

Calderdale
Council

GUIDANCE AND BEST PRACTICE FOR MANAGERS AND STAFF

DRIVER ERGONOMICS GUIDANCE

TAKING THE PAIN OUT OF DRIVING FOR WORK

Produced by: Corporate Health & Safety Section

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1 INTRODUCTION

- 1.1 ***Following this guidance is not mandatory, but should be used to assist you in protecting your health whilst driving. Following this guidance is good practice. This guidance has been produced and circulated in response to the Health and Safety Executive's (HSE) 5 year work programme which is focused around health aspects at work. One of the HSE's main priorities is tackling issues around Musculoskeletal Disorders (MSD's) at work.***
- 1.2 Most drivers have a general degree of understanding about the dangerous associated with driving, mainly the risks of being involved in a road traffic collision (RTC). Every day in the UK about 7 people are killed in road crashes and hundreds more injured, yet few people are aware that each year, thousands of people also suffer from back and neck injuries caused, not through a collision, but as a result of how they site, or operate, their vehicles.
- 1.3 Driver ergonomics focuses on the health aspects of driving to create vehicle environments in which employees have a lower chance of injury. A 2006 study revealed that almost 60% of UK drivers were suffering from 'Repetitive Driving Injury' (RDI), a term coined by ergonomists to refer to injuries caused as a result of poor driving posture. Out of those surveyed, the five most common RDI's were highlighted as foot cramp, lumbar pain, stiff neck, side ache and headache/eye strain, all of which tended to start just 15 minutes after starting driving.
- 1.4 The main issue surrounding the development of musculoskeletal disorders comes from the frequent and prolonged use of Display Screen Equipment (DSE), whether that is inappropriate use DSE or poor workstation design leading to problems such as Repetitive Strain Injuries (RSI), Work-Related Upper Limb Disorders (WRULD's) and general muscle pain in the neck and shoulders. For more information of how to manage these issues in Calderdale, please see the [DSE policy](#) on the intranet.
- 1.5 The Council employs a large number of drivers, all of which drive for work, whether that is in their own vehicle or in a fleet vehicle. These employees are potentially at risk of developing an MSD in instances where they fail to follow basic vehicle ergonomics.
- 1.6 This guidance in particular concentrates on 'vehicle ergonomics' and how adopting the correct driving style and position can reduce the impact and likelihood of musculoskeletal disorders developing in those who frequently drive on Council business. By incorporating driver ergonomics into our existing driving at work policies demonstrates our commitment to protecting the health of those who drive for work and in the long term will result in lower levels of absence.

2 LEGAL REQUIREMENTS

- 2.1 Section 2 of the Health and Safety at Work Etc. Act 1974 states – "*It shall be the duty of every employer, to ensure, so far as is reasonably practicable, the health, safety and welfare of all his employees whilst at work*". This general duty extends to include driving related risk.

- 2.2 Regulation 3 of the Management of Health and Safety at Work Regulations 1999 states – *“Every employer shall make a suitable and sufficient assessment of the risks to health and safety of his employees to which they are exposed whilst at work”*. This means that the Council is required to complete a driver risk assessment and have policies in place related to any work related activity that carries an element of risk. Essentially, vehicle ergonomics must be considered as part of this assessment due to the fact that there is a potential for harm to result.
- 2.3 Driving at work is potentially one of the most hazardous areas of work we conduct In Calderdale Council.

3 THE ISSUE

- 3.1 In a recent study of those who drive for business, at least half said they had suffered from back trouble within the last 12 months (2016).
- 3.2 In the UK, it is estimated that 80% of the population will experience some form of back pain at some stage in their life. A number of work and leisure activities can contribute to back pain, but if you spend long hours driving, you may suffer from prolonged discomfort or pain in your back and other areas.
- 3.3 A large percentage of people find that driving also irritates an existing back problem. Out of those surveyed, 65% reported that they had experienced lower back pain from driving, 43% reported they had suffered from neck discomfort and 40% reported that they had experienced shoulder pain. One third of all these drivers reported that they experienced moderate or severe low back pain discomfort at least once per week.
- 3.4 Sitting in the same position for long hours, gripping the steering wheel too tightly and being exposed to vibration from the road are all factors that can contribute to the wear and tear on your body. Following the basic advice in this guidance will reduce your chances of suffering from driving related health issues.
- 3.5 Research by students at the University of Loughborough has shown that low back related sickness absence is 6 times greater for those who drive for 4 hours a day and that drivers who spend 50% of their work time driving are 3 times more likely to experience a slipped disk.
- 3.6 Those that drive for leisure also experience back pain after driving long distances. Although this guidance is centred on driving for work, the basic principles outlined within should be adopted when driving outside of work in order to maintain good health and avoid unnecessary pain and discomfort.
- 3.7 This guidance aims to help individual drivers, especially those who drive for work, to look after their health by adopting the correct driving posture. The Council continues to transform into a ‘smarter working environment’ where more of us are required to drive for business and complete work away from the office.
- 3.8 As the way we operate as an authority changes, you may find it more difficult to avoid using your car as an office. However, many of the tasks, such as using a laptop or sorting through paperwork in your vehicle, cause you to bend forwards, resulting in increased stress on your back, particularly the lower regions.

4 THE CAUSES – SHORT TERM DISCOMFORT = LONG-TERM SUFFERING

- 4.1 Repetitive short term discomfort and complaints are associated with joint and muscle injuries in the long term. The research in this area suggests a connection between short-term discomfort with injury and impairment later in our lives.
- 4.2 Due to the way that injuries are caused within a vehicle, it is not only high-mileage drivers who are at risk. Anyone who drives regularly is at risk of suffering discomfort or injury within their vehicle. The main causes of injury within a vehicle are as follows:
- Sitting for long periods of time/duration of driving e.g. traffic, delays etc.
 - Incorrect seating position.
 - Incorrect posture.
 - Making awkward twists and turns.
 - Reaching into the foot well or rear of the vehicle.
 - Manual handling and lifting of goods in and out of the vehicle.
 - Incorrect posture when reaching into the boot.
 - Vibration of the road surface.

5 THE SYMPTOMS

- 5.1 The actual injuries suffered range in seriousness from minor discomfort to severe pain. Some of the most common symptoms are as follows:
- ‘Pins and needles’.
 - Stiffness after a journey.
 - Aching neck and shoulders.
 - Chronic back pain.
 - Deterioration of the health of the spine.
 - Degeneration of the vertebral discs.
- 5.2 As well as the more obvious symptoms, there are others, such as fatigue, which have very serious implications on the health and safety of our employees. Driver fatigue is among the prominent contributors to fatal accidents on the road, and adopting poor posture whilst driving contributes to increasing the fatigue factor of the individual behind the wheel.

6 AN ERGONOMICS APPROACH

The first step to any ergonomics approach is risk assessment. The ergonomics risk assessment should consider 3 key areas:

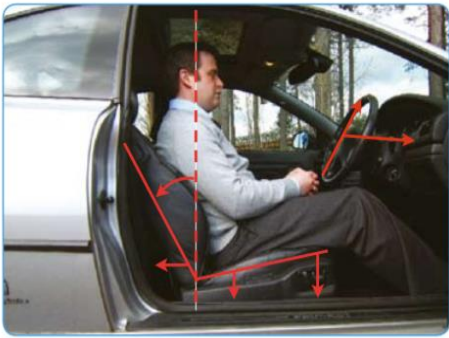
1. **The User** – It is important to consider the size and shape of the individual, whether they have any existing discomfort, what their driving style is like and whether they are likely to experience tension whilst driving, for example are they prone to road rage.
2. **The Vehicle** – Have you considered all parts of the car which may contribute to poor posture whilst driving:





- **The seat** – is it supportive, comfortable and adjustable? Is it long enough to support without restricting? Does it have height and tilt adjustment? Have you considered the seat material? Leather seats can be slippery and can lead to slouched positions whilst driving. Fabric is the most suitable for comfortable driving. A good seat should also be padded enough to limit the vibrations from the road. Exposure to vibrations on a long journey can lead to tiredness and long-term exposure can lead to injury and health implications.
 - **The backrest** – This should go up to the shoulders but should not restrict the rear view. It should be wide enough to provide lateral support and support the shoulders. The angle of the backrest should typically be 20-30 degrees when reclined. Any lumbar support should have 'in-out' and 'up-down' adjustment. Additional lumbar supports should be purchased if required for additional comfort.
 - **Head restraints** – These should be set to avoid forcing awkward postures. The middle of the headrest should be level with the middle of the ear.
 - **Headroom** – Be aware of internal structures/bulkhead. Ensure adequate clearance above the head whilst driving.
 - **Legroom** – Be aware of the handbrake of facia which may press on the legs.
 - **Steering wheel** – Ideally, this should be adjustable in angle, height and depth. Consider ease of holding, ease of turning e.g. power steering. The steering wheel should be centrally positioned and you can test this by putting your hands together in 'prayer position' and pointing at the steering wheel. The wheel should be at a comfortable height and distance, and should preferably be adjustable in depth and angle. Adjust so that you can rest your wrists on it without stretching.
 - **Pedals** – These should also be centrally positioned and should be sufficiently large enough with the ability to be reached comfortably. Also consider the height above the floor, travel of depression, left foot rest and floor surface.
 - **Gear stick** – This should be easy to reach. Be aware of vibration if hand is rested on gearstick.
 - **Vision** – You should be able to clearly see displays within the vehicle. Be aware of the impact of the steering wheel position. Your external view may be blocked by the car frame, overhead storage or rain channelled on side windows.
3. **The Task** - Consider the driving activities of employees. Some examples may include:
- **Duration of driving** – including number of miles driven each week and overall time spent in the vehicle.
 - **Complexity of the task** – Including the types of road and unpredictability of the road environment.
 - **Route navigation**




- **Loading/unloading goods and people** – are there potential manual handling issues to consider?
- **Time of day of journey** – are employees travelling during peak times where traffic may be bad and stress more prevalent as a result.
- **Time pressure** – Have you allowed sufficient time to complete the journey?
- **Other tasks** – For example, using the vehicle as a place of work. If you have to work from your vehicle it is advised that you sit in the passenger seat and ensure equipment is set up to facilitate better posture. This should only be done for short duration and as a last resort. It is important to always find an alternative working environment which allows you to achieve good posture.

7 **POSTURE GUIDE**

- 7.1 Any posture, no matter how good it is, can lead to discomfort if it is held for too long. Therefore it is important to adopt a range of comfortable driving positions and to make frequent changes to avoid, or help delay, the onset of discomfort.
- 7.2 You should also take regular breaks when driving. The Highway Code recommends **taking a break for 15 minutes every 2 hours** and in fact our Driving at Work Guidance is aligned with this recommendation. 2 hours should be the maximum length of time that you drive without taking a break, and on each break you should ensure that you change your position i.e. get out of your car and walk around.
- 7.3 The following steps should help you find positions which are comfortable to you:

STEP 1	<p>Take the time to familiarise yourself with all the adjustments that your vehicle provides. Start by getting the set into the 'initial set up position'. This means:</p> <ul style="list-style-type: none"> • Steering wheel fully up and fully forward • Seat height at its lowest • Cushion tilted so that the front edge is at its lowest position • Back rest approximately 30 degrees reclined from vertical • Lumbar adjustments backed off • Seat fully rearwards 	
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STEP 2	<p>Raise the seat as high as is comfortable to improve your vision of the road, check you have adequate clearance from the roof and ensure you have maximum vision of the road. Adjusting the height of your seat should allow your feet to reach the pedals without stretching.</p>	
STEP 3	<p>Move the seat forwards until you can easily fully depress the clutch and accelerator pedals and adjust the seat height as necessary to give good pedal control.</p>	
STEP 4	<p>Adjust the cushion tilt angle so that the thighs are supported along the length of the cushion. Avoid pressure behind the knee.</p>	
STEP 5	<p>Adjust the back rest so it provided continuous support along the length of the back and is in contact up to shoulder height. Avoid reclining the seat too far as this will cause excessive forward bending of the head and neck, and you may find yourself sliding forward on the cushion.</p>	

STEP 6	Adjust the lumbar support to ensure even pressure along the length of the back rest and ensure that the lumbar support 'fits' your back and is comfortable. Where appropriate, purchase an adjustable lumbar support to provide additional support and comfort to your lower back.	
STEP 7	Adjust the steering wheel rearwards and downwards for easy reach. Check for clearance for thighs/knees when using the pedals. Ensure that the display panel is in full view and is not obstructed.	
STEP 8	Adjust the head restraint to ensure that the risk of injury is reduced in the event of a car accident.	
STEP 9	Adjust the rear view and side mirrors ensuring that they can be used without excessive straining on the neck or upper body.	
STEP 10	<p>Repeat stages 1-9 and fine tune as necessary. Your driving position should involve resting your elbows close to your body, with your shoulders relaxed. Think about your posture whilst driving. Relax your muscles and keep your head upright.</p> <p><u>Did you know?</u></p> <p>The head weighs approximately 11 pounds (5kg) and so leaning forward whilst driving places nearly 10 times that pressure onto the neck and shoulders.</p>	

- 7.4 Be aware that many cars will not allow you as much flexibility of driving posture as you may like. These sorts of cars may cause you to adopt a 'coping posture'. It is important to remember that the greater number of adjustable features in your car, the more likely you are to be able to adopt a range of comfortable postures.

8 GETTING OUT OF YOUR VEHICLE

8.1 It seems common sense, but do you actually get out of your vehicle correctly and safely? The following tips should be followed on each occasion when you exit your vehicle:

- Unfasten seat belt and ensure it is fully retracted so it doesn't restrict movement.
- Push the seat back fully.
- Turn whole body towards the door and raise your legs from the footwell.
- Place your feet on the ground, shoulder width apart.
- Lean your head and shoulders forwards as you stand up, holding onto door frame for support if necessary.
- Don't twist your body as you leave the car.
- Ensure you don't park too close to other vehicles, walls etc. which prevent you from exiting the car safely.

9 GENERAL GUIDANCE

9.1 The following additional points should be followed as a matter of good practice. All of these controls will help to mitigate the ergonomic risks associated with driving:

- Vary your work activities as much as possible during the day.
- Take a break from driving every couple of hours
- Make sure you get out of the vehicle as much as possible, move about and carry out small stretches if you can (**see 9.2 below**)
- Don't carry out any intense physical activity such as lifting without warming up first.
- Make small adjustments to your driving position every couple of hours.
- Follow the posture guide contained within this guidance to ensure that you are sitting correctly whilst driving.
- Reduce the amount of driving you have to do wherever possible – use alternative methods of transport for long journeys instead.
- Reducing stress levels by providing Satnavs, planning routes before setting off, and providing advice regarding not gripping the steering wheel too tight.
- Never use a mobile phone whilst driving – not only is this against the law but cradling a phone between your shoulder and ear causes you to manipulate the body into an awkward position. Similarly, fiddling with hands-free devices causes you to lean. The use of hands free is also against Council policy.
- Store items correctly – all items should be placed in boot where possible. This prevents the temptation to twist around to retrieve items from the back seat or rear footwell whilst you are in the driving seat. It also prevents objects from flying forward in the event of a crash.

9.2 It is important to exercise your muscles whilst driving to prevent muscle fatigue. When stopped at traffic lights or when you are stuck in traffic, try to relieve some tension by relaxing your muscles. This could include:

- Raising your shoulders up and down or rolling them from back to front.
- Pushing your shoulders backwards into the seat and back again.

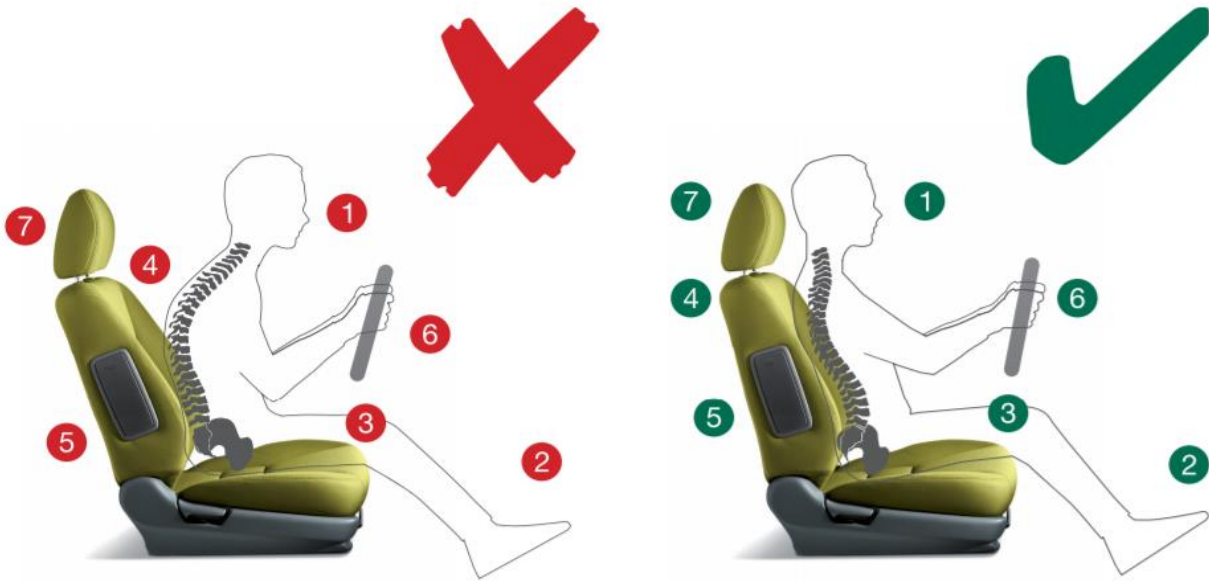
- Tilting your neck from side to side.

Remember to take deep breaths whilst performing these exercises as this will help relieve the tension.

10 CONCLUSION

- 10.1 Poor seated postures, especially when driving, are generally considered to contribute to musculoskeletal pain. A key feature in the prevention of back pain is maintaining good posture. Adopting a range of comfortable postures and frequent changes between these postures may help to delay the onset of discomfort in driving.
- 10.2 If you experience discomfort when driving for work, listen to your body. Report this discomfort to your line manager or another appropriate person and see a GP, the in-house occupational health specialist or physiotherapist if you experience severe discomfort that you believe is a serious concern to your health.
- 10.3 It is important to also assess your lifestyle both in and outside of work. There can be many contributory factors to back pain. Good posture and regular exercise can play a key role in preventing back pain.
- 10.4 It is recommended that all employees who drive for work should be provided with the 'vehicle ergonomics top tips card' as a minimum – see APPENDIX 1.

TOP 10 TIPS FOR DRIVER COMFORT



It is important to remember to take the following adjustments before driving off:

1. Raise the seat as high as is comfortable to improve vision on the road, ensuring adequate head clearance from the roof.
2. Slide the seat forward until the feet can fully depress all pedals without stretching.
3. Tilt the seat cushion to support the lengths of the thighs, avoiding pressure on the back of the knees.
4. Adjust the back rest to support length of back up to shoulders and allow easy reach of all hand controls.
5. Ensure that the backrest is correctly adjusted to provide even pressure on the lumbar region of the spine.
6. Adjust the steering wheel for comfortable reach (shoulders relaxed and elbows slightly bent), without obstructing knee clearance or view of the display panel.
7. Adjust the head rest to reduce risk of injury in the event of a car accident.
8. Adjust all mirrors to maximise the view of the road.
9. Position Satnav within the visual field, but without obscuring the road.
10. Remember not to answer your mobile phone or use hands-free devices whilst driving on Council business as this is against the existing policy.

Now you have completed your ergonomic self-check prior to driving.

APPENDIX 2 – MUSKULOSKELETAL DISORDERS AND VIBRATION

Common Risks Associated with Driving	Ways to Minimise the Risk
Musculoskeletal Disorders (MSD's)	
<ul style="list-style-type: none">• Driving a vehicle can be more detrimental than sitting or standing due to the affects of movement and vibration on the body.• Common risk factors associated with the development of MSD's include: prolonged sitting, fixed postures, inappropriate lumbar support and manual handling tasks when getting out of the car.• Lower back, shoulder and neck pain are commonly associated with prolonged periods of driving.	<ul style="list-style-type: none">• Apply ergonomic principles (see overleaf).• During breaks (15 minutes every 2 hours) incorporate postural variation e.g. stretches, walking around car etc.• Make small adjustments to driving posture every 30-60 minutes.• Practice correct manual handling techniques when taking items in/out of the vehicle.• If pain or discomfort persists, consult your treating health practitioner for further advice.
Vibration	
<ul style="list-style-type: none">• Vibrations from the mechanics of a moving vehicle can be transferred to your body through the seat and steering wheel.• The operation of heavy machinery or heavy vehicles can cause higher levels of vibration.	<ul style="list-style-type: none">• Vibration forces can be decreased with thick, firm foam car seats, which can absorb some vibration as it passes through.• If possible, it is important to alternate driving tasks with non-driving tasks, to reduce the vibration exposure.• Maintain a neutral spine; your spine is better able to observe shock when the lumbar curve is being maintained in a neutral position, compared to a flexed lumbar spine position sit up straight.• Ensure tyre and suspension systems are maintained.