

## Ankylosing spondylitis

### Key facts

- The prevalence of Ankylosing spondylitis varies by region: per 10 000 people, it is 23.8 in Europe, 16.7 in Asia, 31.9 in North America, 10.2 in Latin America, and 7.4 in Africa.<sup>1</sup>
- Cases of Ankylosing spondylitis (as other musculoskeletal disorders) are predicted to have an increase of at least 50% between 2020 to 2050.<sup>2</sup>
- The onset typically occurs in late adolescence or early adulthood; males are more often affected.
- Ankylosing spondylitis is not curable but pharmacological treatment and rehabilitation help to manage symptoms, slow the progress of the disease, and maintain optimal functioning.

Ankylosing spondylitis (AS) is a chronic inflammatory disease that typically begins in early adulthood and primarily affects the axial skeleton, particularly the sacroiliac joints and spine. The specific causes for AS are unknown, but genetic factors seem to play a role. The existence of the HLA-B27 gene increases the risk of developing AS.

Early and typical symptoms of AS comprise pain in the back or neck and stiffness in the lower back and hips, especially in the morning. Fatigue is also common. Symptoms may worsen, improve or stop at irregular intervals over time. Typically, the vertebrae, joints, tendons and ligaments of the spine, the cartilage between the breastbone and the ribs, but also the joints of the shoulder and hip joints are affected. In severe AS, the inflammation can cause fusion of vertebrae and ribs, resulting in reduced flexibility up to spine deformity (hunchback), but also in reduced lung capacity. In some cases, eye inflammation, compression fractures or heart problems also occur in AS.

AS is diagnosed through a functional assessment of movement and mobility, pain and breathing, followed by imaging techniques (X-ray or MRI) to identify changes in bones and joints. Signs of inflammation in the blood are typical but not specific to AS. Blood may be tested for the HLA-B27 gene, but many people who have the gene don't have AS, and people can have the disease without having the HLA-B27 gene.<sup>3</sup>

AS cannot be cured but treatment and rehabilitation can reduce symptoms (i.e. pain and stiffness), slow progression of the disease, prevent complications (i.e. spinal deformity), and help to maintain functioning. They are most successful before irreversible damage exists. In most cases, nonsteroidal anti-inflammatory drugs (NSAIDs) help to relieve inflammation, pain and stiffness. If NSAIDs do not work, biologic agents like TNF inhibitors and IL-17 inhibitors may be prescribed.<sup>4</sup> Rehabilitation is a crucial component of AS management. It typically involves tailored interventions (e.g. range of motion exercises, stretching, muscle strengthening) to reduce pain, to improve muscle strength and flexibility, and to maintain joint and general mobility.<sup>4</sup> Physical exercises (e.g. aerobic or mind-body exercises) help to reduce and cope with fatigue and pain.<sup>5</sup> Training of compensatory strategies helps people to adapt their activities of daily living and work-related tasks and thus, to remain active. Education helps people with AS to increase their self-management.

A healthy lifestyle, including regular physical activity, no smoking and a healthy diet helps to manage AS.

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<sup>1</sup> Dean LE, Jones GT, MacDonald AG, Downham C, Sturrock RD, Macfarlane GJ. Global prevalence of ankylosing spondylitis. *Rheumatol Oxf Engl*. 2014 Apr;53(4):650–7.

<sup>2</sup> GBD 2021 Other Musculoskeletal Disorders Collaborators. Global, regional, and national burden of other musculoskeletal disorders, 1990–2020, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021. *Lancet Rheumatol*. 2023 Oct 23;5(11):e670–e682.

<sup>3</sup> Agrawal P, Tote S, Sapkale B. Diagnosis and Treatment of Ankylosing Spondylitis. *Cureus*. 2024 Jan 19;16(1):e52559.

<sup>4</sup> Zhu W, He X, Cheng K, Zhang L, Chen D, Wang X, et al. Ankylosing spondylitis: etiology, pathogenesis, and treatments. *Bone Res*. 2019 Aug 5;7:22.

<sup>5</sup> Luo Y, Chen Y, Yan X, Zhang L, Shang Y, Seo JC. Effectiveness of exercise intervention in relieving symptoms of ankylosing spondylitis: A network meta-analysis. *PLoS ONE* 19(6): e0302965.