



THE INTRODUCTION OF MANDATORY BICYCLE HELMET LEGISLATION ON E-SCOOTERS IN DENMARK - EFFECTS ON HELMET USE

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 Rådet for
Sikker Trafik

OUTLINE

- 1) Background
- 2) The bicycle helmet legislation on e-scooters in 2022
- 3) Study design
- 4) Results
- 5) Implications and discussion



Background

E-SCOOTERS – ACCIDENT RISKS AND PUBLIC HEALTH

- **Higher accident risk compared to cycling**

- Interim evaluation of e-scooters in Denmark: 7 times higher accident risk per vehicle miles travelled (VMT) in comparison to cycling (*Færdselsstyrelsen, 2020*)
- Roughly similar estimates from Norway when comparing accident risks on e-scooters to cycling: 5-7 times higher risk (*Fyhri et al., 2022*) and 10 times higher risk (*Statens Vegvesen, 2021*)

- **Possible explanations for higher risk**

- The vehicle: small wheels, narrow handlebars, upright position, difficult to steer and keep balance, fast acceleration, backlights close to the road, toy-like
- The users: Lack of training (first-time users at greater risk of injuries), young people, and tourists
- Placement: Rental e-scooters often placed close to bars and party areas
- Interaction with other road users: potential misperceptions

- **Injuries and public health impact**

- Injuries: Studies has found relatively high proportions of head and face injuries among the injured on e-scooters compared to cyclists (*Høye & Milch, 2023*)
- Probably no or negative public health impact of e-scooters due to high injury risk and substitution of active transport, i.e. walking and cycling (*Fyhri et al., 2022*)



Photo: Mike Blake

EFFECTS OF BICYCLE HELMETS ON HEAD INJURIES

The latest systematic review and meta-analysis on the effects of bicycle helmets on head injuries among cyclists (*Høye, 2018*)

50%

Reduction of risk of head injuries

60%

Reduction of risk of *serious* head injuries

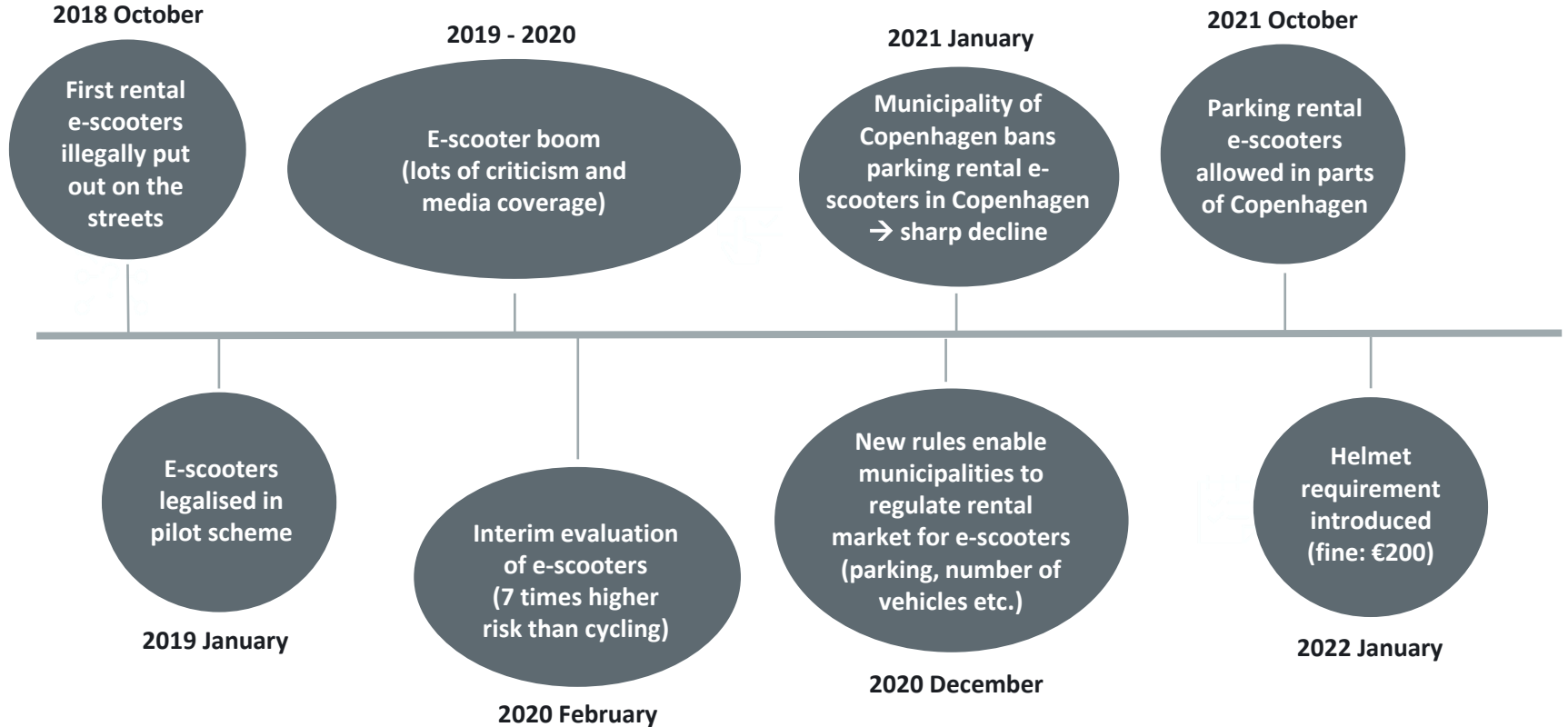
70%

Reduction of risk of *fatal* head injuries



Photo: Allan Andersen

TIMELINE OF E-SCOOTERS IN DENMARK



E-SCOOTERS IN DENMARK

E-scooter prevalence in DK

- Not uncommon, but *far* less used than bicycles
 - National Travel Survey
 - 2022: 0.1 % of all travel time on e-scooters and 0.0 % of travelled km per person (compared with cycling: 9.7 % and 3.8 % respectively)
 - 2019, 2020, and 2021: same figures for e-scooters
- <https://www.man.dtu.dk/myndighe-dsbtjening/transportvaneundersoegelsen-tu-/udgivelser>



Cartoon from a Danish newspaper

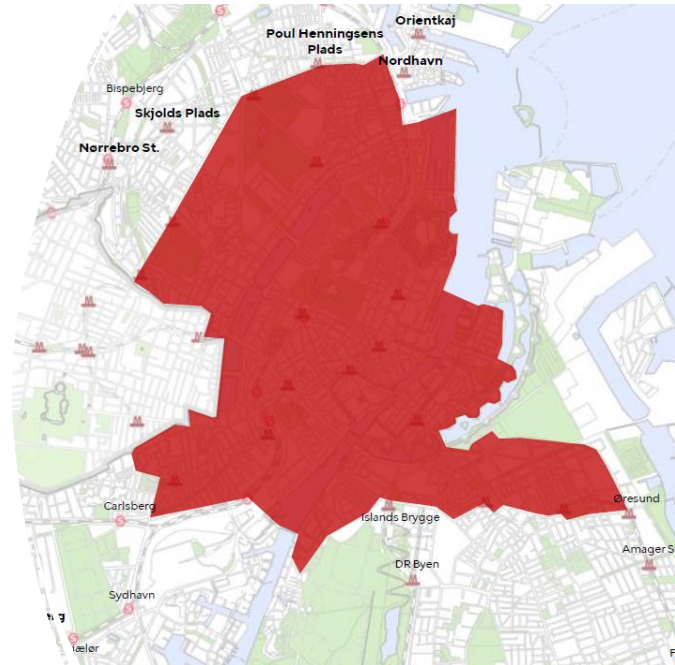


Picture: Own (before parking ban in Copenhagen)



Picture: Jens Dresling (before parking ban in Copenhagen)

Map of Copenhagen where rental e-scooters cannot be parked as of October 2021



<https://www.kk.dk/erhverv/gadesalg-butikker-og-restauranter/gadesalg/cykler-loebehjul-mv-til-udlejning>

The bicycle helmet legislation on e-scooters in 2022

HELMET LEGISLATION ON E-SCOOTERS

Legislation

- End of 2020: Minister of Transport announces that helmet legislation will be introduced from January 1, 2022
- From January 1, 2022: Mandatory to wear a helmet on e-scooters
- Fine of 1,500 DKK (200 €) for failing to wear a helmet

Enforcement

- New rules enforced by the police in Denmark
- Almost 200 fines in the first month of January 2022 (in 8 of 12 police districts)
- Continuous enforcement in 2022 and 2023

Awareness campaign on new legislation in 2022

- Posters to schools, municipalities, police, parents etc.
- Campaign videos and posts on social media in April 2022

Nyhed

Husk hjelmen, når du kører på motoriseret løbehjul

Fra den 1. januar 2022 bliver det lovpligtigt at have hjelm på, når man kører på motoriseret løbehjul og andre små motoriserede køretøjer. Transportminister Benny Engelbrecht opfordrer dog allerede nu alle til at tage hjelmen på.

28. nov. 2020

NYHEDSARTIKEL

NÆSTEN 200 HAR FÅET BØDE FOR AT KØRE PÅ EL-LØBEHJUL UDEN HJELM

SKREVET DEN 01/02/2022

LISA LIN
SKS@RA

POLITIK

Nu skal du have hjelm på for at køre på el-løbehjul

Nødvendigt med lov, siger minister og kritiserer branchen: - Ansvarlighed er et ord, der ligger meget langt væk.



Der vankor bæder til dem, der fremover kører på el-løbehjul uden hjelm. (Foto: © Mads Claus Rasmussen, Ritzaou Scampor)

7. SEP 2023, 15:10

Politi løfter pegefinger og deler

Af Lasse Sylvest Mikkelsen

Alt for mange har ikke fanget, at man skal have på elektrisk løbehjul.

Det skriver Fyns Politi på Facebook, hvor 57 sager, hvor folk er blevet sigtet for at

I opslaget nedenunder kan du læse politi

LÆS OP ORDBOG TEKST

Af Line Jørgensen
Stine Lindgaard

1. JAN 2022 | MERE END 30 DAGE GAMMEL

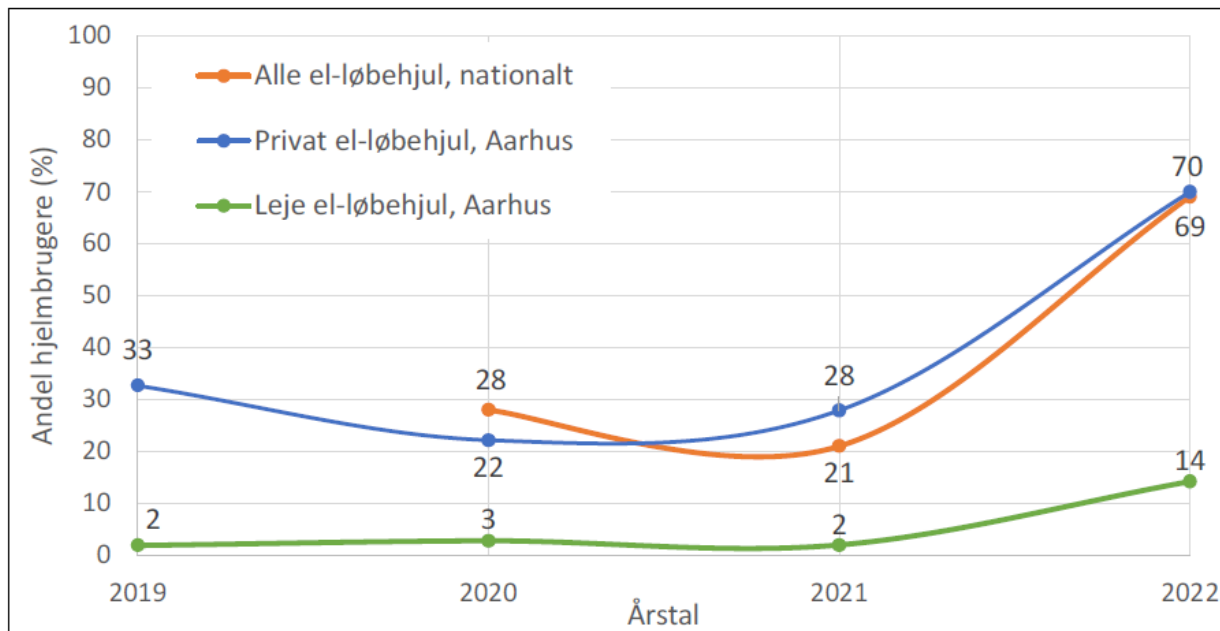
Study design

STUDY DESIGN: ANNUAL BICYCLE HELMET OBSERVATIONS AMONG E-SCOOTER RIDERS – BEFORE AND AFTER LEGISLATION

	National observational study	Observational study in city of Aarhus
Conducted by	The Danish Road Safety Council	Via Traffic (part of Sweco)
Study	Part of a larger annual bicycle helmet observational study conducted each year	Part of a larger observational study conducted over the years
Variables registered for e-scooter riders	Helmet use and gender	Helmet use, private/rental e-scooter, age group, gender as well as behavioural variables (e.g. using mobile phone, riding without lights on etc.)
Location and time	<p>Same locations (almost) and time every year:</p> <ul style="list-style-type: none"> - In 33 cities of varying size across Denmark - From mid-August to beginning of September - On weekdays in the morning, noon, and afternoon (i.e. not weekends and evenings) 	<p>In the city of Aarhus (second largest city in DK)</p> <ul style="list-style-type: none"> - On many different locations in Aarhus (app 300) - Throughout the year - On weekdays and weekends at different times of day (5 am to 12 pm)
n (e-scooter riders)	Annual average : 179	Annual average: 291

Results

RESULTS – HELMET USE BEFORE AND AFTER THE LEGISLATION



The large increases were highly statistically significant ($p < 0.001$)

Figur 2: Hjelmbrug blandt førere af alle el-løbehjul i bytrafik i hele landet i 2020-2022 og blandt førere af henholdsvis private og leje-el-løbehjul i bytrafik i Aarhus i 2019-2022. Kilde: Rådet for Sikker Trafik og Via Trafik.

Discussion and implications

DISCUSSION – HELMET USE ON RENTAL E-SCOOTERS

- Possible barriers for lower helmet use on rental e-scooters – **and how to adress them?**

- No helmet available on rental e-scooters → provide a helmet with the rental e-scooter
- Helmet available on rental e-scooters can be wet or not the right size → provide a one-size fits all helmet in a box on the rental e-scooters



- Users disliking wearing a helmet someone else has used
- Users on short trips
- Vanity

- Police enforcement and fines
- Campaigns and information
- Technical solution: E-scooter rental app requiring selfie with a helmet before starting the journey

DISCUSSION AND IMPLICATIONS

- **Key take away:** Legislation coupled with visible enforcement and campaigns can be very effective
- **Further research:** Could evaluate the effect on injuries and other outcomes (e.g. travel patterns on e-scooters and substituted modes of transport)
- **Discussion:** Could helmet legislation on e-scooters be implemented in other (Nordic) countries with the same effect?
 - And would there be public and political support for this measure?



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THANK YOU FOR YOUR ATTENTION

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