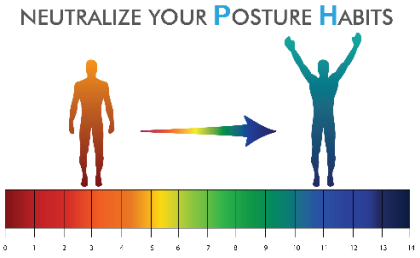

ERGONOMIC TIPS FOR DRIVING

Unlike sitting regularly, when a vehicle is in motion the body is subject to different forces including accelerations, decelerations, lateral swaying from side to side, and whole-body vibrations. Also, when driving, the feet are actively being used on the accelerator pedal, the brake, and the clutch if driving a manual vehicle. When the feet are active they cannot be used to support and stabilize the lower body as normally happens when they are placed on the floor when sitting in a chair. There is evidence that the combination of these factors, coupled with the design of the vehicle seat itself, can increase the chance of back problems for individuals.

Additionally, according to Spine Universe, laboratory research has studied the effects of whole-body vibration when a person is sitting in a car seat. The lumbar spine has a natural resonant frequency of 4-5 Hz, and results show that this natural frequency can be executed by laboratory simulated driving. This can lead to high spinal loadings in the lower back, which in turn could result in greater postural discomfort with an increased risk of low back pain and injury.

Spine Universe provides five guiding principles to help protect the back when driving:

1. **Car seat comfort**

2. adjust the fit to a comfortable feeling when sitting idle in the vehicle. If it doesn't feel comfortable in idle, one will probably experience back discomfort when driving.

3. **Car seat adjustments**
    - Adjust seat distance and height to accommodate different leg lengths, the back of the knees should not be touching the front of the seat.
    - Angle backrest to a slightly reclined position at approximately 100 degrees (hips should be in line with or slightly higher than knees).
    - Ensure the road and instrument cluster can be comfortably seen.
    - Use the dead pedal to rest left foot (and to prevent riding the clutch, if equipped).
    - Ensure feet can comfortably depress the accelerator, brake, and clutch without the back leaving the seat.
    - Adjust depth to support lower back (often the seat has an inflatable cushion).
    - Adjust the steering wheel to avoid excessive reaching (distance should be a minimum of 10" to the driver's breastbone), place hands at a 9 and 3 o'clock position to reduce the risk of injury during airbag deployment.
    - Adjust head rest for neck support.

4. **Change posture** – remember to adjust individual posture from time to time. Proceed with caution, wait until driving conditions are suitable to allow for safe movement in the seat to alleviate postural fatigue.

5. **Take breaks** – stop regularly and get out of the car. To avoid driver fatigue and minimize discomfort it is good to take frequent rest breaks that allow time to stand up and move around.

6. **Seat accessories** – a variety of car seat accessories may improve individual seat comfort, such as fleece covers to soften the seat or bead backrests to provide for a massage while driving.