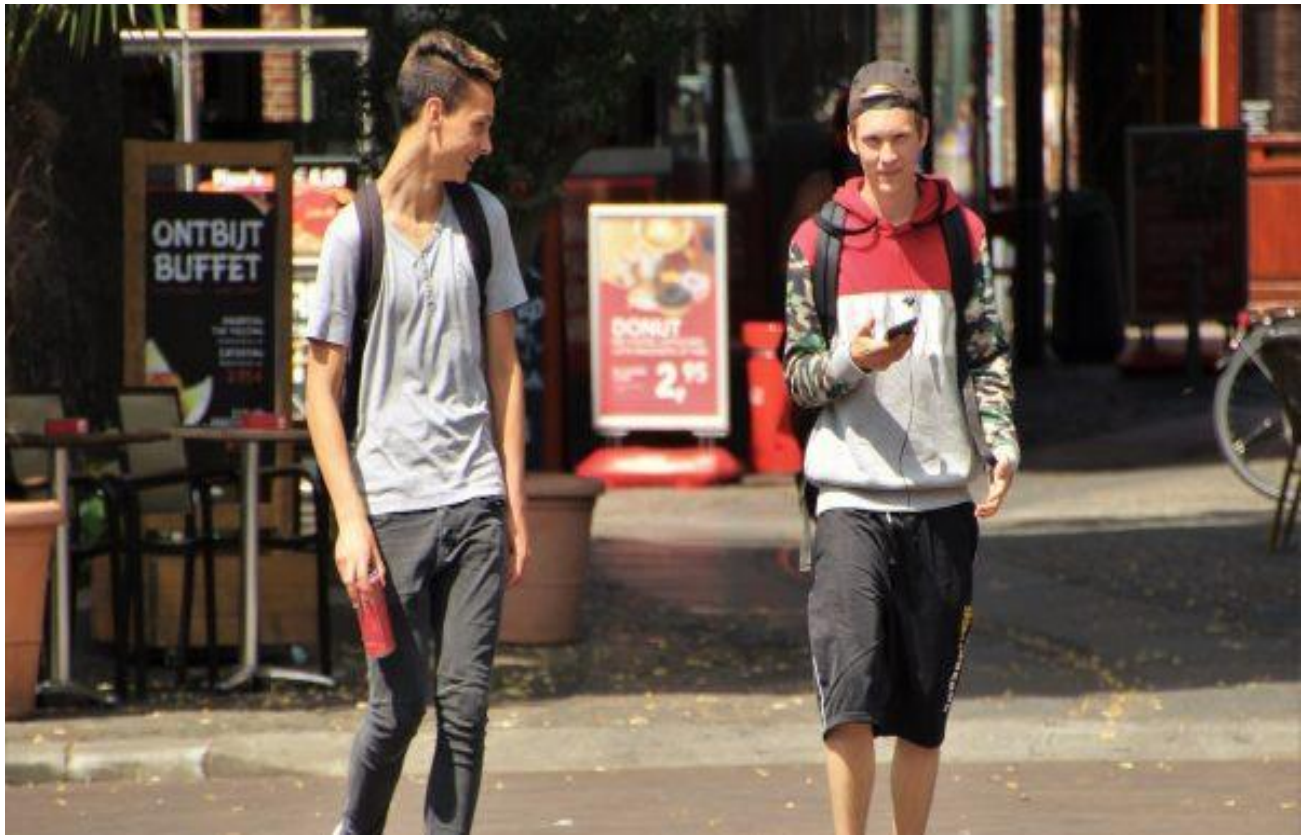
Distracted Walking



Pedestrian Staying Safe Symposium 2019

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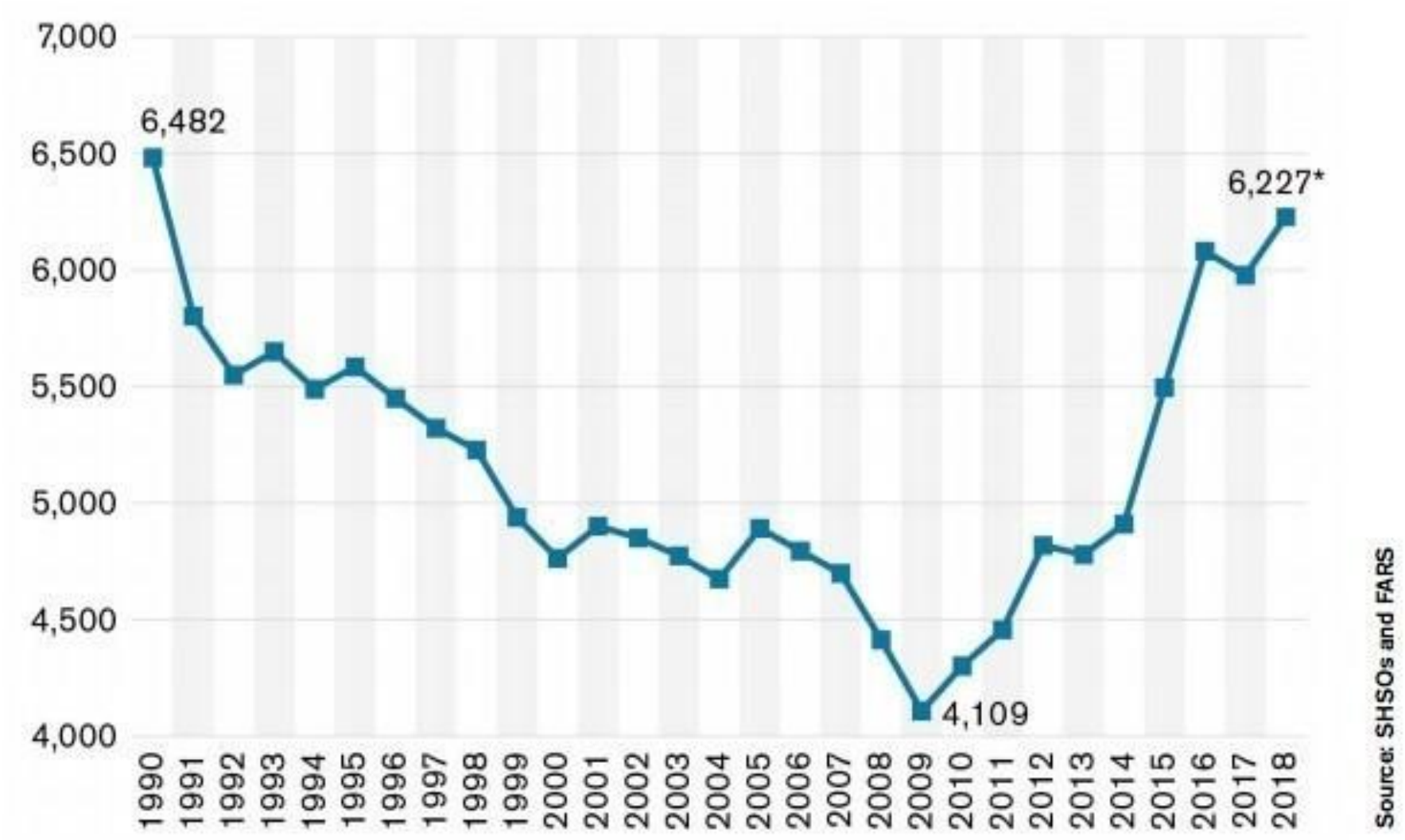
Figure 3 U.S. Pedestrian Fatalities: 1990 - 2018



* 2018 estimate based on preliminary data and historical trends

Pedestrian Injury Risks

- Pedestrians are unprotected and vulnerable to high energy impact
- Children, elderly and intoxicated pedestrians at highest risk
- Can be distracted by devices, stress, daydreaming, inattention..

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Pedestrians at risk

Midland Pedestrian Study, NZ. Amey and Christey, 2019

- 461 admissions: all ages and severities admitted; urban and rural
- Place: street/road=64% ; home=11.9%; footpath=8.5%; Outdoors 5.2%
- Maori/non-Maori RR = 1.56
- 80% caused by collision with a vehicle
- 2.4% caused by collision with bicycle
- Shared space pressure and driver error appear to be prominent

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Distracted walkers:

- Walk more slowly
- Change direction more often
- Look around less frequently
- Have longer reaction times
- Are more likely to cross even when the signal says not to cross
- Spend less time looking at traffic before and while crossing
- Take longer to cross and miss more opportunities to cross
- Are more likely to step in front of traffic at unsafe times.

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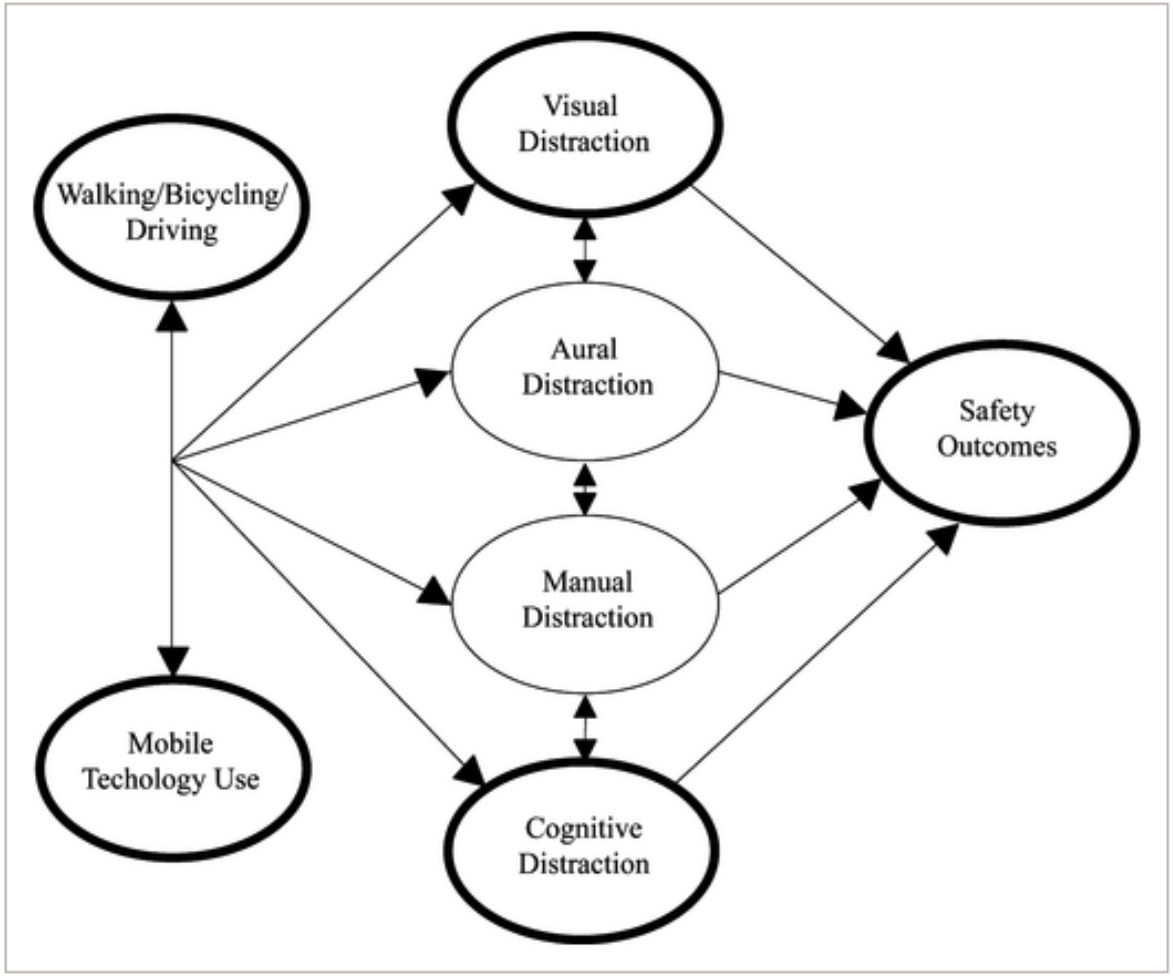
Distracting mobile technology

1) Draws resources from 4 domains
   - Visual (eyes off the road)
   - Cognitive (mind off the road)
   - Manual (hands off the wheel)
   - Aural (Listening off the road)

2) Multitasking increases exposure opportunity

3) Visual and cognitive are the key domains affected in pedestrians

[Stavrinos, Pope, et al, 2017]




允许使用手机
但风险自负
CELLPHONES
WALK IN THIS LANE
AT YOUR OWN RISK

Bellevue Hospital Study (Dultz et al, 2013)

- 1075 pedestrians via ED
  - 7.7% using electronic device at time of crash (10.4% if age 7-17)
  - 4.1% music/movie devices
  - 3.5% mobile phones
  - 0.1% handheld games

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University of Washington Distracted Pedestrian Study, 2014

- 1102 pedestrians observed crossing 20 high risk intersections
  - 30% performing a 'distracting activity'
  - 11.2% wearing headphones
  - 6.2% talking on mobile phone
  - 7.3% texting or looking at phone
- People looking at phones..
  - took 18% longer to cross
  - were 4 times more likely to disobey signals or not look both ways

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Hobart Pedestrian Crossing Study

- 16,032 pedestrians
- 12.4% using mobile phones
  - 5.5% headphones on
  - 4.6% reading or typing
  - 2.3% talking

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Pedestrian self-reported exposure to distraction by smart phones while walking and crossing the road

Williamson A, Lennon A. CARRS, QUT 2015

- Smart phone use for potentially distracting activities while walking and while crossing the road was high, especially among 18-30 year olds. Of this group:
  - 32% texted at high frequency levels and
  - 27% used internet at high frequency levels.
  - Risky levels of distracted crossing appear to be a growing safety issue

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Sydney Distracted Walking Study (2019)

- 23,390 pedestrians observed over 36 hours in metropolitan Sydney, April/May 2019
- 35% using a mobile device or wearing headphones
- Correct crossing: 33% if using mobile device; 57% if not.
- Illegally crossings: 3.4% were using mobile device; 7.5% were not.

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Tread carefully

On average, more than

1,900

pedestrians are hit on NSW roads each year.[1]

In 2018,

67

pedestrians lost their lives.[2]

Everybody is a pedestrian at some point in their day.

Figure 1. Pedestrian fatalities and matched serious injuries from 2008 to 2018 (as at 1 January 2019)
Source: Centre for Road Safety

Pedestrian trauma accounts for around

17%

of all deaths in NSW and 9% of serious injuries.

There was a

24%

increase in pedestrian fatalities since 2017.

Almost half

48%

of the pedestrians killed were aged 60 or more, although only 21 percent of the population is represented by people of this age.[3]

Simulated Environments

- Pedestrians using mobile devices to access the internet or to text are more likely to be hit or nearly hit than those who are not distracted
  - (Stavrinos, Byington, & Schwebel, 2011; Schwebel, et al., 2012; Byington & Schwebel, 2013).
- Those distracted by a mobile device are more likely to walk when there is an oncoming car and stop when there is a stopped car, compared to those who are not distracted (Nasar, Hecht, & Wener, 2008)

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news.com.au: 4 July 2019

- There have been renewed calls for the government to introduce a $200 on-the-spot fine for people who cross the road while looking at their phone.
- The Pedestrian Council of Australia is pushing for the fine to be introduced, claiming using your phone while walking can be just as dangerous as a driver using their phone behind the wheel.
- The aim of the $200 fine is to deter pedestrians from doing things like listening to music or texting when crossing the road as it can have very serious consequences.
- Chairman of the Pedestrian Council of Australia, Harold Scruby, recently told *9 News* that ideally the penalty would be introduced nationally and would be titled “cross road while distracted”

PCA 2012


LAMBS TO THE SLAUGHTER
WAIT FOR THE GREEN
PEDESTRIAN COUNCIL OF AUSTRALIA

Distracted Walking: Observational Study

During April/May 2019, we conducted an observational study on pedestrian mobile phone use in metropolitan Sydney.[4]

26,390 pedestrians were observed over a 36 hour period.

Pedestrians were observed at four intersections

1. York Street/Margaret Streets, Sydney
2. Pitt Street/Park Street, Sydney
3. Pitt Street/Goulburn Streets, Sydney
4. Church Street/Argyle Street, Parramatta

Time of day observed

AM: 7:00am – 1:00pm
PM: 1:00pm - 7:00pm

Distracted pedestrians: results

36% 9,494 of the 26,390 pedestrians observed were using a mobile phone or wearing headphones

Correct crossing

33% 8,598 pedestrians correctly crossed the road and were using a mobile phone or were wearing headphones

57% 14,920 pedestrians correctly crossed the road and did not use a mobile phone or wear headphones

Illegally crossing

3.4% 896 pedestrians were observed illegally crossing the road while using a mobile phone or wearing headphones

7.5% 1,976 pedestrians illegally crossed the road but were not using a mobile phone or wearing headphones

Distracted behaviour together with crossing illegally is more likely to happen later in the day.

15% crossed illegally later in the day compared to 8% in the morning.

Distracted walking phenomenon

Pedestrians are vulnerable due to the lack of protection and the inability to withstand forces when hit. Although children, the elderly and intoxicated pedestrians are the most vulnerable user groups, distracted walkers are now also a cause for concern.

Distracted walking is a form of inattentional blindness – when you focus hard on one thing such as texting you might not notice unexpected things entering your visual field such as an oncoming car. Distractions can impair pedestrians' awareness of their surroundings, resulting in slower crossing times and unsafe pedestrian behaviours.[4]

Research shows that 89 percent of surveyed Australians own a smartphone.[5] With such a high penetration rate of smartphones, it is no surprise to see inattentional blindness occurring on footpaths.

Research examining distracted pedestrians is still growing. However, several observational studies have been conducted to investigate the incidence of distracted walking:

- In Seattle, an observational study found that a total of 29.8% of 1,102 pedestrians were using a mobile device during street crossing and 7.3% were texting.[6]
- A recent Hobart study found that 12.4% of 16,032 pedestrians were using their phone while crossing, 4.6% were reading or typing on their phone, 2.3% were talking and 5.5% were listening to headphones.[7]
- Research also conducted in Sydney found that 33% of 546 pedestrians crossing the road were on the phone, 27% were talking and 6% were texting.[8]

Young people are also more likely to be at risk. Research in Queensland showed that 32% of 18-30 year olds reported texting and 27% used the internet at high frequency levels while crossing the road.[9]

Our lives are becoming increasingly connected through technology, meaning the incidence of distracted walking is likely to increase. More data is needed to quantify the role of distracted walking in pedestrian crashes. Educating people of the dangers of distracted walking through education campaigns is also needed.

Texting and Walking Service

What is the world coming to?

In 2013, a prank in New York City provided a solution to distracted walkers.[10] A team of people posed as Department of Transportation pilot workers wore safety vests labelled with 'I can help you walk and text' and 'Seeing Eye Person'. People texting and walking were connected to the 'Seeing Eye People' via leashes. The 'Seeing Eye Person' service was then offered to real people to help them text and walk safely and to gauge community reactions.

Distracted Walking Law

Due to the proliferation of smartphone use across the world, many jurisdictions are grappling with the role distraction plays in pedestrian safety. Some have even gone further by introducing a distracted walking law.

Honolulu, Hawaii: In October 2017, became the first city to fine pedestrians for using an electronic device when crossing the road.[11]

Montclair, California: Introduced a ban in January 2018 on using a mobile phone while crossing the road.[12]

Until more data is obtained to quantify the role of distracted walking in pedestrian crashes, the NRMA does not believe such a law is warranted, but the above provides an interesting perspective on how other jurisdictions are tackling the issue.

NHTSA (2017)

- 3.2 percent of drivers on the road on any given day are talking on cellphones.
- About 10 percent of fatal pedestrian crashes involve a distracted driver

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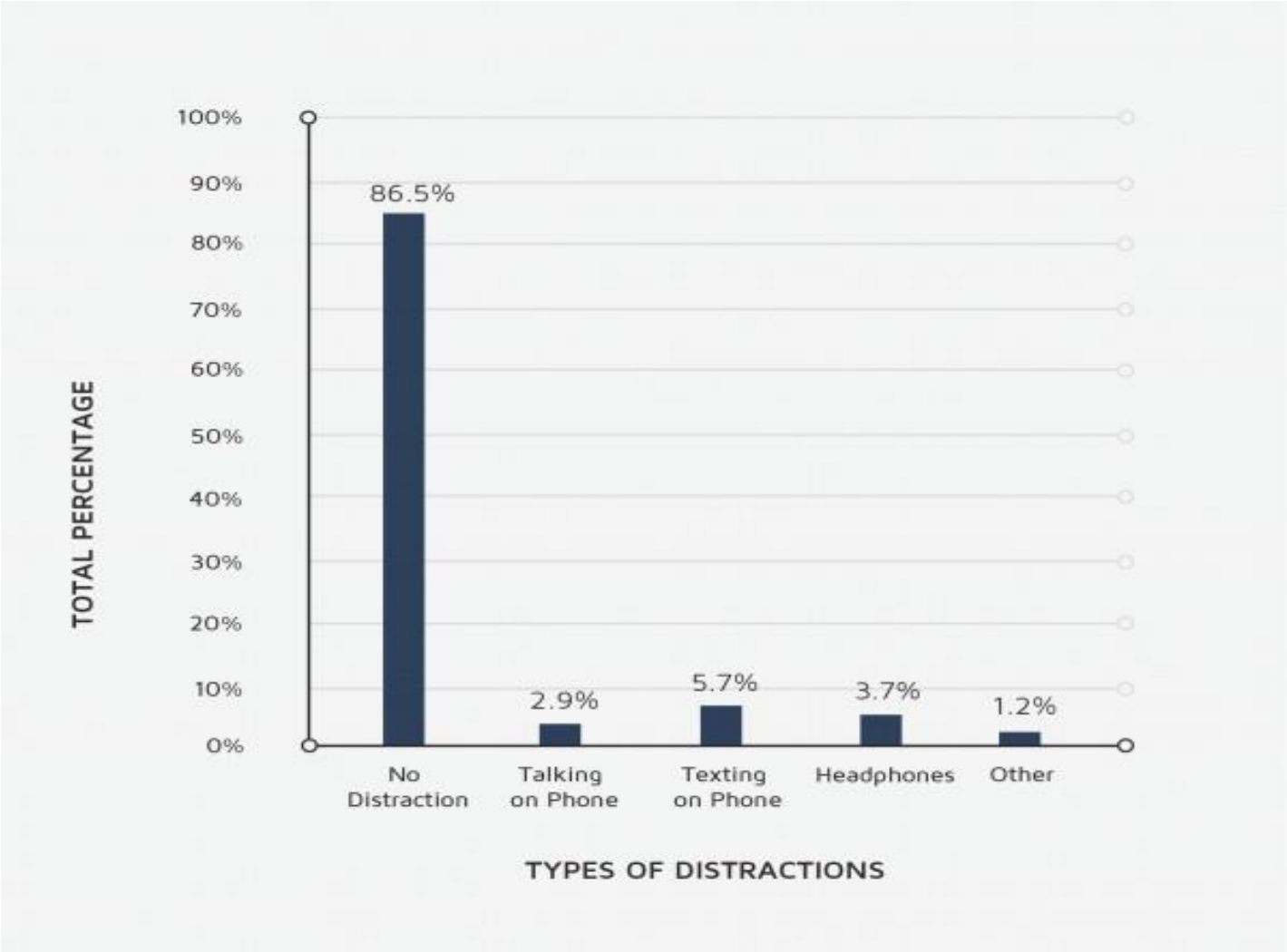
NHTSA (2017)


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
TOTAL PERCENTAGE
86.5%
2.9%
5.7%
3.7%
1.2%
No Distraction
Talking on Phone
Texting on Phone
Headphones
Other
TYPES OF DISTRACTIONS

NYDOT 2017: 3 Intersections Study

Pedestrian Signal Phase	Count	Percent	Total Observations
Don't Walk	25	13%	187
Flashing Don't Walk	16	10%	155
Walk	60	14%	441
All Phases	101	13%	783

NHTSA: US Pedestrian Fatalities: 2010- 2015

Year	Pedestrian Fatalities Involving Pedestrian Use of Portable Electronic Devices	All Pedestrian Fatalities	Percent of Device-Involved Pedestrian Fatalities
2015	12	5,376	0.2%
2014	1	4,910	0.0%
2013	5	4,779	0.1%
2012	5	4,818	0.1%
2011	9	4,457	0.2%
2010	6	4,302	0.1%

NHTSA October 2019: Pedestrian Fatalities

Occupants and Nonoccupants Killed in Traffic Crashes, 2017-2018

Description	2017	2018	Change	% Change
Total*	37,473	36,560	-913	-2.4%
Occupants				
Passenger Vehicles	23,663	22,697	-966	-4.1%
Passenger Cars	13,477	12,775	-702	-5.2%
Light Trucks	10,186	9,922	-264	-2.6%
Large Trucks	878	885	+7	+0.8%
Motorcycles	5,229	4,985	-244	-4.7%
Nonoccupants				
Pedestrians	6,075	6,283	+208	+3.4%
Pedalcyclists	806	857	+51	+6.3%
Other/Unknown	236	214	-22	—

Source: FARS 2017 Final File, 2018 ARF

*Total includes occupants of buses and occupants of other/unknown vehicles not shown in table.

Accident Analysis & Prevention
Volume 122, January 2019, Pages 295-300

Pedestrian injuries due to collisions with cyclists Melbourne, Australia

Steve O'Hern, Jennie Oxley

Show more

https://doi.org/10.1016/j.aap.2018.10.018

- over the past ten years there does not appear to have been a substantial increase in the number of pedestrian injuries resulting from collisions with cyclists
- the prevalence of injuries was small, especially when compared to injuries sustained by pedestrians from collisions with motor vehicles

NYDOT report: Aug 30 2019

- 2014 Vision Zero Action Plan: for 53% of pedestrian fatalities, dangerous driving choices such as speeding, inattention, and failure to yield are the main causes of the crash.
- Use of a mobile device is just one of many forms of distraction that may occur while crossing the street (Zeller Jr., 2007). Pedestrians are distracted when walking across the street with children, daydreaming, or feeling stressed.
- Distracted walking is a very minor contributor to pedestrian death and injury. Ultimately, interventions that lead to more responsible driving behaviour are the key to driving down urban fatalities

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Where are pedestrians getting hit?

[California Highway Patrol Report, 2017]

- In Los Angeles, from 2009 to 2013, nearly two-thirds of pedestrian deaths and severe injuries occurred on just 6% of city streets, primarily arterials
- Pedestrians use the same arterial roads because “that’s where the stuff is,”. “That’s where the retail is. That’s where the bus routes are.”
- Many of these roads, which are designed for vehicle speeds of over 40 mph, are hostile to pedestrians. They have sidewalks that abut the travel lanes with minimal separation and lack median islands or sufficient lighting.
- Thanks to congestion-sensing navigation apps, drivers increasingly use these arterial roads like highways, bisecting neighborhoods to shorten their commutes

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Vehicle vs pedestrian at 100kph

- Speed is 27.78 metres per second
- with an average reaction time of 1.5 seconds, we travel almost 42 metres before reacting.
- Once we react we still have to bring the vehicle to a stop. In a modern car, this is shorter than the reaction time for speeds of around 70km/h or less.

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Vehicle Safety Systems

- **Forward collision warning (FCW)**
  - an audible, visual and/or tactile warning that you must brake.

- **Automatic Emergency Braking (AEB)**
  - incorporates the warning features of forward collision warning plus the ability to brake to either avoid or reduce the risk of an accident

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Summary

- Pedestrian injury and death rates are rising
- Up to 35% of pedestrians crossing are distracted
- Distracted pedestrians have higher injury rates than non-distracted
- Driver error is an important cause of pedestrian injury
- Education may improve pedestrian safety
- Vehicle technology works and needs to be mandated

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