



*The experience of Denmark in
tackling driver fatigue*

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Fatigue can be caused by



- Lack of sleep
- Long period of being awake
- Time of day
- Mental fatigue
- Physical fatigue
- Monotonous driving
- Sleep disorder disease
- Medicine
- Alcohol



Why Risky ?

- Attention get dull
- Discernment reduced
- Reaction time prolonged



increased accident risk

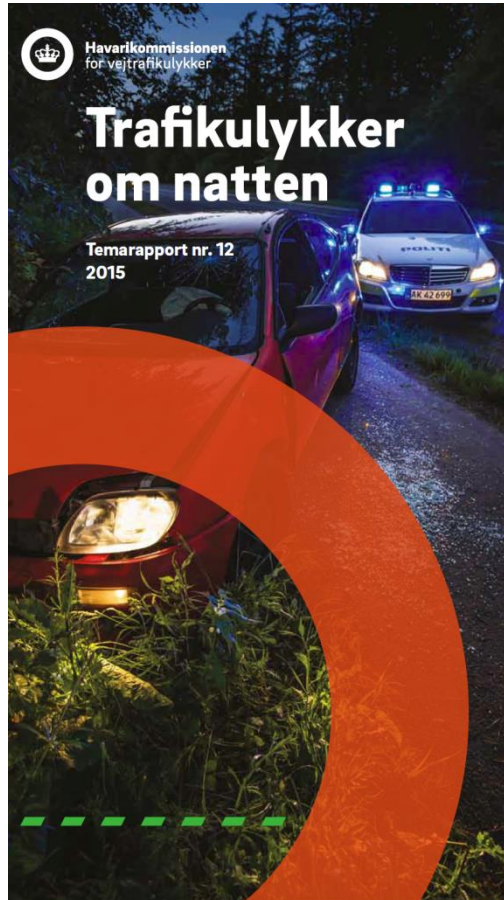
Danish Road Traffic Accident Investigation Board

12 Thematic reports

291 accidents total

22 fatigue/sleep accidents





Danish Road Traffic Accident Investigation Board: Accidents at night

Fatigue/sleep in 5 of 27 accidents

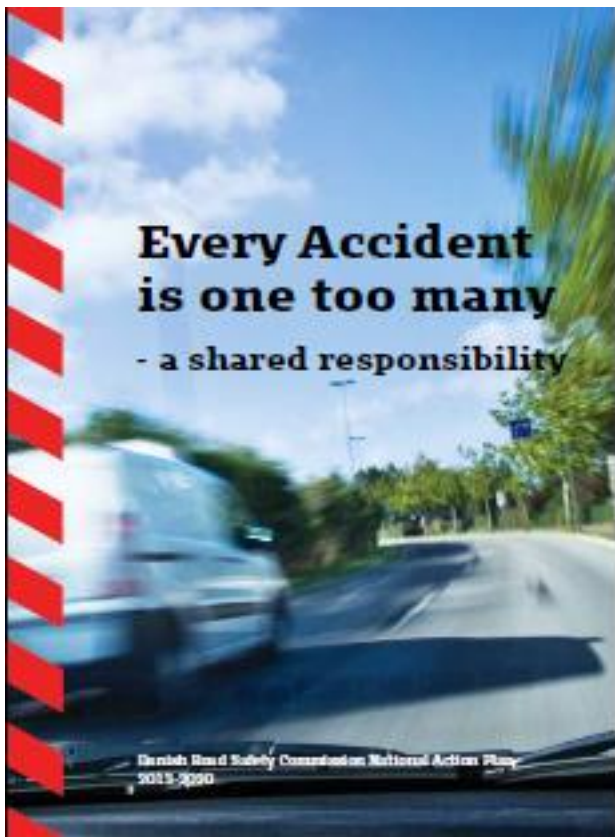
Recomandations:

- Education
- Campaigns
- Lane keeping assistant
- Sleep detectors
- Rumble stripes
- Middle barriers on rural roads

The fatigue problem in Road Safety



- Fatigue a factor in aprox. 20 % of all accidents
- Accidents spread over all day and night all year around
- Highest risk at monotonous driving, in darkness, at 3-5 am.
- High share of single accidents and head on collisions
- More serious injuries than in other accidents
- Increased risk for young drivers, professional drivers, and drivers with sleep disorder illness



The Road Safety Commissions Strategy and Action Plan for fatigue driving

A multiple approach:

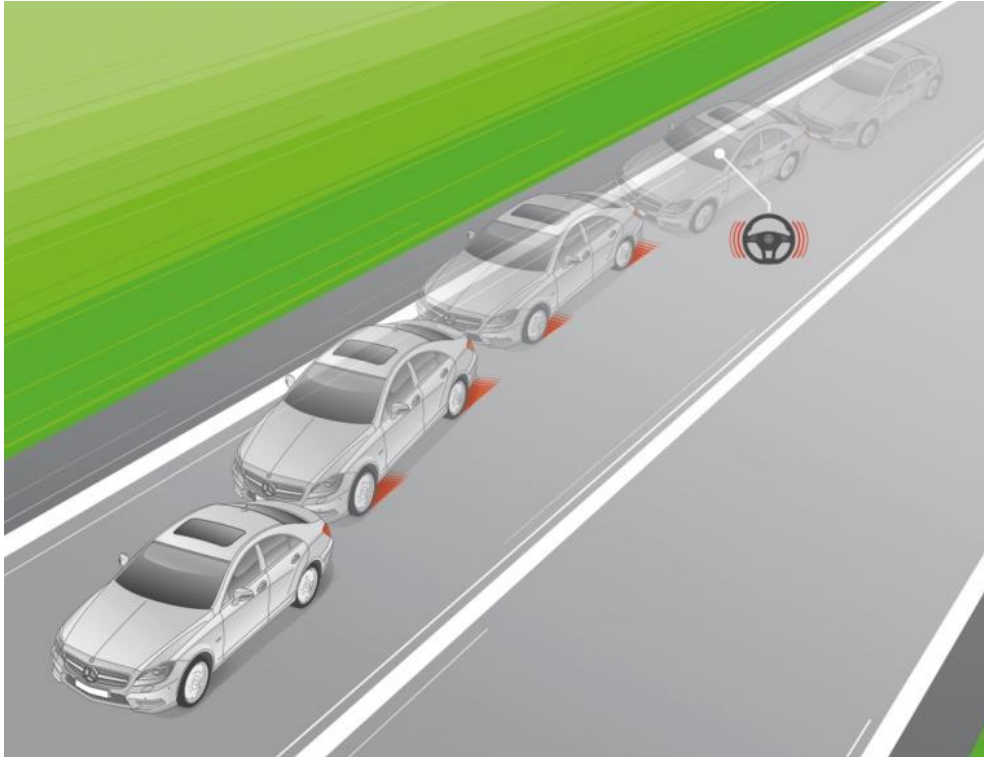
- Road engineering
- Vehicle safety technology
- Enforcement - control and sanctions
- The driver – education and communication



The driver

- Driver education
- Communication
- Sleep disorder – diagnosis and treatment

The vehicle



Tax reduction on:

- Intelligent Emergency Brake System
- Lane Keeping Assistance



Road Engineering

- Rumble stripes
- Middle barriers
- Rest areas

Enforcement - sanctions and control





Business

- Road safety policy
- Breaks and rests

How often?

How often have you felt too tired to drive within the previous 12 months?

Very often, often or sometimes

14 %

A few times

42 %

How often within the previous 12 months, have you been close to falling asleep behind the steering wheel?

Very often, often, some times or a few times

17 %

Have you ever experienced to have a road accident because of fatigue?

Yes

6 %



What do you do if you get sleepy while driving?

Nothing:	38 %
Turn on music:	18 %
Get fresh air:	15 %
Take a power nap:	9 %

The only effective action:

Power nap for 15 – 20 minutes



You can't fight sleep.



A 15 -20 minute power nap is like recharging your mobile phone.

If you don't recharge it, it will shut down – like your eyes

After 15- 20 minutes of sleep you have energy to drive for at least half an hour and get home safe – try a powernap!





Communication: Better knowledge and use of power naps

- Young drivers
- Professional drivers
- Sleep disorder – sleep apnea
- The Danes in common



Sleepy behind the steering wheel?

15

Statens vegvesen

Stop and sleep

A successful Norwegian campaign!



Healthy Sleeping – a cross-over fatigue project





Professional drivers and employers have a special responsibility

2011-2013

- Killed inside trucks 2
- Serious injured inside trucks 38

- Killed in accidents with trucks 96
- Serious injured in accidents with trucks 311

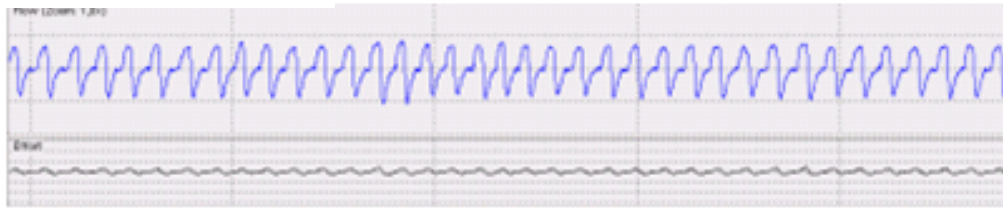
10 killed or seriously injured in cars for each one killed or injured in trucks

Sleep apnea is a risk in traffic and to the health of drivers

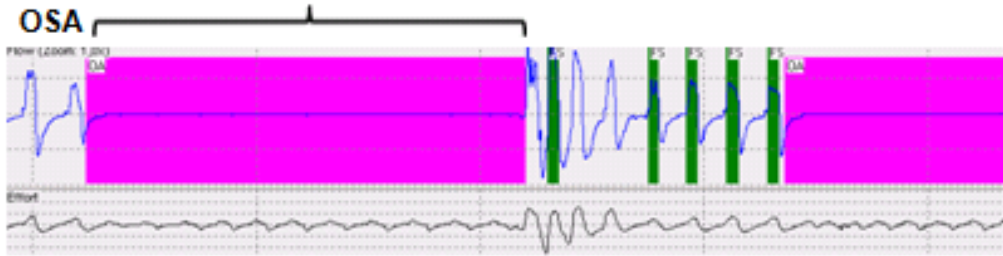
- Sleep apnea increase accident risk with a factor 3,7
- Correlation between sleep apnea, diabetes and overweight
- Overweight is a well know problem in the transport industry
- Sleep apnea is a heath perspective more than a Road Safety perspective
- Road Safety benefits when there is focus on sleep apnea to attack fatigue driving.

Obstructive Sleep Apnea

Normal Breathing



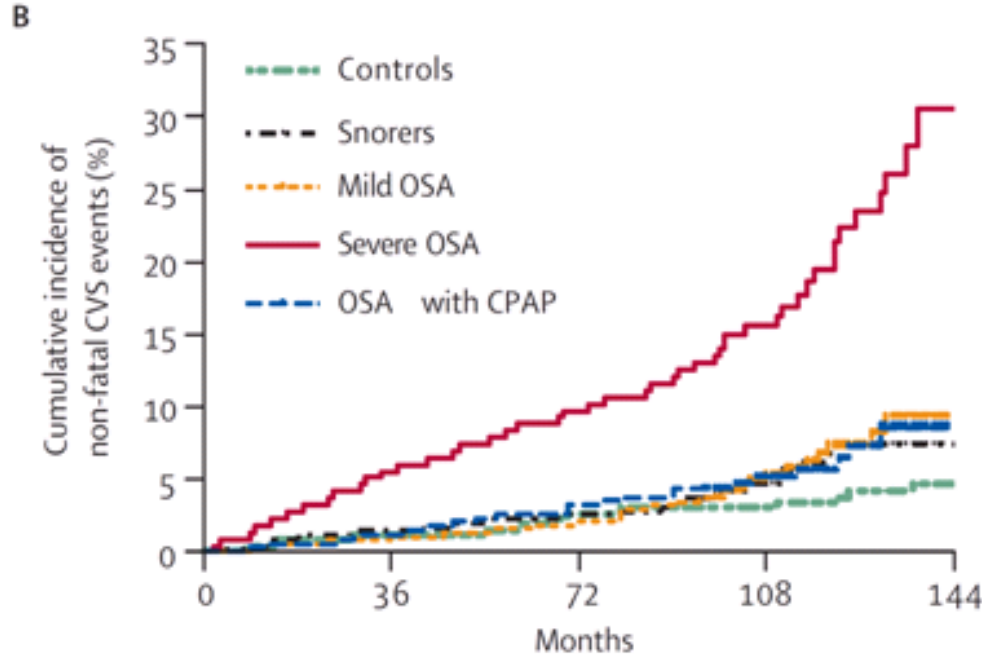
Ca. 60 sek.



Prognosis for obstructive sleep apnea

3 times higher risk of

- heart attack
- apoplexies





Danish Sleep Apnea Pilot Project

Screening 70 professional drivers
at Carlsberg for:

- Occurrence of Sleep Apnea
 - Occurrence of Diabetes
 - Occurrence of Accidents
- Results medium 2016



Thank you for your attention
- hope you are still awake!

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