# More cycling with e-bikes

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According to a new study, electric bikes make people cycle longer and more often. The effect is best on women.

Norwegians are among the world's most eager bicycle buyers. Yet they don't cycle very much on a regular basis. We usually prefer the car when we travel to and from work or when we bring the children to football practice. Only five per cent of our travels are done by bicycle.

Cycling is supposed to be good both for our health and for the environment. Like in many other countries, it is a political objective to increase the use of bicycles in Norway.

And now the authorities have an important ally: the e-bike.

According to new research, the electric bike is responsible for dramatic changes in people's transport patterns.

"People travel twice as much on the electric bike, both in terms of kilometres, amount of trips, and as part of the total transportation," says researcher Aslak Fyhri at the Institute of Transport Economics.

He has studied how people use the electric bike and how the electric bike may contribute to a decrease in motor traffic.

"The effect of having an electric bike was particularly strong among women. They did far more trips with their e-bikes than men did. Men, on the other hand, often went for longer trips once they were out cycling

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## The e-bike experiment

According to Fyhri, the study carried out by the Institute of Transport Economics is the first controlled experimental study of people's actual use of electric bikes.

The researchers first divided a random selection of inhabitants from the Oslo and Akershus area into two groups. The experiment group, consisting of a total of 66 people, had unlimited access to an electric bike for two to four weeks, whereas the other group – the control group – which consisted of 160 people, had to use their own regular bike.

Both groups kept a travel journal. Additionally, the travelled kilometres were registered digitally on the electric bikes.

## Cycled twice as far

The finds show that the people who used electric bikes, used their bikes much more than those belonging to the control group. Their daily trips increased from an average of 0.9 to 1.4 trips. The average length of the trips was doubled from 4.8 to 10.3 kilometres.

In other words, the e-bikes made a huge difference in the transport patterns of those belonging to the experiment group. Before they gained access to the electric bike, the participants in the experiment group did 28 per cent of their travels by bike.

"After they started using an electric bike nearly half of their transportation was done by bike. Even though the participants cycled more than the average Norwegian in the first place, this is a major

increase," says Fyhri.

The researchers found no increase in the cycling activity among the participants of the control group during the same period.

## May cycle wearing ordinary clothes

According to Oslo Municipality's bicycle survey from 2013, poorly developed bike paths and traffic security are important reasons why many men and women don't use their bikes.

In addition to this, there are other more practical obstacles.

"In order to cycle to work every day you have to prepare, take care of logistics and perhaps change and shower when you arrive. To many people it is too much of a project," says Fyhri.

According to him, the e-bike is the solution to many of these challenges.

"With an electric bike you reach greater distances in less time, and you may wear your ordinary clothes or a suit jacket since you don't sweat. Many of the shorter trips done by car today may potentially be done by e-bike."

## Gender struggle in the bicycle track

And something is about to happen on the Norwegian bicycle market. Over the past years, the electric bike sale in Norway has doubled from year to year. According to the public service broadcaster NRK, nearly 10.000 electric bikes were sold in 2014. This is, however, an imperceptible part of the total sale of 400.000 bicycles a year.

The typical Norwegian cyclist is a man of 35 +, in good shape, on either a mountain bike or a road race bicycle in a yellow jacket and lycra. This type is often referred to as a MAMIL- "middle aged man in lycra". He cycles fast and aggressively and shows no considerations.

To some people the male workout cyclist is a symbol of everything that is wrong with the Norwegian bicycle culture. Instead, they speak up for the so-called everyday cyclist, the typical ideal being a woman wearing a skirt and with a basket on the handlebars like those found in countries that are famous for their bicycle culture such as Denmark and the Netherlands.

According to Fyhri, the agitation towards the lycra-men represents a digression in the discussion concerning bicycle politics.

"More men than women choose to cycle in Norway. This is a choice made "in acclivity". Cycling in Norway is not like cycling in Denmark. Neither the topography nor the facilities encourage cycling dressed up and with a basket on the handlebar," he wrote in an article in the national newspaper Dagbladet in 2013.

"I don't think the fact that there are workout cyclists with expensive sports equipment out there keeps anyone from cycling. However, I do think that the yellow jacket and the lycra is a symptom implying that there is something wrong with our bicycle road network."

## Men take more risks

It is nevertheless not entirely accidental that the stereotypical workout cyclist is a man and the everyday cyclist a woman.

Research on the topic has shown that women and men use their bikes differently. Women cycle shorter distances and use their bikes for

different purposes than men. The majority of the cyclists who use their bikes for transport and exercise are men. In general, men cycle more than women, according to Fyhri.

There is no simple answer to why there are such gender differences when it comes to cycling.

One theory is that the topography – steep hills for instance – is a bigger obstacle for women than for men because they have less muscle mass. Another has to do with gender differences when it comes to risk taking. Men often take more risks in traffic than women. Hence, the poorly developed bike paths make it less tempting for women to use their bikes.

## Many women – a sign of good bike paths?

According to the Australian bicycle researcher Jan Garrard, the majority of the cyclists are male in places where the bicycle infrastructure is poorly developed and cycling makes up a small part of people's total transport pattern. But in places where people to a larger degree use their bikes for transport, women make up a larger proportion of the cyclists.

Consequently, some researchers have claimed that women may function as an indicator of the infrastructure's biker friendliness. The better the facilities, the more female cyclists.

However, Fyhri is not entirely convinced by this argument:

"This is very simplified. The total distribution of male and female cyclists in Norway is approximately 55 to 45. This should indicate that we have a well-developed bicycle infrastructure, but this isn't the case."

## Electric bikes and willingness to pay

Fyhri and his colleagues have also asked people whether they would be interested in purchasing an electric bike and how much they would be willing to pay for it.

According to their figures, women showed a more positive attitude than men. Whereas one in three women (33 per cent) would either definitely of maybe consider purchasing an electric bike, only one of four men (25 per cent) would do the same.

"Those who already cycle a lot are often willing to pay a lot. But many of these men use their bikes for exercise, and since they gain less training effect from the electric bike, it makes up a poor alternative," says Fyhri.

However, the willingness to pay for the motorised alternative increased with more than 1500 Norwegian kroner among the people who actually tried the electric bike.

## The sports shop mill

The researchers found that men are willing to pay more than women for a regular bike, and less than women for an electric bike.

Fyhri believes this has to do with the highly exercise oriented Norwegian cycling culture.

"Could it also have to do with what types of bicycles that are accessible for most people?"

"Definitely. In Norway, bikes are sold in sports shops by people who are interested in sports. When they ask the customers what they need, they often hear something like ‘I'm primarily going to cycle to and from work, but occasionally I like to go for a ride in the forest. ' The sales assistant will then recommend a mountain bike rather than a hybrid,

since that would give you more bicycle for your money. It's like you're entering into a mill. Consequently, many people end up buying a mountain bike although they primarily cycle on asphalt," says Fyhri.

He believes it is difficult to sell electric bikes to Norwegian sports shops, since the e-bikes are not about training. The situation is different in countries where bikes are sold in bike shops rather than in sports shops.

## Cheating with e-bikes?

The researchers also asked people of their values and attitudes, and looked at these in relation to their views on cycling. For instance, they asked whether they thought it was OK to spend the whole day on the couch, or if you have to perform to enjoy.

"The idea was that people's attitude towards cycling may have to do with certain puritan aspects of the Norwegian national character," says Fyhri.

According to him, a lot of people – both men and women – regard electric biking as a sort of cheating or laziness. Cycling should make you sweat.

And they did indeed find a connection: Those who were strict with themselves were less interested in buying an electric bike.

"Although we haven't tested it yet, I would presume that this applies regardless of whether the cyclist is male or female."

**More information:** "Effects of e-bikes on bicycle use and mode share," *Transportation Research Part D: Transport and Environment*, Volume 36, May 2015, Pages 45-52, ISSN 1361-9209, dx.doi.org/10.1016/j.trd.2015.02.005

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