

Ankylosing Spondylitis

What Is Ankylosing Spondylitis?

Ankylosing spondylitis (AS) is a type of chronic inflammatory arthritis that primarily affects the spine.¹

The inflammation in the joints and tissues of the spine can cause pain and structural changes of the bone.²

These changes can result in stiffness, stooped posture, and limited movement.²



Prevalence & Risk Factors

The worldwide prevalence of AS varies regionally, ranging from an estimated **7 to 32 people per 10,000**.³ In the U.S., about **0.5%** of the population is living with AS.⁴

AS typically develops in patients in their **mid-20s**.⁵

The cause of AS is **unknown**, with a person's risk of developing the disease thought to be linked to multiple genetic and environmental factors.^{1,2}

9 out of 10 people with AS carry a particular gene known as human leukocyte antigen B27 (HLA-B27). Having this gene does not necessarily mean that a person will develop AS. It's estimated that **8 in every 100 people** in the general population have the *HLA-B27* gene, but most do not have AS. AS can run in families, and the *HLA-B27* gene can be inherited from a parent.^{6,7}

Symptoms & Complications

AS primarily affects the spine but may also impact other areas of the body.¹

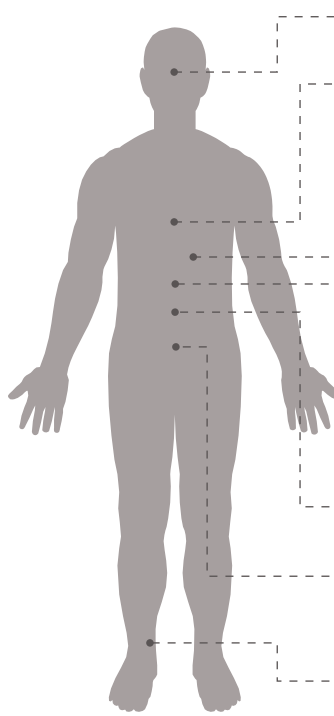


Spinal symptoms may include:

- Back pain (*mild to severe*)
- Back stiffness
- Fusing of vertebrae over time, limiting movement

In some people, AS may also affect the rib cage, shoulders, hips, knees, and small joints of the hands and feet.

Complications due to AS may include:



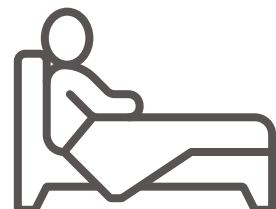
- Eye inflammation
- Heart problems (*rare cases*)
- Difficulty breathing (*rare cases, from stiffened rib cage*)
- Neurological complications (*incontinence and absence of normal reflexes in the ankle*)
- Spine fracture
- Inflammation of the large intestine
- Tightness in the back of the heel

Disease Burden

AS has a far-reaching impact on the body. Patients can experience chronic pain and fusing of the bones in the spine that can limit flexibility and movement.⁸ Patients with AS are also at an increased risk of heart problems.⁹

AS can place a significant burden on other aspects of daily life, including:

Sleep



Worsening symptoms in the early morning hours can cause sleep disturbances⁸

Ability to work



10%-20% of patients experience work disability with lost income and productivity¹⁰

Diagnosis & Treatment

Sacroiliitis, or the inflammation of the joints where the lower spine and pelvis connect, is the typical feature of AS used in diagnosis.

Detection of inflammation early in the disease course before structural changes occur is crucial. However, because awareness of this disease is low, patients often confuse their symptoms with those of generic back pain, which can lead to delays in diagnosis and potentially significant, irreversible damage.^{5,11}

Treatment of AS is aimed at relieving pain and stiffness and preventing or delaying progression.^{2,5}



MEDICINAL TREATMENTS

- Nonsteroidal anti-inflammatory drugs
- Corticosteroids
- Biologics



EXERCISE

- Physical therapy
- Range-of-motion exercises
- Stretching

Though rare, surgery may be needed in severe cases.¹

While therapies are available, there remains a significant unmet need for more effective treatment options that target the underlying inflammation and help modify the course of the disease.

Bristol Myers Squibb is committed to researching and pursuing new potential treatment options to help patients and their loved ones with the burden of AS and other immune-mediated diseases.

1. National Center for Advancing Translational Sciences. Ankylosing spondylitis. Accessed March 15, 2021. <https://rarediseases.info.nih.gov/diseases/9518/ankylosing-spondylitis>
 2. National Institute of Arthritis and Musculoskeletal and Skin Diseases. Ankylosing spondylitis. Published online February 2020. Accessed March 15, 2021. <https://www.niams.nih.gov/health-topics/ankylosing-spondylitis/advanced>
 3. Dean LE, Jones GT, MacDonald AG, Downham C, Sturrock RD, Macfarlane GJ. Global prevalence of ankylosing spondylitis. *Rheumatology*. 2014;53(4):650-657. doi:10.1093/rheumatology/ket387
 4. Reveille JD, Weisman MH. The epidemiology of back pain, axial spondyloarthritis and HLA-B27 in the United States. *Am J Med Sci*. 2013;345(6):431-436.
 5. Braun J, Sieper J. Ankylosing spondylitis. *Lancet*. 2007;369(9570):1379-1390. doi:10.1016/S0140-6736(07)60635-7
 6. Brown MA, Kenna T, Wordsworth BP. Genetics of ankylosing spondylitis—insights into pathogenesis. *Nat Rev Rheumatol*. 2016;12(2):81-91. doi:10.1038/nrnheum.2015.133
 7. Akkoc N, Khan MA. Looking into the new ASAS classification criteria for axial spondyloarthritis through the other side of the glass. *Curr Rheumatol Rep*. 2015;17(6):42. doi:10.1007/s11926-015-0515-2
 8. Johns Hopkins Arthritis Center. Ankylosing spondylitis. Accessed March 15, 2021. <https://www.hopkinsarthritis.org/arthritis-info/ankylosing-spondylitis/>
 9. Eriksson JK, Jacobsson L, Bengtsson K, Askling J. Is ankylosing spondylitis a risk factor for cardiovascular disease, and how do these risks compare with those in rheumatoid arthritis? *Ann Rheum Dis*. 2017;76(2):364-370. doi:10.1136/annrheumdis-2016-209315
 10. Reveille JD, Ximenes A, Ward MM, Deodhar A, Clegg D. Economic considerations of the treatment of ankylosing spondylitis. *Am J Med Sci*. 2012;343(5):371-374. doi:10.1097/MAJ.0b013e3182514093
 11. Sieper J, Braun J, Rudwaleit M, Boonen A, Zink A. Ankylosing spondylitis: an overview. *Ann Rheum Dis*. 2002;61(suppl 3):8ii-18. doi:10.1136/ard.61.suppl_3.ii8