diseases, such as coronary heart disease, diabetes and hypertension, in addition to obesity and overweight, which also affect children. These costs are expected to increase even more dramatically if the present trends are not reversed.

Nevertheless, highly effective preventive strategies do exist, and they are as simple as engaging in about 30 minutes per day of moderate physical activity, such as that provided by walking or cycling.

The alarming severity of the health effects of physical inactivity and the substantial potential for cost-effective prevention led WHO to dedicate World Health Day 2002 to physical activity and health. The objective has been to make policy-makers and citizens aware of the risks related to physical inactivity and of very effective strategies individuals and communities can use to influence their health and wellbeing.

On World Health Day, the WHO Regional Office for Europe focused attention on the opportunity and feasibility of promoting walking and cycling as daily means of transport to achieve the necessary patterns of physical activity among the general population and among groups that can especially benefit from physical exercise, such as children and older people.

This document summarizes the scientific evidence on the negative health effects of physical inactivity and on the benefits provided by moderate levels of physical activity, especially walking and cycling. It highlights the interaction between strategies for health promotion and the role of transport and land-use policy in providing environmental conditions that can facilitate and enable people deciding to walk and cycle for transport. This is in accordance with one of the principles of WHO, which emphasizes the role of multisectoral responsibility for health.

Special emphasis has been placed on documenting experiences across the European Region of WHO that illustrate a range of models of how citizens can include physical activity as part of their daily travel behaviour, thus providing readers with practical examples of initiatives that could inspire new actions. The Regional Office is grateful to the cities and organizations that made available their experience by developing the case studies.

This document can contribute to strengthening the collaboration between the health, transport and environment sectors, by highlighting the opportunity for implementing strategies that can benefit all involved parties and society at large, identifying barriers to change, proposing ways to remove them and making the case for decision-makers

in all sectors involved to consider the benefits to be gained from investing for health in their sector and orient policies and action accordingly.

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## Introduction

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Walking and cycling as part of daily activities should become a major pillar of the strategy to increase levels of physical activity as part of reducing the risk of coronary heart diseases, diabetes, hypertension, obesity and some forms of cancer. Increasing non-motorized transport will also reduce air and noise pollution and improve the quality of urban life. The present traffic conditions in European cities do not support people's decision to choose walking and cycling for their daily mobility. More than half the trips shorter than 5 km, distances that could be covered on foot or by bicycle, are made by car.

The conditions to make walking and cycling a feasible, safe and attractive option need to be created or re-established, to integrate physical activity into daily schedules. This requires substantial revision of present transport policies. Health benefits should be part of the objectives to be pursued through transport and land-use policies, and effective intersectoral partnerships are one of the mechanisms to move towards realizing such objectives. As public health professionals, we have argued for safer roads, less air and noise pollution and more physical exercise. This document moves this discussion further by pointing out that walking and cycling for daily transport has greater potential than leisure activities for getting people physically active. Secondly, the document indicates that focusing on transport policies can also reduce air and noise pollution and prevent injuries. Thirdly, it reviews initiatives and policies that have been effective at increasing walking and cycling, in the general population and among groups of special interest, taking stock from existing experience.

Specific attention is given to the effects of transport systems on children and older people and their special needs. Safe transport environments influence how children get into the habit of integrating walking and cycling into their everyday routine and on how they can meet their mobility needs independently. Older people are most dependent on a well functioning and safe transport system to maintain their autonomy and independence. At the same time, older people are often involved in accidents (only exceeded by young drivers).

We advocate transport systems that allow individuals to flexibly use different modes of transport, including walking and cycling, public transport and safe individual vehicle driving. In addition to modifying individual behaviour, this requires structural adaptation of the transport systems.

WHO has established a programme on transport, environment and health to make available the scientific evidence and develop the means to support European Member States in defining and managing mobility policies that are beneficial to health. The Charter on Transport, Environment and Health, adopted by the 51 countries of the WHO European Region in 1999, especially emphasizes the importance of promoting and providing conditions for safe walking and cycling, together with public transport, for attaining transport sustainable for health and the environment. The Charter also stresses the potential for health benefits, which can be

achieved by implementing integrated transport and land-use policies that place health firmly on the agenda of transport policy-makers.

This document is part of implementing the Charter. It brings out the synergy between different areas of public health, including environmental health, prevention of noncommunicable diseases and health promotion, making the links between transport policies and their health effects on the general population and on children and older people. We hope that it will help raise the awareness of policy-makers, health, transport and environment professionals and the general public to the added value of integrating health considerations in decisions related to mobility and land use, paying special attention to vulnerable population groups. We also hope that the case studies will inspire further action that can effectively improve the health and quality of life of our communities.

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## Why physical activity through transport?

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Physical activity is defined as any body movement that results in energy expenditure (1). As such, it includes sports but also such activities as walking, cycling, playing, skating, cleaning house, dancing or climbing stairs. This means that it can be part of daily life.



More than 30% of adults in Europe are not sufficiently active in their daily life (2), and levels of physical activity are continuing to decline. Where data are available, as in the United Kingdom, obesity is increasing although calorie intake remains largely stable, and this may also apply to other European countries. In most European countries, the prevalence of obesity is estimated to have increased by 10–40% from the late 1980s to the late 1990s (3). Physical inactivity is the second most important risk factor for poor health, after tobacco smoking, in industrialized countries (4).

During the mid-1990s, an international consensus was established on the value of regular moderate physical activity. The World Health Organization (WHO) was among many international and national agencies that highlighted the importance of moderate activity for health, encouraging at least 30 minutes of physical activity daily. The 30 minutes can be built up over a day, so that two or three bouts of 10 or 15 minutes each provide important health benefits. The following captures much of the message for this new consensus (5):

Daily activity should be accepted as the cornerstone of a healthy lifestyle. Physical activity should be reintegrated into the routine of everyday living. An obvious first step would be the use of stairs instead of lifts and walking and cycling for short journeys.

It is important for older people to be as active as possible in their everyday lives (6). Walking and cycling for short journeys can be part of everyday life for many people as they age.

Many journeys are short: under 2 kilometres (km) for walking and under 8 km for cycling. In England, for example, about 25% of journeys are shorter than 1.6 km in length, and 80% of these are travelled on foot. Cars, however, are the dominant mode of travel for distances over 1.6 km (7). More than 30% of trips made in cars in Europe cover distances of less than 3 km and 50% less than 5 km (8). These distances can be covered within 15–20 minutes by bicycle or within 30–50 minutes by brisk walking, providing the recommended amount of daily physical activity.

### ***Economic costs of physical inactivity***

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The economic costs of physical inactivity affect national economies, as shown by the following examples taken from studies of particular policy interest. In one United States study, costs associated with inactivity were between US \$24.3 billion (2.4% of total health care costs) and US \$37.2 billion (3.7%) for direct health care (9). Direct costs comprise diagnosis and treatment related to any disease (including hospital stay, nursing home, medication and physician services). When obesity costs are included (9):

... a minimum of 9.4% of all direct costs incurred in delivering health care in the U.S. are attributable to insufficient energy expenditure which directly leads to medical conditions or alternatively the accumulation of adiposity [excess fat] which then contributes to excess morbidity and mortality.

A study in Switzerland (10) estimated that insufficient levels of physical activity cause 1.4 million cases of disease and 2000 deaths and cost about Sw.fr. 2.4 billion per year. In England, the estimated annual direct and indirect costs of obesity in 1998 amounted to £2.6 billion, and if present trends continue these costs may increase by a further £1 billion per year by 2010 (11).

Conversely, the potential reduction in the costs of treating heart disease if sedentary adults walked regularly has been calculated in the United States (12); US \$5.6 billion would be saved annually if 10% of adults began a regular walking programme. The cost savings from walking would be especially high for men aged 35–64

years and for women aged 55–64 years.

### ***Health benefits of physical activity***

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Physical activity is probably one of public health's "best buys" (13), having the following benefits:

- ✓ a 50% reduction in the risk of developing coronary heart disease (14), non-insulin-dependent diabetes and obesity;
- ✓ a 30% reduction in the risk of developing hypertension (15,16);
- ✓ a decline in blood pressure among hypertensive people;
- ✓ helping to maintain bone mass and thus protecting against osteoporosis (17);
- ✓ improving balance, coordination, mobility, strength and endurance (18,19); and
- ✓ increasing self-esteem, reducing levels of mild to moderate hypertension (20) and promoting overall psychological wellbeing (21).

Both walking and cycling as regular activities can also contribute to controlling weight. This is especially important given the rising trends of obesity in the population and the need for people to take effective action to control their weight. Obesity is defined as having a body mass index (weight in kg divided by (height in m)<sup>2</sup>) over 30. It is one of the most important avoidable risk factors for several life-threatening diseases and serious ill health, including heart disease, diabetes and joint problems. Changes in body weight result from an imbalance between energy intake and use. Reduced levels of physical activity appear to be the dominant factor causing the trend of

increasing obesity (22). A viable public health strategy is to target improving the health of those with excess weight through the beneficial effects of physical activity (23).

In the United Kingdom, a National Audit Office study on obesity (11) identified transport as a key area in which further action needs to be taken to encourage and assist people in being physically active in their travel routines. Among its recommendations, the National Audit Office highlighted the importance of both the health and transport sectors in tackling this epidemic (11):

The Department of Health and the Department of the Environment, Transport and the Regions should continue to encourage other potential partners, in particular local authorities and health authorities, to adopt local targets for cycling and walking which provide clear incentives to support healthy modes of travel. They should also put in place arrangements to monitor centrally progress towards achieving these targets.

In addition to the health benefits deriving directly from physical activity, replacing some motorized trips by walking and cycling brings additional and important health benefits by reducing air pollution and noise and contributing to improve the quality of urban life. Improvements in the quality of life include creating more protected space for pedestrians and cyclists.

Over the past decade, it has become clearer that environmental interventions may be key to promoting physical activity (24). Improving local environments so that they are perceived as being attractive and safe and can meet everyday travel needs is important (25). The importance of walking and cycling as means to achieve greater sustainability and attain health gains from transport was recognized in the Charter on Transport, Environment and Health adopted by Member States of the European Region of WHO in 1999 at the Third Ministerial Conference on Environment and Health (26).

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## Walking

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Walking is a form of physical activity and a means of transport accessible to the vast majority of people (disabled people being an exception) regardless of age, gender and social status, provided that appropriate environmental conditions exist for making it safe, enjoyable and convenient. Walking is the dominant form of transport for journeys under 1.6 kilometres and can become an important part of intermodal transport in urban settlements if linked with efficient public transport. Walking is convenient and may also be included in occupational and domestic routines. It is self-regulated in intensity, duration and frequency and inherently safe. Walking has been associated with a lower risk of death in middle-aged men (27) and specifically with a reduced risk of heart disease and colon cancer (28). Morris & Harman (29) said:

Walking is a rhythmic, dynamic, aerobic activity of large skeletal muscles that confers the multifarious benefits of this with minimal adverse effects. Walking is the nearest activity to perfect exercise.

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A systematic review of strategies that promote physical activity (30) concluded that walking is the most important form of physical activity that should be encouraged to improve public health given that it is the activity most widely available. The authors noted that (30):

Interventions that encourage walking and do not require attendance at a facility are most likely to lead to sustainable increases in overall physical activity.

## Cycling

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Compared with walking, the health benefits of cycling are somewhat greater because the intensity of effort is greater (31). Cycling uses the large skeletal muscles of the body in a rhythmic pattern, with periods of active work alternating with rest periods. In addition, longer periods of rest occur in normal urban cycling, determined by such factors as traffic lights and other road users. The rest periods allow recovery from high levels of activity when in motion. These factors make it a highly suitable activity to provide aerobic exercise and thereby to improve physical fitness (32).



Several recent field experiments have included cycling to test the effects of physical activity on health. The Copenhagen Heart Study, which involved 13 375 women and 17 265 men aged 20–93 years, found that cycling has a strong protective function. Assessed by self-reported health, blood pressure, cholesterol, body mass index and risk factors such as smoking, it concluded that (33):

even after adjustment for other risk factors, including leisure time physical activity, those who did not cycle to work experienced a 39% higher mortality rate than those who did.

Research in the Netherlands (34) has demonstrated that cycling as part of normal daily activities can yield improvements in physical performance similar to those of specific training programmes. The higher the total distance cycled during the 6-month trial period of activity, the higher the gain in maximal external power and maximal oxygen uptake. For those with a low initial fitness level, a single trip distance of 3 km per day on at least 4 days per week is enough to improve physical performance (34). This confirms that the greatest health gains can be achieved when the least active individuals become moderately active (35).

Similarly, a study of non-exercisers in the United Kingdom who agreed to take up cycling on at least 4 days per week (36) found the greatest benefits near the beginning of the intervention, and the more the volunteers cycled, the fitter they became. Body fat also declined significantly among 59% of the volunteers who were overweight or obese at the outset. The extent of the fat loss, typically 2–3 kg of fat

mass over the period of the trial, should mean that they achieve a change in energy balance, making it easier for them to control their weight while they continue to cycle. Thus, walking and cycling clearly provide the opportunity for regular, moderate physical activity. This includes local journeys to shops, schools and workplaces, especially for the majority of Europeans who live in urban areas, where trip distances are often short. For example, practical trials have demonstrated this for commuting and concluded that (31):

Walking and cycling during work trips currently provide the possibility for regular physical activity for a considerable proportion of the working population, and there is potential for a substantial increase of actively commuting people.

## Specific population groups and physically active modes of transport

In many ways the number of people younger than 18 years and older than 60 years who walk and cycle is a good indicator of the perceived and actual safety of these modes of transport. Both these age groups are generally vulnerable because of possible physical limitations and other aspects of functional capacity such as hearing. Cyclists and pedestrians find it harder to get around in neighbourhoods dominated by high volumes of motorized traffic, and both older people and families with young children report that high volumes of road traffic result in insecurity (37).

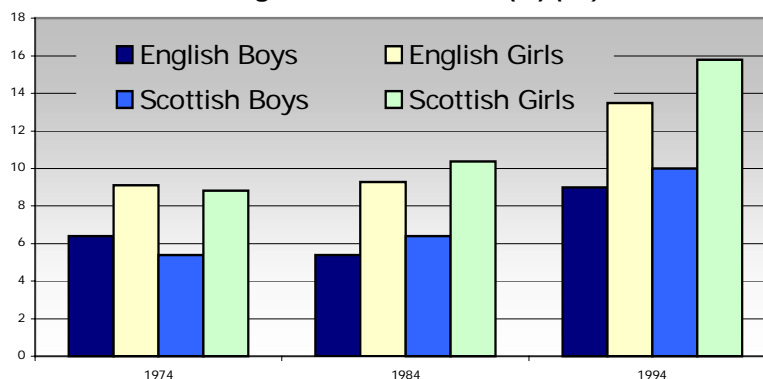
### Children and young people

Establishing a habit of physical activity early in life is important in encouraging an active lifestyle in adulthood, and people who start physical activity early in life tend to continue it later. However, levels of physical activity among children are in decline (38). It is estimated that less than one third of young people are sufficiently active to benefit their present and future health and wellbeing. In the mid-1980s, 67% of children in Great Britain aged 5–10 years walked to school and more than 6% of children 11–16 years old cycled. By the late 1990s, this had fallen to 56% of the children 5–10 years old walking and

less than 2% of pupils 11–16 years old cycling (39).

During the same period, the prevalence of overweight increased from 5.4% in 1984 to 9.0% in 1994 among boys in England and from 9.3% in 1984 to 13.5% in 1994 for girls. The prevalence of obesity increased correspondingly, reaching 1.7% for boys and 2.6% for girls (40) (Fig.1).

**Fig. 1. Prevalence of overweight in children in 1974, 1984 and 1994 in England and Scotland (%) (40)**



The duration and intensity of physical activity recommended for children and young people to achieve attainable fitness and health benefits are as follows.

- ✓ All young people should participate in physical activity of at least moderate intensity (such as feeling “warm” and slightly out of breath) for 1 hour per day; and
- ✓ Young people who currently have little activity should participate in physical activity of at least moderate intensity for at least half an hour per day.

This is the minimum recommendation for health-enhancing physical activity for young people. Examples of moderate-intensity activities include brisk walking and cycling. A secondary recommendation is that some activities should help to enhance and maintain muscular strength and flexibility and bone health such as skipping, dance and basketball (41).

Walking and cycling are the two forms of transport most readily available to young people. As most children and young people travel to school, the journey is an important opportunity for establishing the routines and habits of walking and cycling. In many European countries, car use on the school journey has been increasing because of rising levels of motorized traffic. This partly explains the declining levels of physical activity among young people (Fig. 2).

**Fig. 2. The vicious circle of increasing motorized traffic and the school journey (42)**

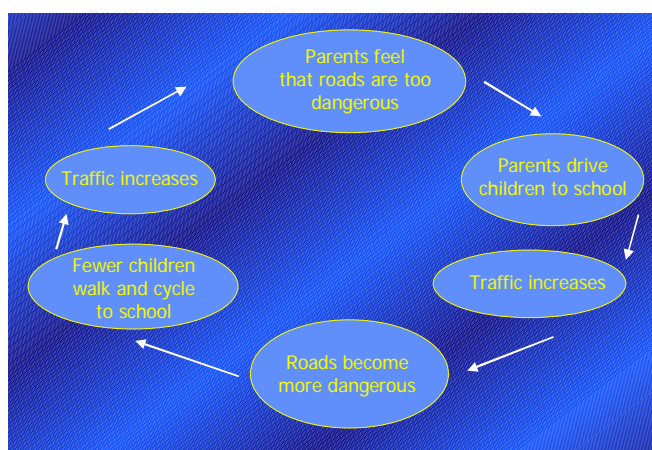
One positive response in the

United Kingdom has been the development of “walking buses” at primary schools (ages 5–11 years): parents agree to walk groups of pupils to school along set routes with a timetable and bus stops where children can catch the walking bus. At the first school to start a walking bus, Wheatfield Junior School in Hertfordshire, car use declined by 30% and is reported to have fallen further since (43). Hundreds of walking buses now operate across the United Kingdom.

### **Healthy aging**

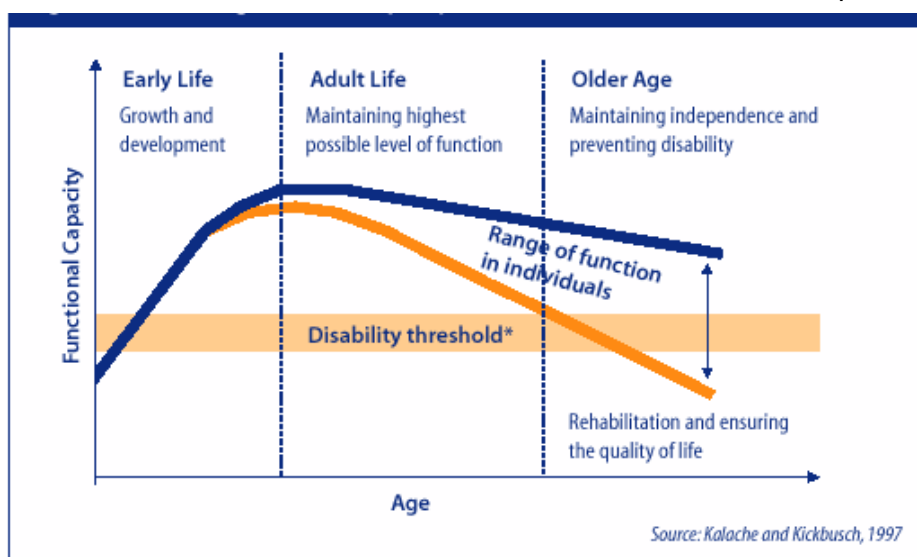
Participation in regular, moderate physical activity can delay functional decline. It can reduce the onset of chronic diseases among both healthy and chronically ill older people (44) (Fig. 3).

People are not always aware that age is not an inherent obstacle to physical activity. A healthy individual can engage in most forms of physical activity so long as they are not extreme and do not involve excessive exertion. From age 50 onwards, the benefits of regular physical activity can be most relevant in avoiding, minimizing and/or reversing many of the physical, mental and social hazards that often accompany





advancing age (6). Greater physical activity can help to prevent many of the negative effects aging has on functional ability and health. Regularly active individuals are less likely to withdraw from society and more likely to actively contribute to social life. Walking and cycling improve leg muscle strength, and this contributes to reducing the risk from falls among older people.



**Fig. 3. Maintaining functional capacity over the life course (44)**

Older people, especially postmenopausal women, have a specific need to continue regular, rhythmic, weight-bearing physical activity to preserve bone density and the integrity of muscle function and physical confidence that is essential to avoiding falls and consequent hip fractures (45).

Roads are often perceived as barriers to the day-to-day movements of older people. Studies of pedestrian crossing behaviour indicate that children and older people are especially delayed as traffic volumes rise (46). Road traffic can lead to a perceived danger of travel, which causes feelings of

insecurity, anxiety and stress (47). Nevertheless, walking is the most common form of physical activity for older people, playing an important function in meeting local travel needs, including enabling participation in economic activities as well as social networks.

In the United Kingdom, more than half of all visits to the post office, one third

of visits to doctors' surgeries and just over a quarter of trips to day centres and work are made by walking or cycling (48). In

European countries that provide for cyclists and have a positive culture for cycling, many older adults continue to cycle. The Dutch Cyclists' Union (Fietzersbond) runs courses for older cyclists to encourage safe cycling and to improve confidence and the continuity of the cycling habit (49). The 1-day course includes checking eyesight, hearing and reaction times as well as practical skills training.



## Barriers to walking and cycling

Low levels of cycling, especially in cities, are often correlated with transport policies that pay little attention to the safety of pedestrians and cyclists. On average, 5% of all trips in European Union countries in 1995 were made by bicycle (50). In fact, the real and perceived physical danger posed by motorized traffic is one of the main barriers to engaging in walking and cycling (51). As a result, many people who would like to walk more or cycle feel intimidated, parents increasingly restrict the independent mobility of children and older adults tend to self-restrict their own travel patterns as a result (52).



Casualty statistics indicate that pedestrians and cyclists account for about 20% of those involved in serious accidents in the WHO European Region. However, they are at disproportionate risk of death (or injury) compared with car users. For example, according to the United Nations Economic Commission for Europe, an estimated 37% of the people killed in 1997 were vulnerable road users (53). The figures for road deaths in the European Union in 1998 (Table 1) show that pedestrians and cyclists have much higher rates of road deaths per billion passenger-kilometres than do car users. The figures in Table 1, however, tend to overestimate the risk to cyclists and pedestrians, as they are not corrected to exclude driving on motorways, which does not apply to pedestrians and cyclists. For example, a study in the Netherlands found that when a correction factor was introduced to take into account that the kilometres driven on motorways represent about one third of the distance driven in a car and that for those kilometres the risk of accidents is ten times less than on the rest of the road network, the risk for cyclists was very close to that for car users (8).

**Table 1. Road deaths in the European Union in 1998 according to type of road user**

| Road user type       | Fatalities | Passenger-kilometres (billions) | Fatalities per billion passenger-kilometres |
|----------------------|------------|---------------------------------|---|
| Pedestrians          | 6 483      | 142                             | 46  |
| Cyclists             | 2 386      | 71                              | 34  |
| Powered two-wheelers | 6 713      | 137                             | 49  |
| Passenger cars       | 24 599     | 3 676                           | 6.7   |
| Buses and coaches    | 136        | 402                             | 0.3   |
| Goods vehicles       | 1 925      | 479                             | 4.0   |
| Other                | 445        | not available                   | not available                               |

Source: DG Energy & Transport, European Commission (50)

The City Council in York, England has developed a transport strategy that places vulnerable road users at the top of a road user hierarchy and has implemented traffic

restraint measures across the city that especially addresses motor vehicle speeds. This led to a reduction in road casualties well above the national average (Table 2).

**Table 2. Changes in road user casualties in York and the United Kingdom from 1981–1985 to 1990–1994 (%)**

| Casualties           | York (% change) | United Kingdom (% change) |
|----------------------|-----------------|---------------------------|
| All casualties       | -40             | -1.5                      |
| Pedestrians          | -36             | -15                       |
| Cyclists             | 29.5            | -12                       |
| Powered two wheelers | -65             | -54                       |
| Car passengers       | -16             | +16                       |
| Car drivers          | +2.5            | +41.5                     |

Source: Road Danger Reduction Forum (54)

Importantly, in York between 1991 and 2000 cycle use increased from 16% of trips to 19% and walking from 14% to 16% while car use declined from 55% of trips to 53%.

Other barriers to walking and cycling include motorist attitudes, lack of secure parking, lack of direct routes and the physical quality of the roads (55).

Although injuries sustained during cycling do occur, these are mostly associated with athletes and endurance cyclists. Knee injuries appear to be a particular problem where the knee joint has been under high stress in cycling. It has been reported to occur among new recreational riders who make two errors: setting the saddle too low and the gears too high. These mistakes cause excessive pressure on the patellofemoral joint. A better fitting bicycle and saddle, adjusting the saddle properly and using lower gears help to reduce such problems (56). Expert advice from bicycle vendors may help in preventing these problems.

### **Supportive environments and policies for walking and cycling**

The potential for increasing walking and cycling in Europe is substantial, but several issues need to be addressed to increase the levels of walking and cycling. With regard to cycling, the European Commission has highlighted the need for improving highway infrastructure for cyclists to improve safety and to redistribute road space away from motor vehicles (8). In terms of walking, the 1988 European Charter of Pedestrians' Rights (57) sets out clear statements of intent to improve conditions so that they become far more favourable for walking. Changing the environment and changing culture are clearly critical to achieving higher levels of walking and cycling across Europe.



Several critical factors are found in locations across Europe where walking and cycling are popular modes of transport. Success in urban areas requires high land-use density (compact development) so that distances between facilities are short. This requires careful land-use planning and development control so that new facilities planned as well as those already existing are accessible on foot and by bicycle. This approach has, in fact, been firmly located within land-use planning in the Netherlands since the 1980s; the city of Groningen was at the forefront of this approach. In the United Kingdom, recognition of the need to reduce carbon dioxide emissions and promote alternative modes of transport to the car led to the revision of planning policy guidance in 1994 (58).

A second condition for walking and cycling is widespread use of 30 km/h speed limits, slow-speed streets (15 km/h) and pedestrianization (which gives priority to pedestrians in planning). Cities such as Graz, Austria and Munich, Germany have implemented such measures to improve conditions for pedestrians and cyclists. In Graz, widespread 30 km/h speed limits were introduced in 1992. By 1995 the number of cycle accidents decreased by 30% while cycle use, already a significant mode of transport, increased by 6%. Speed limits are enforced through engineering measures and police surveillance. Importantly, Motorists as well as other road users broadly support these measures in Graz (59). In the Netherlands, the Government's Sustainable Safety Programme is seeking to introduce 30 km/h zones within 90% of built-up areas. Speed limits of 60 km/h have also been introduced on secondary rural roads to improve understanding among all road users of appropriate speeds for the road environment.

Sweden's Vision Zero safety policy has an objective of no fatal or serious injuries on the roads. This approach is also present in other northern European countries. It is recognized that crashes will always occur but that the state can intervene to eliminate the most serious consequences. The needs of the most vulnerable road users determine the safety demands on the system. Speed reduction is the single most important measure in the programme (60). In the United Kingdom, York City Council pioneered a danger reduction approach to speed management and as a result met the first national casualty reduction targets well in advance of target dates (61). The Council recognizes that slowing traffic down is the best way to stop accidents and make the roads feel safer for all road users.

Interestingly, there is evidence that people in wealthier countries walk more. This is thought to be linked to greater overall mobility and higher investment in pedestrian facilities (62).

Other important measures to promote safe walking and cycling include: shifting the modal split to obtain better conditions for pedestrians and cyclists; treating walking and cycling as "real" transport modes; considering the needs of vulnerable road users; providing appropriate infrastructure (cycle lanes and pavements); improving roads and facility design; promoting a culture of acceptance of walking and cycling; improving education of road users; encouraging the use of protective devices (such

as conspicuity aids and helmets); and moving away from preventive approaches that place the responsibility for safety predominantly on the behaviour of cyclists and pedestrians rather than on the drivers of motorized vehicles (63).

## **Conclusions**

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There are major opportunities for achieving large health gains for the European population by increasing levels of routine physical activity. Walking and cycling as means of daily transport can be a most effective strategy to achieve these gains. The benefits of walking and cycling go beyond those of physical activity, as they encompass decreasing air and noise pollution and improving the quality of urban life. The implementation of transport and land-use policies that create the appropriate conditions for safe walking and cycling while paying particular attention to the needs of vulnerable road users (including children and elderly people) is the single most important tool to increase the number of people who become or remain physically active. These policies require effective intersectoral collaboration at different levels in policy-making involving the health, transport, land-use and environment sectors, including the close involvement of stakeholders.

## **Examples and approaches from Europe**

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Increasing the levels of physical activity among all age groups in the population is essential to attain the substantial health benefits to be gained through physically active lifestyles. Health agencies such as the World Health Organization and health departments at both the national and local levels have important coordinating roles to play, but many of the routes to help promote and achieve higher levels of physical activity in the population are situated beyond the health sector. This fact has been recognized for many years within health promotion. For example, the Ottawa Charter for Health Promotion adopted in 1986 stated that:

Health promotion goes beyond health care. It puts health on the agenda of policy makers in all sectors and at all levels, directing them to be aware of the health consequences of their decisions and to accept their responsibilities for health.

The challenge for many people is how a physically active lifestyle can be reintroduced into their lives, especially with the increasing use of labour-saving devices at home, in workplaces and in transport. The slogan of World Health Day 2002 is “Move for health”. The WHO European Region is focusing on physical activity through transport. This can be a very effective way of increasing or maintaining adequate levels of physical activity in the general population while delivering additional important benefits in terms of reducing air pollution and noise and improving the quality of life in cities. Achieving these benefits requires the active engagement of the transport sector and of land-use planners in designing safe environments that especially support walking and cycling, including among children and older people. In addition to physical activity as part of transport, considering the role of transport in enabling access to other physical activities such as swimming, sports and recreational areas is also important.

Although the key aims and objectives of the transport sector may not be to improve health, issues such as access, environmental protection and equity provide significant opportunities for promoting health and specifically physical activity. A critical factor therefore is the active engagement of advocates for health and physical activity with the transport and land-use sectors in identifying such opportunities for mutual benefit. This is also in accordance with one of the principles of WHO, which emphasizes the role of multisectoral responsibility for health. Decision-makers in all sectors should consider the benefits to be gained from investing for health in their sector and orient policies and action accordingly.

The following case studies illustrate a range of models of how citizens can include physical activity as part of their daily travel behaviour. They have been assembled in response to a WHO request to many different sources of relevant information, such as city networks including the WHO European Healthy Cities Network, nongovernmental organizations and national health promotion agencies. Valuable input was also received from Member States through the Steering Group of the Charter on Transport, Environment and Health and its national contact points. This document could not completely describe the relevant initiatives being developed

across Europe by different actors and in different settings nor portray an exhaustive range of possible approaches. It is nevertheless hoped that the case studies may inspire others to take action in encouraging and supporting physical activity through transport. The table below provides an overview of the variety of initiatives.

| Country                     | City                             | Title   | Target population   |
|-----------------------------|----------------------------------|---|---|
| Denmark                     | Copenhagen                       | All-cause mortality associated with physical activity during leisure time, work, sports and cycling to work | A cross-section of adults aged 20–93 years attending Copenhagen University Hospital |
| Finland                     | Jyväskylä                        | Getting to sports facilities in Jyväskylä   | People 60 years of age and older  |
| Israel                      | Various cities                   | Walking programmes for elderly people to promote health and safety  | People 60 years of age and older  |
| Italy                       | Udine                            | Children walking to school  | Primary school children   |
| The Netherlands and Belgium | Various cities                   | Safe and healthy on the bike: cycle skills training for senior citizens                                     | People aged 65 years and older (the Netherlands) and 60 years and older (Belgium)   |
| Spain                       | San Fernando de Henares          | Healthy physical activity   | All residents of San Fernando   |
| Sweden                      | Helsingborg                      | Happiness is cycling  | Habitual short-journey car drivers  |
| Sweden                      | Gothenburg                       | Challenge Gothenburg – a competition for cycling to, from and at work                                       | Car commuters   |
| Switzerland                 | Thun                             | Being and staying mobile – the use of modern modes of transport   | People aged 60 years and older  |
| United Kingdom              | Various locations                | The Sustrans Safe Routes to Schools Project   | Schoolchildren  |
| United Kingdom              | Quedgeley, Gloucester, England   | TravelSmart pilot project   | Residents of the district of Quedgeley, Gloucester, England                         |
| United Kingdom              | Hertfordshire County             | Reducing children's car use: the health and potential long-term implications of car dependence              | Children  |
| United Kingdom              | London Borough of Camden, London | The Camden Walking Plan and the Camden Cycling Plan   | Pedestrians and cyclists travelling in Camden                                       |

## **All-cause mortality associated with physical activity during leisure time, work, sports and cycling to work<sup>1</sup>**

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Copenhagen, Denmark

### ■ **Background: aims and objectives**

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The more physically active you are, the longer you live. This is true for men and women of all ages. People who cycled an average of 3 hours per week at the start of a long-term study had a 40% lower mortality rate than those who were not physically active or only in their leisure time.

A long-term study funded by the Danish Medical Research Council and the Danish Heart Foundation sought to ascertain whether the risk of mortality associated with physical inactivity is the same for different age groups and both sexes.

A team of researchers from Copenhagen hospitals and medical research institutions investigated the relationship between levels of physical activity and all-cause mortality.

### ■ ■ **Description of the study**

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The participants – about 13 000 women and 17 000 men aged between 20 and 93 years – were randomly selected at Copenhagen University Hospital. They were monitored for an average period of 14.5 years, during which time 8500 of them died.

The participants were asked whether and how much:

- they were physically active at work;
- they were physically active in their leisure time;
- they cycled to work; and
- they participated in sport.

### ■ ■ ■ **How was the study evaluated?**

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For each activity they were categorized into four groups (1 = a low level of activity and 4 = a high level of activity). These self-reported levels of physical activity were compared with the observed levels of mortality – irrespective of the cause of death. The figures were adjusted to take account of lifestyle, age, sex, blood pressure, blood fat levels, smoking, body mass index and educational level.

About 2300 of the approximately 7000 people who said they cycled to work at the beginning of the study died during the study. Those who cycled to work cycled an average of 3 hours per week.

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<sup>1</sup> ANDERSEN, L.B. ET AL. All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work ([archinte.ama-assn.org/issues/v160n11/toc.html](http://archinte.ama-assn.org/issues/v160n11/toc.html)). *Archives of internal medicine*, **160**(11): 1621–1628 (2000) (accessed 19 March 2002).



### ■ ■ ■ ■ **What is the health evidence of its effects?**

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The main finding was that the physically active people had a lower mortality rate than physically inactive people and that this applied to both sexes and in all age groups. Whereas the level of physical activity at work and at leisure had little impact on mortality rates, sports participants had 50% lower mortality.

Those who did not cycle to work had a 39% higher mortality rate than those who cycled to work at the beginning of the study, irrespective of the level of other leisure-time physical activity and the other factors investigated.

### ■ ■ ■ ■ ■ **Target population**

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The target population was a cross-section of adults aged 20–93 years attending Copenhagen University Hospital.



### **Contacts**

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## **Getting to sports facilities in Jyväskylä**

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Jyväskylä, Finland

Older people are transported to the swimming pool and to different kinds of sport facilities in Jyväskylä.

### **■ Background: aims and objectives**

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The reorientation of public transport services to better meet the demand of the users can play a very important role in increasing opportunities for greater accessibility and physical activity, especially for older people. Particularly during the winter, many older people reduce their mobility as they fear slippery roads and darkness. To facilitate them using the local swimming pool all year round, the sports centre has organized bus services free of charge for older people. They only pay the regular fee for the use of the swimming pool, and the transport costs are covered by the sports centre. Transport is organized from 17 suburban areas of the city. Whenever possible, low-floor buses are used for those routes where it is known that older people with mobility problems live.

### **■ ■ Description of the initiative**

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As the decline of the use of the swimming pool became known, an investigation of the reasons for this was made. An investigation was also undertaken to improve insight into the customer's wishes and needs. Based on this knowledge, the bus routes could best be organized. It was agreed that buses would stop at all day centres for elderly people and sheltered homes. The timetables were adjusted to the daily routine in the day centres.

The bus company worked together with the sports centre and the city planner to select the bus routes and additional bus stops in such suburban areas where it was known that older people live. Older people who arrive in the swimming pool by organized transport can also participate in special exercise groups and water gymnastics and senior gym, which is especially planned for senior citizens, supervised by a professional instructor. The swimming pool also offers assistance in the dressing rooms. The service is regularly announced in local radio, newspapers and Internet and by the staff of the day centres.

### **■ ■ ■ How was the initiative evaluated?**

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A study conducted by the sports centre to evaluate the programme revealed that 70–80% of the transport users were pensioners who regularly do sports. There were 25–30 people at a time in a bus, and about 18 participated in the water exercise group.

### ■ ■ ■ ■ ■ **What is the health evidence of its effects?**

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The project has not measured health evidence of its effects. However, the study showed that the transport services enabled even older people than usual to engage in water exercise.

### ■ ■ ■ ■ ■ **Target population**

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The target population was people 60 years of age and older.

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### **Contacts**

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## **Walking programmes for elderly people to promote health and safety**

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Throughout Israel

### **■ Background: aims and objectives**

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In 1999 a joint committee including Eshel, the Association for the Planning and Development of Services for the Aged in Israel, the Sports Authority (of the Ministry of Science, Culture and Sports), the Road Safety Authority of the Ministry of Transport and local authorities was established to promote a national walking programme for elderly people. That year was dedicated by WHO to the promotion of walking programmes for elderly people. Specific local initiatives were initiated across the country with the aims of raising the awareness among elderly people of the importance of walking to their health and of establishing walking groups.

### **■ ■ Description of the initiative**

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The programme coordinator in each city or region recruits volunteers – people over the age of 60 years who like to walk and are willing to serve as group leaders. These volunteers participate in a training seminar and then form and lead walking groups for elderly people in their neighbourhood. Some groups are small; some are large. Some people start in a group and then continue walking alone; others walk with groups for years. What is important is that elderly people all over the country are walking.

An additional facet of the programme is the promotion of safety of the elderly pedestrian, one of the major groups at risk on the roads (40% of the pedestrian casualties are elderly, while the age group 60 years and older are 11% of the total population).

The aim of the walking programmes is to promote safe walking habits as well as to promote health. The Road Safety Authority distributes hats, membership cards for walkers and pamphlets all with safety messages. In addition, each walker receives reflectors for safer walking.

Since 1999, a tradition has developed: In addition to local walking activities, twice a year the steering committee organizes special walking and sports events for elderly people. In the spring, there are regional marches – in the north, central area and the south to coincide with World Health Day in April. In the autumn, there is a National Day activity for elderly people, which coincides with the International Day of Older Persons (1 October), and this usually takes place in a central location. These events include walking on paths of varying lengths, sports activities and cultural performances.

In the example of Jerusalem, advertisements were placed in local newspapers to locate and enlist walking enthusiasts who then serve as “walking trustees” (agents for change) and spread the message among elderly people of the importance of walking. A workshop was then set up to train the walking trustees to lead walking groups in neighbourhoods throughout Jerusalem. Coordinators working with elderly people

were informed of the workshop and its purpose to convey to the professionals the importance of encouraging elderly people to walk. A municipal walking club was established to encourage the volunteer walking trustees and provide them with enrichment in sport-related issues and health for elderly people.

### ■■■ **How was the initiative evaluated?**

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Thousands of people attend each event, and the number of participants grows from year to year (in 2001 approximately 6000 people participated despite the security situation), a sign that the message of the importance of walking and sports for elderly people is catching on.

### ■■■■■ **Target population**

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People 60 years of age and older.



### **Contacts**

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## **Children walking to school**

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Udine, Italy

### **■ Background: aims and objectives**

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A task group on the health of children 0–14 years old has been working on a project on children walking to school since 1996. The project has consisted of piloting safe routes for walking to school in four town primary schools, with the important support of volunteers, mostly the parents themselves.

### **■ ■ Description of the initiative**

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The main aim of the project is to reduce traffic and pollution around the schools, to promote children's autonomy, to encourage urban mobility and the use of the road by children and pedestrians, to create opportunities of socialization for children and to develop children's social and emotional life.

During 2001, task groups of parents and teachers were established to identify and single out more safe routes all around the town in other primary and secondary town schools (18 of 39 schools in town). The tool for assessing such routes was a questionnaire investigating how children get to school.

For 2002, the remaining schools have been invited to join the project and to single out their own safe routes to school too, so that, in the end, a complete map of safe routes to school for the whole town can be prepared.

At the same time, all the city schools have been asked to join four special days during which pupils, parents and teachers will experiment with the routes. The experimentation phase will end in a public happening on 2 October 2002, when the International Walk to School Day is celebrated, to gain high public visibility and support this initiative.

Three preparatory and informative meetings have been organized with teachers and parents, during which specialists, practitioners, urban planning technicians have illustrated from different viewpoints the need for a healthy environment for children and the importance of walking and cycling to school and the need for using public transport.

The identified routes will form the basis of a feasibility study of the municipal Department of Public Works and Department of Town Planning in the light of the new town transport plan. In particular, this plan will provide for special town planning efforts focusing on children, including safe pedestrian crossings and passages, cycle lanes and traffic-calming measures.

It is also planned to involve the town high school pupils, who might play the role of mentors by taking pupils from the primary and secondary schools to school.

### ■■■■ **How was the initiative evaluated?**

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The initiative has been positively evaluated both in the first experimental phase (identifying the routes, taking kids to school and helping them in crossing roads in four pilot schools) and in the present stage of the project (further study, implementing the routes and organizing the four experimentation days).

### ■■■■ **What is the health evidence of its effects?**

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The project has not measured health evidence of its effects. It has been evaluated in terms of the observed success in the establishment of task groups of parents and teachers at the first four pilot schools and now also in the schools joining recently. The increase in the number of such task groups is moving towards a more autonomous organization of the project, being self-governed.

The Municipality of Udine has participated in the WHO Healthy Cities Project since 1995, and in 1999 the Regional Healthy Cities Network of Friuli Venezia Giulia was founded. The Healthy Cities Project Office of Udine has therefore announced an International Walk to School Day for 2 October 2002 and related initiatives among these cities.

### ■■■■ **Target population**

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The target population is primary school children in Udine.



#### **Contacts**

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The Udine health profile (in Italian) describes the past and ongoing activities of the task group on children's health (Chapter 8, page 169 ff.):

[www.comune.udine.it/udinsana/index.htm](http://www.comune.udine.it/udinsana/index.htm)

## **Safe and healthy on the bike: cycle skills training for senior citizens**

Belgium and the Netherlands

Two projects have been operated in both the Netherlands and in Belgium using similar approaches. The Fietsersbond (Dutch Cyclists' Union) project in the Netherlands began in 1996 and is active in several provinces training people aged 65 years and older: Noord Holland, Zeeland, Brabant, Utrecht and Flevoland. A similar project also began in Belgium in 2001, where the course is organized by the Fietsersbond vzw (cyclists' union) and trains people aged 60 years and older. This has operated in ten different cities: Mortsel, Deinze, Blankenberge, Roeselare, Oostende, Genk, Aarschot, Kiewit, Brugge and Sint-Niklaas.

### **■ Background: aims and objectives**

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In the Netherlands, the Fietsersbond, several other transport organizations and the government were alarmed by the great number of cyclists 65 years and older injured in road accidents. In 2000, 83 cyclists aged 65 years and older died in road accidents. In that year, 8 cyclists 23–34 years old died in from road accidents. In the Netherlands, many elderly people give up cycling: 60% of women and 30% of men at about 75 years old. Many give up because of a lack of skills; traffic has increased and they cannot cope with that. There are also health problems such as pain in the knees, respiratory disease, heart problems, arthritis and rheumatism. However, when people whose main mode of transport is the bicycle stop cycling, their engagement with the world beyond the home is reduced. Moreover, daily physical activity decreases and mobility is reduced.

In Belgium, Fietsersbond vzw has similar concerns about safety, loss of mobility and isolation when older people give up cycling. Health benefits are important to both projects; in addition, it is also recognized that bicycling is not only good for health and mobility, but it is also great fun.

### **■ ■ Description of the initiative**

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The aim of both courses is to enable and encourage older people to keep cycling as long as possible and to develop safer conduct as elderly cyclists in traffic. The courses lasts one day. They start with the importance for elderly people to keep cycling. Then there is an interactive programme on knowledge about traffic regulations.

The course in the Netherlands checks the eyesight of the cyclist and sometimes also hearing. Both courses involve a local bicycle mechanic checking the roadworthiness of the bicycles. Afterwards there are cycle exercises for 30 minutes and an instruction video about safe and assertive cycling. Then there is cycle skill training. This includes the best ways to start the bike, how to stop suddenly, one-hand driving and so on. The final part of both courses is a bike tour through the local neighbourhood. The course ends with evaluation.



### ■■■ **How was the initiative evaluated?**

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The courses are evaluated by participants. Feedback from the participants through the evaluation indicates that the course was interesting; they learned a lot and feel more secure in traffic. Some cyclists claim that they cycle more as a result. In the Netherlands, 2% of elderly people in the provinces attend the course.

### ■■■■ **What is the health evidence of its effects?**

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The project has not measured health evidence of its effects. However, for the organizers, the success of the course includes cooperation between organizations focusing on health, transport and elderly people. A by-product of the course is that seniors go cycling every week. A cycling club of elderly people has been established. In Belgium, the health evidence is asserted to be the success in getting older people to continue to use their bicycles.

### ■■■■■ **Target population**

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The target populations are people aged 65 years and older in the Netherlands and 60 years and older in Belgium.



### **Contacts**

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## Healthy physical activity

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San Fernando de Henares Council, Spain

### ■ **Background: aims and objectives**

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The project aims at increasing levels of physical activity by applying the concept of health-enhancing physical activity (HEPA). This refers to activity of moderate intensity carried out daily or almost every day, with a minimum of 30 minutes throughout the day.

To enable its fulfilment, the daily minimum must comprise routine activities of daily living such as rapid walking or climbing stairs. The aims of this project were:

- to stimulate the interest in healthy and active lifestyles among the population; and
- to encourage positive attitudes to developing healthy physical activity.

Specific objectives include:

- integrating physical activity into daily activities;
- identifying the available resources for physical activity and to promote their use;
- enhancing the number of people practising health-enhancing physical activity;
- including the concept of health-enhancing physical activity in the school curriculum, involving the whole school community; and
- including the concept of health-enhancing physical activity in the programme of health promotion targeting elderly people.

### ■ ■ **Description of the initiative**

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The programme is active and participatory, including action over different community groups through information and the analyses and reflection over their experiences and behaviour. It also includes playful recreational activities to be carried out periodically to reinforce the programme.

#### **Activities**

##### 1. By the school community

- ✓ Training of parents and teachers (environment knowledge, physical education and artistic education), having in mind that they are going to be involved directly with the school population.
- ✓ Schoolchildren:
  - working with teachers on theoretical content, preparing materials in the classroom to be used in the gym for developing physical drills, and specific activities to boost the concept of health-enhancing physical activity;

- reinforcing the parents in the social and family arena;
  - a popular race across town (March 20); and
  - celebration of World Health Day (April 7).
2. Workshops to be carried out (available upon request) to practise the concept of health-enhancing physical activity and didactic material.
  3. Education for developing health-enhancing physical activity in the activities of daily living of elderly people, mainly on walking as the mode of transport in town.
  4. On September 22, as part of Car-Free Days, in collaboration with Ecologistas en Acción (a nongovernmental organization), walking and playful activities will be promoted such as a bicycle race across a park.

### **Resources**

- Human: schools (teachers, parents); Council Health Centre (one physician and two nurses), University of Castilla La Mancha (physical education teacher).
- Material: perishable goods for physical education and scientific documentation.

### **■■■■ How was the initiative evaluated?**

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As this programme started in November 2001, no results are available yet, although great interest in participating has been expressed. The evaluation will focus on: process (fulfilment of planned activities); departments and number of involved teachers, parents and pupils; fulfilment of workshops on health-enhancing physical activity; and the number people attending the sessions.

### **■■■■■ What is the health evidence of its effects?**

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The project will assess changes in population knowledge and attitudes (a questionnaire will be handed out at the beginning and at the end of the process).

### **■■■■■ Target population**

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The target population is all residents of San Fernando.



### **Contacts**

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## **Happiness is cycling**

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Helsingborg, Sweden

### **■ Background: aims and objectives**

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The purpose of the campaign is to inform people who live and work in Helsingborg of the opportunities available for cycling in and around the town and to encourage a positive attitude towards cycling.

The objectives are to increase the number of journeys made by bicycle during 2002 by 20%, to achieve positive environmental effects such as less traffic noise and a reduction in levels of air pollution, to increase the space available to vulnerable members of the public in the town centre and to encourage people to participate in physical activity to reduce the risk of heart disease.

### **■ ■ Description of the initiative**

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Forty thousand copies of a new pocket-format cycle map have been printed. The map is free and is available at all libraries, staffed petrol stations and the Tourist Information office, staffed bicycle parking and other places. In this new version, distances are more clearly indicated, making it easier to plan journeys. One of the major goals of the project is to persuade people who normally make relatively short journeys (3–5 km) by car to change to using a bicycle. That is why the map was handed out to all of the customers at the Vehicle Test Centre in Helsingborg during a 1-month period. In this way, the map was handed directly over to one of the main target groups.

There are a range of initiatives to support and promote cycling in Helsingborg.

- The Urban Planning Department is developing a new cycle plan, which is to be used as a basis for decisions linked to the development of a network of cycle paths throughout the town. The goal is to link the various paths into as comprehensive network as possible.
- An inventory of all of the cycle paths has taken place during the year in order to provide a clear picture of the measures needed to improve the status of the paths. Approximately S.kr. 3 million has been allocated for improvements.
- More than 500 signposts have been located along the 200 km of cycle paths, each of which is also colour coded to facilitate easy access by users.
- A free phone number has been installed so that cyclists can submit their views or give hints and ideas regarding the cycle path network. Acute problems can be reported to the Department of Technical Services fault line.
- There is now a campaign Web site with information, tips, links and points of view.
- There is much-appreciated staffed cycle parking outside the ferry, bus and railway terminal, "Bike In", which ensures that parked bicycles are not stolen or vandalized and that cycle maps are handed out.

In addition, the Traffic Safety Committee within the Department of Technical Services has organized traffic information for young children for the last 30 years. Experience shows that children from schools outside the town have little chance of attending the Children's Traffic School due to the distances involved. Buses are needed, and these cost money. The project has subsidized the bus fare for these children. Approximately 2000 children participate in the lessons, which take place over a 7-week period.

There are also cycling to work initiatives. From 17 May to 15 June 2000, a Cycle to Work campaign took place aimed at the 7500 City Council employees; 20% of the employees participated and cycled 93 516 km during 12 541 person-days during the campaign period. During 2001, cooperation was initiated with a sports association in Helsingborg, inviting all of the companies in the Council area with more than five employees to cycle to work during a 4-week period. Our goal is that 30% of the participating companies' employees will participate.

During January 2001, eight people were identified who resided in Helsingborg who wanted to change their lifestyle by leaving their car at home and bicycle to work instead. They had approximately a 5-km single journey to work and were prepared to cycle to work regardless of the weather. A bicycle was provided for the project, but also a bus card, when the weather conditions occasionally proved to be too extreme. Before starting, they underwent a physical check-up and also a fitness test. These tests were repeated twice during the 10-month project period.

The local radio station and newspaper covered this project, creating role models that are inspiring others to give up their car for short journeys.

At a regional level, in collaboration with two other town councils in the region and the Swedish National Road Administration, material suitable for use in smaller councils has been developed, where both economic and personnel resources are limited, to help them initiate local cycle-to-work campaigns.

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### ■■■■■ **Target population**

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The target population is habitual short-journey car drivers.



### **Contacts**

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## **Challenge Gothenburg – a competition for cycling to, from and at work**

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Gothenburg, Sweden

### **■ Background: aims and objectives**

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The aim of Challenge Gothenburg is to challenge people living in the city, who appreciate the need for freedom, good health and a good environment: the people who want to keep fit and share a leisure activity with their colleagues. The idea is to get as many people as possible cycling to work instead of using their cars. By encouraging people to cycle, the environment will be improved through reduced emissions, less noise and fewer traffic jams. In addition, public health will improve and the cost of health care will be reduced.

### **■ ■ Description of the initiative**

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To enter, companies and organizations form teams of between 10 and 40 members, of whom 25% must be active participants. When they enter, participants are provided with a Challenge Gothenburg T-shirt, a waterproof poncho and a cycling map of the city. The teams also receive an entry card for each stage of the competition, on which they enter details of their participation.

Each active participant must cycle on at least 30 occasions over the entire 5 months of the competition: 10 times during the Spring Challenge (22 May to 22 June), 10 times during the Summer Challenge (26 June to 13 August) and 10 times during the Autumn Challenge (14 August to 22 September). Every occasion must be at least 2 km. The teams are awarded one point for every time a participant cycles the 2 km.

In the prize draws, which are held for each stage of the contest, the team members can win a cruise to Newcastle, England or Kristiansand, Norway with DFDS, bikes, helmets from Mixxon, cycling accessories, etc. A corporate prize is also awarded, with one winner from each category receiving S.kr. 10,000 to donate to an environmental project of their choice in Gothenburg. This money can also be used for in-house environmental projects.

### **■ ■ ■ How was the initiative evaluated?**

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So far, 3214 people in 323 teams have taken up the Challenge.

### **■ ■ ■ ■ What is the health evidence of its effects?**

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The project has not measured health evidence of its effects. However, cycling 5 km to work each day reduces carbon dioxide emissions by an estimated 0.7 tonnes per year. And by cycling instead of driving, the same journey will save each participant almost S.kr. 225 per month in fuel costs.

A physically active life through everyday transport  
with a special focus on children and older people and examples and approaches from Europe.

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■ ■ ■ ■ ■ **Target population**

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The target population is car commuters in Gothenburg.

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   **Contacts**

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## **Being and staying mobile – the use of modern modes of transport**

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Thun, Switzerland

Following the pilot phase of the project in Thun in 1999–2000, the project has now been implemented in a variety of cities in Switzerland.

### ■ **Background: aims and objectives**

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Various modes of transport increasingly make use of technical advancements. New vending machines and ticket dispensers, new ticketing systems and decreasing numbers of support staff in public transport contribute to the potential risk for many older people to lose sight of such developments. In turn, they might perceive such developments as barriers to use and decrease their mobility levels.

The programme uses three modules of the various means of transport, both public and private, and includes information about the opportunities in the region for cycling and walking. The course also includes the environmental and health effects of using the different modes of transport. The project is targeted at people aged 60 or older.

The project aims:

- to improve the levels of mobility;
- to experience the different modes of transport in the local community;
- to motivate people to test the different modes of transport;
- to promote daily physical activity as protecting against illness among older people, including coronary heart disease, diabetes, hypertension, hyperlipidaemia and osteoporosis; and
- to show the relationships between mobility and safety, health and environmental protection.

The individual courses aim:

- to increase the individual's autonomy and independence;
- to renew knowledge of existing transport services in the community;
- to reduce anxieties and barriers related to new forms of transport; and
- to motivate people to engage in more daily physical activity.

### ■ ■ **Description of the initiative**

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The courses follow a system of three modules, each with a strong regional orientation.

Module 1 on mobility and health is an introductory exercise. The different modes of public transport are described and a personal profile is developed for each participant of the current use of different modes of transport, taking into account possible personal limitations in movement. Practical exercises in the use of ticket and vending



machines and how to get from point A to B are carried out. Different options as to how to increase the levels of physical activity are explored.

Module 2 focuses on bicycling in the respective community or home town. “Safe in the saddle” trains how to cycle safely, taking into account the local traffic conditions. Instructors include police officers, and the course is co-sponsored by the Swiss Bicycle Advocacy Association.

Module 3 is a training module for car driving for older people. It is a refresher course in safe driving, taking into account the local traffic conditions. This course is co-sponsored by the Swiss Automobile Club and under the supervision of professional driving school teachers.

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### ■■■ **How was the initiative evaluated?**

The pilot courses were evaluated with regard to the coverage of the target population. A feasibility study was undertaken to investigate what sort of adaptation would be necessary to expand the pilot to other cities in Switzerland. The expansion of the project to the national scale is supported by the Swiss Federal Office of Energy and the Swiss Federal Office of Public Health.

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### ■■■■■ **Target population**

The target population is people aged 60 years and older.

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   **Contacts**

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## **The Sustrans Safe Routes to Schools project**

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Head office in Bristol, England, United Kingdom

### **■ Background: aims and objectives**

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Data from the National Travel Survey show that over one third of primary school children and over one fifth of secondary school children now travel to school by car. There has been a corresponding decline in walking and cycling over recent decades. For example, in 1985/1986, 67% of children aged 5–10 years walked to and from school, but by 1998/2000 this declined to 56%. For children aged 11–16 years during the same period walking declined from 52% to 43%. Cycling also reduced over this period and fell from 6% to 2% among 11- to 16-year-olds.

The Safe Routes to Schools project draws much of its inspiration from the safe routes programmes established in Denmark in the 1970s. In particular, the project has had close links with the Municipality of Odense, where most children walk or cycle to school. Sustrans has coordinated some exchange trips for pupils at schools in England with schools in Odense.

### **■ ■ Description of the project**

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The civil engineering charity Sustrans developed a Safe Routes to Schools programme in 1995. Firstly, this involved ten pilot schools in England to demonstrate that walking and cycling could be safely increased as modes of school travel. Travel surveys were undertaken before and after the implementation of both physical and awareness-raising measures. Classroom work on transport highlighted issues related to the use of different modes of travel and what measures needed to be taken to improve conditions and facilities such that walking and cycling would become more popular for the school journey. Sustrans also worked in cooperation with the local highway authority and drafted a report submitted to them that highlighted the survey results and the need for various traffic management measures such as the installation of cycle lanes and improved footpaths.

Secondly, the Safe Routes to Schools project established a national Information Service for all those interested in developing safe routes to schools. Part of the service includes answering questions from schools, local authorities and the public on aspects of school travel. The project developed a quarterly newsletter and a range of information leaflets to help address the various questions and issues raised. This includes an information leaflet on the health benefits of walking and cycling. Most local highway authorities in England now coordinate school travel programmes and draw on advice and information produced by Sustrans.

### **■ ■ ■ How was the project evaluated?**

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Survey results undertaken by Sustrans staff indicate that cycling levels have increased by more than 50% in some of the pilot schools since 1996 (although from a low baseline) and walking levels have increased by up to 20%, whereas car use has

declined. Cycling has increased at all ten schools. For example, cycling use has more than doubled at Philip Morant School in Colchester. More than 10% of the 1500 pupils cycled to school in 1999 (over four times the United Kingdom average) versus 5% in 1996. Car use at the Philip Morant School declined by 17%.

In terms of the Information Service, enquiries to Sustrans from schools, parents, communities and local authorities have almost tripled since September 1999, and contacts interested in Safe Routes to School have increased from 1200 to 6101.

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### ■ ■ ■ ■ **What is the health evidence of its effects?**

The direct health effects of increased walking and cycling to school are hard to measure. The increasing levels of walking and cycling among the pilot demonstration project schools, however, as well as the encouragement given to many thousands of schools through the project's information dissemination programme, are very likely to have increased levels of physical activity among schoolchildren and hence their overall health and fitness.

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### ■ ■ ■ ■ ■ **Target population**

The target population is schoolchildren.

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   **Contacts**

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## **TravelSmart pilot project**

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Quedgeley, Gloucester, England, United Kingdom

### **■ Background: aims and objectives**

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Individualized marketing is an approach that has been applied successfully to road transport in Western Australia in changing travel behaviour away from car use. After piloting, a large-scale programme involving 35 000 people in 15 300 households was conducted in 2000 by the company Socialdata, which devised individualized marketing. This resulted in a 35% increase in walking from a baseline of 12% modal share in 1997–1998 and a 61% increase in cycling<sup>2</sup>. The programme involves enhancement to bus stops, providing clear information on large “finger posts” and distribution of local bus timetables. In addition, district walking, cycling and public transport maps are widely distributed. The process is focused on helping those who indicate they are willing to try to change their travel behaviour, through communication, motivation and information. The programme was branded TravelSmart®.

TravelSmart in Perth has given rise to substantial interest in the United Kingdom, not least because it is largely information based with little costs for infrastructure changes. The civil engineering charity, Sustrans, has been working with Socialdata in the United Kingdom since 2001. Together they are completing a pilot study in two locations in England, branding the scheme under the trademark of TravelSmart, as used in Perth, Australia.

### **■ ■ Description of the initiative**

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The method for TravelSmart involves in-depth dialogue with households contacted and willing to attempt some change in travel behaviour. Particular suburbs are targeted for the programme. During this process, information is gathered about reasons for the choice of transport mode. In Perth, the in-depth research identified that up to 15% of car trips are in principle changeable to walking without the need for additional infrastructure. A key finding was that shopping trips followed by personal business and escort (to school) have the greatest potential for change to walking.

### **■ ■ ■ How was the initiative evaluated?**

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Household travel surveys were conducted for both a control group and the target groups both before and after the individualized marketing activities took place. The table shows the effect of individualized marketing on modal share (by number of trips) in the TravelSmart Pilot Project in Quedgeley, Gloucester. These are preliminary results. The travel survey responses will be subject to further analysis, but no major changes to these outcomes are expected.

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<sup>2</sup> JAMES, B. & BROG, W. Increasing walking trips through TravelSmart® Individualised Marketing. *World transport policy and practice*, 7(4): 61–66 (2001).

For comparison, the table also shows the final results of the original pilot project in South Perth, conducted in 1997. Follow-up travel surveys 1 and 2 years later showed that this behaviour change was locked in. Based on exact data on trips per person per year, the net proportional effect of individualized marketing on main travel mode in the Gloucester pilot project is:

- a reduction in car (as driver) trips of 9%;
- an 11% increase in walking;
- cycling more than doubled; and
- use of public transport increased by approximately one third.

### ■ ■ ■ ■ ■ **What is the health evidence of its effects?**

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The increase in walking, cycling and public transport use together with a decline in car trips are positive health indicators.

### ■ ■ ■ ■ ■ **Target population**

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The target population was the residents of the district of Quedgeley, Gloucester.

| Main mode of transport | Gloucester            |                      | South Perth           |                      |
|------------------------|-----------------------|----------------------|-----------------------|----------------------|
|                        | Before TravelSmart® % | After TravelSmart® % | Before TravelSmart® % | After TravelSmart® % |
| Walking                | 27                    | 30                   | 12                    | 14                   |
| Cycling                | 2                     | 3                    | 2                     | 4                    |
| Motorbike              | 1                     | 1                    | 0                     | 0                    |
| Car as driver          | 44                    | 40                   | 60                    | 54                   |
| Car as passenger       | 22                    | 21                   | 20                    | 21                   |
| Public transport       | 4                     | 5                    | 6                     | 7                    |
| TOTAL                  | 100                   | 100                  | 100                   | 100                  |

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## **Reducing children's car use: the health and potential long term implications of car dependence**

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The study is being conducted in the county of Hertfordshire by the Centre for Transport Studies, University College London, United Kingdom.

### **■ Background: aims and objectives**

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This is a 3-year research project that started in January 2001 and is being funded by the UK Engineering and Physical Sciences Research Council. It has the following objectives:

- to examine the effects of car use on children's physical activity and health;
- to examine the effects of car use by children on their potential long-term car dependence; and
- to develop a framework to evaluate systematically the effects of travel-to-school initiatives.

### **■ ■ Description of the project**

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The project has a number of interrelated strands.

- Questionnaire surveys are being carried out on children's travel and activity patterns and of their parents' attitudes and characteristics, which can be linked to data on the children's health (height, weight and body-fat content). Data have been collected on more than 500 children.
- Children's activity patterns are being monitored over a 4-day period using motion sensors and related to diaries of their travel and activities so that relationships can be established between, for example, car use and the quantity of physical activity.
- School travel initiatives, in particular walking buses, are being evaluated by monitoring how the "walking bus" evolves over a year. Information is being collected from all the parties involved (children, parents, volunteers, coordinator and head teacher) so that all the changes can be calculated, such as reduction in car use, increase in distance walked, changes in adult time used in taking children to school plus various qualitative information about the skills gained by the children.
- Interviews will be carried out with children aged about 16 years to see whether earlier experiences of walking and cycling influence their attitudes towards the car.

### **■ ■ ■ How was the project evaluated?**

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Evaluation is an intrinsic element of the project, as indicated above.

■ ■ ■ ■ **What is the health evidence of its effects?**

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A major output of the project will be assessment of the effects of car use on the quantity of physical activity.

■ ■ ■ ■ ■ **Target population**

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The target population is children .

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   **Contacts**

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## **The Camden Walking Plan and the Camden Cycling Plan**

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The London Borough of Camden, London, England, United Kingdom

### **■ Background: aims and objectives**

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Encouraging walking and cycling are key policy objectives of Camden Council. Strong strategies have been developed to achieve the objectives, and Camden leads the field in this area. The strategies originate from Camden's Green Transport Strategy, an overall approach to transport adopted by the Council in 1997.

Both the Walking Plan and Cycling Plan have been well received and are widely regarded as models of good practice. The Plans contain ambitious targets and have strong associated work programmes.

### **■ ■ Description of the policy**

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The Walking Plan explains why walking should be encouraged by emphasizing the health effects of walking, including protection against heart problems, hypertension and strokes, osteoporosis and hip fractures as well as mental benefits. The Plan then sets out how walking can be encouraged through measurable targets relating to:

- pedestrian access
- introduction of 20 mph (32 km/h) limits and zones
- safer routes to school
- air pollution
- pavement clutter
- dog excrement
- repairs to dangerous damage on roads and pavements
- street cleaning
- street lighting
- pedestrian audits of high streets
- creating new pedestrian and cycle links.

The Cycling Plan also explains why cycling should be encouraged by emphasizing the health benefits of cycling, including reducing the incidence of obesity, coronary heart disease, strokes, colon cancer and non-insulin-dependent diabetes. The Cycling Plan then sets out how cycling can be encouraged through:

- strategic targets such as increasing the modal share for cycle use and reducing the number of road casualties;
- organizational and operational targets such as increasing the number of children and adults provided with cycle training and issuing publicity about new cycling schemes and the health benefits of cycling;
- engineering and audit targets such as completing route networks and providing facilities for cyclists at road closures, traffic signals and one-way streets;
- monitoring targets such as installing cycle counters; and
- partnership and green travel targets.



### ■■■ **How was the policy evaluated?**

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The Walking Plan was published in 1999 and was reviewed annually in 2000 and 2001. The Cycling Plan was published in 2001, and the first annual review is due to be published in the near future. Progress on targets is monitored and new targets are adopted in conjunction with new initiatives undertaken by the Council.

The Council is working with Transport for London, which has strategic responsibility for transport across London, to determine the most appropriate way of monitoring walking and cycling. Camden has a programme of installing cycle counters on north-south and east-west routes in the borough to determine, in future, whether cycling has increased.

Camden was awarded the first National Transport Award for walking and cycling in 2001 for its Walking Plan and Cycling Plan and the schemes it implements. Camden has become the lead borough in London for strategic cycling initiatives because of its record in implementing schemes.

### ■■■■■ **Target population**

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The target population is pedestrians and cyclists travelling in Camden.



#### **Contacts**

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**This booklet promotes walking and cycling as transport modes.**

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