# trendy **cycling**

## 20 good reasons for cycling

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# FOREWORD

Cycling is the simplest, most natural means of transport, after walking. So natural in fact and useful that many cities often forget to take it into account. This brochure is intended to consider and return to the advantages of bicycle traffic and to back up arguments with analyses and facts.

It is surprising how many advantages bicycle traffic combines:

- Regular cycling improves health and prolongs life expectancy.
- Cycling requires no fossil fuels – it only burns our own fat.
- Cyclists save space, are quiet and move about without producing pollutants
- Our children love the bike, if we let them
- Promotion of bicycle traffic costs little but brings a lot of profit in return – 3 Euros invested in cycle traffic mean 5 Euros less expenses for the National Health System.

Everyone having visited a city with a lot of bicycle traffic is aware of the fact that plenty of bicycle traffic positively influences social climate and habitation quality.

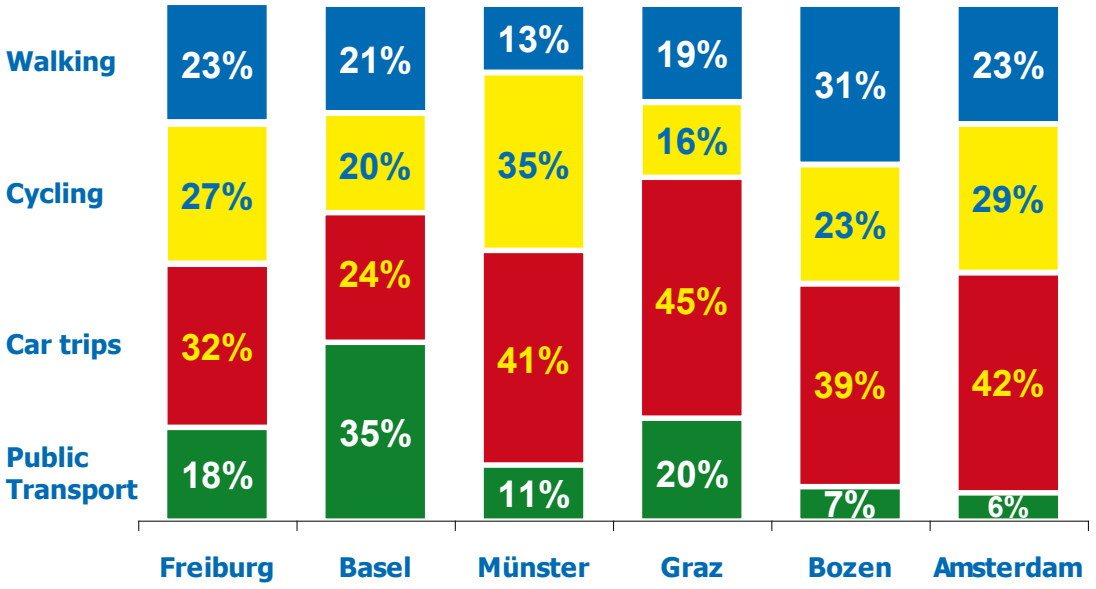
For everybody interested in such a feel-good holiday we would strongly recommend that you visit the Cities Groningen (NL), Odense (DK), Ferrara or Bolzano (IT). You will feel the calmness compared to mainly car-frequented cities.

However, besides all good arguments presented in this brochure, intended to promote bicycle traffic, it is important to be aware that cycling first and foremost is one thing:

"Cycling is Emotion" – something that thankfully cannot be expressed through numbers!

# 1 CATCH UP INTERNATIONALLY

## Modal Split: Comparison of European cities

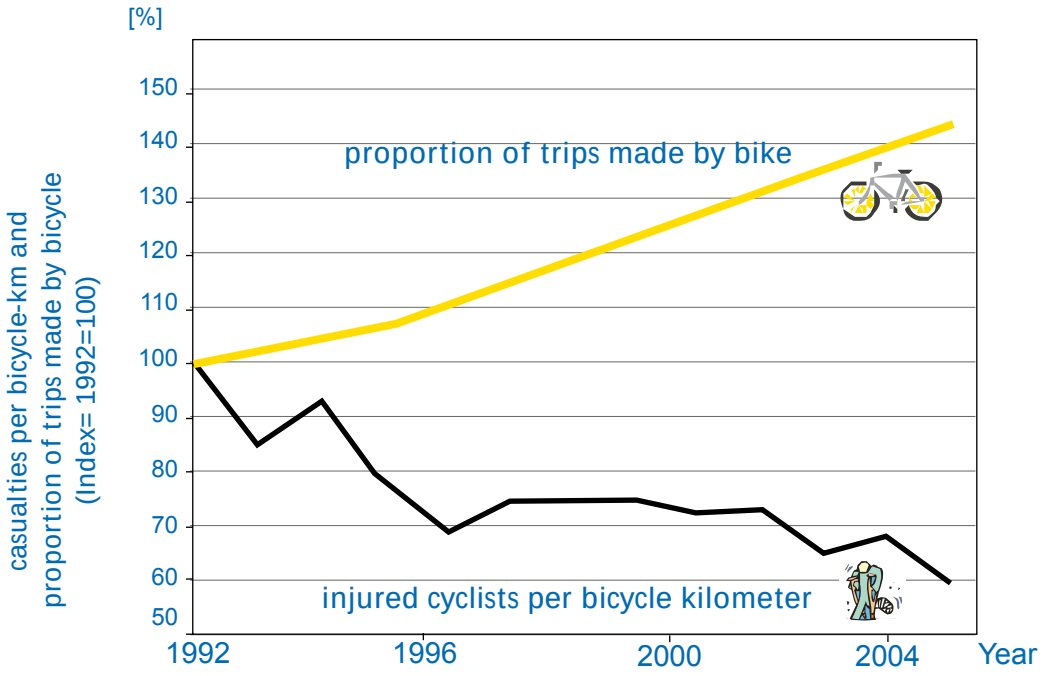



Source: Mobilitätsverhalten der Grazer Wohnbevölkerung, 2008. Amtsblatt der Stadt Freiburg, 2005. Corporate Cycling Bozen, 2003. Stadtplanungsamt Münster, 2001.

## Fact is: Bicycle friendly politics increases the share of cyclists

A positive attitude towards cycling can be consciously controlled. Good examples are Freiburg, in Germany, and Bolzano, in Italy. By actively promoting cycling in Freiburg it was possible to double the share of bicycle traffic in only 20 years and today it stands at 27%. At the same time the proportion of public transport increased too. In Bolzano it was possible to increase the proportion of bicycle traffic from 17,5 to 22,7 % in only 3 years. This was achieved with innovative and creative marketing, creation of a corporate identity and a coherent bike network.

## More bikes, less accidents




Source: Herry Consult/ IGF Institut Grundlagenforschung, Statistik Austria, 2004

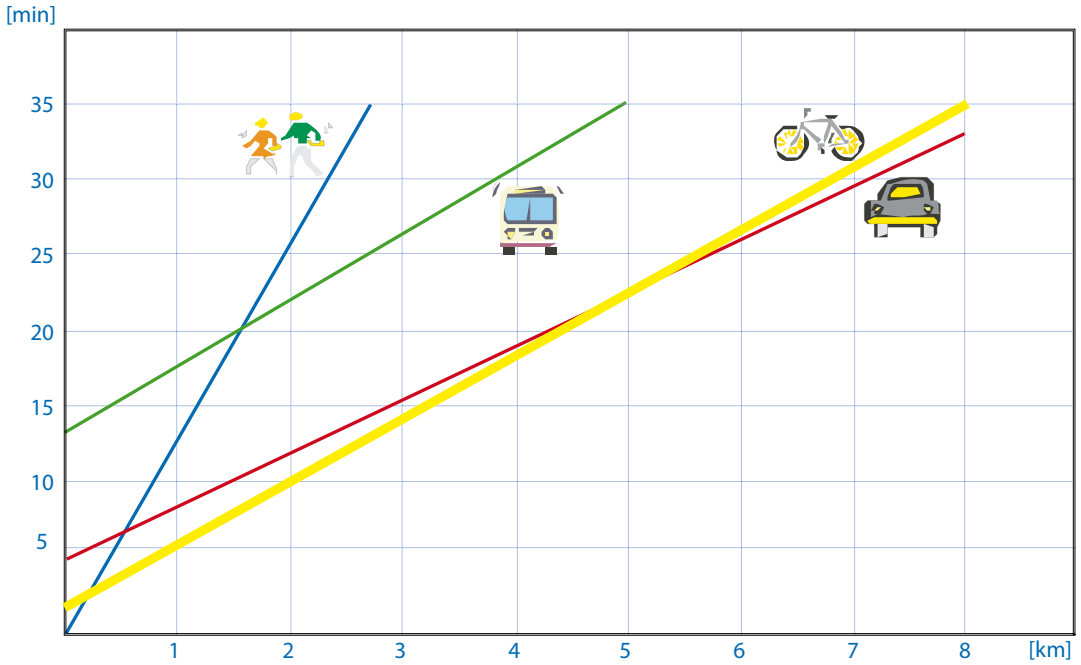
## Fact is: Where biking is concerned the phrase: “less is more” doesn’t apply.

It should rather be: “more is less”. It has been demonstrated that an increase in the use of bicycles reduces the risk of accidents.

A study in Salzburg between 1992 and 2004 showed that while the percentage of bicycle traffic increased by 40 % the number of injured persons per bike kilometre decreased by about 40%. The graph below clearly shows that the risk of bicycle accidents decreases when bicycle traffic increases. The german city of Kiel achieved similar results. A comparison of bicycle accidents in various countries with differing proportions of bicycle traffic points into the same direction.

# 3 ONLY FLYING IS FASTER!

## When time is the issue




Source: Mobility-Cultura 2003

## Fact is: Not only is it proven that biking is the fastest means of transport in the city where distances of up to 5 km are concerned...

... but there's also no better way with regards to flexibility. Just imagine. You can drive into town, are free to stop in front of every shop. Stop at your favourite café for a refreshment and then carry on to your next appointment – all without the need to look for a parking space or worry about delays caused by traffic jams and waiting for public transport.

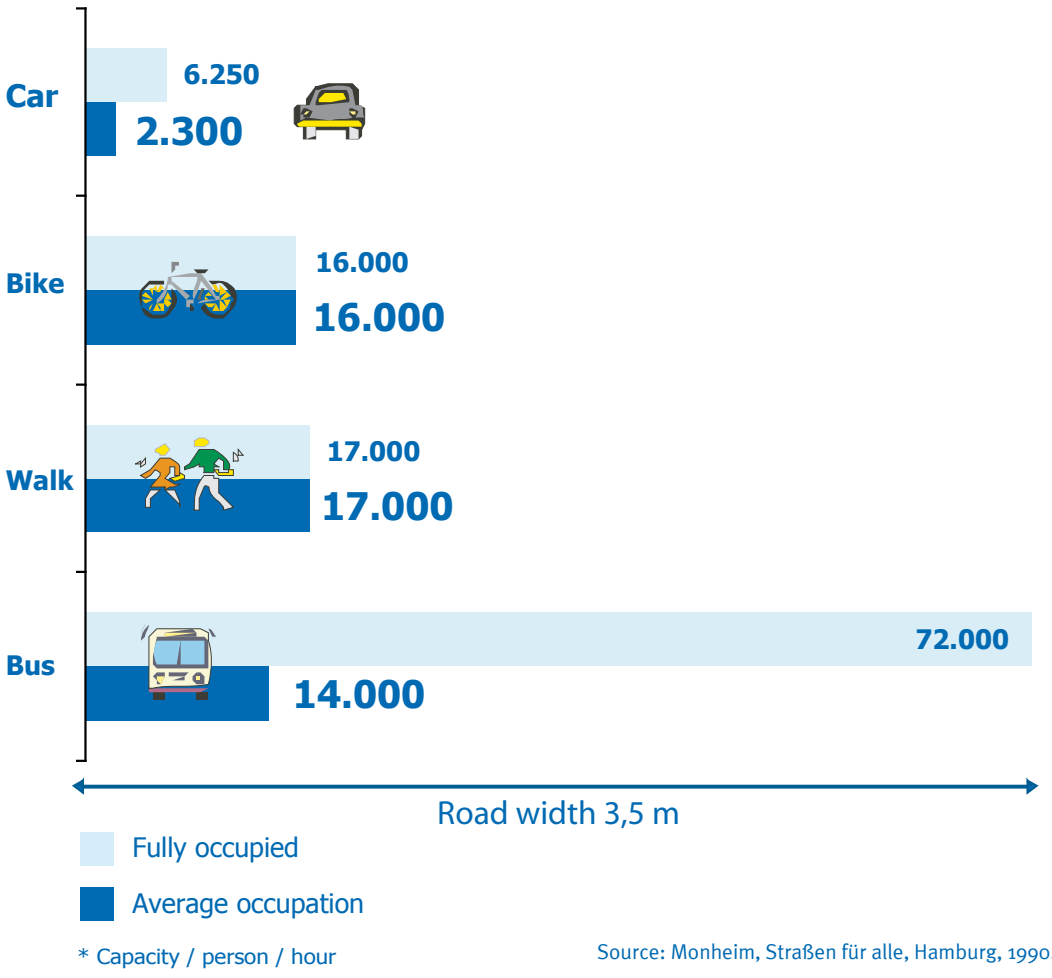
## Radius of action of senior citizens


Source: "Brochure Nahmobilität" AGSF - Arbeitsgemeinschaft Fahrradfreundlicher Städte (DE, 2008)

## Fact is: Older people have a reduced radius of action

The percentage of older people increases constantly in our society. In 2035 more than half of the population will be over 50 and by 2050 every third person in Germany will be over 75 years old. Senior citizens would like to stay mobile as long as possible. However, with increasing age the number of trips undertaken by foot, bike or public transport rises significantly. It is important to note that the radius of action decreases with age. While the radius of activity in the working population is around 18 km it is reduced to 5 km in senior citizens. The distances of bicycle traffic correlate with the action radius of elder people. Good possibilities to use their bikes are important for them in order to stay actively mobile as long as possible.

# 5 MORE CAPACITY

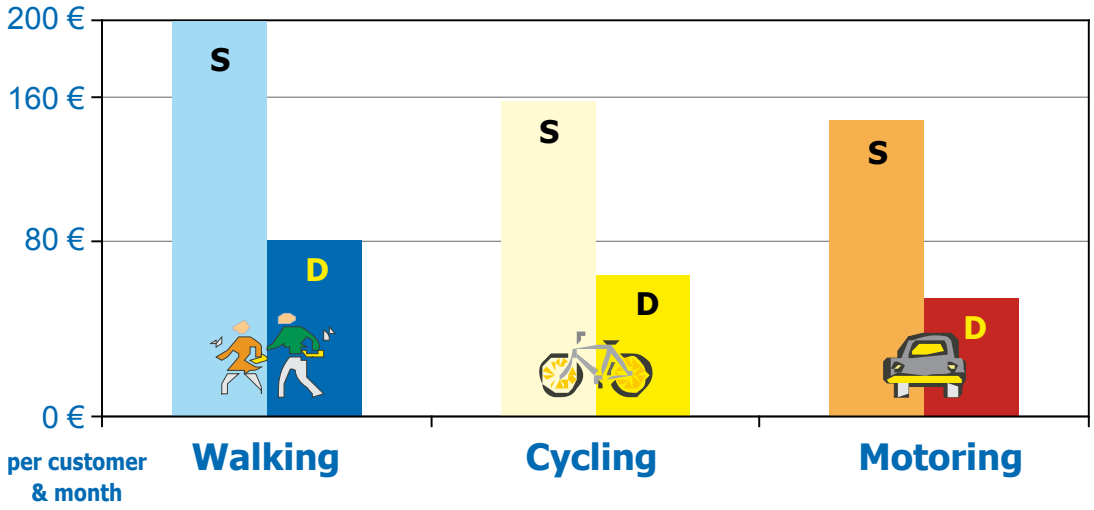



## Fact is: The bike increases the road capacity.

Bicycle traffic has, together with walking and public transport, a very high capacity. The number of people that can be transported on roads is an essential indicator for that capacity. A road that is 3,5 m wide, can be used on average by a maximum of 2300 (with an average of 1,3 passengers) cars per hour. However, the same road can be used by 16.000 bikers or 17.000 pedestrians.

Even if all cars would be fully occupied the bike traffic would still be twice as efficient, where the necessary space for driving is concerned. Yet it is impossible to beat public transport when all seats are occupied. E.g. a bus has a capacity of 72.000 on the same above described stretch of road.

## Sales per means of transport




**S = Supermarket**
**D = Departement store**

* in Münster

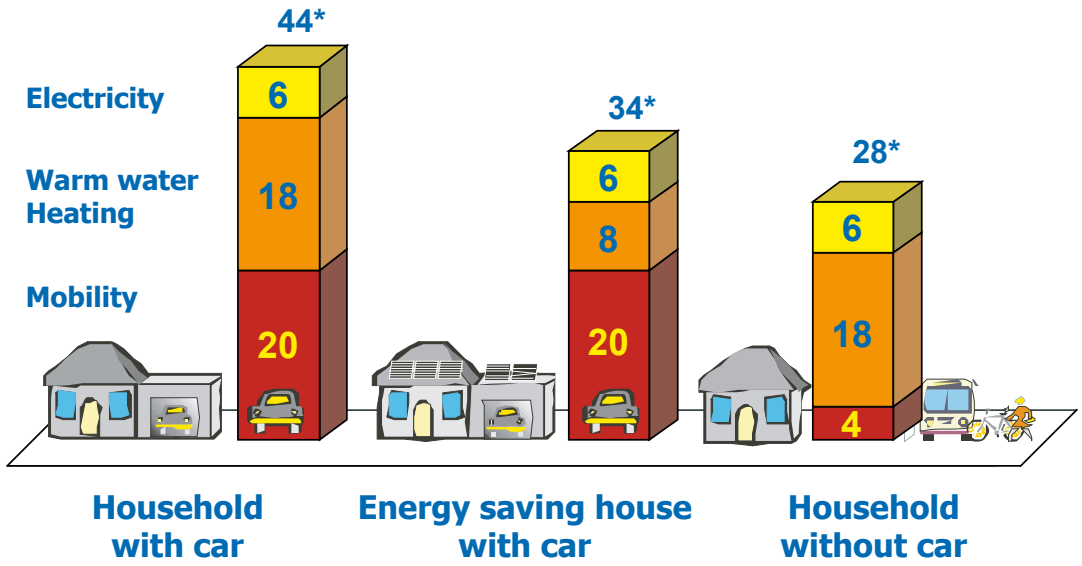
Source: Wissenschaft & Verkehr, Nahversorgung versus Einkaufszentren, Wien, 1999.

# Fact is: Bikers possess high purchasing power.

According to studies cyclist buy less at a given time but visit the shops more frequently. A detailed study in Münster, Germany, showed that cyclists spent on average 10 Euros more than motorists each month.

A survey of 1200 persons in Bern demonstrated how the shopping value is connected with the actually required parking area. The result argues for cyclists as customers: with an average purchase capacity of 7.500 Euro per taken up parking area they lie ahead of motorists spending 6.625 Euros a year on average.

## Energy consumption per household




* in 1000 kWh / year
Energy house = optimal insulation solar warm water preparation and semi solar heating

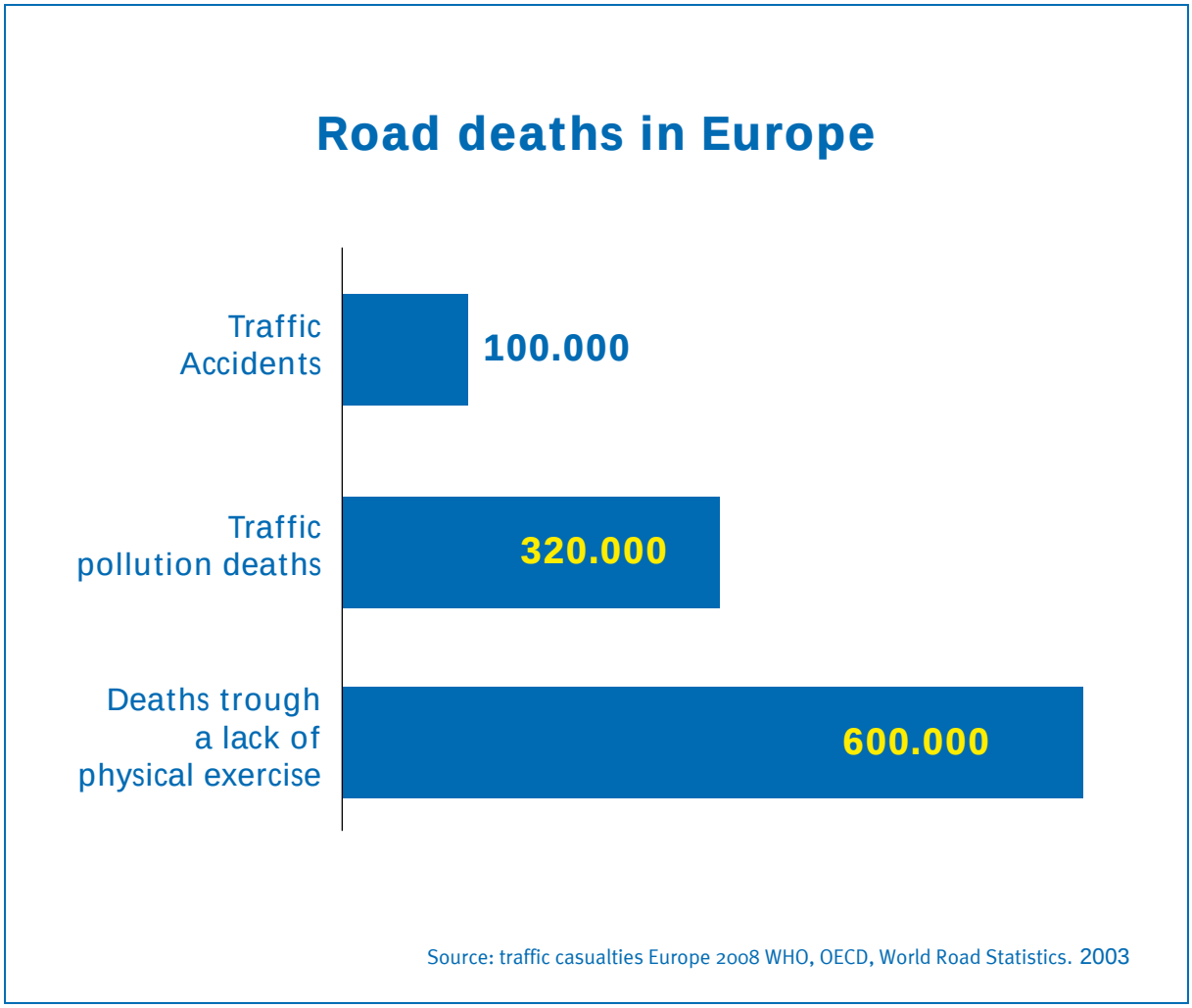
Source: VCÖ, Add home 2008

## Fact is: Cycling is energy efficient.

An average household in Austria spends more than a third of the total energy consumption on mobility and the remains on heat and electricity.

In an energy saving building the total energy requirement decreases per year from 44.000 kWh to 34.000 kWh. That corresponds to savings of 23%. However, if a household needs no car the total energy requirement drops 39% to 27.500 kWh.

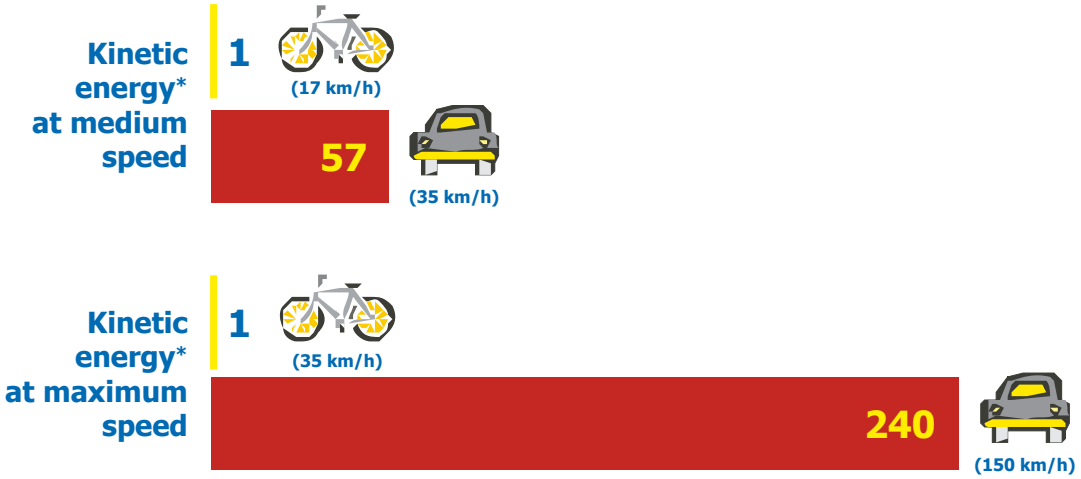
This demonstrates that within the transport sector, there are enormous possible savings with regard to the domestic energy requirements. However, so far there are no subsidies available for the deregistration of cars yet.




## Fact is: Cycling extends life

Accidents only amount to 10% of casualties in traffic. Three times as many people die from the consequences of traffic emissions. The highest percentage namely 600.000 persons die in Europe form a lack of exercise every year. More bicycle traffic is an effective instrument to combat the lack of exercise as a cause of death as well as emissions. A comprehensive Danish health survey demonstrated that cyclists have 30% less risk of mortality.

## Potential dangers of bicycles and cars



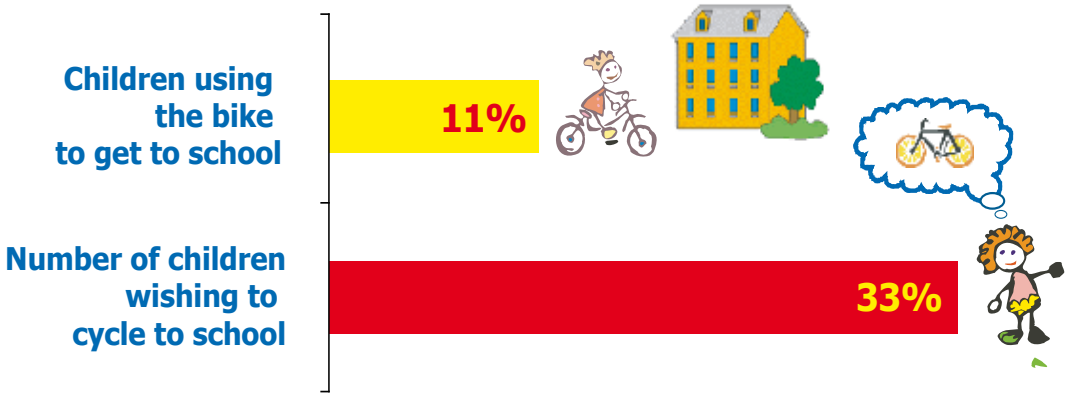

* Kinetic energy ($E_{kin} = m \cdot v^2/2$), depending on weight and speed

Source: Competenze 2004.

## Fact is: Cars are more dangerous than bikes.

The kinetic energy of a car at the impact (at an average speed of 35 km/h) is 57 times higher than on a bike (at an average speed of 17km/h). At the assumed maximal speed of 150 km/h of a car (for a bike the number is 35 km/h) the kinetic energy is about 240 times higher.
This is to say that undisciplined traffic participants can do much more harm with a car then with a bike. Therefore, it is quite clear that traffic safety efforts should be focused on those presenting the biggest danger.

## Wishful thinking and reality in children aged 10 - 14 years




Source: www.schoolway.net 2003

# Fact is: Children like cycling.

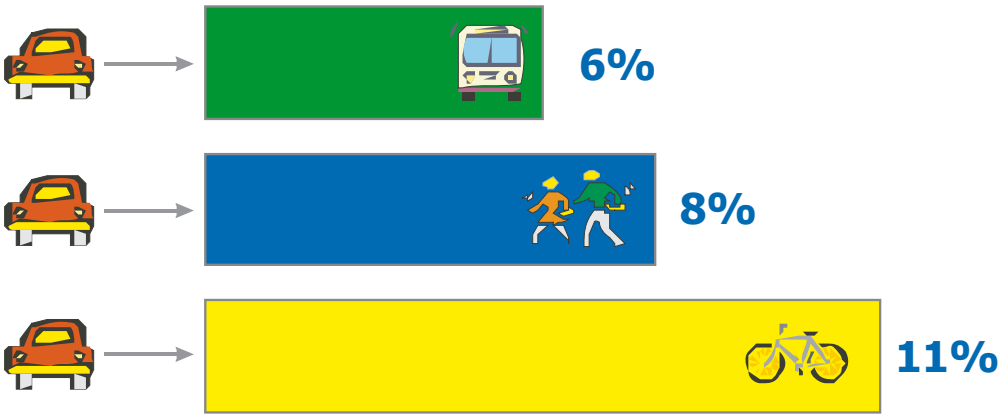
An ongoing and on-line nation-wide survey showed that 33 % of Austrian children would like to cycle to school. However, only 11% actually use the bicycle to get to school. One of the main reasons for this discrepancy between the wishes of children and reality is that parents are concerned for the safety of their children. This is also the reason why the percentage of children that walk to school has decreased from 82% to 14% within the last 30 years.

It is not surprising then that almost every 5th child in Europe is overweight and in Austria every 10th child is seriously overweight.

The city of Graz offers unique bicycle training for primary school children. Since 12 years this scheme prepares children in real traffic situations for safe participation in traffic. So far more than 10.000 children have participated in this scheme.

# 11 ALTERNATIVE BICYCLE

## Switching potential of motorists




**Objective freedom of choice for motorists to switch to other means of transport**

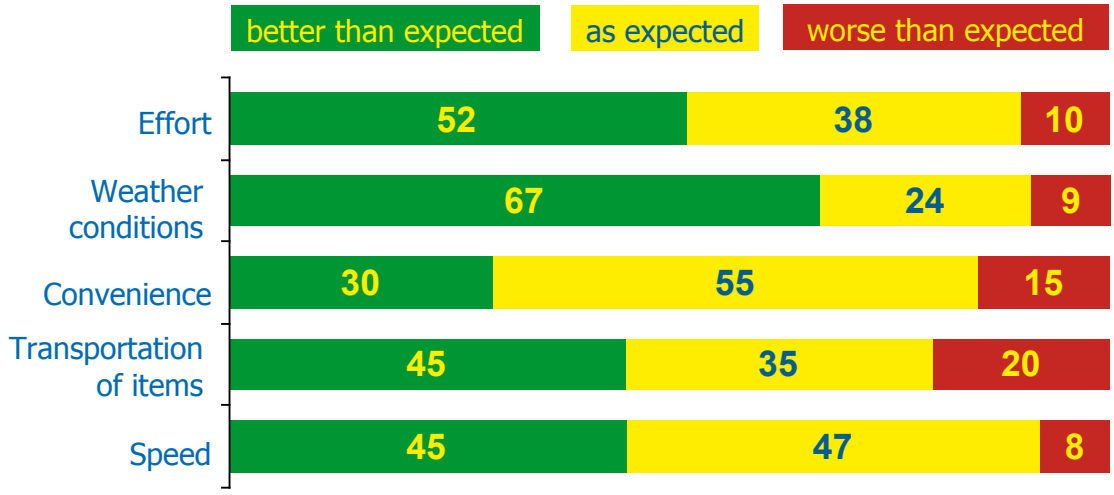
Source: Rösch 2004; from "Mobilität der Grazer Wohnbevölkerung"

## Fact is: The bike is the first alternative for motorists.

A survey, conducted in Graz, demonstrated the reasons why motorists choose the car instead of other means of transport. The result of this survey was that the bicycle had the highest potential as an alternative. Because 11% of all motorists could in theory, after elimination of all objective obstacles, be transferred to the bike. That implies that every 8th car trip could be accomplished by bike.

At least 8% of the car trips could be done on foot, 6% with a bus or tram. The most likely alternative however is the bike.

## Opinions of motorists having switched to cycling

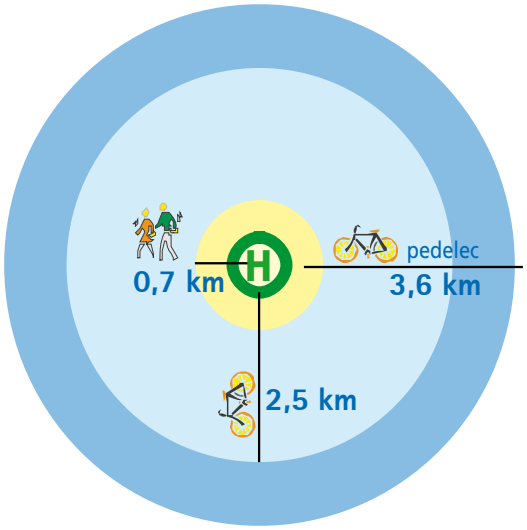



Source: Fahrradfreundliche Städte: Vorwärts im Sattel, Luxemburg, 1999.

## Fact is: Motorists think positive about cycling as soon as they've tried it.

Research in the Netherlands showed that motorists that are forced to have their car repaired often discover the bike as a daily means of transportation instead. During the test phase half of the people that switched to the bike thought that cycling was less strenuous and faster than expected. 45% stated that transporting items was easier than expected and at least 30% considered the bike more comfortable than initially expected.

## Catchment area of stops within walking distance of 10 minutes

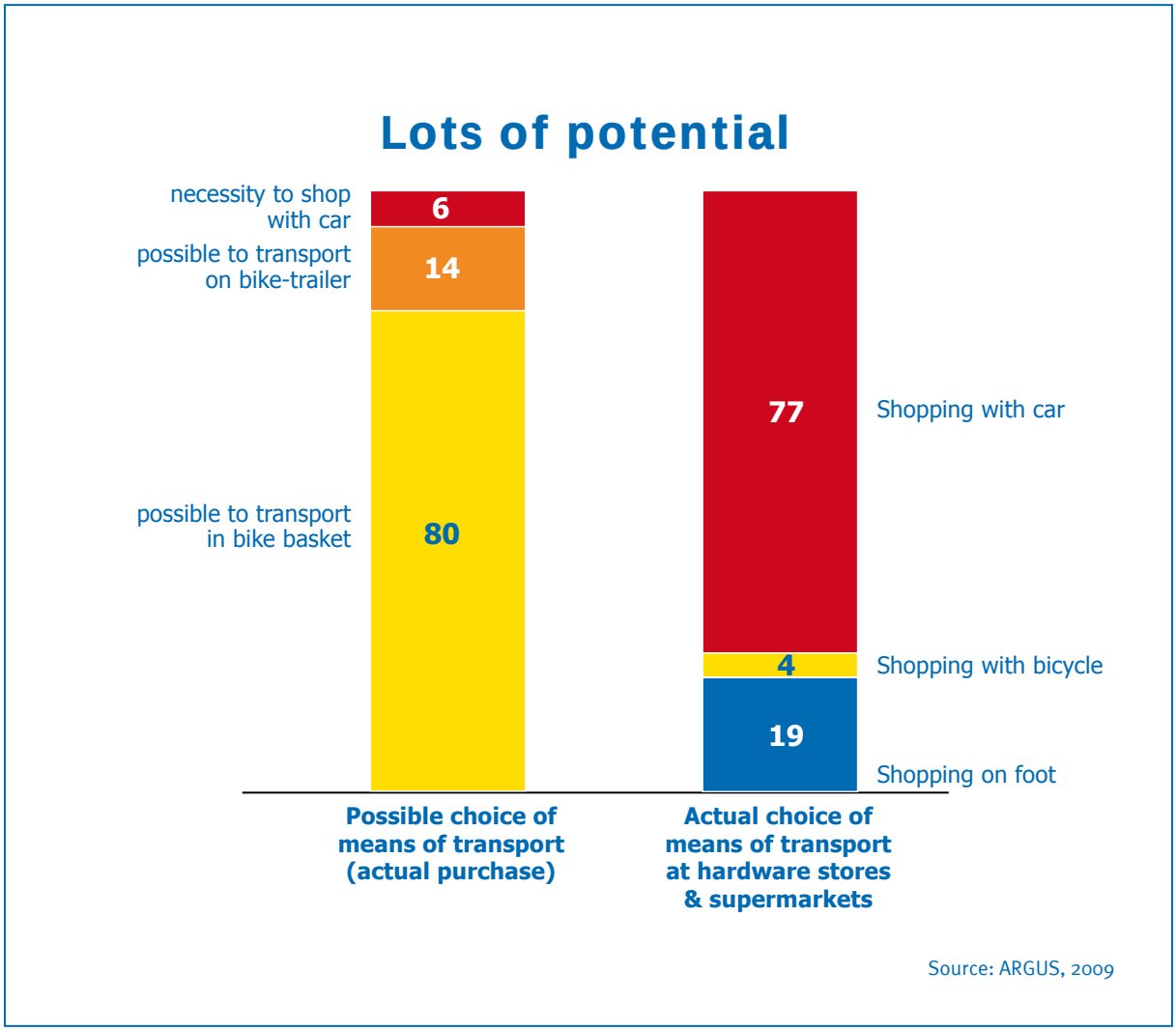



| | Average speed | Distance covered in 10 minutes | Catchment area |
|---|---|---|---|
| | 4 km/h | 0,7 km | ca. 1,5 km² |
| | 15 km/h | 2,5 km | ca. 20 km² |
| pedelec | 22 km/h | 3,6 km | ca. 40 km² |

Source: Mobilty and marketing concept for Pedelecs 1999.

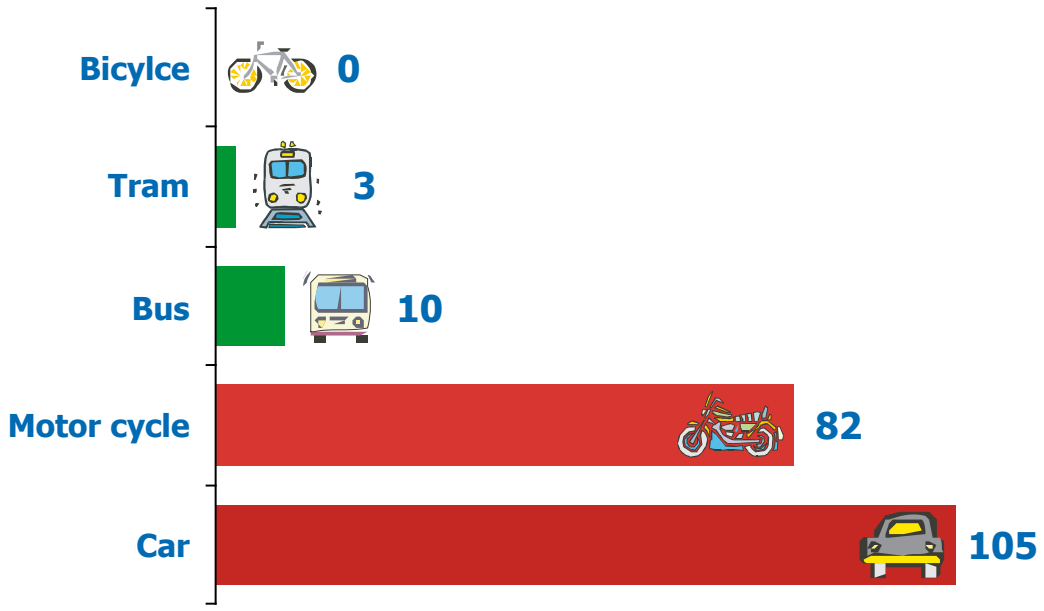
## Fact is: It‘s easy to combine the bicycle and public transport.

The catchment area of a station/stop that can be reached on foot within 10 minutes increases 13-fold with the bike and with a Pedelec and an E-bike, respectively, even 26-fold. The quality of a public transport station is enhanced if it possesses a covered bicycle parking area. The permission of free bicycle transport constitutes another big incentive.




## Fact is: Lots of potential.

2009 a survey was conducted amongst malls and hardware stores in Graz. Out of 1635 monitored shopping trips it turned out that only for the smallest percentage, namely 6% (!) of all purchases a car would have been necessary. In 10% of the cases no purchase was visible, further 14% could have fitted their purchase into a bike trailer. However, the biggest group by far, 70%, were purchases easily transportable on a bike, in a conventional bike basket. The sobering finding was the actual choice of the mode of transport: nobody used a bike trailer. The bike was only used in 4% of the cases. At leas 19% arrived on foot. However, as expected, the car dominated with 77%.




## Fact is: The bicycle is clean.

With regard to causing pollution the car produces by far the most emissions (immediately followed by the motor cycle). With regard to traffic emissions the bike is unbeatable and doesn´t stir up particulate matter.

Research studies in congested urban areas show that every 90th inhabitant falls ill with lung cancer caused by the diesel exhaust particulates and benzene emissions of road traffic. At main roads it is even every 39$^{th}$ resident.

## 9 bicycles on 1 car parking space

1 car parking space = 9 bike parking places

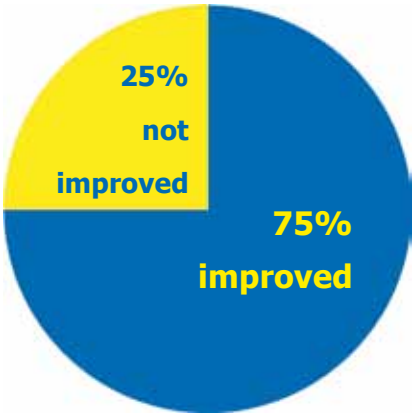
Source: Diagram from Austrian Mobility Research, 2004

## Fact is: Cycling creates space.

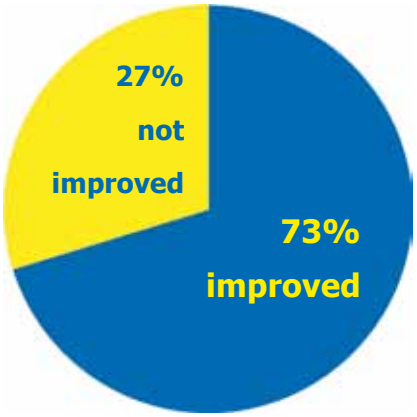
A bike requires much less space then a car. An average parking space for a car would provide parking spaces for 7–9 bikes. For bicycles no underground parking spaces are necessary. The cost for one underground parking space mounts up to 16.000 Euros and that for a covered car parking space to 8.000 Euros. A regular parking space without protection still amounts to 4.000 Euros.

On the other hand, the cost for a bicycle parking area for an average of 8 to 10 bikes is around 1.000 Euros. The costs for one bicycle parking space in a bicycle station amounts from 1.100 to 1.300 Euros. These parking spaces can definitely be compared with an underground parking space for cars, because they are covered and equipped with a controlled entry way. Hence, the costs for an underground parking space are 12 times higher than those for a bicycle space in a bicycle station.

## Results after a 12-week exercise programme




fitness values




values of body fat

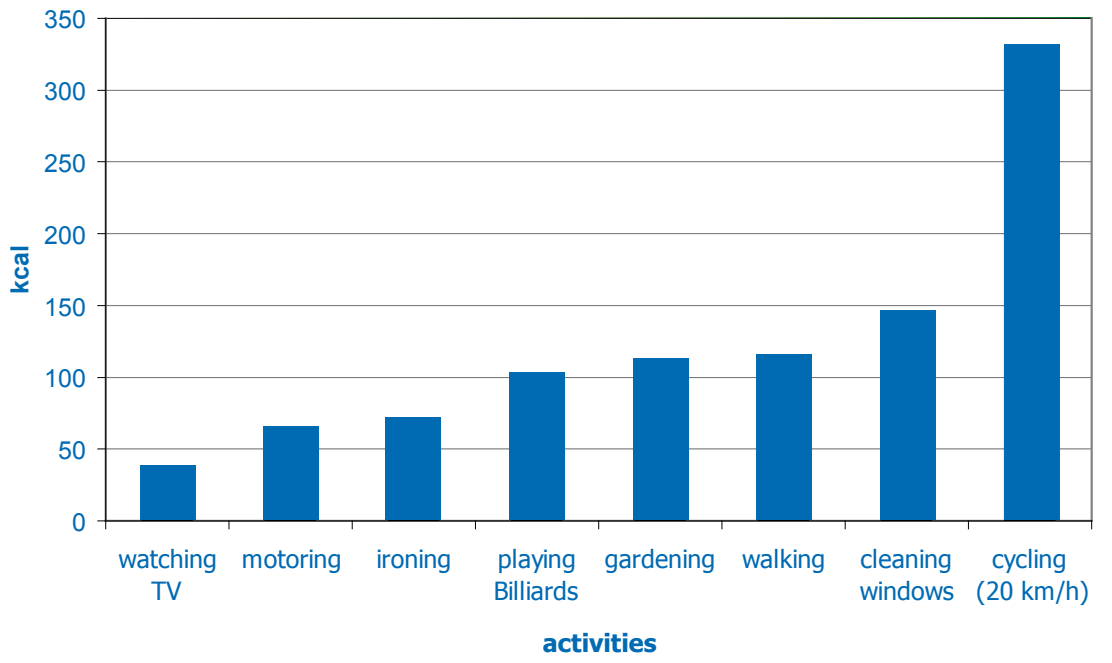
Source: GOAL project 2003

# Fact is: Cycling improves the personal fitness.

100 people from Graz took part in an exercise programme that lasted 12 weeks in 2003. The aim was to integrate more movement and exercise into daily life, because 9 out of 10 people are diagnosed with a lack of exercise in the yearly health checks.

The daily exercise definitely had an impact: 3 out of 4 participants improved their fitness values. Almost ¾ improved their body fat values. More than half of the participants felt much better afterwards.

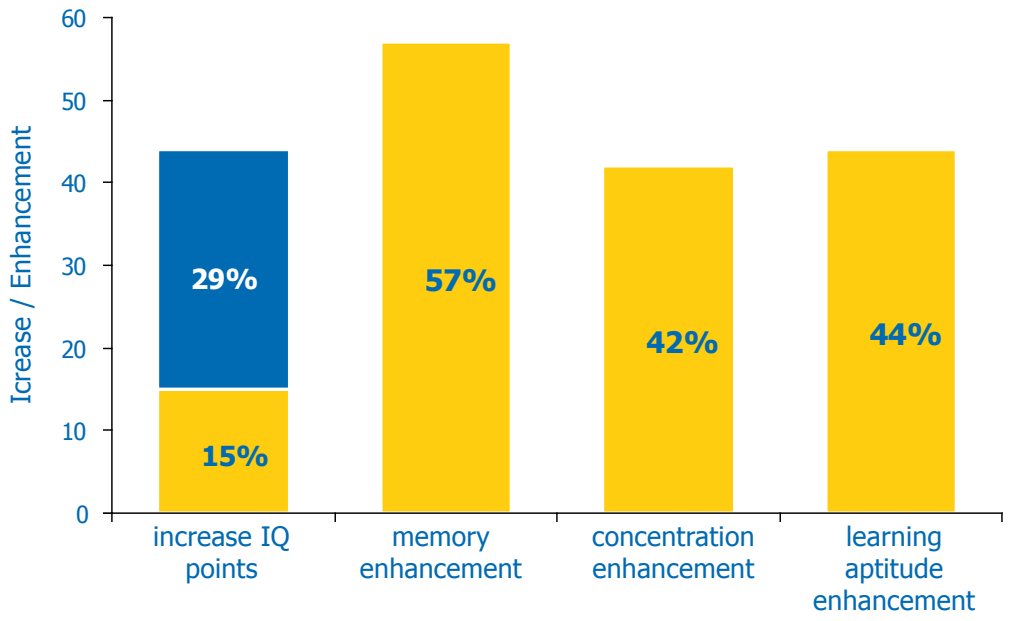
A Norwegian study demonstrated that cycling also creates an economically measurable benefit: the net health benefit of cycling constitutes 15 Cent per kilometre covered by bike.




Source: www.fitrechner.de

## Fact is: Cycling burns more calories than other activities during the same time period.

Cycling is a pleasant and sustainable way to burn calories. The comparison shows: Cycling consumes in the same period about five times more calories than motoring. One can therefore recycle the approximate 600 kcal of a tuna pizza eaten at lunch time within less then a one-hour ride with the bike!

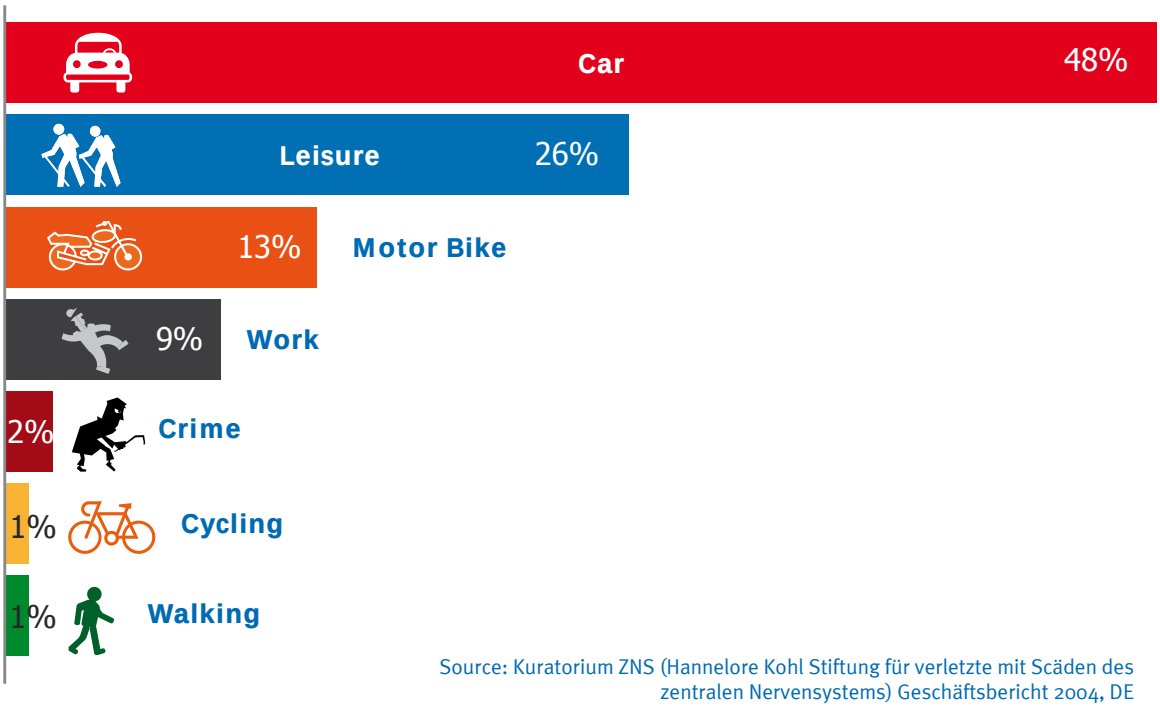



## Fact is: Physical Exercise enhances Intelligence

Various studies have proven that physical exercise is not only beneficial for health but also enhances intelligence. Using a special learning programme on a bicycle ergo metre with 30.000 probands, it was established that the IQ rose on average from 99 to 128 points. The rhythmical movement that can also be achieved by regular exercise, like biking, also enhances memory, concentration and learning aptitude. Other studies on senior citizens demonstrated an average IQ increase of 15 points after physical exercise.

Physical exercise seems to lead to reorganizations in the brain and to interactions between the brain hemispheres that facilitate higher cognitive capacities, even after the training.

## Cycling and bicycle helmets




Source: Kuratorium ZNS (Hannelore Kohl Stiftung für verletzte mit Scäden des zentralen Nervensystems) Geschäftsbericht 2004, DE

# Fact is: Helmet promotion endangers cycling

In many countries a discussion about the usage of the bicycle helmet arises immediately where bicycle traffic is concerned. Often, it is implied that cycling is a dangerous activity, leading to head injuries.

Here, we do not intend to take a stand against the usage of cycling helmets but to put the relevance of this topic into perspective.

German accident statistics demonstrate that only 1% of all head injuries can be attributed to bicycle traffic. That number approximately equals that of pedestrian traffic. However, car occupants, not wearing a helmet, have a much higher risk of suffering a head injury.

Research results from the UK also show that cyclists wearing a helmet get overtaken by cars in a significantly narrower range than those without.

Furthermore, in Australia the compulsory introduction of bike helmets has lead to a significant reduction of bicycle traffic and hence to an increase of diseases related to a lack of exercise

# trendy travel

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Developed within the framework of the EU-Project "Trendy Travel",
supported by the European Commission