

Exercise does not seem to increase bone marrow edema in healthy people

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A recent study published in *Rheumatology* finds that osteitis/bone marrow edema as measured by magnetic resonance imaging was present in healthy people. However, it did not significantly increase due to intense physical activity.

In the last decade, considerable efforts have been made to shorten the diagnostic delay in axial spondyloarthritis, a [chronic inflammatory disease](#) predominantly affecting the sacroiliac joints and spine. Magnetic resonance imaging (MRI) is the preferred method used by doctors to detect the disease at an early stage. While MRI is a sensitive method for detection of bone marrow edema and structural [lesions](#), there is only limited data regarding MRI lesions in people who don't suffer from the disease. Nevertheless, some data have been published regarding mechanical low back pain patients.

Based on these findings, the physical activity of the patient might influence the interpretation of MRI lesions. Previously, researchers have hypothesized that [mechanical stress](#) plays an important role in the development of rheumatic diseases such as spondyloarthritis and rheumatoid arthritis.

Researchers in this study assessed the baseline condition of the sacroiliac joints in [healthy people](#) without symptoms of back pain to study the effect of mechanical stress caused by intense physical [training](#).

This pilot study was a 6-week observational study in young Belgian

military recruits, selected for initiation of basic military training after thorough physical and psychological examination.

Twenty-two military recruits underwent an MRI before and after 6 weeks of intense standardized physical training. Researchers scored bone marrow edema based on the Spondyloarthritis Research Consortium of Canada (SPARCC) method.

The training consisted of daily exercise such as marching with backpacks, military tactical exercises, drills, running, shooting exercises and some theoretical classes. All recruits followed a daily training program with identical equipment and were living in the same housing conditions.

At the beginning 40.9% of recruits already presented a SPARCC score indicating Bone marrow edema; this number increased to 50% after six weeks.

A substantial proportion of healthy active people without any symptoms of back pain displayed [bone](#) marrow edema lesions at the beginning of the study. However, MRI lesions did not increase significantly after 6 weeks of intensive physical training. The study underscores the necessity to interpret MRI findings of the sacroiliac joints in the appropriate clinical context, even in a young active population.

This is the first study to evaluate the effect of mechanical stress on [magnetic resonance imaging](#) of the sacroiliac joints. Overall, there was a high prevalence of MRI lesions in healthy active people without any symptoms of back pain, both at baseline and after 6 weeks of follow-up. However, MRI lesions do not seem to increase significantly after 6 weeks of intensive physical training.

"Magnetic resonance imaging of the sacroiliac joints should only be

requested in the appropriate clinical context," said Ghent University Hospital's Gaëlle Varkas, MD, one of the authors of the study. "Bone marrow [edema](#) may be present in a large proportion of active healthy controls, possibly due to mechanical stress."

More information: Gaëlle Varkas et al, Effect of mechanical stress on magnetic resonance imaging of the sacroiliac joints: assessment of military recruits by magnetic resonance imaging study, *Rheumatology* (2017). [DOI: 10.1093/rheumatology/kex491](https://doi.org/10.1093/rheumatology/kex491)

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