Goodbye Back Pain – With Strength Training Machines, Bandages and Scalpel

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MEDICA 2010 presents innovative treatment options

For people suffering from back pain, good advice is often hard to find and expensive to boot. Back pain is a disease of great medical and economic significance. Back pain diagnostics and therapy is therefore an important topic at MEDICA 2010, World Forum for Medicine - International Trade Fair and Congress, to be held from November 17 – 20, 2010 in Düsseldorf, Germany. With more than 4,000 exhibitors from over 60 countries, it is the world's largest international medical trade fair and congress. In addition to tried and true diagnostic and therapeutic options, many new approaches and developments – from innovative orthotic devices or bandages to muscle strengthening therapies and implants for spine surgeons – will be presented at the trade fair and congress.

60 to 70 percent of the population suffer back pain at least once in their life. Approximately every tenth patient has permanent severe pain. In approximately 50 percent of the cases, chronic back pain is the cause of early retirement applications. The cost of treatment and/or rehabilitation exceeds Euro 50 billion per year. According to international estimates, productivity loss accounts for approximately 85 percent of the total cost, while therapy accounts for approximately 15 percent. In addition to non-steroidal anti-rheumatic drugs and analgesics, physiotherapy and physical therapy procedures are other treatment options. In very rare cases, surgery is performed.
For patients with chronic pain, there are also numerous orthotic devices or bandages. A very special orthotic device has been available since the beginning of this year from the orthotic specialist Bauerfeind: "SacroLoc" is the first back pain bandage that was designed specifically for disorders of the iliosacral joint (ISJ / joint of the sacrum and ilium). In 75 percent of those affected, the back pain is caused by various structures of the lumbar spine, for instance the small vertebral joints. However, in every fourth patient the cause is a disorder of the iliosacral joint (ISJ). In the majority of cases, such iliosacral dysfunctions are the result of false posture, wear, or one leg being shorter than the other. There are no cases of paralytic symptoms.

The innovative orthotic device not only stabilizes the pelvis and the ISJ, but thanks to a two-piece friction pelotte with nubs, it continuously massages the ligaments and muscles, thus lessening tension and improving circulation. Before being launched on the market, this orthotic device first underwent a practical test. The response of doctors and patients to the initial results is positive.

Today, an integral component of the interdisciplinary therapy of chronic back pain is “medical training therapy,” e.g. with special “strength training machines” similar to those used in fitness studios. Exercising with such special strength training machines as a component of an active and multimodal treatment program is certainly a positive aspect, says André Maier of the backpain centre “Rückenzentrum am Markgrafenpark” in Berlin.

Equipment-based back training with high tech

With his “Dynasom”, Dr. Adnan Mizher, who will be demonstrating his method at MEDICA 2010, is also focusing on machine-based back training similar to the well-known training of Werner Kieser from Switzerland. Before any therapy, his Zurich rehabilitation centre first establishes a diagnosis with a computer-aided, three-dimensional mobility analysis on the “1st LBE device” from Dynasom (a MEDICA exhibitor). For each section of the spinal column, a special chair bristling with sensors determines the strength with which the patient moves, above all whether there are any strength imbalances between the right and left side of the body. The theory is that these imbalances are frequently the cause of false positions of the spinal column resulting in pain. After precise analysis, together with X-rays, CT and MRT imaging, a personalized therapy is developed. In principle, the aim is always to counteract the false position by strengthening specific back muscles with special strength training machines according to the motto “a strong back knows no pain”. What is important for long term success is to correct movement and posture. The patient’s progress is recorded by software, which allows a continuous adaptation of the therapy to the patient’s respective needs at the time. Mizher has had significant success with these treatments, above all with cases of scoliosis, but also herniated discs.

Compared to conservative back pain therapy, surgery to insert special implants on the spinal column is rarely indicated. In recent years, what is known as dorsal dynamic systems have gained in importance. Dorsal means: The metal implants are fixed to the spinal column from behind, usually with special screws (pedicle screws) that reach right into the body of the vertebra. In brief, dynamic means: Stabilizing these systems but, contrary to rigid systems, allowing enough movement within the operated vertebra segments to ensure that no compensating hyper-mobility occurs in the adjacent vertebra segments. Such a reactive hyper-mobility is considered to be one reason for premature signs of wear.

According to private lecturer Michael Rauschmann of the Friedrichsheim Orthopaedic University Hospital, the dynamic systems can be subdivided into interspinous implants, facet-joint replacement, hybrid systems and, above all, pedicle-screw-based systems such as those sold by Marquardt Medizintechnik and by Zimmer, which they will be presented at MEDICA 2010. The “latest rage” is partial or total facet-joint replacement (vertebral arch joint), either with a small implant of metal or plastic or both materials. This facet-joint replacement can also be combined with an intervertebral disc prosthesis.

The “dynamic” or flexibility of the dynamic systems, such as Dynesys from Zimmer (the classic amongst the systems), is provided by connecting the pedicle screws

with vertical spacers made of Sulene PCU. An elastic cord of Sulene PET is passed through these plastic shock absorbers and connected to the pedicle screws. The tear-resistant cord restricts the bending movement, while the spacers restrict the stretching movement.

One problem with the back-related implant systems is that not all the long-term results are known yet. Moreover, according to Michael Rauschmann: It is not yet clear which system is most suitable for which patients and when.

At MEDICA 2010, back pain diagnosis and therapy are also a topic of the congress "Back Pain – Current Treatment Options", to be held on Saturday, November 20, 2010, from 10:00 am to 1:00 pm on the Düsseldorf Congress Center South.

For additional information on the products and technologies discussed in this article, see MEDICA 2010 [1].

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