# Heart Health and Axial Spondyloarthritis: Outlook, Risks, and Helpful Tips

by Jean Liew, MD

In addition to the spine and other joints, axial spondyloarthritis (axSpA) can affect a range of organs in the body, including the eyes, skin, gut, and the heart. Studies have shown that those who live with axSpA have an increased risk for heart disease—but there are steps you can take to lower your risk. In this article we'll look at the relationship between axSpA and the heart, and how you can monitor and improve your heart health with axSpA.

**What is cardiovascular disease?**

Cardiovascular disease includes what we think of as heart disease, including conditions that affect the blood vessels and cause deposits in the vessels called plaques. When there is enough plaque accumulated in the blood vessels feeding the heart, this is referred to as ischemic heart disease or coronary artery disease. Serious cardiovascular outcomes that can be life-threatening include heart attacks and strokes. Cardiovascular disease is the leading cause of death worldwide. When we consider cardiovascular disease and "heart health," these are the outcomes we want to prevent.

We know a lot about preventable or treatable risk factors for cardiovascular disease. These include hypertension (high blood pressure), hyperlipidemia (high cholesterol), diabetes (high blood sugar), and being overweight or obese. To treat these risk factors, we first need to diagnose them. Fortunately, we have the tools to identify and diagnose these risk factors, whether it's regular blood pressure checks, a thorough physical exam, or appropriate blood tests.

**Are people with axial spondyloarthritis at greater risk for cardiovascular disease?**

What about people living with axSpA, including ankylosing spondylitis (AS)? We know from studies that cardiovascular disease is more common in this group (present in about 12 percent of people with axSpA, according to a 2020 review[1]). When you compare people with axSpA to people of the same age and sex who don't have axSpA, the risk of cardiovascular disease is higher. In a 2011 study, researchers found that having AS raised the risk of developing a number of cardiovascular diseases (including ischemic heart disease, valvular heart disease, and others).[2] The risk of having heart attacks and strokes is also higher for people with axSpA. Researchers in 2015 found that people with AS are at greater risk of mortality from cardiovascular events such as these.[3]

Why is this? There are three major factors to consider. **First**, we have to look at the medical conditions that put people at higher risk of cardiovascular disease. As mentioned above, these include hypertension, hyperlipidemia, diabetes, and being overweight or obese. Smoking is another major risk factor. Some of these risk factors, particularly hypertension, are more common in people with axSpA. **Second**, some medications used to treat axSpA, if taken for a long time or at higher doses, can contribute to a person developing hypertension or becoming overweight or obese. Nonsteroidal anti-inflammatory drugs (NSAIDs) can raise blood pressure, and in people who have hypertension already, can make it harder to control. Some studies suggest that NSAIDs may increase the risk of stroke or heart attacks. Taking steroids like prednisone at high doses and over a long period can also raise blood pressure, raise blood sugar, and lead to weight gain. (Systemic glucocorticoids like prednisone are not recommended as a treatment for axSpA, although they are sometimes used short-term to relieve inflammation in peripheral joints or to treat iritis or inflammatory bowel disease.) **Finally**, if a person's axSpA is very active, this can mean there is excess inflammation in the body. Having chronic, systemic inflammation for a long time can stress the cardiovascular system, so it is also a risk factor for cardiovascular disease.

**Are there special considerations for cardiovascular disease in treating axial spondyloarthritis?**

Research done in people with rheumatoid arthritis (RA) has suggested that using treatments that control inflammation could also bring down the risk of cardiovascular disease. The studies indicated that medications typically used to treat RA (like methotrexate or biologic/injectable medicines) could reduce the risk of heart attack or stroke.

We've tried to look at whether this is true in axSpA as well. However, the results have been mixed. Some studies suggested that using medications like biologics (including TNF inhibitors) can be protective against heart attacks or strokes, but other studies suggested there was no difference in the occurrence of these events. Overall, the data we have doesn't provide sufficient evidence that we should change our strategy with regard to treating axSpA. Biologics should be used whenever they are deemed appropriate to target symptoms affecting quality of life, and to bring down inflammation.

We have gotten better at treating axSpA with more effective medications. New biologics continue to become available, and our understanding of how to target and treat the disease is growing. However, cardiovascular disease, which we know so much more about, still remains undertreated in those who live with axSpA. What this really means is that the medical conditions that are risk factors for cardiovascular disease are underdiagnosed and undertreated in this population.

There have been studies showing that, whether in primary care or in the rheumatology clinic, people with axSpA are not getting checked regularly (once a year, in most cases) for high blood pressure, abnormal cholesterol levels, or high blood sugar. Without these screenings, these issues can't be treated or addressed as

early as they should be. This kind of screening is usually done as part of routine care by your primary care provider. However, your rheumatologist may also address these risk factors or encourage you to discuss them with your primary care provider.

**How are JAK inhibitor medications related to cardiovascular disease?**

Some people with axSpA take a newer class of oral medications called JAK inhibitors. These include tofacitinib and upadacitinib. Recently, the FDA placed a black box warning on these medications to inform patients of the possibility that taking them can increase the risk of cardiovascular disease as well as cancer. This warning came after a large study performed in people with RA who either had cardiovascular disease already or were at high risk for cardiovascular disease.

Comparing study participants who were taking tofacitinib (at two doses) versus a TNF inhibitor, researchers looked at the risk of developing serious outcomes like heart attacks, strokes, blood clots, and types of cancers. The main takeaway of the study was that the risk of serious cardiovascular outcomes was increased in those taking tofacitinib (especially the higher dose)—but it's important to note that this risk was mainly observed among people who were over age 50 and especially over age 65, and who already had a history or risk of cardiovascular disease. Whether to start taking a JAK inhibitor should be a personal discussion with your rheumatologist, who will consider your other medical conditions.

**In what other ways can axial spondyloarthritis affect the heart?**

Older studies of AS found that the heart can be affected in other ways that aren't typically considered cardiovascular disease. These include aortitis—inflammation at the base of the heart around the aortic valve—and conduction disturbances, also known as arrhythmia. More recent studies have tried to estimate how common these issues are, but the number of cardiac events included in the studies have been small so the results have not been conclusive. Guidelines do not recommend getting regular EKGs or echocardiograms to screen for these issues.

Finally, although chest pain may be a frightening symptom that can lead to concern about a heart attack, it may be related to other causes. Inflammation around the joints in the chest and ribs (costochondritis) can be common in people with axSpA and may cause chest pain, mimicking signs of a heart attack. Costochondritis is not a type of heart disease, nor is it related to the lungs.

**What can you do to improve your heart health?**

While there isn't a specific medication or treatment regimen to improve heart health with axSpA, there are several key steps you can take to optimize your cardiovascular health.

- **Avoid smoking.** It's been known for a long time that smoking tobacco is associated with a higher risk of cardiovascular disease. Outside of cardiovascular disease, smoking is associated with other negative outcomes in axSpA as well, including worse disease activity. For those who currently smoke, quitting can reverse some of this risk. Talk to your health care provider about options to help you quit, in order to find a method that is effective for you.
- **Exercise.** One of the most important things you can do is reach a weekly exercise goal as recommended by the American Heart Association. That's 150 minutes per week of at least moderate-intensity aerobic activity. This can be broken up into chunks of 30 minutes per day, five days a week. What counts as moderate physical activity? If you go to the gym, this can mean working out on equipment such as the elliptical or a stationary bike. Brisk walking and water aerobics also count. What is meant by aerobic? These are exercises that work your heart and lungs, and are also referred to as "cardio." For axSpA, other categories of exercise are also important—especially strengthening (particularly of the core muscles), stretching, and range of motion. Exercising not only boosts your heart health, but also improves posture, stiffness, pain, fatigue, and overall functioning. The best exercise regimen is one that you can stick to consistently. Some people benefit from supervised exercise, which can include working with a physical therapist or attending an exercise class. Others have found phone apps or fitness trackers helpful for motivation.

- **Maintain a healthy weight.** Higher body weights are linked to a higher risk of cardiovascular disease. They are also associated with harder-to-control disease activity in axSpA. Studies of people with psoriatic arthritis who were overweight or obese have connected weight loss with an improvement in symptoms. Weight loss should be approached through a combination of exercise and diet. Like exercise, there are many different approaches to tackle weight loss, and it's about finding the one that works for you.

- **Nutrition.** Unfortunately, we don't yet have a recommendation for a specific diet for people with axSpA. Although researchers are studying diets that could help improve symptoms, we don't currently have enough strong evidence. However, there are principles of good nutrition that can benefit those with axSpA. A commonly recommended diet for maintaining heart health is the Mediterranean diet. This diet emphasizes vegetables, fruits, whole grains, and beans/legumes, and recommends reducing sugars (especially added sugars like high fructose corn syrup), saturated fats, and highly-processed foods. Some research has indicated the Mediterranean diet may reduce levels of inflammation in the body.
- **Watch your blood pressure.** Blood pressure can be higher when it is taken during a clinic visit. These numbers may not accurately reflect your average blood pressure throughout the day. Getting a home blood pressure monitor and checking your blood pressure around the same time every day is recommended. If your numbers are higher than the goals set by your health care providers, it may help to bring in a list of your blood pressure reads over the course of a week or two so you can review them together.


- **Manage inflammation/disease activity.** When weighing the risks and benefits of axSpA medications with your rheumatologist, one big consideration is that controlling inflammation and disease activity is not only important on its own—it's also crucial for optimizing your heart health. When a person has elevated inflammation for a long time, this can put stress on the heart. But as we discussed earlier, certain medications can affect the heart negatively, too. NSAIDs can raise the blood pressure, and in people who already have heart conditions, their use should be minimized. On the other hand, if someone is not at high risk for cardiovascular disease, then NSAIDs can be very helpful for axSpA. This is another individualized discussion to have with your rheumatologist.

Overall, while cardiovascular disease is an important medical concern to monitor and address in axSpA, there are many ways that you and your providers can be proactive to keep your heart healthy. If you are unsure where to start, have a conversation with your rheumatologist and your primary care provider.

**References:**

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