

Is cycling worth the money?

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Cycling is healthier than previously thought

Hver gang en borger cykler 1 kilometer frem for at køre i bil, bus eller tog, sparer samfundet 8 kroner, viser nye beregninger.

FOLKESUNDHED



JONAS PRÜSCHOLD

De fleste ved, at det er sundt at cykle. Men det overrasker både forskere og transportministeren, hvor stor effekten nu viser sig at være for både den

enkelte og samfundet, hvis flere cykler frem for at køre i bil, bus eller tog.

Hver gang en borger cykler 1 kilometer, sparer samfundet 8 kroner, fordi sundhedseffekterne er så store. Det viser nye beregninger, som Transport- og Boligministeriet har fået foretaget. Det skyldes, at man ved at røre sig sænker risikoen for at få en lang række sygdomme, herunder type 2-diabetes, hjertesygdomme og flere former for kræft.

»Det er et ret enestående resultat«, siger Jeppe Rich, der er professor på Danmarks Tekniske Universitet, efter at have set rapporten bag beregningerne: »Det peger på, at næsten lige meget hvordan man vender og drejer det, så er det godt for samfundet som helhed, hvis flere cykler«.

Rich understreger, at forudsætningerne i analysen har visse usikkerheder, men meget tyder på, at der vil være solide besparelser at hente, hvis flere cykler.

»Hvis man gennem investeringer i eksempelvis flere supercykelstier kan få flere til at cykle, så vil det være en af de bedste investeringer, man kan lave i samfundet overhovedet. Og jeg mener i al stilfærdighed, at disse resultater bør få investeringer i cykelinfrastruktur helt frem i diskussionen om, hvordan fremtidens transport skal se ud«, siger Jeppe Rich.

De samfundsøkonomiske gevinster ved cykling er dobbelt så store som hidtil antaget. Udregningen tager nu højde for flere sundhedseffekter og sygdomme, for at give et bedre billede af, hvilke konsekvenser det har, at fysisk aktive borgere ikke blive syge eller dør - og samfundet dermed sparer udgifterne til behandling eller tabt arbejdsfortjeneste.

Beregningerne kan vise sig at blive afgørende, fordi de bliver brugt i samfundsøkonomiske beregninger, når Folketingspartier skal beslutte, hvilken infra-

struktur de vil investere i, mener transportminister Benny Engelbrecht (S):

»Det giver os endnu en grund til, at vi skal investere i cyklisme, fordi vi nu kan sige, at det virkelig er værd at investere i for samfundet«.

Han forventer at begynde forhandlinger om en grøn mobilitetsplan i indeværende folketingsår.

Tryghed er afgørende

Beregningerne viser dog også, at det er dyrt, når cyklister er ude for ulykker. Ud over det store tab, et dødsfald er for de pårørende, koster en trafikdræbt cyklist i snit 4.974.188 kroner for samfundet.

Uheld koster samlet set 1,5 kroner, hver gang der bliver cyklet 1 kilometer. Sker cykelturen på en elcykel, er prisen 2,5 kroner, da elcykler er involveret i flere og mere alvorlige uheld. Alt i alt betyder det, at 1 kilometer kørt på en elcykel giver en sam-

fundsgevinst på 6 kroner - 2 kroner lavere end en almindelig cykel, grundet elcyklers lavere sundhedseffekt, flere uheld og elforbrugets klimapåvirkning.

I det samlede regnestykke er alle former for cyklisme dog stadig en stor overskudsforretning for samfundet. De nye beregninger understreger vigtigheden af at give bedre og mere trygge forhold for cyklister, mener Benny Engelbrecht:

»Vi har fået en god opgørelse fra Vejdirektoratet over veje og farlige kryds, hvor det vil være vigtigst at investere i nye cykelstier og bedre trafikikkerhed. Derudover skal vi have flere supercykelstier, der har den store fordel, at man kommer hurtigt frem, og at der kun er bløde trafikanter«.

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Lasse Bloch har sparet samfundet ...

Lørdagsliv side 6

What are we up against?



“Physical inactivity is a pandemic and need action now” (Lancet, 2016)

“Physical inactivity is the greatest public health problem of the 21st Century ” (Steven Blair)

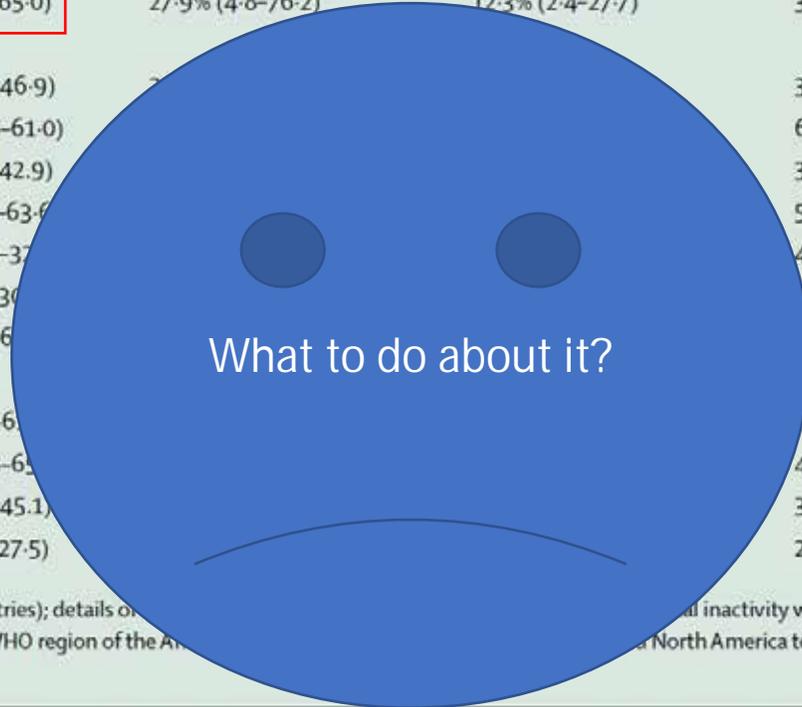


“Physical inactivity is the greatest public health problem of the 21st Century ”

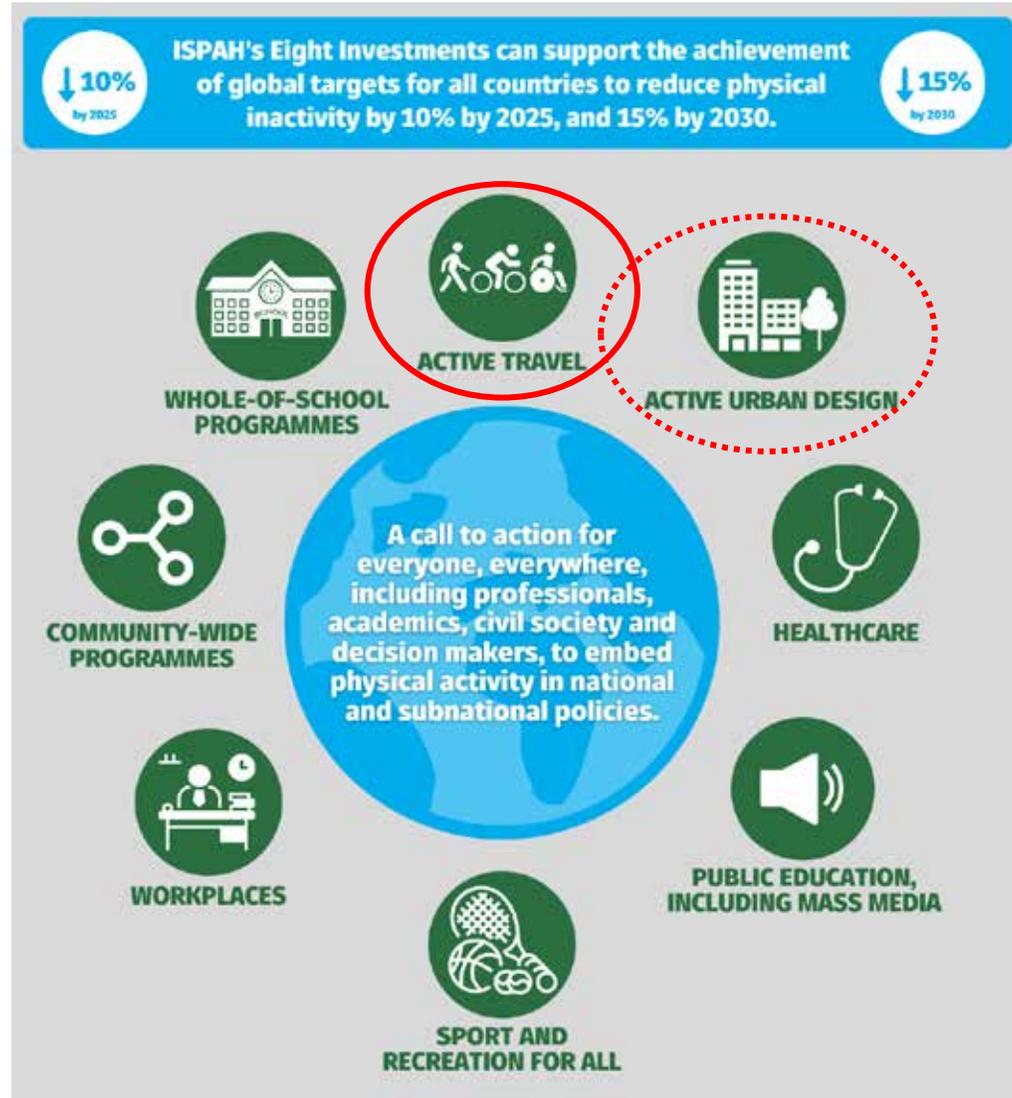
	Prevalence of inactivity in population	Prevalence of inactivity in people eventually developing dementia	Population attributable fraction with unadjusted relative risk	Population attributable fraction with adjusted relative risk
Overall	23.8% (4.1-65.0)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	3.8% (0.7-10.5)
WHO region				
Africa	20.8% (5.8-46.9)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	3.4% (0.9-7.6)
Eastern Mediterranean	38.2% (15.6-61.0)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	6.2% (2.5-9.9)
Europe	22.8% (9.5-42.9)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	3.7% (1.5-6.9)
Latin America and Caribbean*	31.1% (13.3-63.6)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	5.0% (2.1-10.3)
North America	27.8% (23.2-37.1)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	4.5% (3.7-5.2)
Southeast Asia	14.8% (4.1-30.0)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	1.4% (0.7-5.0)
Western Pacific	24.0% (5.6-60.0)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	2.9% (0.9-10.5)
World Bank income classification				
High	28.7% (9.5-60.0)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	4.6% (1.5-9.9)
Upper middle	27.9% (14.8-65.0)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	4.5% (2.4-10.5)
Lower middle	20.6% (5.6-45.1)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	3.3% (0.9-7.3)
Low	14.8% (4.1-27.5)	27.9% (4.8-76.2)	12.3% (2.4-27.7)	2.4% (0.7-4.4)

Data are median (range of median for all relevant countries); details on methods and definitions of physical inactivity were provided in the accompanying paper. Physical inactivity was defined as insufficient physical activity to meet current recommendations. *WHO region of the Americas, excluding North America to ensure consistency with previously published paper.²⁹

Table 1: Summary of estimates of prevalence of physical inactivity and population attributable fractions for dementia associated with physical inactivity



“Physical inactivity is the greatest public health problem of the 21st Century ”



Odense – The National Cycle City of Denmark

- The Ministry of Traffic designated The City of Odense as Denmark's National Cycle City 1999-2003



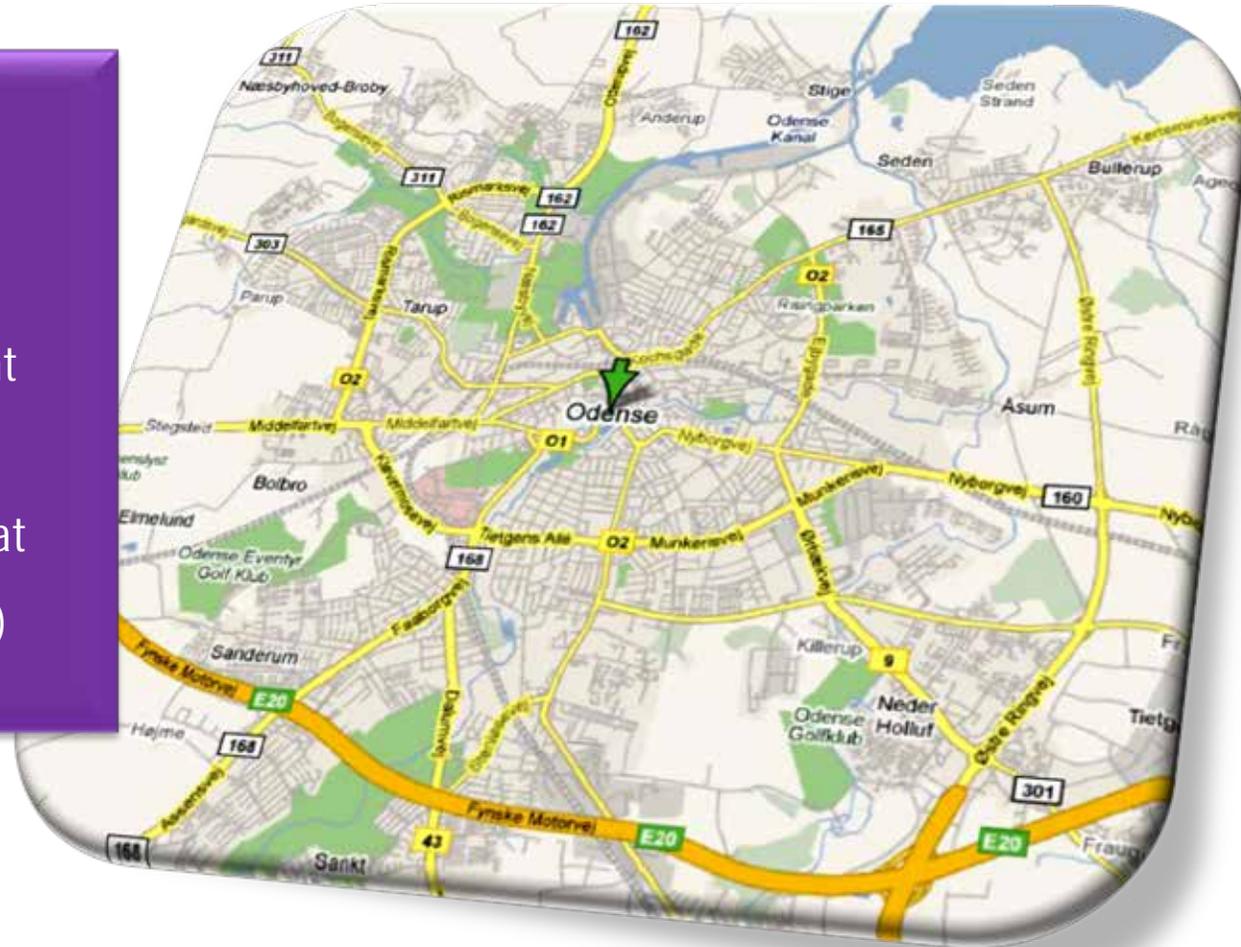
Funded by
2,7 million €



Odense – The National Cycle City of Denmark

Fact Box

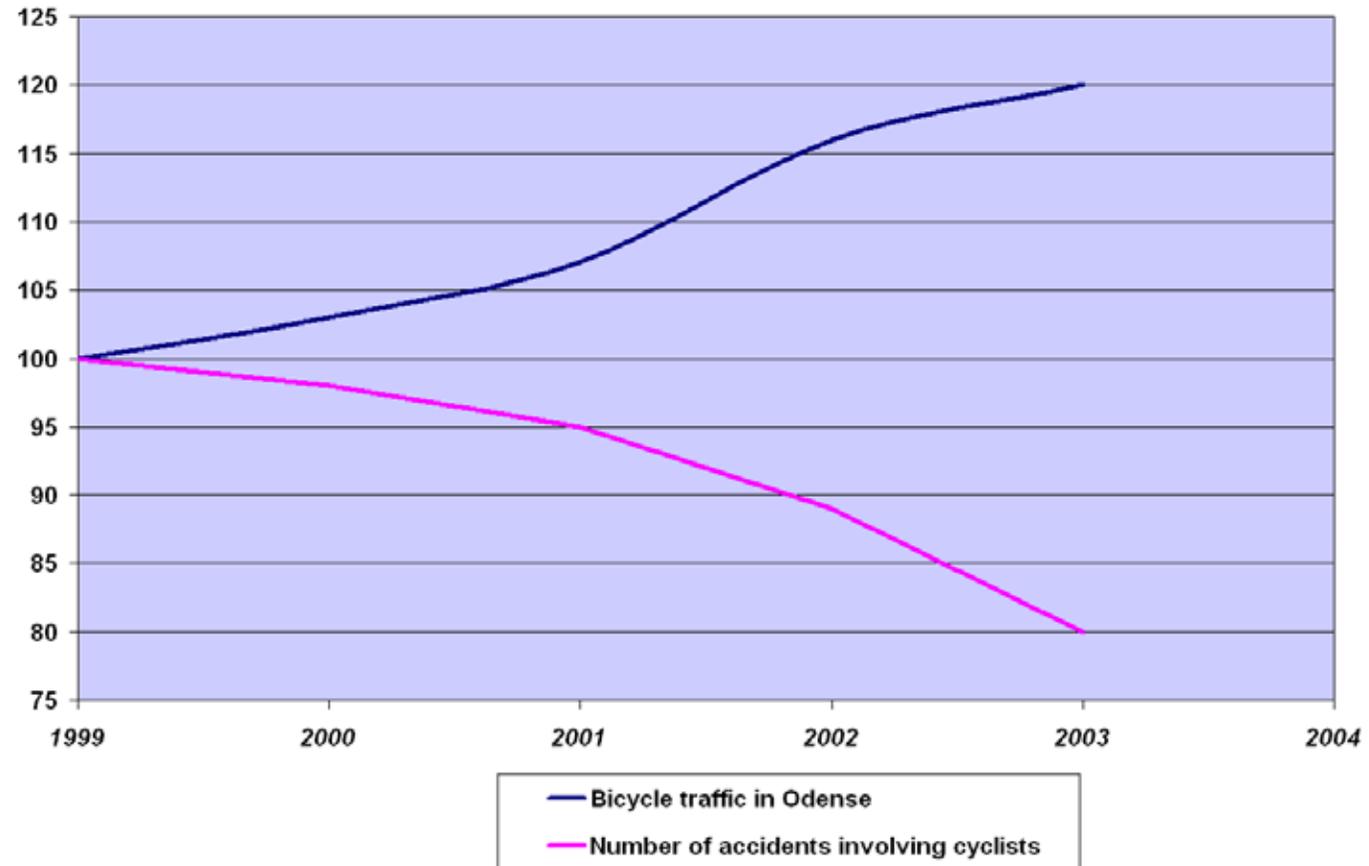
- Pop. 183.000
- Dense built environment
- 220 miles of bike lanes
- Topography of area is flat
- Mild Climate (36 – 70 F.)



Odense – The National Cycle City of Denmark

•Results

- > 50 sub-projects
- Bicycle traffic increase by 20 pct.
- Accidents involving cyclists decrease by 20 pct.



Bonus info:

Today: around every fourth trip in Odense is done on a bike

What have we done!



Infrastructure

- Traffic planning with focus on cycling



Bike facilities

- Better conditions for cyclists



Campaigning

- Awareness of the benefits of cycling

Right of way over motorists



Bike Infrastructure



Bicycle pumps





Bike campaigning

Cycling Barometer



Research in cycling as means of transport

Research question:

Why do people with the same transport needs choose different means of transport?





Longitudinal questionnaire investigation

4 rounds (2000, 2001, 2002, 2003)

677 respondents (n=2708)

- A. Bivariate analysis
- B. Multivariate analysis
- C. Retrospective analysis





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Longitudinal questionnaire investigation

B. Multivariate logistic regression of road users with unchanged behaviour in relation to the use of cycling 2000-2002 (n=380)

Parameters

- Gender
- Age
- Education
- Occupation
- Household income
- Children in household (0-9 years)
- Distance between household and work/school
- Smoking habits
- Self reported physical fitness



Longitudinal questionnaire investigation

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- **Education***
- **Occupation***
- Household income
- Children in household (0-9 years)
- **Distance between household and work/school***
- Smoking habits
- **Self reported physical fitness***

* Significant findings
($p < 0.05$)





Longitudinal questionnaire investigation

B. Multivariate logistic regression of road users with unchanged behaviour in relation to the use of cycling 2000-2002 (n=380)

	<i>Odds ratio</i>	<i>95 % confidence intervals</i>	<i>Wald logistic test</i>
<hr/>			
<i>Age</i>			
Birth cohort 1970 – 1985.....	1,000		} p = 0,9900
Birth cohort 1960 – 1969.....	0,950	(0,419 – 2,154)	
Birth cohort 1945 – 1959.....	0,953	(0,470 – 1,932)	
<hr/>			
<i>Education</i>			
Primary or secondary education.....	1,000		} p = 0.0331
Vocational education.....	2,296	(1,171 – 4,501)	
Tertiary education.....	2,046	(1,095 – 3,824)	
<hr/>			





Longitudinal questionnaire investigation

B. Multivariate logistic regression of road users with unchanged behaviour in relation to the use of cycling 2000-2002 (n=380)

	Odds ratio	95 % confidence intervals	Wald logistic test
<i>Distance between household and work/school</i>			
≤ 3,9 km.....	1,000		} p = 0,0006
4 km. – 7,9 km.....	0,810	(0,477 – 1,376)	
≥ 8 km.....	3,519	(1,732 – 7,152)	
<i>Self reported physical fitness</i>			
Excellent.....	0,711	(0,390 – 1,295)	} p = 0,0012
Good.....	1,000		
Fair or poor.....	2,307	(1,325 – 4,019)	





Longitudinal questionnaire investigation

C. Retrospective analysis of qualities and barriers of daily cycling

Top-5 barriers for daily cycling:

1. Laziness
2. Car more convenient
3. Prefer walking
4. Car required in relation to work
5. Possession of car

40% of non-cyclists have

Example of statement:

- *"When I have a car, I prefer this because it's convenient when it comes to carrying things. Beside this I'm lazy and I don't like bad weather. I also have experiences of reduced stress when I use my car instead of cycling"*



Longitudinal questionnaire investigation

C. Retrospective analysis of qualities and barriers of daily cycling

Top-5 qualities for daily cycling:

1. The bicycle is fast in urban settings
2. Exercise
3. Get fresh air
4. Cycling is most convenient in urban settings
5. The bicycle is easy to park

Examples of statements:

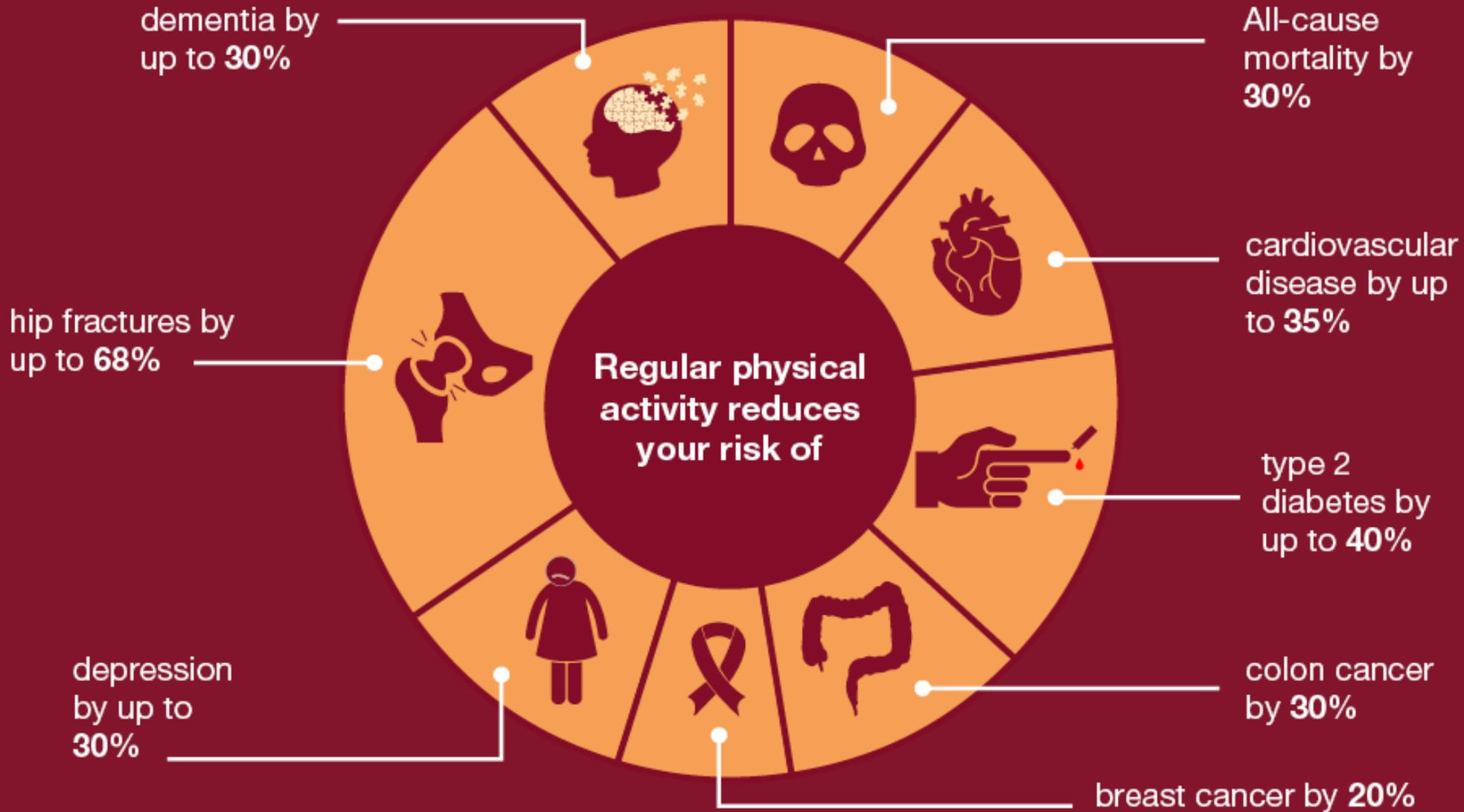
- *"I have 4 miles to work. I get as fast back and forward as setting in tailback and afterwards finding a place to park "*
- *"It's faster, cheaper, funnier and greater. You feel how good it is to exercise, and become more happy"*

Health economic benefits of cycling

- Savings of 4,5 million € have been demonstrated in the project "Odense – The National Cycle City of Denmark 1999 – 2003.
- In the project period alone these savings were higher than the cost of the project, 2,7 million €-
- The project has added 500 years to the total lifetime of the citizens of Odense, corresponding to five months longer life for males
- Mortality amongst the 15-49 year olds fell by 20 per cent.

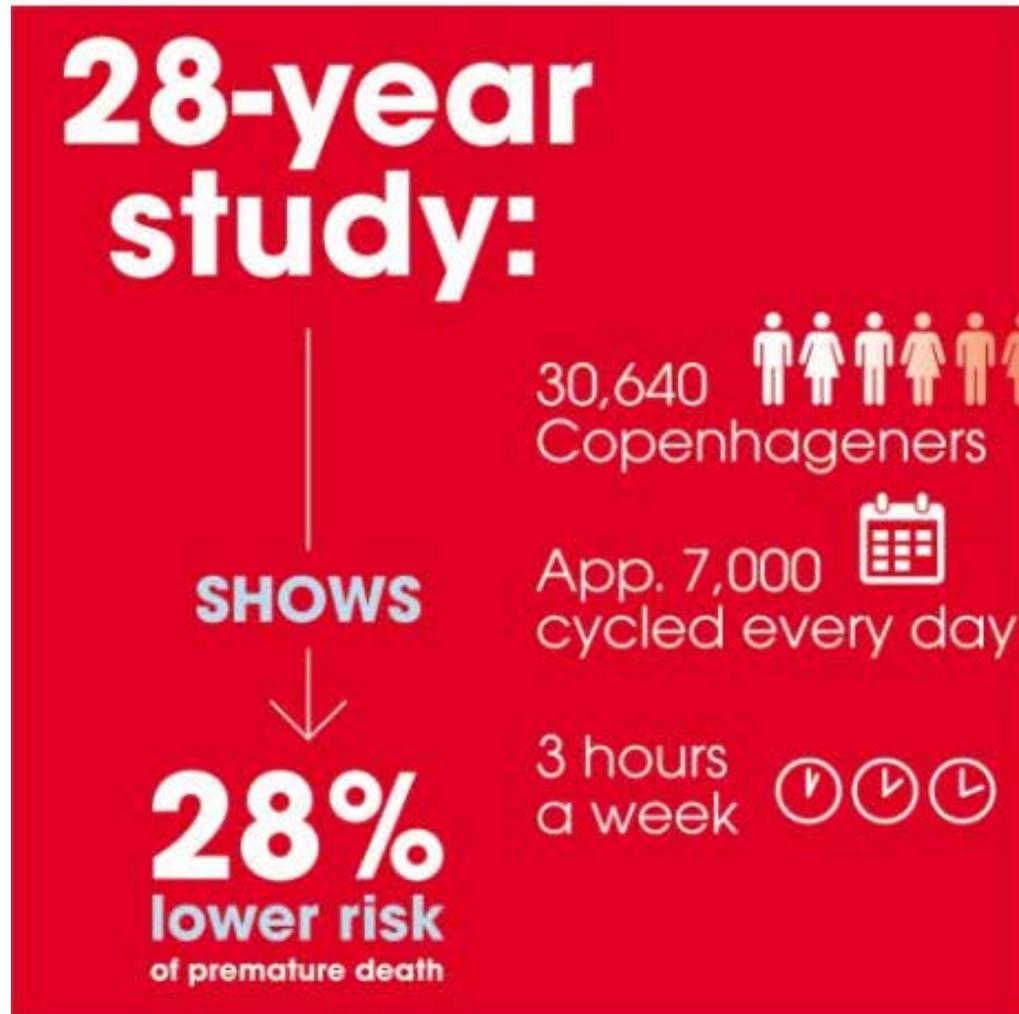


What are the health benefits of physical activity?



Reference:
Public Health
England:
*Physical
activity:
applying All
Our Health,*
2018

Health effects of cycling as transportation



Andersen, L.B., Schnohr, P., Schroll, M., & Ole Hein, H. (2000). All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work. *Archives of Internal Medicine*, 160(11), 1621-1628.

Health effects of cycling as transportation

Cyclists have better health

British study



41%
lower risk
of premature death
as compared with
motorists and public
transport users



Compared

with motorists and public transport users, cyclists had:

46%
lower risk of
developing
heart disease



52%
lower risk of
death from
heart disease

45%
lower risk of
developing
cancer



40%
lower risk of
death from
cancer



Celis-Morales, C. A., Lyall, D. M., Welsh, P., Anderson, J., Steell, L., Guo, Y., . . . Gill, J. M. R. (2017). Association between active commuting and incident cardiovascular disease, cancer, and mortality: Prospective cohort study. *BMJ (Clinical Research Ed.)*, 357, j1456. doi:10.1136/bmj.j1456

Cost-benefit analysis

A cost-benefit analysis

COST:

(app.) **€ 50**
per person

per year to get
motorists who drive
10 kilometres a day
to go by bike instead

SAVING:

€ 1,293
per person

per year
on health
care costs

Savings are 26 times bigger
than costs to transfer
motorists to bike

Cost-benefit analysis

Transportøkonomiske enhedspriser for cykling

Tabel 4-14 Gennemsnitlige omkostninger ved cykling, 2019, 2019-priser, kr. per km

Kr. per køretøjskm	Cykel	Elcykel
I alt	-10,2648	-6,9217
Luftforurening	-	0,00004
Klimaforandringer	-	0,0003
Støj	-	-
Uheld	1,4627	2,4601
Trængsel	-	-
Infrastruktur	-	-
Sundhed	-11,7276	-9,3821

INDHOLD

1	Førord og indledning	1
2	Metode	2
2.1	Overordnet metodebeskrivelse	2
2.2	Sundhedseffekter	2
2.3	Uheldsomkostninger	6
2.4	Klimaforandringer	9
3	Data og kilder	9
3.1	Sundhedseffekter	9
3.2	Uheldsomkostninger	9
3.3	Klimaforandringer	17
4	Resultater	18
4.1	Sundhedseffekter	18
4.2	Uheldsomkostninger	20
4.3	Klimaforandringer	24
4.4	Transportøkonomiske enhedspriser	25

The Danish society can make a profit of 1,3 € pr traditional bike-kilometer and 0,9 € per E-bike kilometer

Is cycling worth the money?

**YES,
YES,
AND
YES**

- Walking and cycling as transportation have a documented health effect
- Health effects are found after few weekly trips
- The societal benefits are many times bigger than the costs.
- Cycling has a huge unutilised potential
- Cycling can be adapted into a busy everyday life with supporting infrastructure and dense urban planning.

Is cycling worth the money?

Further reading: <https://cyclingsolutions.info/category/cycling-and-health/>

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