

Tailgating – “Back Off Mate – You’re Too Close for Comfort”



*Harrington
Driver
Training
Services*

The word “tailgate” not only refers to what many American football fans do before the game starts, it also refers to one driver following another vehicle too closely. Tailgating another vehicle is incredibly dangerous because you have little time to slow down if the lead driver hits the brakes. That is why road safety advocates and regulators recommend keeping at least a two second gap between you and the car in front and double if the roads are wet. However, a gap of 3 seconds is preferable on dry roads and 5 seconds on wet roads. In this article we learn more about the dangers of this driving behaviour, why it happens and assessing fault for a tailgating accident. Also discussed are some practical steps you can take to avoid tailgating other vehicles, along with what you should do if you are being tailgated. There are many reasons why drivers tailgate like frustration at the speed of the vehicle in front – trying to push them to drive faster or preparing to overtake (and not doing so), slipstreaming or sheer ignorance. Finally, a conclusion is given.

Tailgating - “Back Off Mate – You’re Too Close for Comfort”

Tom Harrington LL B F Inst. MTD (December 2020)

Introduction

Tailgating is the scourge of drivers everywhere especially on fast moving roads like motorways. Indeed it appears that no motorist is safe from those drivers intent on getting up close and personal, whose impatience and ignorance invariably brings us bumper-to-bumper. But aside from infuriating those on the receiving end, what effect do tailgaters have on traffic itself? A negative one, it transpires. A recent study¹ claims journey times would be almost halved if only people adhered to the recommended distance between vehicles – the equivalent of one car length for every 10mph, in case you were wondering. Tailgating bunches, creating pockets of traffic that simply put, slow us all down. Some of the worst tailbacks are in fact phantom traffic jams – created only as a result of spontaneous reactions, such as motorists reacting to sudden changes in speed with sharp braking. Tailgating accounts for much of this. Of course this nasty habit also results in greater fuel consumption and the costs associated with such, not to mention the release of further toxins, namely CO2 emissions. Directly or indirectly, tailgate tantrums undermine us all. So what, if anything, can be done about it? Various laws have been implemented over the years but passing these is one thing, enforcing them quite another. The aforementioned car length for every 10mph was originally championed, before giving way to what’s known as the two second rule. The latter was based on typical perception and reaction times. Perhaps unsurprisingly, this morphed into the three second rule and the four second equivalent after that. We reached a fifth iteration before somebody called an eventual halt to proceedings. Guidance is forever changing but it counts for little when a self-proclaimed King of the Road suddenly swoops into your lane with little to no warning, leaving you mere millimetres apart. Are you at that point the guilty party? Of course not, but roads are hard to police and sometimes variables mean we can’t guarantee coming to a sudden stop so as to avoid a collision. That’s when the trait has potentially fatal consequences. Indeed the Global Driver Risk Management Company revealed drivers are at the highest risk of rear-ending a fellow road user when following less than two seconds behind.

¹ *MT’s Computer & Artificial Intelligence Lab*

This, it's generally accepted, leaves no time to brake. Conditions also play a part. The gap left should vary according to speed, weather, visibility and more.²

Tailgating – What is it?

Driving extremely close to the car in front is called 'tailgating', and is particularly dangerous. If you are being tailgated by someone, then gently ease off the gas and allow the space in front of you to increase. You really don't want to put yourself in a position where you have to brake from being too close to the car in front. If the tailgater is still close behind and happens to hit you in the rear, then, if you have left plenty of space in front of you, your vehicle will not impact the one in front, possibly preventing a major pile up. It also makes the insurance situation a little less complicated. So, what exactly is a safe separation distance? A safe separation distance is a safety margin or empty road between you and the vehicle in front. Think about what happens as a pedestrian, when you are walking close behind someone on the street, and they stop suddenly, for some reason or other. What happens? You bump into them or take a sideways swerve to avoid bumping into them. However, if there were more than just a couple of feet between you and this person, you would notice him stopping in good time to avoid him safely. This is how it works on the road, too. If you follow too close, you leave no time and no space should things to change rapidly. This may leave you having to do an emergency stop or undertaking a dangerous manoeuvre, in order not to hit the back of the car in front. If you're too close, it means trouble waiting to happen. So, how far away should you be from the car in front of you? It is generally a good idea on urban and suburban roads, to give plenty of space in front. For example, on dry roads, you can leave approximately 1 metre (1 yard) for every one mile per hour, of your speed. At 30 mph you will be 30 metres away from the guy in front; enough to encompass the suggested overall stopping distance published in The Highway Code and the Rules of the Road.³ Also, we are told to keep a 2 second gap on dry roads and a 4 second gap on wet roads. However, better again; keep a 3 seconds gap on dry roads and 5 seconds gap on wet roads. Some jurisdictions may require a minimal gap of a specified distance or time interval. When following heavy vehicles or in less than ideal conditions (e.g. low light or rain), a longer distance is recommended.

Reasons People Tailgate Other Vehicles

- Frustration at the speed of the vehicle in front – trying to push them to drive faster

² MAT Foundry Group Ltd., *What is the effect of tailgating in traffic?* matfoundrygroup.com

³ *A safe separation distance.* Learner Driving Test. drivingtestsuccess.com

- Preparing to overtake – moving closer so that there’s less distance to cover while overtaking (*This is normal for overtaking, provided you don’t sit there indefinitely. Ed.*)
- Ignorance of the consequences
- Drafting or slipstreaming – trying to get a fuel economy advantage
- Blocking – trying to stop other drivers from entering the stream of traffic in front on a multi-lane road.⁴

How Close is Too Close?

Have you ever been in a rush to get somewhere and wished that the car ahead of you would just hurry up? Have you ever driven a little too close in an attempt to hurry the driver along? If so, you are guilty of tailgating. Tailgating is a dangerous and usually futile practice: *"It only takes one crash in a tailgating line to produce a chain reaction"*. The laws of physics and of common sense dictate that you cannot go any faster than the slowest car ahead. Also driving too close forces stronger reactions to everything done by the car in front, making the drive much harder on your nerves and your car. An understanding of the physics of tailgating may be crucial in ensuring road safety and helping tailgaters slow down and enjoy the ride. It might even result in less 'road rage'. Tailgating can lead to multiple car crashes if even one car in a line suddenly slows down. The critical question is *"how close is too close?"* When learning to drive you are usually told to keep a safe distance of at least two seconds behind the car in front of you. As you observe the car ahead of you pass a fixed point, your own car should pass that same point at least two seconds later. This safe distance can also be expressed as one car length per 22 km/h of speed travelled. These rules of thumb are usually given since it is assumed that most people learning to drive do not understand basic physics. But without an understanding of some simple physics, we may all be at increased risk from tailgating. The physics of tailgating is related to motion and the kinematics equations, and includes principles like stopping distance and reaction time. Reaction time is when you are driving along the road at 95 km/h and the car ahead of you suddenly applies the brakes, you must react quickly. Variables like response time become very important. When you first observe that the car ahead of you is stopping, it takes time for the brain to process this information. Reaction time includes the time taken for this processing plus the time for your foot to move to the brake. Reaction time can be determined by utilizing acceleration due to gravity principles. Human perception is the time it takes to recognize a hazard and convince your brain to do something about it. Perception time is around .3 to .7 of a second, that’s if you’re paying attention.

⁴ Tailgating – what is it and why is it dangerous? 20 March 2014. driving tests.com.nz

Impairment, lack of sleep and distraction can extend perception time. (*Side note: Texting drivers typically take their eyes off the road for 3 to 5 seconds at a time. Ed.*) Human reaction time is from the moment your brain tells your foot to step on the brake until your foot follows through and starts applying pressure. This takes between a quarter and three-quarters of a second. Vehicle stopping capability depends on the type of brakes in the car and how well they work, the condition of the tyres, the weight of the vehicle, the road surface, and many other factors. Even in ideal conditions this varies between vehicles. Some modern sports cars can come to a stop from 60 MPH in under 100 feet, while a new full-size pickup truck may take over 150 feet to stop from the same speed. ⁵ Typical reaction times are between 0.3 and 0.7 seconds. *Nicklin (1997)* ⁶ tested reaction time with 64 students using computer trials of simulated brake and gas pedals, to find average reaction times of 0.3 to 0.6 seconds. The reaction times stated above are typically obtained under ideal circumstances where the person being tested is paying attention to the task at hand. In a real situation the driver could possibly be distracted (e.g. having a conversation with a friend, or singing along to the radio).

So, How Close is Close Enough?

You've stopped barely a hair's breadth from the car in front at traffic lights, hoping to get through quickly when the lights change. But you won't. Instead, a new study suggests you'll take just as long as a car stopped up to two car lengths behind the lead driver. To find out whether tailgating pays off, researchers lined up 10 cars at a traffic intersection on a test road, such that they stood different distances apart each time. A drone hovering above the intersection recorded the cars moving as the lights turned to green. Just as it takes time to heat a solid ice cube before it starts melting—a thermodynamic concept called latent heat—there's a time lag before you can safely accelerate your car in a solid jam, offsetting any advantage of closeness, researchers have found. A car 7.6 metres back, speeds up and covers the extra distance in about the same time it takes the tailgating car, with both crossing the intersection at the same time. That suggests your driver's education teacher was right all along: maintaining a safe distance at traffic lights won't slow you down, and it has the added benefit of reducing your chances of rear-end collisions. But think again if you're waiting in a line full of people. Because pedestrians are slower, the time delay becomes insignificant, making a closer-packed line move quicker. ⁷ In our fast paced world it is often difficult to slow down when there is so much to do in so little time.

⁵ *The Wise Drive. Everything Traffic Safety.* 23 April 2017. thewisedrive.com

⁶ Nicklin, R. C., (1997) *Kinematics of Tailgating.* The Physics Teacher. , 35, p. 78-79. kanthonywvhs.weebly.com

⁷ Lakshni Supriya (1 December 2017). *Tailgating won't get you through that intersection any faster.* sciencemag.org

Tailgating may give the perception of getting ahead, but a basic understanding of motion shows that this is not the case. So, how close is close enough? In the case of tailgating the answer to this question is 'too close for comfort'.

Slipstreaming/Drafting/ Hypermiling/

OK, so you've mastered rev matching. You know how to avoid under steer. You're now a heel-toe shifting professional and you've read all the racing tips from the professionals. What next? It's time to learn about 'slipstreaming' or 'drafting'. First things first, what is a slipstream, and what does slipstreaming mean? The dictionary definition of the word slipstream, in the context of motorsport, is: *'the partial vacuum created in the wake of a moving vehicle, often used by other vehicles in a race to assist in overtaking'*. So, slipstreaming essentially is when a vehicle takes advantage of the space behind another vehicle where there are decreased air and wind resistance. Now you know what a slipstream is, we're going to look at how slipstreaming works in sports other than motorsport and crucially, the science behind it. As explained above, a slipstream is created behind any moving object where there is some form of resistance for example air, water or otherwise. In the wake of that object, a lower pressure area, or partial vacuum is created. A closely trailing object will experience reduced drag when sitting in this partial vacuum due to the particles dispersed by the leading object. Drafting is a technique used by some hypermilers ⁸ to achieve greater fuel economy. A *"draft-assisted forced auto stop"* (D-FAS) involves turning off the engine and gliding in neutral while tailgating a larger vehicle in order to take advantage of the reduced wind resistance in its immediate wake. Some hypermiling techniques are illegal in some countries because they are dangerous. ⁹ Another instance whereby the practice of driving on a road very close to a frontward vehicle or at a close distance may occur is during an occasion whereby the drivers of the two cars are acquainted to one another. This may be due to it being a procession of motor vehicles, typically carrying or escorting a prominent person that wants to avoid interlopers.

⁸ A hypermiler will start by evaluating whether they even need to drive at all - if a 5-minute drive can be replaced by a walk or cycle, then they'll do that instead. If they do need to drive, then they will plan a route that will be as direct as possible but that also needs the least amount of acceleration and braking. They will also try to drive at a time when traffic is less busy. Hypermiling is all about maintaining momentum, and the more braking and acceleration you do up hills or in heavy traffic, the less efficient your driving is. A hypermiling car will be optimized to deliver the most efficiency, too. This means it will be well maintained and serviced regularly, while the tyres will be inflated to the correct pressure to ensure rolling resistance is at its most efficient. Any unused items in the boot will also be removed to save weight and thus improve fuel economy. When parked, a hypermiler will try and use their location to their advantage. If it's cold, then they will park their car in the direction of the sun so that the sun melts a frosted windscreen, rather than turning on their heated screen. And if it's warm, they'll park in the shade so that the car's air conditioning doesn't have to work too hard to bring the cabin temperature down. autoexpress.co.uk

⁹ ["'Hypermiling' tricks sometimes unlawful"](#). Tulsa World. Retrieved 2011-05-28.

Another instance may occur where the leading vehicle is showing directions to the trailing vehicle and the trailing vehicle attempts to avoid allowing an interloping vehicle to come in between them.¹⁰ Another sphere where in tailgating has been observed is among drivers who are in a hurry, or other public road activity whose prerequisite is urgency or agitation.¹¹ "And there's one last tip, don't be a tailgater yourself. After all, only a fool breaks the two-second rule.

Platooning & Adaptive Cruise Control

An outdated concept titled Platooning sought to end the problem and proposed electronically connecting vehicles together so as to coordinate distances between them. In truth this idea was doomed to fail, requiring detailed coordination and a huge network of cars that interconnected. It was then hoped answers lay in the form of Adaptive Cruise Control, a system already installed in thousands of cars worldwide. This particular technology sees sensors placed upon a front bumper. The car itself then taps into what is known as a 'car-following' model, software that programs the vehicle to adhere to a minimum space and time gap between it and the car in front. Better still it adjusts whenever said car either accelerates or slows. But while ACC doubtless reduces pollution it fails to remedy the buildup of traffic. In fact, the more models that adopt the system, the greater the risk of a domino effect and with it yet further bunching.

Caught on Camera

In GB, almost 10,000 vehicles were caught tailgating in the first two weeks of new cameras being tested to clamp down on the offence. Highways England and police have joined forces to tackle the offence which is a factor in around one in eight casualties on England's motorways and major A roads. Soon, motorists caught tailgating can expect to receive letters advising them they were too close to another vehicle and highlighting the dangers of not leaving safe braking distances. The clear messages are – stay safe, stay back! - comes as new footage shows the reality of tailgating. Highways England's Head of Road Safety Jeremy Philips said: *"These new cameras have, sadly, highlighted just how many people are driving too close on our roads. We understand that most tailgating is unintentional by drivers who are simply unaware they are dangerously invading someone else's space. But not leaving enough space between you and the vehicle in front can be very frightening and intimidating – it could also prove fatal"*. He added: *"We are trialing the new cameras to make drivers aware of their behaviour and encourage better driving.*

¹⁰ McManus, John (2008). *Tactical Emergency Medicine*. p. 223.

¹¹ Hennessy, Dwight (2005). *Contemporary Issues in Road User Behavior and Traffic Safety*. p. 74.

We are also using the Space Invader video game character as a quick reminder to drivers of the risks of tailgating. Our message is simple – Don't be a Space Invader, Stay safe, stay back". Recently, motorist Caroline Layton, a data and intelligence analyst for Highways England, has told how she feared her small car was going to be hit and 'crushed' as a lorry loomed up behind her in the motorway road works. She was travelling within the speed limit through road works on the M27 when a lorry approached and was 'getting closer and closer'. Footage captured on her rear dash cam shows the lorry just feet away from her car with the driver flashing his lights and gesticulating at her before he eventually indicates and overtakes her. Caroline was driving through road works on the M27, near Junction 4, after finishing work. She said: *"He came up really close, just a couple of metres behind. I thought I had to slow down because if it hit me at 50mph I would be crushed. This was very intimidating behaviour and likely to cause a crash and serious injury. If anyone had stopped in front of me he would have gone into the back of my car and I would have been sandwiched in the middle. From the driver's seat, all I could see in my rear-view mirror was the lorry's grill"*. She added: *"Although this was the worst incident I have encountered, I have seen a lot of tailgating and it isn't just lorries, all types of vehicle"*.

Don't Be a Space Invader

More than 130 people killed or seriously injured in incidents involving people driving too close in 2018. A survey for Highways England found that while more than a quarter of drivers admitted to tailgating, nearly nine in 10 people say they have either been tailgated or seen it. British Roads Minister Baroness Vere said: *"When people think of the causes of road accidents, tailgating probably isn't one of them, but it's one that can have dangerous repercussions. Highways England's innovative plans are already showing how serious and reckless this behaviour is, and through this campaign I hope we see tailgating drop, making our roads, already some of the safest in the world, safer still"*. PC Dave Lee of Northamptonshire Police's Safer Roads Team who is supporting the trial, said: *"Motorists who experience tailgating can often feel intimidated and put under pressure to increase their speed in a bid to create more space between them and the offending vehicle. However, we have seen first-hand the devastating consequences which tailgating can cause. People who carry out this extremely dangerous behaviour are not just putting themselves at risk, but the lives of other road users. Reducing the number of people who are killed or seriously injured on our county's road network remains a policing priority for the Force, which is why it is important to work with our partners on such campaigns in a bid to save lives by making our roads safer"*.

Highways England has been working with infrastructure consultancy AECOM on the cameras.¹² Around 12.5 per cent of deaths on major roads in England are caused by tailgating, according to a 2018 report. The minimum recommended safe distance each car should maintain while in traffic is called ‘the two second rule’. This refers to the time it should take to stop a car suddenly without crashing into the vehicle in front. Yes, tailgating is illegal in the UK. In 2018, a study by Highways England showed that one in eight (12.5 per cent) of deaths on major roads in the country were caused by tailgating. The organization has launched a campaign called ‘Don’t Be a Space Invader’ to make road users aware of the dangers of driving too close. Nicholas Lyes, RAC Head of Roads Policy, warned drivers against the dangerous and intimidating practice.¹³

A "Familiar" Problem on Irish Roads



Did you commute by car this morning? Notice anyone up close and personal in your rear view mirror? You won’t have been alone. A survey of Irish motorists has said that almost four in five drivers have noticed tailgating – another vehicle getting dangerously close to the rear of yours – in the last year. Fifty-five per cent said that they had been tailgated at least once a month, while 40 per cent said they experience it on a weekly basis. And how do Irish drivers respond to tailgating?

According to the Easy Trip survey, we have three main ways of fighting back:

- Pulling over/changing lanes to let driver pass (38 per cent)
- Using brake lights to encourage driver to back off (27 per cent)
- Speeding up to get away (5 per cent)

(In Ireland a driver may move into the hard shoulder (not motorways) to allow other drivers to overtake, however, this is not mandatory but can be done merely as a courtesy. Ed.)

¹² Highways England. 3 November 2020. www.gov.uk

¹³ Mark Hodge 17 September 2018. *Road Hogs: what is tailgating? Is it illegal in the UK? What does the law say and how dangerous is it? A 2018 study by Highways England showed that one in eight deaths on major roads in the country was caused by tailgating.* thesun.ie

Only three out of ten people surveyed admitted that they themselves were responsible for tailgating over the last year – 53 per cent of male drivers admitted it, while only 24 per cent of female drivers said they did. Tailgating appears to be more an act of aggression than genuine emergency measure as most said that they did it because they driver in front was “driving too slowly”. And if that wasn’t rage enough for a busy Tuesday after the last bank holiday, nine out of ten motorists surveyed said that they had flashed lights at a fellow road user to get them to move aside. The minimum recommended following distance between cars in normal conditions should take two seconds to cover. That means that you pick a point (say, a lamp post) and count two full seconds between the time the vehicle in front passes it and when yours does. In wet weather, you should double that time.

¹⁴ Nearly half of all drivers are 'an accident waiting to happen', according to a group of experts. Over 40pc drive far too close to the car in front, known as tailgating, their survey found. According to RAC Ireland managing director Robert Taylor, tailgating has become a "familiar" problem on Irish roads. Drivers are increasing the risk by underestimating stopping distances, especially in wet conditions. Those under 24 years are particularly poor, as are urban drivers. The tailgating figures come from a survey of 15,000 vehicles conducted by the National Motorway Month Group in Britain. The results show that in some cases over 70pc of drivers were travelling too close to the vehicle in front. Mr. Taylor said the danger is "compounded" here as almost one-fifth of cars have faulty lights - in many cases brake lights. *"Worn tyres are an even bigger problem. That's according to a survey the RAC conducted in Dublin earlier this year. Motorists would do well to keep their distance,"* he warned. Recent research by the Highways Agency suggests that being too close to the car in front can be a contributory factor in more than one third of all personal injury accidents on the motorway network. Tailgating is also a major cause of road rage.

Chevrons on Motorways

National Motorway Month is an initiative by RAC Foundation and Auto Express Magazine, with support from BSM, the Institute of Advanced Motorists and the Highways Agency, encouraging safer driving. They want further research into an innovative road marking system which appears in some areas to have discouraged tailgating. This involves markings at specific intervals on the road, with roadside signs indicating how many markings signify a safe distance. Part of the tailgating survey was carried out where chevrons were painted on the motorway at regular intervals. The results show that at a stretch of motorway before the chevrons, tailgating was at around 60pc.

¹⁴ *Back off, buddy: Irish drivers love to 'tailgate'.* (6 May 2014). thejournal.ie

By the time they got to the centre of the chevron patch, tailgating appeared to drop off significantly. It picked up again after the chevron stretch, but not to the same extent. This suggests chevrons could have a role to play in changing driver behaviour. A previous study by the influential Transport Research Laboratory has shown accident reduction of 56pc at chevron sites, compared with the same stretch of road before installation. (*Chevrons are encountered on the M1 between junction 16/17 Northampton and Junction 11 Luton. You are advised to keep two chevrons apart. Ed.*) The survey also picked up other poor driving behaviour including people driving while using mobile phones, and children in the back seats without seatbelts or appropriate restraints. 15

Conclusion

In our fast paced world it is often difficult to slow down when there is so much to do in so little time. Tailgating may give the perception of getting ahead, but a basic understanding of motion shows that this is not the case. So, how close is close enough? In the case of this question, the answer is tailgating that is 'too close for comfort'. Driving extremely close to the car in front is called 'tailgating', and is particularly dangerous. If you are being tailgated by someone, then gently ease off the gas and allow the space in front of you to increase. You really don't want to put yourself in a position where you have to brake from being too close to the car in front. The reaction times stated above are typically obtained under ideal circumstances where the person being tested is paying attention to the task at hand. In a real situation the driver could possibly be distracted (e.g. having a conversation with a friend, or singing along to the radio). Reaction time under these conditions might give a more realistic representation of reaction time. An even more realistic estimate would include adding on an estimation of the time it would take to move your foot from the gas pedal to the brake pedal. Since the foot is farther away from the brain than the hand, the reaction time calculation will be increased slightly. Many road traffic accidents are caused by drivers driving too fast and too close to the vehicle in front. It's vital you keep a safe separation distance but how can you judge it? A driver needs to be able to judge a safe separation distance at all times, in all kinds of traffic, in all weather and road conditions. It is much safer for you and the people in front, and your passengers. Plus, if you hit the car in front of you, you are considered to blame. You don't have much choice as to the space left behind you, but you can control the amount of space in front.

¹⁵ E. Cunningham 2 August 2004. *Tailgating drivers 'an accident just waiting to happen'*. independent.ie

Finally, the next time you're tailgated, rather than 'lose your cool' and do something that could be considered dangerous and cause a potential accident, try and make telepathic contact with the offending tailgater and calmly send a telepathic message saying - *"Back Off Mate, You're too Close For Comfort.(If I slow down or stop suddenly, can you?)*