

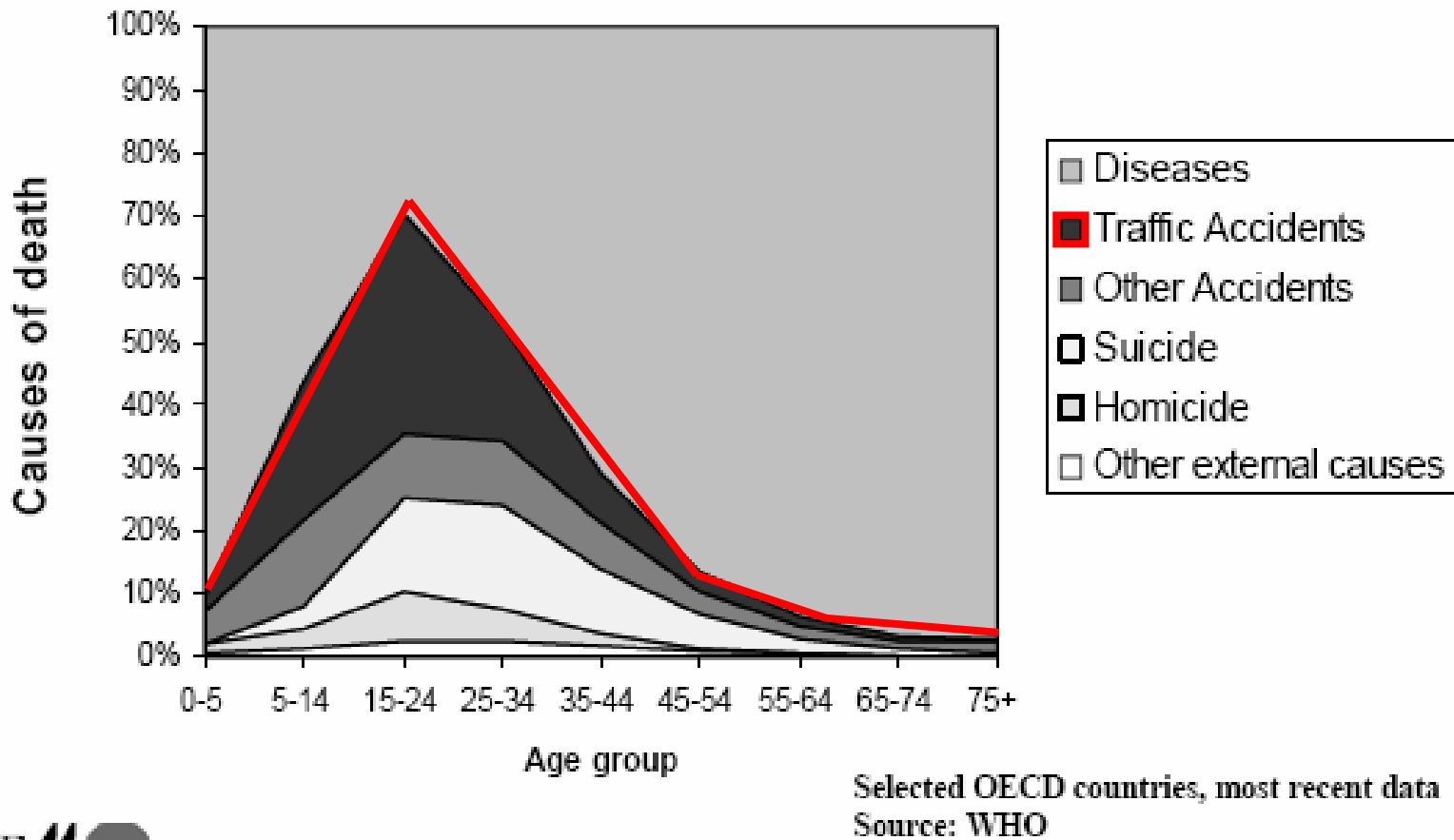
Dundalk, 9 October 2007

**Young Novice Drivers:
Do they fail to feel the fear?**

Steve Stradling, Neale Kinnear

**Transport Research Institute,
Napier University, Edinburgh**

Traffic fatalities vs. overall fatalities by age



White (2005). Presentation to the FIA Foundation International Forum. Budapest.

OECD: Organisation for Economic Co-operation and Development. *30 member countries:*

[Australia](#), [Austria](#), [Belgium](#), [Canada](#), [Czech Republic](#), [Denmark](#), [Finland](#), [France](#), [Germany](#), [Greece](#), [Hungary](#), [Iceland](#), [Ireland](#), [Italy](#), [Japan](#), [Korea](#), [Luxembourg](#), [Mexico](#), [Netherlands](#), [New Zealand](#), [Norway](#), [Poland](#), [Portugal](#), [Slovak Republic](#), [Spain](#), [Sweden](#), [Switzerland](#), [Turkey](#), [United Kingdom](#), [United States](#)

Influences on Young Novice Driver Crash Risk

Lack of experience

Age

Gender

Over-confidence in abilities

Poor Hazard Perception

**Physical and Mental
Development**

Lifestyle & Social Attitudes

Alcohol & Drugs

Expression

Thrill Seeking driving style

**Opportunistic & Reactive
speeding**

Peer influences

Parents

Driving:

is a **skill-based, socially regulated, expressive** activity involving balancing capability and task difficulty to avoid loss of control, along with real time negotiation with co-present transient others with whom the driver is presently sharing the public highway to avoid intersecting trajectories, while maintaining or enhancing the driver's mood and self-image.

Expressive activity: Transport into the adult realm

"Instead of using public transport you get to use cars."

"Nice silver shiny car. It has to be shiny."

'Driving a car ...'

"It's going to be purple and hopefully a Skyline but I don't have a lot of money."

- **Is a way of projecting a particular image of myself**
- **Gives me a feeling of pride in myself**
- **Gives me the chance to express myself by driving the way I want to**
- **Gives me a feeling of power**
- **Gives me the feeling of being in control**
- **Gives me a feeling of self confidence**
- **Gives me a sense of personal safety**

"Windows down, music blaring and just going up and down the street."

"It would just be great, just the total feeling of freedom."

Automobile = Autonomy + Mobility

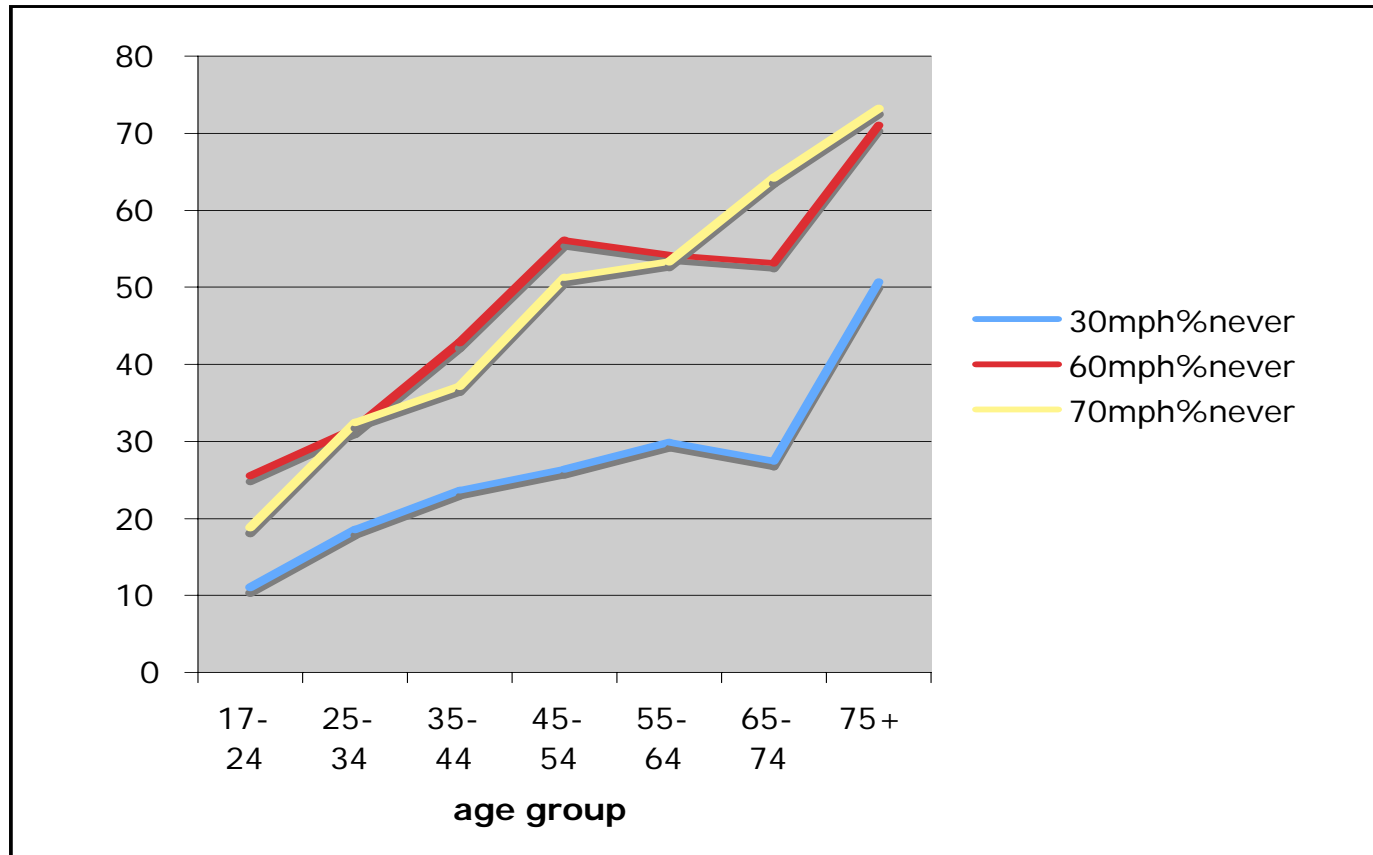
"Like you're in control of loads of speed"

"It gives me independence. Be able to go where I want when I want."

"Not relying on your parents all the time"

Exceeding the speed limit: extent of

Percentage of each age group of drivers reporting never speeding in 30, 60 and 70 mph limits



Problem Speeding scale

	SA	A
I feel more comfortable driving fast than slow	<1	11
I think that speeding will always be a problem for me	1	7
My passengers sometimes ask me to drive more slowly	1	9
I enjoy driving fast but sometimes I do drive a bit too fast	1	24
I really enjoy driving fast	2	17
I speed whenever I think it is safe to do so	2	29
I like to put my foot down on open roads & motorways	3	30

Strongly Agree with at least 1 Problem Speeding item 11%

Female	7%
Male	15%

17-24	17%
75+	3%

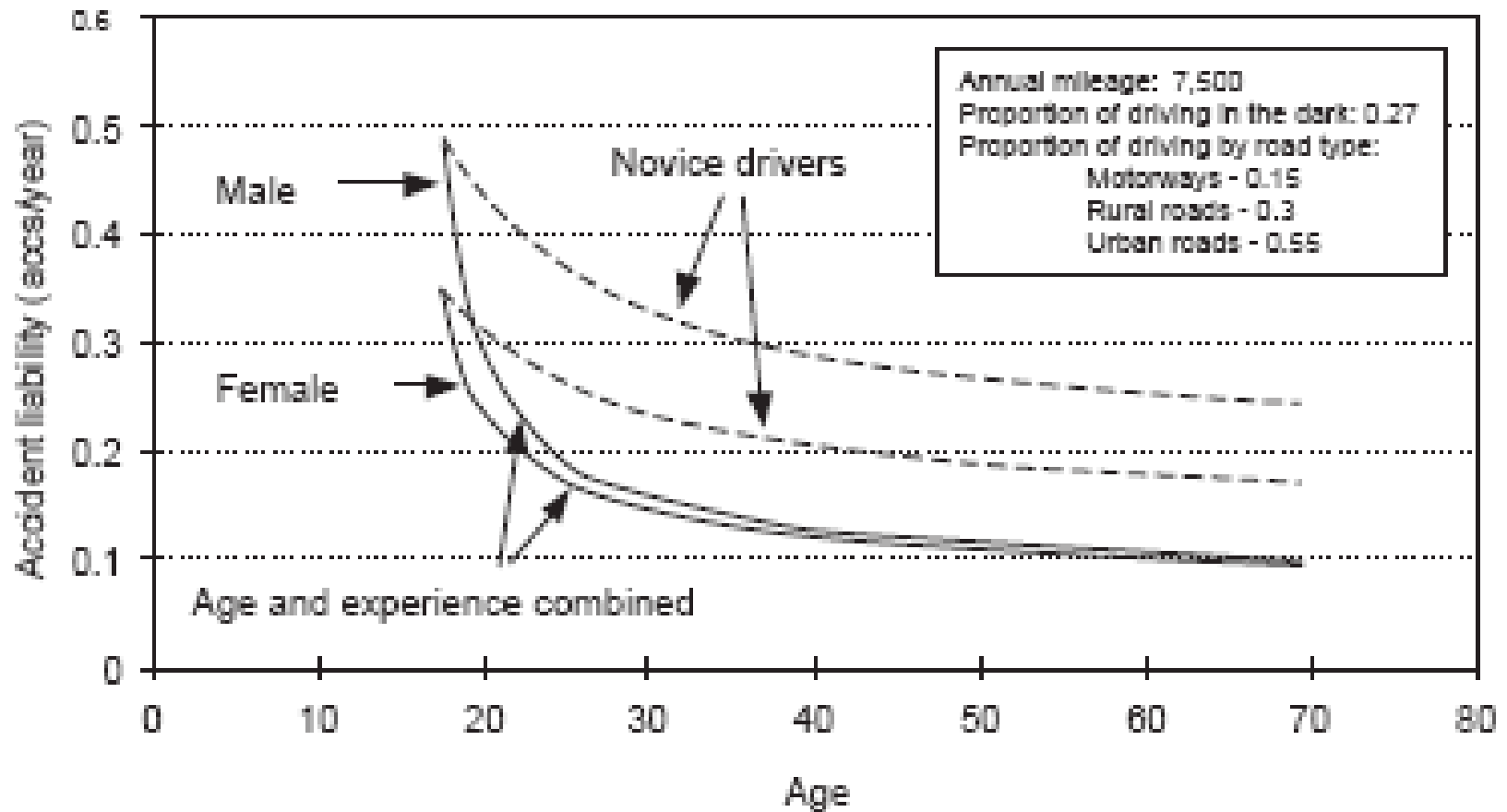
1.0 litre engine	6%
2.0+ litre engine	17%

Age or Experience?

A study of British drivers licensed to drive at different ages (i.e., 17, 20, 25, 36 & 50 years respectively) who travelled about 12,000kms per year, found that crash risk during the first few years of solo driving decreased by about **31% due to age** and about **59% due to experience**.

Maycock, Lockwood & Lester (1991)

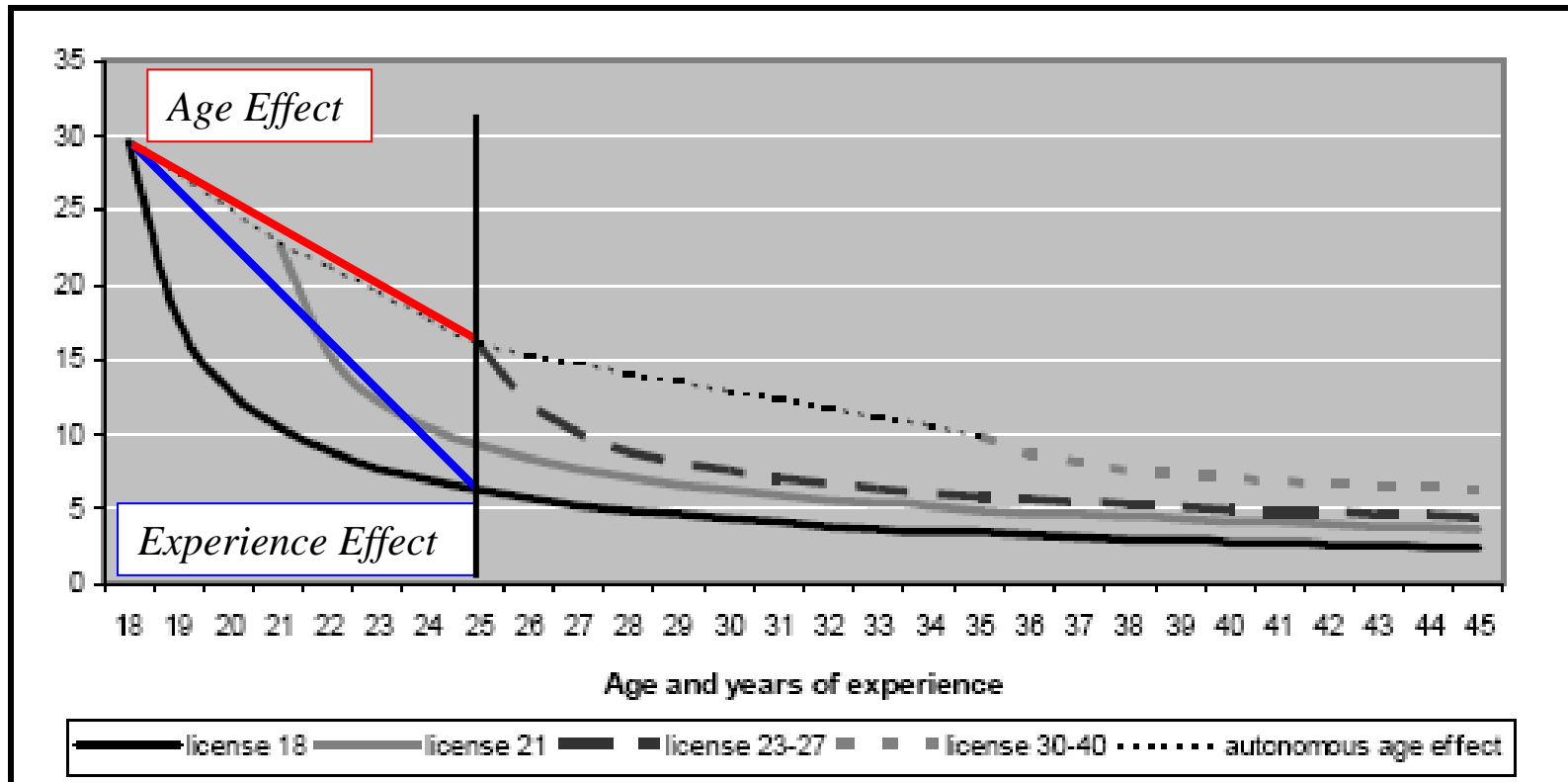
The influence of age and experience on the accident liability of male and female drivers



Source: Maycock (2002) – Novice driver accidents and the driving test

Age vs. Experience

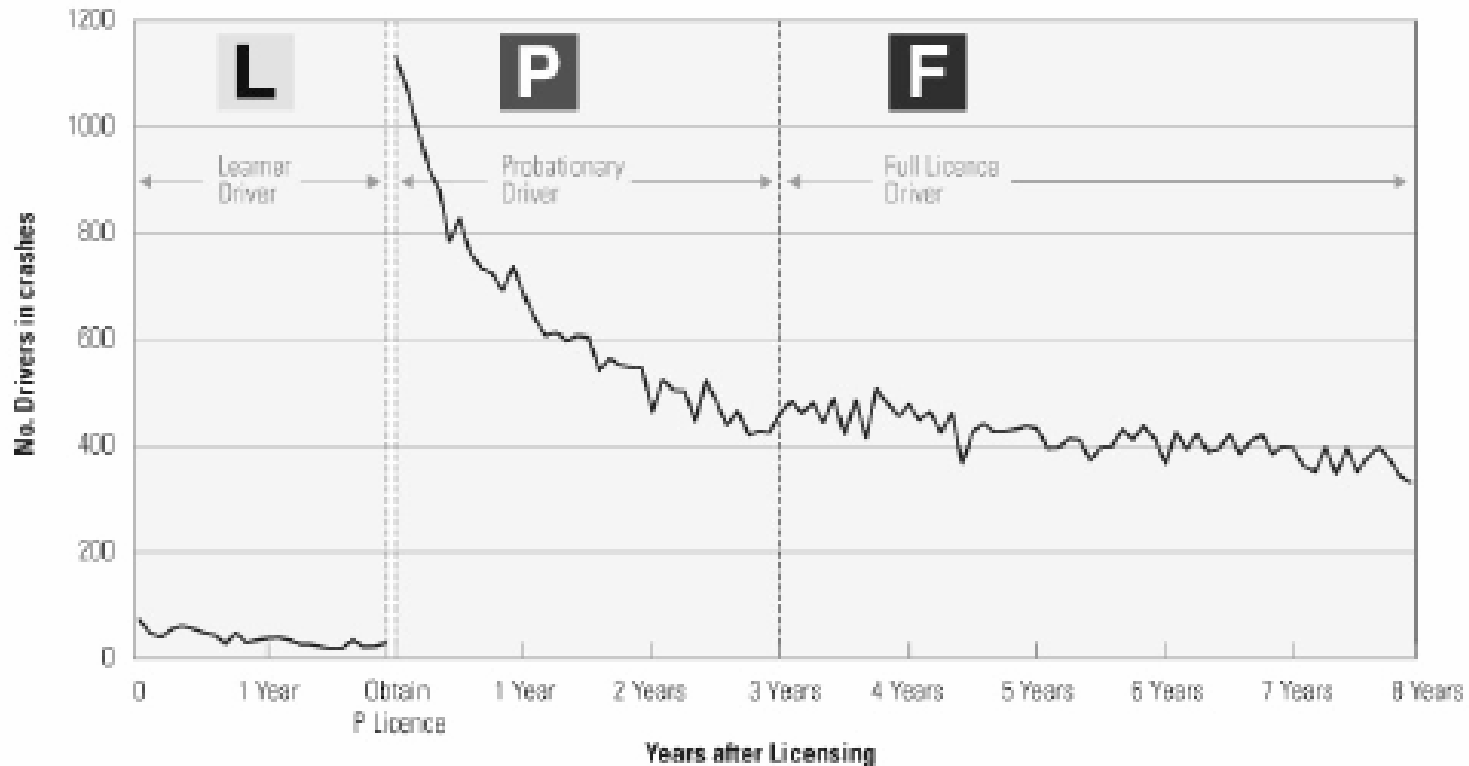
The Netherlands: Accidents per billion kilometres, for persons gaining licenses at different ages, 2003



Source: Vlakveld, W.P. (2004)

Driving Experience and Crash Risk

Experience and Crashes – Learners / New Drivers



Source: VicRoads

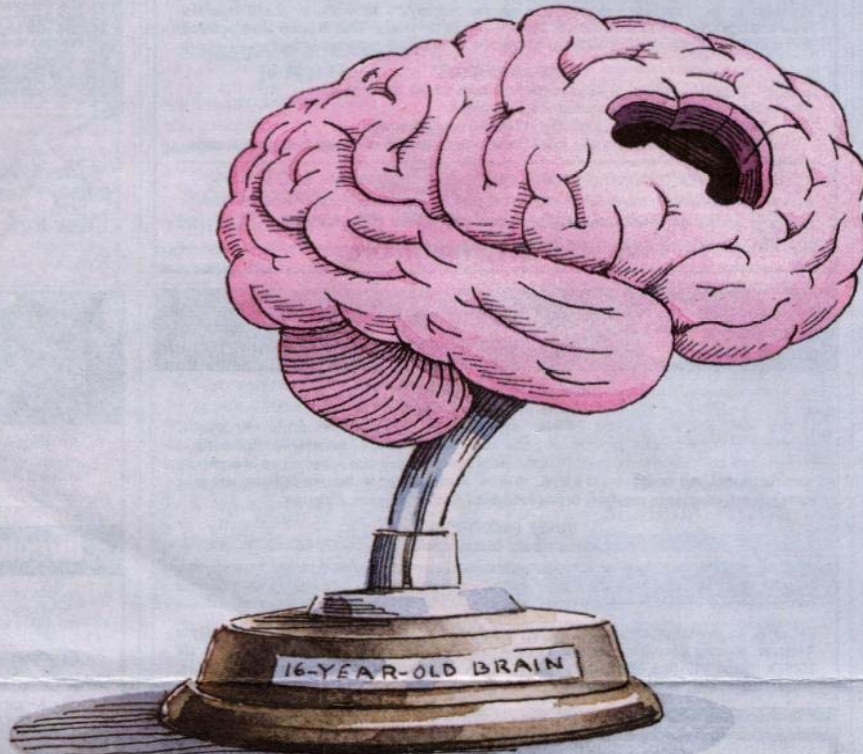
Current Research

by Neale Kinnear

Why do most 16-year-olds drive like they're *missing a part of their brain?*



BECAUSE THEY ARE.



Allstate.
You're in good hands.

Auto
Home
Life
Retirement

The Somatic Marker Hypothesis

- ❑ If a situation appears to be developing that could advance into something threatening or dangerous, a feeling of unpleasantness will be produced in the body (i.e. – a gut feeling). Antonio Damasio labels this a ‘Somatic Marker’.
- ❑ It is a marker because this bodily feeling will be marked against the developing scenario so that the organism will learn that should this scenario begin to be built up again, the body can respond earlier (Damasio, 2004).

“Somatic markers are a special instance of feelings that have been connected by learning to predicted future outcomes of certain scenarios. When a negative somatic marker is juxtaposed to a particular future outcome the combination functions as an alarm bell.”

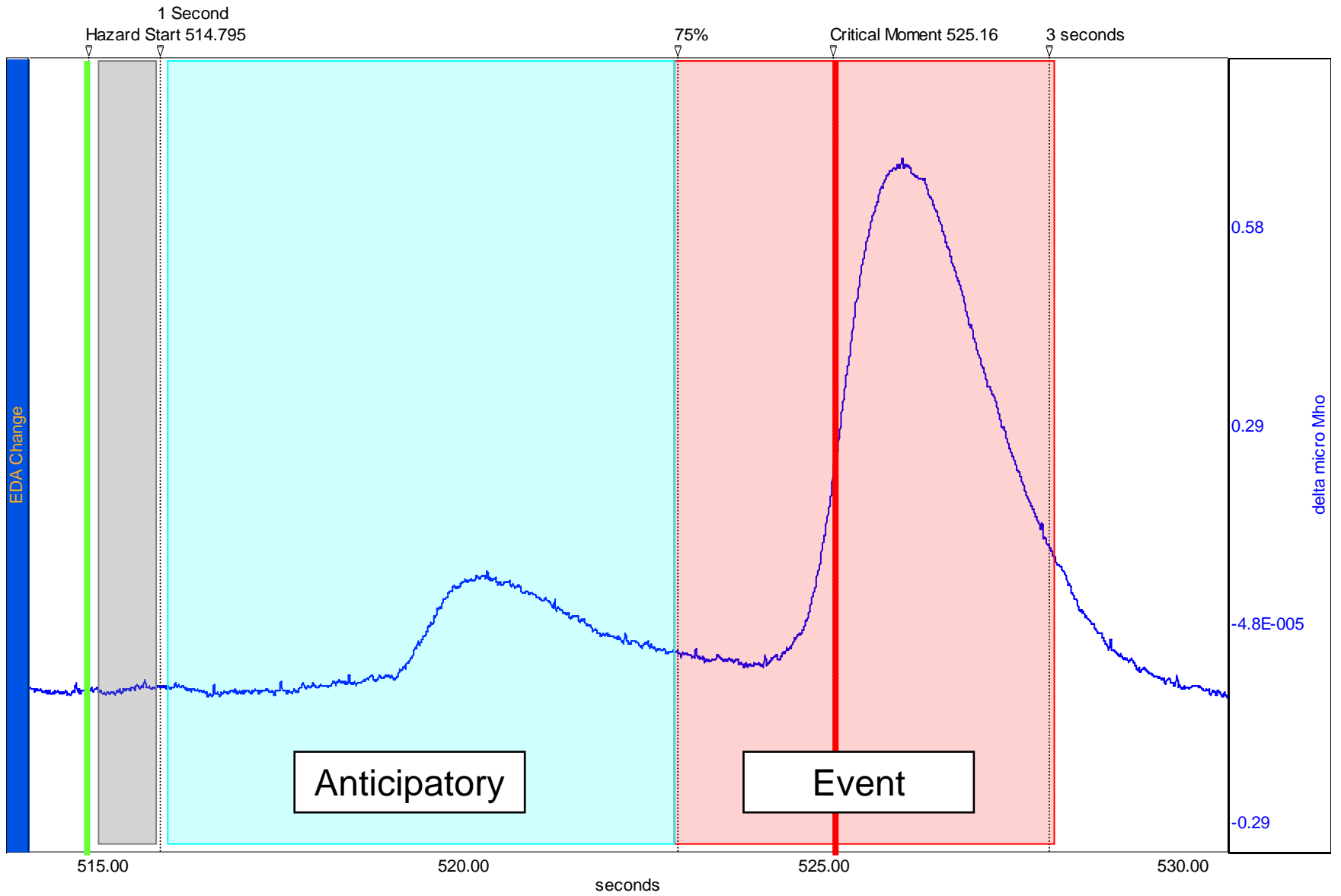
(Damasio 1994, p174)

Focus Group Quotes

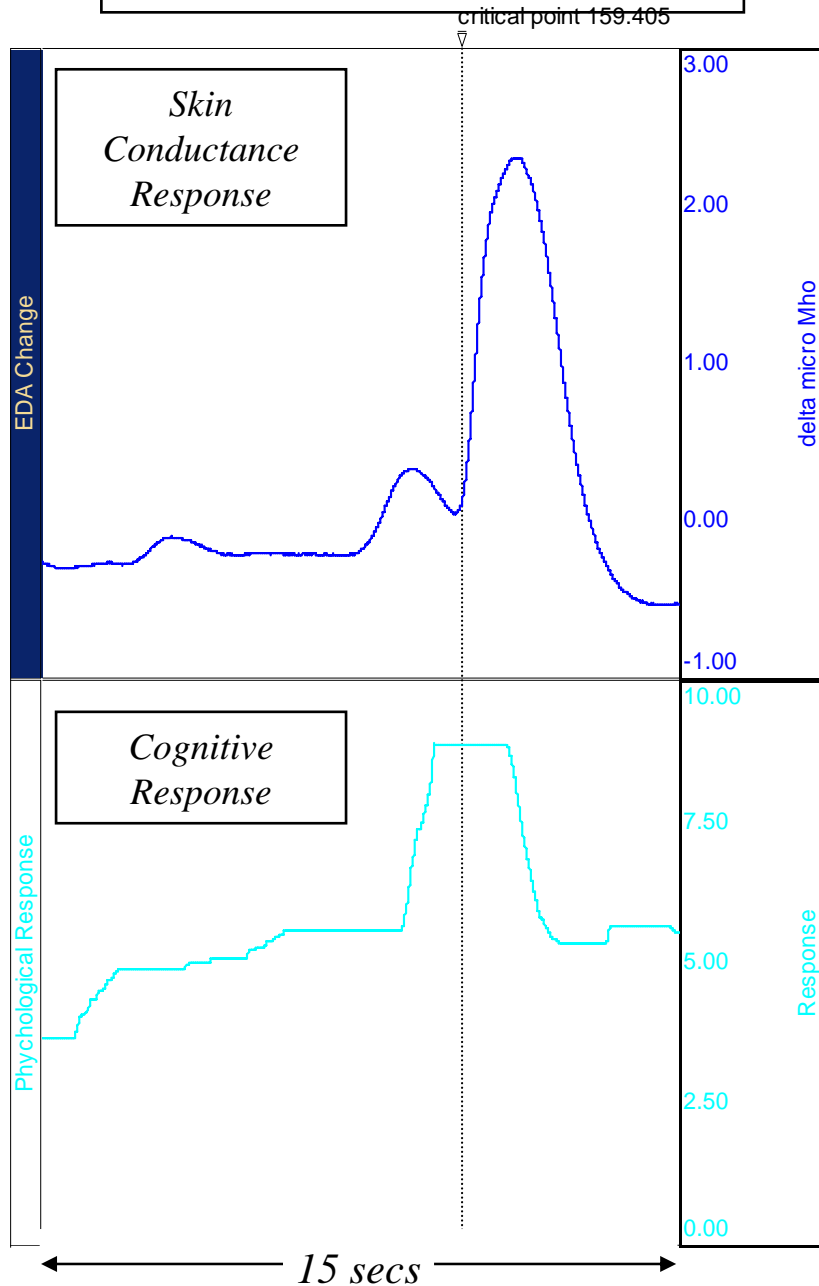
Fuller, Bates, Gormley, Hannigan, Stradling, Broughton, Kinnear and O'Dolan
(2007)

- I think your body knows you're outside your comfort zone. It just registers something and you say 'back again' instantly, to whatever speed you're comfortable.
- I went about 120 (mph) then I started feeling that I wasn't in control, a sort of feeling 'anything could happen here' that sort of scared me.
- Well, I could control the safety margins with the speed, I feel quite happy doing 80-85, but if something, if the weath..., if conditions got worse, if the rain gets heavier, then I would slow down, I would kinda back off. [Biker]
- And again it was on the motorway, nobody else about, did it [high speed] for a couple of minutes, stopped whenever there was anything looking like it was getting too close. Just a bit too much sensory input for me, and a little bit too quick, even though feels like an empty road, it doesn't feel comfy. [Biker]
- ...middle of the night and no one else is out, just me, big empty motorway, 70mph just definitely feels too slow.

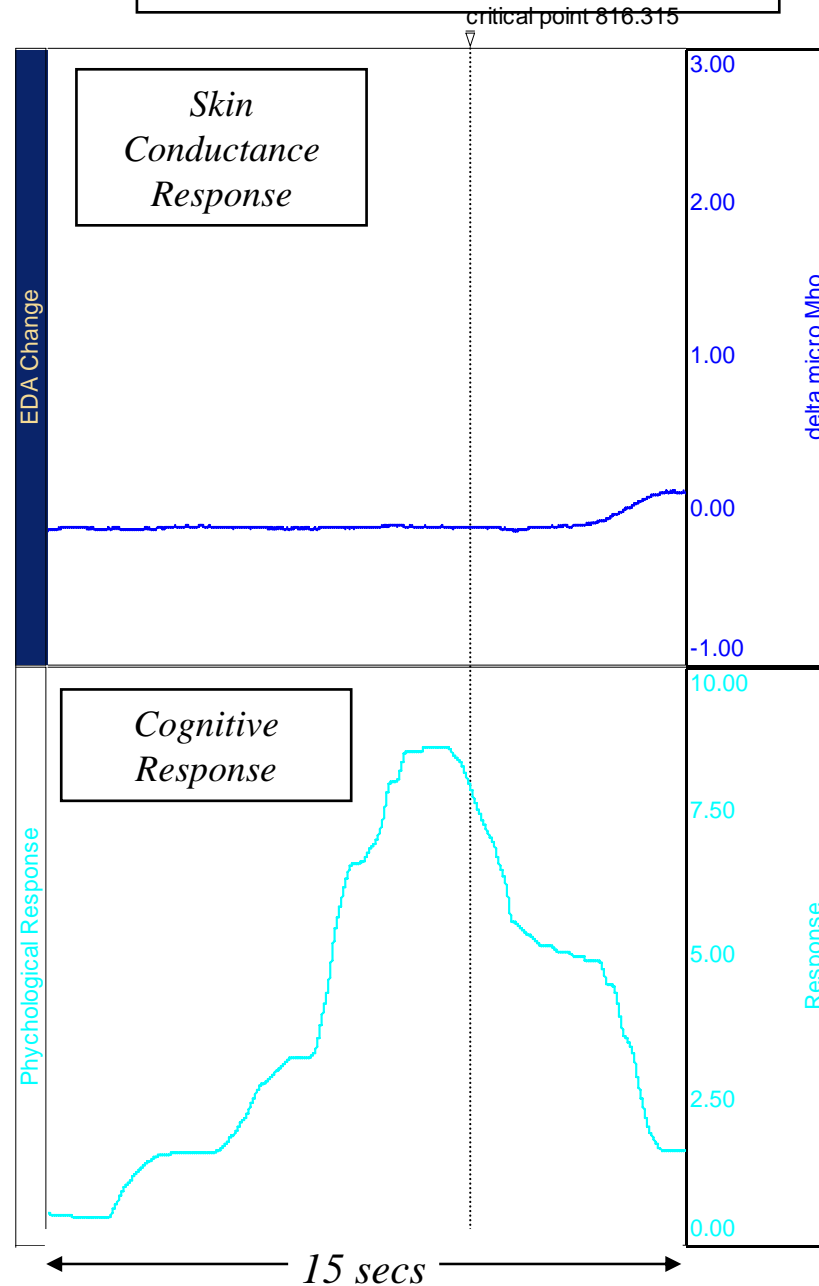
Clip No.	Hazard Description	Hazard Length (secs)	Total Time of Clip (secs)
1	Man comes out of house, crosses road ahead and enters passenger side of car. Car then pulls out	11.08	50.4
2	Cyclist pulls out of junction ahead into cars path, then swerves to overtake indicating car.	7.84	67.12
3	Pedestrian runs onto the road without looking whilst waving a bus down	10.76	55.16
5	Child on a bicycle crosses the road causing a motorbike in front to slow down.	5.68	46.76
6	Car pulls out from a slip road onto dual carriageway in front of you.	12.36	67.16
7	School children cross the road at a zebra crossing near a school.	9.16	58.76
10	Man steps onto road with box from behind a van and crosses in front of you.	4.8	56.96
11	White van approaches and pulls out of junction on a country road.	8.24	57.92
12	Motorbike pulls out into the middle of road to pass parked car.	10.36	59.24
13	Car in front brakes for a cyclist , then overtakes them.	14.2	59.32
15	2 motorbikes pull out of junction onto the road ahead.	6.36	59.36
16	Lorry performs a U-turn on dual carriageway.	11.92	59.12



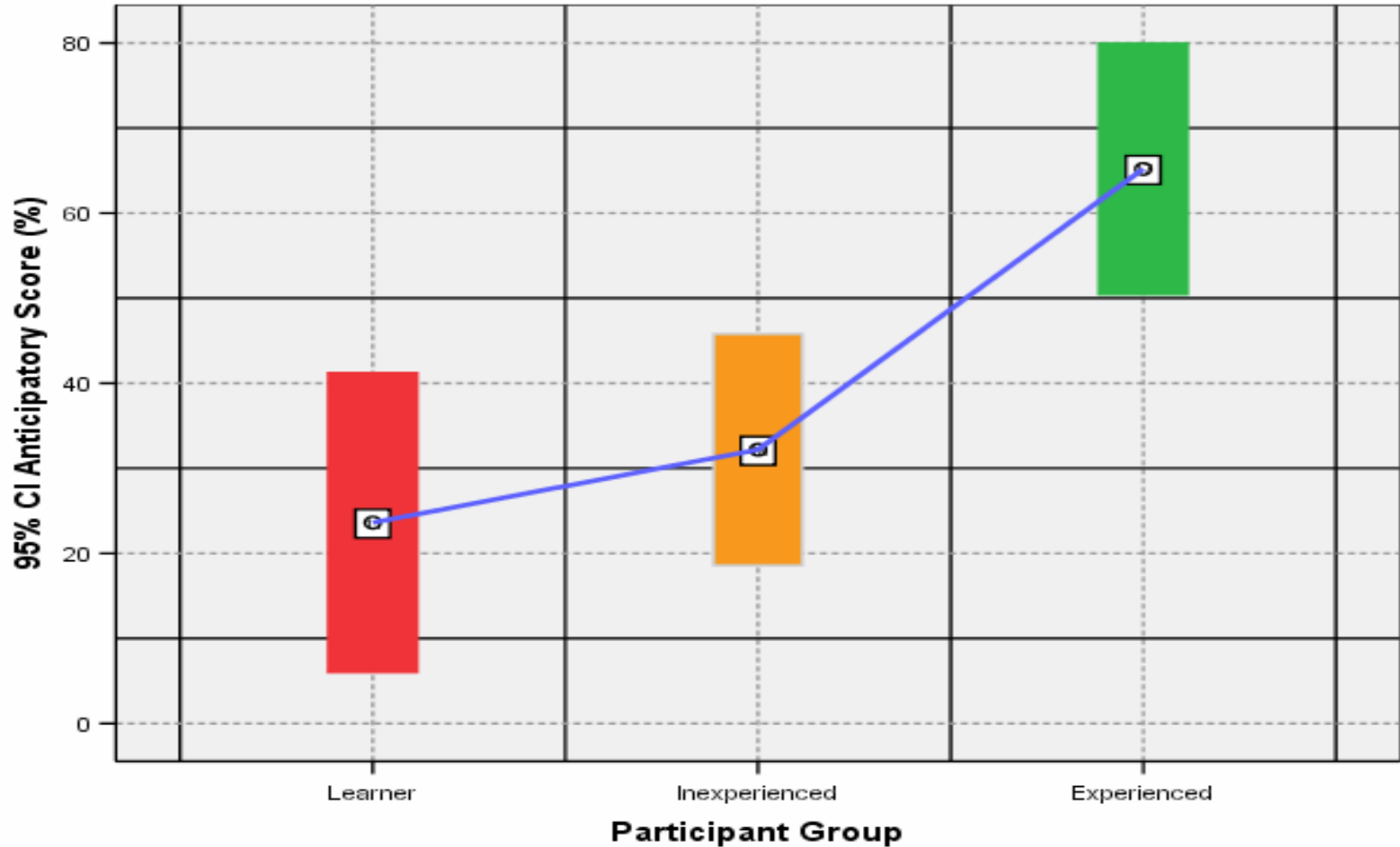
**Clip 13: 20 year old Female,
Experienced**



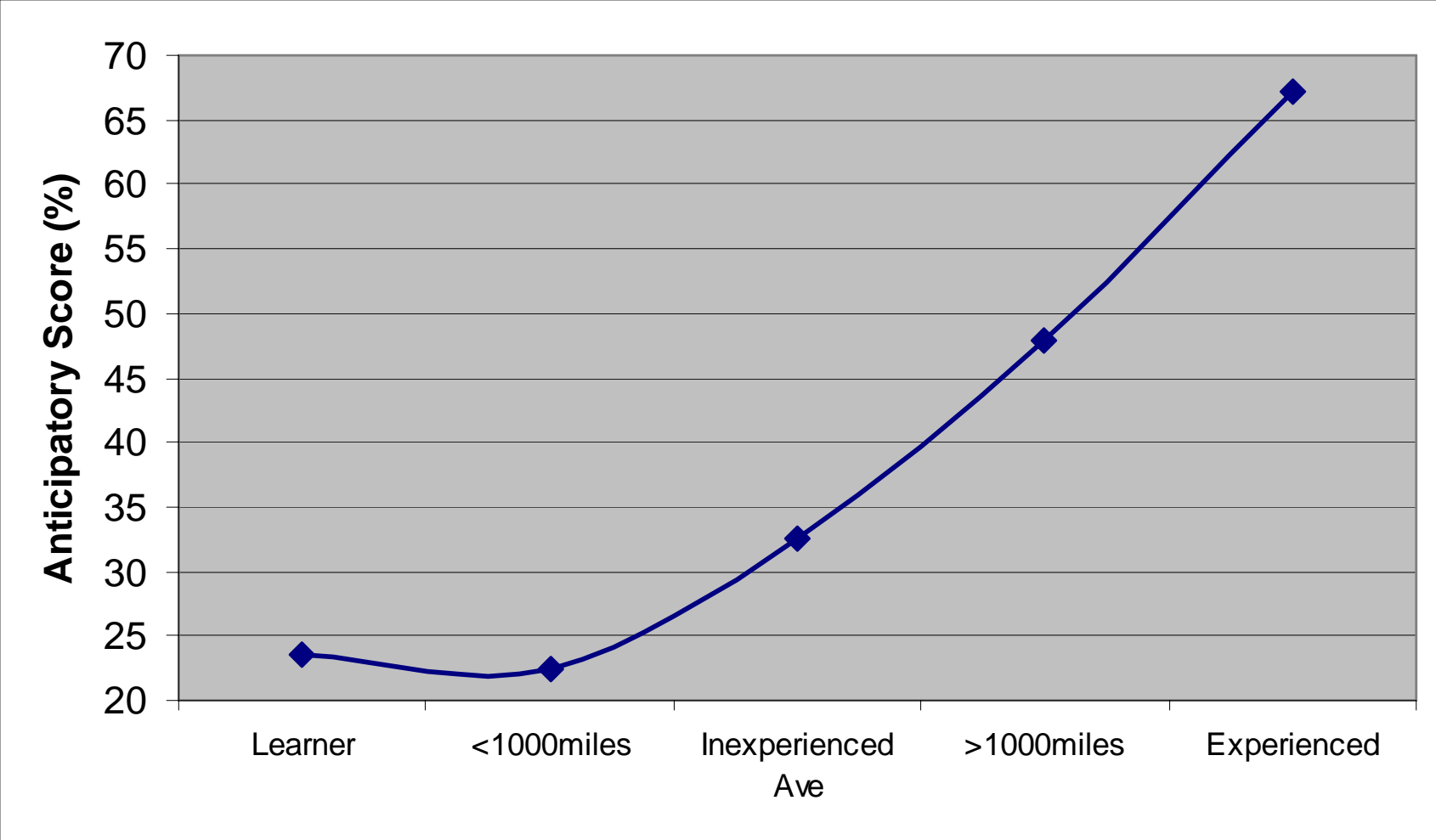
**Clip 13: 20 year old Female,
Learner**



Percent of Learner, Inexperienced and more Experienced Young Drivers showing anticipatory somatic markers to unfolding hazard perception scenes



Anticipatory Score (%) by Experience Group



What can be done?

Driver Training and Licensing

- If these results were to be replicated, it would seriously put into question the current UK driver licensing structure and hazard perception test.
- Could a novice driver be trained to gain anticipatory responses using a driving simulator, substituting for that first 1,000 miles?
- Could this be scientific support for Graduated Licensing?

Additional Driver Training & Education?

- ❑ Attempts to address the young/novice driver problem have traditionally involved additional Driver Training & Education.
- ❑ There appears to be little evidence that worldwide any education based programmes have contributed to a reduction in risk, injury or fatality rates amongst those targeted

Christie (2002)

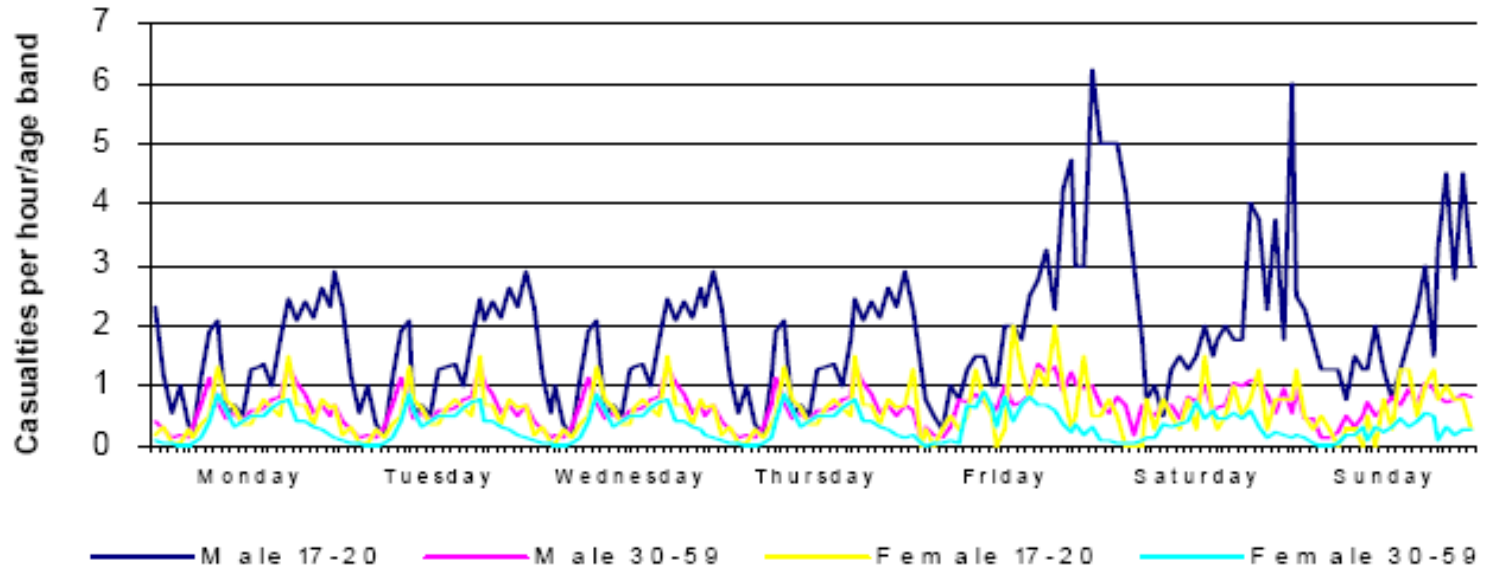
- ❑ It is unlikely that driver training can substitute for experience or maturity

Christie (2001)

Graduated Driver Licensing

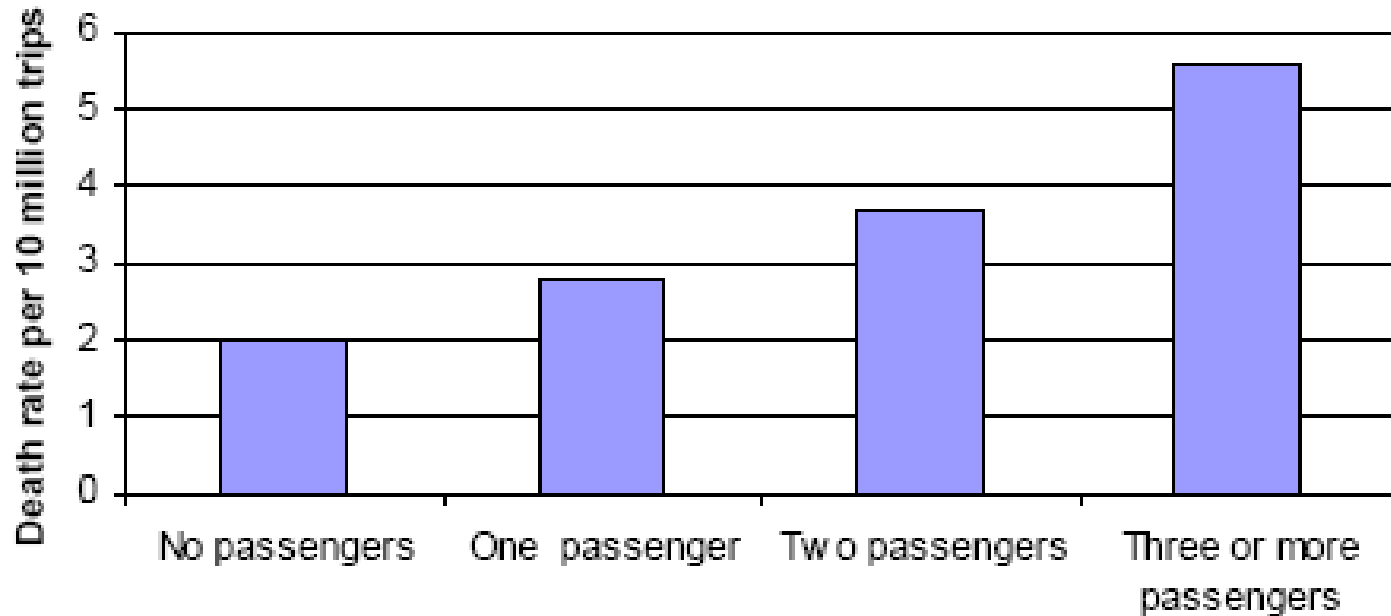
- ❑ **GDL typically involves a series of restricted driving stages for up to three years with the aim of keeping crash risk to a minimum, whilst allowing a driver to gain valuable on-the-road experience.**
- ❑ **Types of restrictions that may apply involve:**
 - Minimum learner periods**
 - Zero blood alcohol allowance**
 - License suspension on first conviction**
 - Restricted night-time driving**
 - Restricted number of passengers****(Senserrick & Haworth, 2004)**

Time of Day and Novice Driver Crash Risk



Source: Department for Transport, 2003

Effect of Passengers on Novice Driver Crash Risk



Source: Chen et al (2000), US

North American Evaluation

- States with 3 GDL features had 11% lower **fatal** crash rates and 19% lower injury crashes in 16-year old drivers
- States with 5 GDL features had 38% lower **fatal** crash rates and 40% lower injury crash rates in 16-year olds

GDL Effectiveness

Where	What	Who	Reduction	Reported in
Ontario, Canada	Collision Rates	Young Drivers	over 30%	Mayhew & Simpson (1996)
Florida, Connecticut, New York, Michigan, USA	Crashes involving	15-19 year olds	22%	Senserrick & Haworth (2004)
Southern Australia	KSI rates	16-19 year olds	statistically significant reductions	O'Connor & Giles (2000)
New Zealand	KSI rates	15-24 year olds	rates halved	Begg & Stephenson (2003)

Conclusion

- ❑ **Change is needed – urgently**
- ❑ **Training & education alone will not fix the problem**
- ❑ **The initial gaining of experience is crucial to reducing novice crash risk (experience 59%: age 31%)**
- ❑ **Neale Kinnear's research suggests learning to anticipate hazards through feelings is a key skill learnt during this stage**
- ❑ **Extending the period of initial driver experience under the safest possible conditions (driving simulator?) is important (and also tends to raise age at full licensure)**