The Drive for Life

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• Ageing: We are all at it

• Are older driver safe?

• Are older pedestrian safe?
Ageing: We’re all at it
Population change
Older people are more healthy and active as a cohort than ever before and as such are also more mobile (Tomassini, 2004).

More miles driven per person

Growth in % licence holders over 70 years

- Is it all positive?
  - Increasingly reliant and **dependent** on the car

- Live within a hypermobile society
  - People live further away from their communities and networks
  - Increased mechanisation has gradually allowed this to happen
  - Society geared around the car
  - Agglomeration of services (shops, hospital) passes cost of travel onto the user
  - Circular – further away services and provision are, the more people have to drive, the more they drive, the further away they get positioned.
  - Symbolic affect of the car
Mobility linked to health and wellbeing

• Being mobile in old age is linked to quality of life (Schlag et al., 1996).

• In particular, giving up driving has repeatedly been shown to related to lead to
  • a decrease in wellbeing
  • an increase in depression and related health problems,
  • feelings of stress, isolation and
  • increased mortality

  (Edwards et al., 2009; Fonda et al., 2001; Ling and Mannion, 1995; Marottoli, 2000; Marottoli et al., 1997; Mezuk and Rebok, 2008; Musselwhite and Haddad, 2010; Musselwhite and Shergold, 2013; Peel et al., 2001; Ragland et al., 2005 Windsor et al. 2007; Ziegler and Schwannen. 2013).

• Ex-drivers who depend on others for a lift nearly twice as likely to go into long-term care, as compared with older people who were still driving (Marottoli, 2000).
"You can’t ask other people to take you out for “a drive”. They’d think you’d lost their senses. Anyway they have got better things to be doing with their time, then ferrying me about just for the sake, like”
(female, gave-up driving at 80)

"It’s hard to explain I suppose. You just don’t seem like you belong. I suppose yes there are feelings that you might be ready for the scrapheap now. The first step to it, you know”
(Male, given-up driving at 76)

"Well Dorothy and David from number 3 take me shopping every week, we all go, we have a bit of a time of it you know, it’s a kind of outing. I never expected that.”
(Female, gave-up driving at 80)

A reduction in mobility can result in an increase in isolation, loneliness and depression and an overall a poorer quality of life.

**PRIMARY MOBILITY NEEDS**
Practical/utilitarian Needs

- e.g. get from A to B as safely, reliably, cheaply and comfortably as possible.

**SECONDARY MOBILITY NEEDS**
Social/affective Needs

- e.g. The need for independence, control, to be seen as normal.
- Linked to status, roles, identity, self-esteem. Impression management

**TERTIARY MOBILITY NEEDS**
Aesthetic Needs

- e.g. The need for the journey itself for relaxation, visit nature, use and test cognitive skills

On giving-up driving this level of needs is adversely affected
Not so easy to ask for discretionary travel

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Are older drivers safe?
How we view older drivers
Stereotypes

At best:
https://www.youtube.com/watch?v=7luCnh0iiw8

And worst:
A driver of a Ford car has smashed into the front of a house in Silverweed Road, Walderslade, and gone straight into a resident's lounge.

An elderly driver smashed into the front of a house and went straight into a resident's lounge.

The Ford car ploughed through the wall of the home in Silverweed Road, Weedswood, Chat morning.

The male driver, aged around 70, was taken to Medway Maritime Hospital by road.

A car has crashed into the side of a house in Silverweed Road, Weedswood.

A police spokeswoman said: "We were called at 10.48am to reports a car had crashed into a house through the window and into a living room."

Pensioner who hasn't had a crash in 76 years writes off two Porsches in seconds with his old Fiesta

By LUKE SALKELD

Last updated at 08:17 15 April 2008

If his 76-year blemish-free driving record had to come to an end, then it could hardly have gone more spectacular fashion.

With not even a minor prang to his name in half a million miles of motoring, 93-year-old Jack Higgs and his £600 Ford Fiesta managed to demolish two Porsches causing £60,000 of damage.

The retired church minister lost control as he reversed outside the Porsche showroom next to his home, hitting a red Carrera II, which acted as a ramp and flipped the car over onto a silver 911.
Pensioner causes chaos on the motorway after driving the wrong way down the hard shoulder on his mobility scooter
The 85-year-old man was driving along the M1 in South Yorkshire
The pensioner was travelling along the hard shoulder going against traffic
He joined the busy motorway just south of Rotherham at Junction 32
Police received several calls warning them about the dangerous situation
Officers spoke to the man's family after safely removing him from the road
Elderly driving laws must be changed, says coroner, after 89-year-old dies on M40

A coroner has condemned driving licence laws for older drivers as ‘puny’ after an 89-year-old died following a head-on-crash as she drove the wrong down the M40 motorway for more than ten miles.

A woman in her nineties who drove the wrong way down a busy dual carriageway and smashed into another car in a horrific head-on collision has died and another driver has been seriously injured.

The incident occurred on the A47 in Peterborough when the as yet unnamed pensioner drove her red Daihatsu Charade the wrong way down the westbound carriageway and collided with a silver Honda Jazz.

Emergency services were called to reports of a collision at Bretton Gate, near Peterborough City Hospital at just after 11am yesterday morning.
Age-related changes and driver behaviour
Stereotypes

Older drivers:

• React more slowly (85.7%; disagree 6%)
• Are overwhelmed by traffic (62.5% agree; 18.6% disagree)
• Tie up traffic (42.9%; 30.3% disagree)
• Are a potential safety threat (36.6% agree; 34.9% disagree)

Identifying age related physiological and cognitive changes that might explain the contributory factors involved in the collision.

- **Attention.** Can’t maintain attention for as long.
  - Older age is synonymous with deficits in selective and sustained attention (Zanto and Gazzaley, 2014).

- **Perceptual speed.**
  - Difficulty in judging relative speeds of self and others often becomes more problematic with age (Maloula, et al., 2004)

- **Working memory.**
  - Reduced storage capacity and processing efficiency of the working memory (the memory used to perform immediate tasks).
  - Ability to store new information and processing other information at the same time is also diminished (Maloula et al.2004).

- **Task switching.**
  - Ability to switch between different tasks, competently, efficiently and smoothly with minimal delay is diminished as people age (Maloula et al.2004; Zanto and Gazzaley, 2014)
• **Cognitive Overload.** Processing more than one thing at once is more difficult – takes longer or can’t happen.

• Older people are unable to process as much information simultaneously than younger people (Zanto and Gazzaley, 2014).

• This may be due to the brain already using compensatory pathways where direct routes have diminished over time.
• **Cognitive processing speed.** How quickly a person can process changes in the environment tends to deteriorate over time.

- Reaction time shortens from infancy to around 20 years of age, then increases slowly to around 70 years of age and beyond (Der and Deary, 2006; Jevas and Yan, 2001; Welford, 1977).

- A person over the age of 65 can have reaction times up to 22 times slower than that of someone of 30 years of age (see DfT, 2001; Hultsch, et al., 2002).
• **Eyesight.**
  • Between the ages of 15 and 65 years, susceptibility to glare increases, and recovery from glare increases from two to nine seconds (DfT, 2001).
  • Research suggests that by the age of 75 years old drivers may require 32 times the brightness they did at the age of 25 in order to be able to see effectively.

• **At 30mph**
  • 2 seconds = 88 feet missed
  • 9 seconds = 396 feet missed (120m) (Arsenal’s pitch is 105m long; Stoke = 100m)

• **At 60mph**
  • 2 seconds = 176 feet missed
  • 9 seconds = 792 feet missed (2 and a bit of Arsenal’s pitch lengths; 2 and a half of Stoke’s pitch length)
• Example!

• https://youtu.be/2LW89hs0PUk?t=3m30s
Induction of the Stereotype Threat

Prior to the simulated driving task, participants were asked to read the objective of the study displayed on the central simulator screen. Half of the participants were told that the objective of the study was to investigate why older adults aged 65 and above were more implicated in on-road accidents (Stereotype Threat condition) while the other half were told that the objective was to understand the underlying processes involved in driving (control condition).

Mélanie Joanisse, Sylvain Gagnon, Mihnea Voloaca, 2013, The impact of Stereotype Threat on the simulated driving performance of older drivers, *Accident Analysis & Prevention*, Volume 50, Pages 530-538, ISSN 0001-4575,
A time for testing or a testing time?
Comments call for testing!

James, London, United Kingdom, 2 months ago

Hopefully the law will change because of this, surely someone in their late 80s/90s has the same reaction times as someone who's under the influence? They should not be on the road.

Click to rate 361 28

Insurancegirl, Maldon, 2 months ago

Unfortunately may elderly people consider driving a right rather than a privilege and carry on driving when they should give up. My step father refused to stop driving even when his eye sight deteriorated and was quite frankly a menace on the roads, we called the Police and the DVLA and there was basically no help or advice on how to make him stop.

Click to rate 292 8

Matth, Cheltenham, United Kingdom, 2 months ago

Oh dear, another fatal accident as a result of an elderly driver going the wrong way. How many more have to die before the Department for Transport review the driving licence rules for OAP’s? If they can prove they are still fit to drive then the elderly should be allowed to continue driving, but it seems increasingly clear that regular checks / re-testing is needed for drivers over (say) the age of 70 (when currently they have to re-apply for their licence but with no real checks made).

Click to rate 241 23

Frisbeecat, Dundee, United Kingdom, 2 months ago

Suggesting to a member of your family they give up driving is really hard - I've tried. Doctors don't want to be blamed either. Re-testing is the only answer.

Click to rate 232 13

rbames907, Worcester, United Kingdom, 2 months ago

Two in two days. Something needs to be looked at with regards to having to re-take a test at a certain age.

Click to rate 210 13

Jess, London, 2 months ago

For goodness sake, how much does it take to make it a legal requirement for older people to take another driving test? Driving conditions have changed enormously since they started driving and response times degrade with aging too. I certainly wouldn't object to having to prove myself safe to be driving when I get older, it should be mandatory!

Click to rate 193 10

Brumnie Nick, Portsmouth, United Kingdom, 2 months ago

It's about time the Govt looked into the situation regarding older drivers. Once you hit 80 you should not be able to drive. This is the second incident of elderly drivers driving the wrong way up a road recently and should do not have the ability to drive safely and should be taken off the road.

Click to rate 230 5
Stereotypes

Older drivers should:

• Should be tested every 2 years (for: 48%; 40.3% disagree)
• Should pass road safety training frequently (for: 66.3%; disagree 19.4%)

<table>
<thead>
<tr>
<th>Study</th>
<th>Location</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grabowski et al (2004)</td>
<td>Across USA</td>
<td>Vision tests, road tests, more frequent licence renewals, in person renewals no difference</td>
</tr>
<tr>
<td>Mitchell (2008)</td>
<td>Across Europe</td>
<td>lowest fatality rates for this age group occur in two of the countries (UK and the Netherlands) with more relaxed procedures</td>
</tr>
<tr>
<td>Langford et al (2008)</td>
<td>Victoria (no age controls) and New South Wales (medical assessment 80+ and on road test 85+)</td>
<td>No sig diffs for older or other road users</td>
</tr>
<tr>
<td>Siren and Meng (2012)</td>
<td>Introduction of age-based cognitive screening starting from the age of 70 in Denmark in May 2006, in a population-based study.</td>
<td>Whilst collision rates for car drivers did not significantly change across any age group. the collision rate for older vulnerable road users in the post-implementation period increased significantly: by 38%.</td>
</tr>
<tr>
<td>Langford et al., (2004).</td>
<td>In Sydney (where there is mandatory practical assessment from 80 years onwards – now 85) and Melbourne (in which there are no age-based controls)</td>
<td>older drivers in Sydney (with age-based controls) had higher collision risks per licence and per times spent driving than those in Melbourne (who had no controls).</td>
</tr>
</tbody>
</table>
• What about training and education?

• Lack of evidence

• Education and training improve
  • driver knowledge (see e.g., Eby et al., 2003; Marottoli, 2007; Owsley et al. 2004),
  • self-reported driving behaviours (McCoy et al., 1993; Owsley et al., 2004) and
  • on-road driving assessments (Bédard et al., 2004; Marottoli, 2007),
  • but there is no evidence to suggest they reduce crashes or injuries (Berube et al., 1995; Korner-Bitensky, Kua, von Zweck, & van Benthem, 2009; Ker et al., 2005; Kua et al., 2007; Nasvadi & Vavrik, 2007; Owsley et al., 2004).
Re-visiting older driver safety
Casualty rates per mile

- Deaths per 100 billion miles
- KSI per 10 billion miles
- All casualties per billion miles
- Slight injuries per billion miles

Mitchell, K. (forthcoming)
The fragility index (fragility relative to that for persons aged 40-49) of male and female car occupant and pedestrian casualties 2010-2014

Deceased Road Casualties, Great Britain - Mitchell K (forthcoming)
Figure 4.1 Accident involvement (all severities) per million driver kilometres

Different types of collision
### What Factors Contributed To The Accident?

Select up to six Factors from the grid, relevant to the accident.

Factors may be shown in any order, but an indication must be given of whether each factor is very likely (A) or possible (B). Only include factors which have contributed to the accident. (i.e. do NOT include “Poor road surface” unless it was relevant to the accident)

More than one factor may be related to the same road user

The same factor may be related to more than one road user, if appropriate.

The participant should be identified by the STATS19 vehicle or casualty reference number, preceded by “V” if factor applies to a vehicle, driver/rider or the road environment (eg V002), or “C” for a pedestrian or passenger casualty (eg C001). Enter “U000” if an uninjured pedestrian contributed.

### Road Environment Contributed

<table>
<thead>
<tr>
<th>Vehicle Defects</th>
<th>Driver/Rider Only (Includes Pedal Cyclists and Horse Riders)</th>
<th>Pedestrian Only (Casualty or Uninjured)</th>
<th>Special Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor or defective road surface</td>
<td>Tyres illegal, defective or under inflated</td>
<td>Disobeyed automatic traffic signal</td>
<td>Junction overshot</td>
</tr>
<tr>
<td>Deposit on road (eg. oil, mud, chippings)</td>
<td>Defective lights or indicators</td>
<td>Disobeyed Give Way or Stop sign or markings</td>
<td>Junction rest</td>
</tr>
<tr>
<td>Slippery road due to weather</td>
<td>Disobeyed double white line</td>
<td>Poor turn or maneouvre</td>
<td>Failing to signal/Misleading signal</td>
</tr>
<tr>
<td>Inadequate/Masked signs or road markings</td>
<td>Disobeyed pedestrian crossing facility</td>
<td>Failing to keep proper distance</td>
<td>Illness or disability, mental or physical</td>
</tr>
<tr>
<td>Defective traffic signals</td>
<td>Defective or missing mirrors</td>
<td>Illegal turn or direction of travel</td>
<td>Failing to look properly</td>
</tr>
<tr>
<td>Traffic calming (speed cushions, road humps, chicanes)</td>
<td>Overloaded or poorly loaded vehicle or trailer</td>
<td>Exceeding speed limit</td>
<td>Not displaying lights at night or in poor visibility</td>
</tr>
<tr>
<td>Temporary road layout (eg contraflow)</td>
<td>Travelling too fast for vehicle type or speed</td>
<td>Driving too close to cyclist, horse rider or pedestrian</td>
<td>Cyclist wearing dark clothing at night</td>
</tr>
<tr>
<td>Road layout (eg bend, hill, narrow carriageway)</td>
<td>Following too close</td>
<td>Sudden braking</td>
<td>Driver using mobile phone</td>
</tr>
<tr>
<td>Animal or object in carriageway</td>
<td>Vehicle travelling along pavement</td>
<td>Swerved</td>
<td>Distraction in vehicle</td>
</tr>
<tr>
<td>Cyclist entering road from pavement</td>
<td>Loss of control</td>
<td>Distraction outside vehicle</td>
<td>Vehicle blind spot</td>
</tr>
</tbody>
</table>

### Special Codes

- Crossed road marked by stationary or parked vehicle
- Vehicle in course of crime
- Emergency vehicle on call
- Vehicle door opened or closed negligently
- Wrong use of pedestrian crossing facility

If 999 Other: give brief details

Note: Only use if “Other” Factor contributed to the accident. Also include in text description of how accident happened

Note: These factors reflect the Reporting Officer’s opinion at the time of the accident and are not necessarily the result of extensive investigation.
Ratio of the number of drivers in accidents for which contributory factors were or were not assigned - Great Britain 2005-06
Lang (2011)
The manoeuvres associated with car accidents also vary with the age of the driver.

The chart illustrates the percentage of all accidents for different manoeuvres across various age groups of drivers. Key features include:

- **Slow down or stopping**: Peaks at younger ages and gradually decreases as age increases.
- **Waiting to go**: Shows a decrease from ages 10 to 50 and then remains relatively stable.
- **Turning right**: Remains consistent throughout different age groups.
- **Bend**: Peaks at around 30 years of age and then decreases as age increases.
- **Changing lane**: Shows an increase from ages 10 to 50 and then decreases.
- **Overtaking**: Remains stable throughout different age groups.

The chart shows the percentage of all injury car crashes of all severities by crash type and age.
Updating data from STATS19 from Wales, 2003-2012

• **Turning across traffic** (i.e. turning right),
  - 13% of collisions for over 70s, compared to 7% for under 70 year olds, (t=2.45; p<0.01)

• **48% failed to look properly**, compared to 40% across all age groups, (t=2.93; p<0.01),

• **27% failed to judge the other vehicle or person’s path**, compared to 20% across all age groups (t=2.77; p<0.01)

• **16% performed a poor manoeuvre** compared to 13% of all ages (t=2.07; p<0.05).

But, not a problem if given time.

- Under 65s (n=20) v Over 65s (n=20)

- Experiment 1:
  - No time pressure
  - No fewer correct decisions
  - But, correct decision took longer (av. 15 seconds)

- Experiment 2:
  - Give time pressure. Told “must complete manoeuvre within 15 seconds”.
  - Mistakes occur, sometimes resulting in a collision

- So reduce pressure on older drivers. How?
You don’t have to use a car but it helps if...
There is a safe public realm for walking

There is a desirable public realm for walking

Quality, desirable public transport is provided and is accessible

Alternatives are available and attractive
Mobility scooters, community transport
Alternatives –
Walking
<table>
<thead>
<tr>
<th>Over 60s in GB</th>
<th>GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>22.04%</td>
</tr>
<tr>
<td>Pedestrian miles</td>
<td>19.05%</td>
</tr>
<tr>
<td>Killed as a pedestrian</td>
<td>42.83%</td>
</tr>
<tr>
<td>Serious injury as a pedestrian</td>
<td>21.01%</td>
</tr>
<tr>
<td>Slight injury as a pedestrian</td>
<td>12.23%</td>
</tr>
</tbody>
</table>

Percentage of casualties aged 80 and over –

Rates per journey for casualties killed and seriously injured pedestrians and car drivers - men and women - Britain 2008

Let’s get cross about crossing!

Only 11% walk as fast or faster than DfT recommendations for pedestrian crossing time
- Only 6% of females
- Faster if higher socio-economic background, healthy and confident
- Agrees with previous research (Asher et al., 2012, Newton and Omerod, 2007).

Fear of not being quick enough to cross the road is known to restrict people leaving the home or limit their accessibility when out and about (IDGO 2013; Lord et al., 2010; Zijlstra, 2007).

• Ready Steady Slow

• The Pelican Games

• Hey Mr Boris

http://www.oapcare.org.uk/
Conclusion
• Older drivers are not excessively dangerous
• Testing doesn’t work
• Jury’s out on training
• Improving turning across traffic
• Reducing feeling of (time) pressure
• Stereotypes and negativity
• Issue with eyesight esp. glare and luminance.

• Improve pathways to giving-up driving and provision beyond driving

• Lobby for change of sign
• Improve pedestrian environment especially crossings and crossing times.
Thankyou

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