



National Technical University of Athens

NTUA
Road Safety Observatory



Guide for Safe Driving

Road crashes are a major public health problem as they are the leading cause of death for people under 35 years of age.

The National Technical University of Athens (NTUA), with a strong sense of responsibility, contributes to the awareness of the society through this innovative Guide for Safe Driving, developed with the scientific support of the NTUA Transportation Engineers.



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Driver behaviour, particularly the inappropriate speeds drivers very often reach, is the main cause of road crashes.

The NTUA Guide for Safe Driving includes targeted practical advice on the necessary changes to the most dangerous behaviours in order to protect vulnerable road users: pedestrians, cyclists & motorcyclists.



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Guide for Safe Driving

A social contribution of the National Technical University of Athens with useful recommendations for safe driving:

1. There are many road crashes in Greece
2. At lower speeds, I avoid crashes
3. I wear the seat belt to avoid injuries
4. I wear the helmet to protect myself in case I fall
5. I hold the steering wheel and not the mobile phone
6. When I have been drinking, someone else drives
7. If I am tired, I don't drive
8. I drive carefully in adverse weather conditions



1. There are too many road crashes in Greece

- Greece has a consistently low road safety performance:
 - **25th place in Europe** of 27 countries (2024)
 - 64 deaths per million inhabitants (EU average: 42, EU best: 22)
- Particularly high death rates in road crashes:
 - **36% involving motorcycles** (EU average: 18%)
 - 54% in urban areas (EU average: 39%)
 - 41% in single vehicle road crashes (EU average: 31%)
 - 64% are male (EU average: 55%)
- The cost of road traffic crashes to society and the economy is estimated to be more than **€10 billion** per year



Main causes of road crashes in Greece

- Low rates of **helmet use**
 - 80% by drivers (EU average: 97%)
 - 65% by passengers (EU average: 95%)
- Low rates of **seat belt use**
 - 65% by drivers (EU average: 92%)
 - 56% by passengers (EU average: 75%)
- Inappropriately **high speeds**
 - 44% speeding on urban areas
 - 18% long-distance speeding
 - 23% speeding on the motorway



2. At lower speeds, I avoid crashes

- Speeding is the **number one cause** of road crashes worldwide
- Speeding not only **increases the likelihood of a crash**, but also the likelihood of serious injury or death from a crash
- Driving at **lower speeds** would help prevent the majority of crashes and reduce the number of deaths and injuries, especially in cities where pedestrians, cyclists and motorcyclists are highly exposed and vulnerable in case of a collision (70% of deaths in urban areas are vulnerable road users)
- Speeding encompasses: **excessive speed** (driving above the speed limit) and **inappropriate speed** (driving too fast for the conditions, but within the limits)

Why speeding is dangerous?

- When speed increases, the time to react to traffic situations is shorter, which increases crash risk
- A 5% increase in average speed leads to approximately a 10% increase in all injury crashes and a 20% increase in fatal crashes
- Pedestrian fatalities increase from 10% in 30km/h collisions to 90% in 50km/h collisions

Higher speed = higher probability of a crash

- Longer distance travelled during driver perception (reaction time) and emergency braking
- Driver more likely to lose control
- Less time to take preventive action
- Driver errors magnified
- Other road users more likely to misjudge speed

Higher speed = more serious injuries

- Injury results from transfer of energy from moving vehicle to bodily structures
- Higher speed = greater kinetic energy = greater injury
- Unprotected road users are most vulnerable

Speeding

Advice

1. **Slow down!** Respect speed limits at all times!
2. **In urban areas, slow down even more!** There are pedestrians, cyclists and motorcyclists which are vulnerable road users
3. Remember that speed limits are a limit, **not a target speed!**
4. If you feel pressured by other road users to drive faster than the stated speed limit, move over, **go to the right and allow them to pass!**
5. **Keep right lanes when you are slower** than other vehicles!
6. **Coordinate with traffic** by adjusting your speed; Don't drive either too faster or too slower than the other vehicles
7. Be alert! **Keep the appropriate speed** for the current road and traffic conditions (work-zones, adverse weather conditions etc.)
8. **Give speeding drivers plenty of space.** Speeding drivers may lose control of their vehicle more easily
9. Adjust your attitude! **Avoid aggressive driving!**
10. **Plan better and allow more time** for your trips, in order not to race the clock!



3. I wear the seat belt to avoid injuries

- Seat belts are an **effective way** of reducing the number of road deaths and severe road injuries in crashes
- Wearing a seat-belt reduces the risk of a fatality among front seat **passengers by 40-50%** and among rear-seat passengers by 25-75%
- Failure to wear a seat belt is the **2nd leading cause** of road death, after speeding
- European Commission suggests that action targeting the use of seat belts could save up to **7.300 lives a year** in the EU


Why not wearing a seat-belt is dangerous?

- Not wearing a seat belt can result in being totally ejected from the vehicle in a crash, which is almost always deadly
- The air bag can seriously injure or even kill you if you're not wearing a seat belt
- Air bags are designed to work with seat belts, not replace

A photograph of a person's arm and hand holding a seatbelt strap in a car. The person is wearing a blue and white plaid shirt. The background shows the car's interior, including the steering wheel and dashboard, with bright sunlight coming through the window. A large blue circular overlay is on the left side of the image, containing the title text. Another blue circular overlay is at the bottom right, containing a bulleted list.

Why not wearing a seat-belt is dangerous?

- Passengers who are not wearing seat-belts at the time of a collision account for the majority of occupant road traffic fatalities
- Seat belts are the best defense against impaired, aggressive and distracted drivers
- Being buckled up during a crash helps keep you safe and secure inside your vehicle



Guidelines to buckle up safely

- The lap belt and shoulder belt are secured across the pelvis and rib cage, which are better able to withstand crash forces than other parts of your body
- Place the shoulder belt across the middle of your chest and away from your neck
- The lap belt rests across your hips, not your stomach
- NEVER put the shoulder belt behind your back or under an arm

A photograph of a man and a young girl sitting in the front and back seats of a car, both wearing seatbelts. The man is in the driver's seat, looking towards the camera with a slight smile. The girl is in the back seat, also looking towards the camera. The car's interior is visible, including the dashboard and windows. A large blue circular graphic is overlaid on the right side of the image, containing the title text. The background outside the car shows trees and a bright, sunny sky.

Seat-belt Advice

1. **Buckle up! No excuses...**
2. **Listen!** Most cars signal the driver and passengers to buckle up when the key is put into the ignition
3. **You should always wear a seat belt either you are not going far or not traveling fast,** most fatal crashes happen within 25 miles of home at speeds of less than 60 km/h




4. I wear the helmet to protect myself in case I fall

- A safety helmet significantly reduces rider's injuries in the **event of a motorcycle or bicycle collision**, offering additional protection against impact and friction to the head
- A helmet can reduce the risk of fatal injuries **by approximately 44%**
- Wearing a helmet **lowers the risk of serious injuries** to the head, brain and neck
- Helmets **absorb the energy of an impact**, reducing the force transmitted to the brain
- Helmet use is **effective** at both low and high speeds

Why not wearing a helmet is dangerous?

- Not wearing a helmet significantly increases the risk of head and brain injury for riders
- In some cases, not wearing a helmet can lead to permanent disability or death
- Facial injuries are also more common among open-face helmets users

Guidelines for proper helmet use



- Make sure the helmet fits snugly on your head and doesn't move around
- The strap should be fastened tightly under the chin, without causing discomfort
- Regularly check the condition of your helmet, if it is damaged or worn, replace it



Helmet Advice


1. **Wear your helmet! No excuses...**
2. **You should always wear a helmet either you are not going far or not traveling fast,** most fatal crashes happen within 25 miles of home at speeds of less than 60 km/h
3. Choose the **right helmet** for your vehicle (either motorcycle or bicycle)
4. Make sure to wear your helmet **properly**
5. **Regularly check** the condition of your helmet
6. Set a **good example!** Young people and children follow your lead



5. I hold the steering wheel and not the mobile phone

- Driver distraction is a process or condition that **draws the driver's attention** away from the task of driving
- Distracted drivers aren't just a **threat to themselves**: they are a danger to everyone else on the road. Mobile phone is symbolic of 'distraction in traffic'
- **Texting** (and navigating on the phone) is the most alarming distraction
- Since our mental capacity is limited, we can only pay attention to a **part of our environment**
- Drivers and pedestrians should first and foremost be **focused on traffic**
- **Distracted driving encompasses**: reading and sending text messages and typing or updating a social network site

Why distracted driving is dangerous?



- Worse braking reaction time
- Worse reaction to traffic signals
- Difficulty in keeping the correct lane
- Difficulty in keeping the correct headway distance
- Drivers zigzag more

More texting = higher probability of a crash

- Using a mobile phone while driving creates enormous potential for deaths and injuries on roads
- Drivers using mobile phones are approximately 4 times more likely to be involved in a crash than drivers not using a mobile phone
- Sending or reading a text takes your eyes off the road for 5 seconds. At 80kph, that's like driving the length of an entire football field with your eyes closed

Mobile phone Advice

1. Turn your cell on “**silent**” (and keep vibrate off)!
2. Keep the phone **out of sight and reach!** Having the volume and vibrate feature off may not be enough
3. Completely turn your cell phone **off!**
4. **Pull over and stop** if it is important to answer a call!
5. **Parents lead by example** – It’s not an age or experience issue, it is a safety and distracted driving issue!



6. When I have been drinking, someone else drives

- Driving under the influence of alcohol and any psychoactive substance or drug **increases the risk of a crash** that results in death or serious injuries
- About **25% of all road fatalities** in Europe are alcohol related whereas about only 1% of all kilometres driven in Europe are driven by drivers with 0.5 g/l alcohol in their blood or more
- Approximately 1 in every 10 seriously injured drivers is estimated to have **used drugs**; about half of these casualties have also used alcohol
- As the Blood Alcohol Concentration (BAC) in the driver increases, the crash rate also rises. Compared to a sober driver, the crash rate of a driver with a BAC of 0.5 g/l (which is the legal limit in Greece) is 1.8 times higher than of sober drivers
- When a driver has a BAC of 1.5 g/l his crash rate is 22 times that of a sober driver while, the crash rate for fatal crashes is about **200 times that of sober drivers**

Why the driving under the influence of alcohol or drugs is dangerous?

- Divided attention
- Far less muscle control than normal
- Clear deterioration of reaction time and control
- Reduced response to emergency driving situations
- Poor coordination
- Reduced ability to maintain lane position
- Accelerate or brake appropriately
- Reduced information processing capability (e.g. signal detection, visual search)



Drink- and-drive Advice

1. **Designate a sober driver, call a cab, or use a ride-hailing service!**
2. **Wait an hour or two!** Time is the only way to sober up. Your blood alcohol level will go down roughly the equivalent of one drink an hour
3. **Don't let friends** get behind the wheel if they're under the influence of drugs or alcohol
4. **Always wear your seat belt!** It's your best defense against impaired drivers
5. If you see an impaired driver on the road, **contact local law enforcement.** Your actions could help save someone's life!



7. If I am tired, I don't drive

- Driving fatigue is a major factor in **10-20% of road crashes**, not only due to long hours of driving, but also due to other factors such as lack of sleep, stress or time of day
- Although sleepiness and fatigue may have different causes, their effects on performance and motivation are similar, a decrease in **mental and physical functioning**
- When fatigued, persons may alternate normal functioning with **short lapses in performance** (i.e. not noticing or responding to signals)
- The long-term result of fatigue is an **increasing variability of performance**

Why fatigue is dangerous?

The driver is more likely:

- lose control of the vehicle
- have less time to react proactively
- have less accurately reaction to deceleration by the driver in front
- have difficulty in keeping the vehicle in the lane



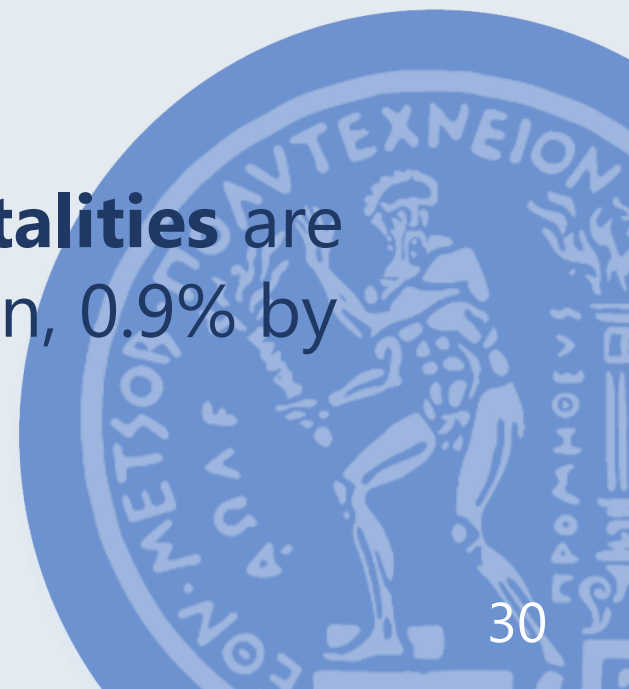
Fatigue Advice

1. Avoid driving at times when you would **normally be asleep!**
2. The moment fatigue sets in, **do not start driving or continue driving!**
3. **Take a nap** or ask a passenger to take over the driving task!
4. Allow **fresh air** into the car (by opening the window or switching on the air conditioning)
5. **Talk** to a passenger!
6. Stop driving for some **food or exercise!**
7. Turn up the **volume of the music!**



8. I drive carefully in adverse weather conditions

- Weather is an **environmental risk factor** that affects collision and casualty rates
- **Weather conditions** partly determine the road conditions and the driver's behaviour
- Adverse weather **encompasses**: fog or mist, rain, snow, sleet, hail, strong wind, and high temperatures
- In Europe, **1% of total road crash fatalities** are due to fog, mist or smoke, 11% by rain, 0.9% by snow and 0.4% by strong wind



Why driving in adverse weather is dangerous?

Effects of adverse weather:

- Vehicle contact with the road. The more rain, snow, or hail falls, the less the friction of the road surface (lower ability to brake and control the vehicle)
- Reduction in visibility, due to fog or the reflection of the sunlight by the wet road surface
- Behavioural changes such as more cautious driving
- Gusts of wind can push relatively high vehicles
- Emotions rise with the temperature, people are more irritable to others, they get tired, lose their concentration and their reaction time increases

The background of the slide is a photograph of a silver car driving on a wet road, splashing water. A large blue circular graphic is overlaid on the right side, containing the title 'Rain Advice' in white text. The text is separated by a horizontal line. The background image shows a silver car from the rear, moving away from the viewer on a wet asphalt road. Water is being splashed up from the tires. The blue circle is semi-transparent, allowing the background image to be seen through it.

Rain Advice

1. **Keep a good distance** from the vehicle in front of you! Having to slam on your brakes can result in skidding. It takes longer to stop when driving in wet weather
2. **Turn on your headlights!** They will not only help you see, but will make sure you're visible to other drivers
3. **Drive in the middle lanes!** Water is more likely to pool on the outer edges of the road
4. **Try and avoid puddles.** Driving over puddles of water can cause your car to hydroplane out of control. It's helpful to drive in the tracks of the car in front of you
5. **Defog your windows!** Use the front and rear defrosters to maximize visibility



Fog Advice

1. **Maintain a significant distance** between you and the car in front of you!
2. **Use your turn signals early!** Give cars behind you plenty of notice that you'll be slowing down to make a turn
3. **Use the white line on the right side of the road!** This will help guide you and keep you in your lane
4. **Turn on** your fog lights both for the front and the rear side of your vehicle



Snow Advice

1. **Consider snow tires!** Tires are an essential factor in winter driving because they keep your car firmly connected to the road
2. **Know your brakes!** Your car will perform differently in the snow than it would on a dry road
3. **Keep Rolling!** Don't stop on ice or snow if you can avoid it
4. **Take corners slowly!** Give yourself plenty of time to slow down before turning
5. **Accelerate gradually!** Your tires are likely to spin in place if you try to accelerate too quickly
6. **Beware of black ice!** Black ice – a thin layer of transparent ice on a roadway – can cause your car to spin out and you can quickly lose control

Guide for Safe Driving

Safe driving without crashes:

- At lower speeds, I avoid crashes
- I wear the seat belt to avoid injuries
- I wear the helmet to protect myself in case I fall
- I hold the steering wheel and not the mobile phone
- When I have been drinking, someone else drives
- If I am tired, I don't drive
- I drive carefully in adverse weather conditions

www.nrso.ntua.gr/advice



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