

## Innovative therapy option for treatment of osteoarthritis

About 12.4 million people in Germany are affected by the progressive wide-spread disease osteoarthritis.<sup>1</sup> Many patients suffer from severe restrictions of their everyday life due to intense pain and disabilities. The wide-spread disease osteoarthritis is not only common among the older population but also younger people are affected more and more often. An innovative therapy approach can give hope to the patients who want to prevent an artificial joint.

### Cartilage degeneration causes inflammation and pain

Osteoarthritis is characterised by a degeneration of the cartilage in the joint and growth on the bone surfaces. First symptoms are usually a feeling of stiffness and then pain, at first during movement, then permanently. Cold and damp weather as well as physical stress can increase the pain. Many therapy options often help only for a short time. Infusions or injections with pain killers, hyaluronic acid or other drugs shall alleviate the complaints. The disease itself, however, progresses even further. In the end, an operation may become necessary to replace the worn-out joint. For a long time, mechanical wearing and degeneration due to age were seen as the causes. Analyses show that there must also be other factors that contribute to the development of osteoarthritis. Newer studies indicate that molecular disorders in the cartilage cells might further the degeneration of cartilage in the joints.<sup>2</sup> This is where an innovative German therapy method finds its starting point, aiming at the molecular processes within the cells. The MBST therapy not only aims at the regeneration of the cartilage and a reduction of the pain with an increased mobility but also tries to preserve the original joints and prevent surgical interventions. For this, MBST uses the physical effect of magnetic resonance that is also used in MRI.

### Stimulation of regeneration of cartilage tissue

MRI stimulates hydrogen protons for diagnostic purposes. MBST uses the technology not to generate images but to transfer energy in a targeted way into damaged or diseased cells on a molecular level. The aim of this biophysical stimulation is triggering the body's own repair mechanisms and regenerative processes.

### Without injections, drugs or known side-effects

Scientific data shows that the MBST therapy stimulates the cellular metabolism among others<sup>3,4</sup> which is important for the regeneration of cartilage. Newer studies show that the MBST magnetic resonance therapy even takes one more step.

### MBST molecular biophysical and circadian stimulation

Every body cell has an internal clock. Research shows that displaced cell clocks can be recognized as one of the causes of osteoarthritis.<sup>5</sup> The misregulated cells that have lost their rhythm can no longer carry out important cartilage building processes. Studies<sup>6</sup> have now shown that the cell clocks can be influenced by MBST, which enables readjustment. This not only leads to completely new therapeutic approaches in the treatment of osteoarthritis, but also for wound healing disorders, osteoporosis, intervertebral disc damage or back pain.

*References: [1] DEGS: Studie zur Gesundheit Erwachsener in Deutschland. Basispublikation · [2] Echtermeyer et al. 2009, Nature Medicine, 15, 9, dx.doi.org/10.1038/nm.1998 · [3] Temiz Artmann et al. 2005, Methods and Findings in Experimental and Clinical Pharmacology, 27(6), 391-394 · [4] Melzer et al. 2003, Fachkrankenhaus für Orthopädie · [5] Gossan et al. 2015, Biogerontology, 16,2, 209-219 · [6] Egg et al. 2017, Universität Innsbruck, Institut für Zoologie*

### About MedTec Medizintechnik GmbH

Founded in 1998, MedTec Medizintechnik GmbH from Wetzlar has developed from a pioneer to world market leader in the field of therapeutically used MBST magnetic resonance technology. MedTec develops, produces and distributes the worldwide unique and patented technology that is used in MBST therapy system for human, veterinary and aesthetic medicine. Doctors, specialist, medical centres, hospitals, clinics and universities put their trust in the MBST therapy system today – not only in Germany and Europe but worldwide. It is MedTec's vision to enable a healthy, active and pain-free life for patients of nearly every age with its therapeutically used MBST technology. The MBST magnetic resonance therapy achieves that in the treatment of various degenerative diseases and injuries of the musculoskeletal system without needing drugs, injections, infusions, pain killers or surgical interventions. More than 1,000,000 hours of therapy have been applied with the MBST magnetic resonance technology so far without any side effects or interactions becoming known. MedTec Medizintechnik GmbH stands for global leadership of market and technology with its worldwide patented therapeutically used MBST magnetic resonance technology.

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