Comparison of Lumbar Supports in Sitting

Many occupations and daily activities require prolonged sitting. This may be a cause of low back pain and sitting discomfort. The authors studied the use of a fixed lumbar support compared to a Continuous Passive Movement (CPM) lumbar support. The cushions had the same inflation pressure in sitting. Thirty-one male healthy subjects were required to sit in the same chair for a two hour period on three consecutive days. One of the days, there was no support, another a fixed lumbar support, and the remaining day with a device called a CPM lumbar support.

Each rated low back pain, stiffness, fatigue, and buttock numbness on a visual analog scale (VAS). The subjects were encouraged to remain motionless during the two hour period. Whole body motion was measured using the VICON system. Pad Professional System measured maximum pressures of the seat where there was human contact.

The results of the VAS showed that even subjects who did not have a history of back pain reported back pain during prolonged motionless sitting. While the subjects reported significantly less back pain while using the fixed lumbar support and the CPM lumbar support, there was not a significant difference between the two devices with regards to back pain. The CPM lumbar device did seem superior to fixed lumbar support in reducing buttock numbness.