The Effects of the Dvectis Dynamic-Directional Pad on Osteoporosis

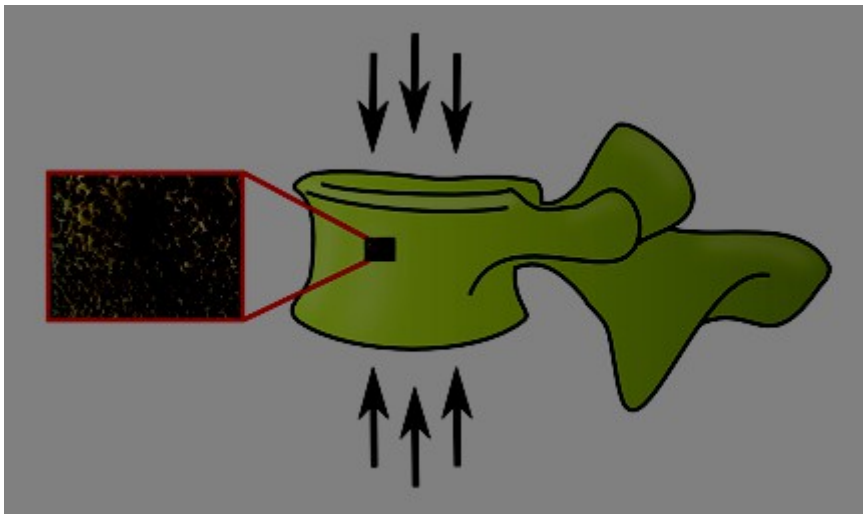
For several generations human society has been developing in a way that requires less physical activity of the individual, resulting in an increase in lifestyle diseases. This diverse group of diseases includes degenerative spinal disease, which most often manifest as pain in the groin and small of the back. The condition is typically caused by weakened or even atrophied stabilization muscles and bone loss in this area.

One solution to this problem is exercise. Special exercises can strengthen this group of muscles which maintain a neutral position between individual vertebrae. The backbone thus becomes stronger and can better resist forces pushing against the spine in the lumbar area, reducing the instability that causes many patients major problems and pain.

Another widespread and much discussed lifestyle disease is osteoporosis, a condition that decreases bone density (bone mass). This process is also characterized by the loss of bone trabeculae which make up the vertebral microstructure and ensure its load-bearing capabilities. The disease is typical for older adults, mostly women, but can also occur at a younger age (Figure 1).

The place where the degenerative effects we have mentioned often meet is the lumbar spine. Here, degenerative changes due to malfunction of the stabilizing muscles go hand in hand in the loss of bone trabeculae. This can eventually result in a compression fracture of a lumbar vertebra (Figure 2).

Figure 1: The lumbar vertebrae are exposed to compressive forces (arrows) that arise when moving in the gravitational field of the Earth. The bone trabeculae adapt to such forces (red box), strengthening their structure under the increasing load. Inactivity and ageing lead to the loss of trabeculae and a risk of compression fractures.



Regular physical activity and exercise strengthen the stabilizing muscles and increase the bone density of the spine. Furthermore, exercise has a great therapeutic effect on problems that already exist and helps prevent new problems from arising. People who exercise experience far fewer degenerative changes from lifestyle diseases. Physical activity is scientifically proven to improve fitness at an advanced age.

Figure 2: An X-ray of the lumbar spine showing deformation of the body of the second lumbar vertebra (arrow). This is a compression fracture due to bone loss (osteoporosis).

The Preventive and Curative Effect of the Dvectis Dynamic-Directional Pad

Regular special exercises can improve the coordination of the stabilizing muscles of the spine. Likewise, regular and varied sports activity involving these muscles keeps them in good condition. A similar effect can be achieved by regularly sitting on the Dvectis dynamic-directional pad. This fitness and rehabilitation aid can be used with any chair.

The special design creates an unstable sitting surface by generating small oscillating movements that force the stabilizing muscles to constantly work. This method avoids harmful static load of individual vertebrae and promotes dynamic muscle activity. The muscular work protects the spine against degenerative changes caused by prolonged sitting. Simply put, several hours of sitting on the pad equals several hours of rehabilitation.

Using the Dvectis pad promotes bone mineralization and helps prevent vertebral compression fractures. Regular use stops bone loss and changes in bone metabolism by re-establishing the prevalence of new bone formation over bone degradation.

Dr. Martin Holinka, M. D.