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The evidence used in the preparation of this leaflet is available on request. Please email: patient.information@salisbury.nhs.uk if you would like a reference list.

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Driving Ergonomics (page 1 of 2)

Why do we get back pain while driving?

There are three reasons for back pain while driving: vibrations from the engine (which is something we cannot change), our sitting position, and the length of time we spend in our cars.

Sitting while driving is different from sitting while stationary. In a moving car the body is subject to completely different forces – speeding up and slowing down, movements from side to side and vibrations.

We need to use our feet when driving which means they cannot support and stabilise the lower body as they would when sitting in a chair. Our abdominal muscles, which are being used to support the upper body and arms as they turn the wheel, give little or no support to the back. All this can lead to lower back pain.

You can use this 10-point checklist to help make driving more comfortable:

1. The seat notch

Sit well into the notch of the seat. The notch is where the back of the seat meets the seat base. Sitting with your bottom right up to the seat notch makes you sit fairly upright, maintaining the natural curve of your lumbar spine, which helps take the strain off the spinal ligaments.

2. The backrest

Relax back into the seat, with the seat reclined at 10-15°. If you find this uncomfortable, the backrest may not be upright or supportive enough for you. Bring the backrest up a bit, or place a small towel folded in three against the upper part of your back, between your shoulder blades.

3. The headrest

The position of the headrest is important not only in case of an accident, but also to allow you better posture. The headrest should not be used as a support. It should be about 1 inch from the back of your head when sitting in the normal driving position, and level with the 'inion' (the bony lump at the back of the head) to absorb shock in an accident. This is important as it means that your neck muscles and ligaments are controlling the posture of your head, giving better support in the case of an accident.

4. The seat base length and height

The seat base should stop before reaching the back of your knees. The front of the seat base should be slightly higher than the back, giving

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you comfortable support, and allowing you to press the pedals without altering the posture of the lower back. The seat should be high enough to support the thighs, but not so high that it is pressing hard into the back of your thighs, reducing circulation to the legs.

5. The pedal distance

Position the seat at a distance that allows you to press the clutch, accelerator and brake pedals without feeling that you are stretching your legs or twisting your body in any way. Your knees must not be straight, even when pressing down on full throttle or clutch. Your knees should not be so bent that you cannot move from one pedal to another easily – about 45° is usually ideal.

6. The arm position

Arms should be as loose as possible, with your elbows comfortably bent (around 70–80°). If you have an adjustable steering wheel, this should be set low to reduce the stress on your shoulders. Try to consciously grip the wheel loosely, since tension in the hands transfers directly to the spine. Both hands should be on the wheel, at '9 o'clock' for the left hand and '3 o'clock' for the right hand.

7. The armrests

If you have armrests, use them. They should be adjusted so as to gently support the elbows. If they are too high they may cause your shoulders to rise, which would strain the neck.

8. The rear view and side mirrors

Adjust these last of all. Make sure that you can see the road behind you without having to move your head much. If you have to move your head a lot to see the mirrors, then either the mirrors are incorrectly adjusted, or you are too close to the steering wheel.

9. Move around:

If you are planning a long journey, adjusting the settings of the seat (for example making small adjustments to the height and backrest position) every 30 minutes or so may reduce back pain. The adjustments should only be small and will ensure that the pressure going down on the spine is varied. When you finish your journey remember to stretch!

10. Breaks!

Don't drive for too long without taking regular breaks. Aim to take a break every hour.

These tips are a general guide, and should not be taken as exact measurements. You need to adjust your driving position around these suggestions so that it is comfortable for you. Everyone is different.

This leaflet has been produced with thanks to Gavin Burt, Osteopath and director of Backs & Beyond, an osteopathic clinic in Highgate, London. Please visit www.backsandbeyond.co.uk for further information.