Axial Spondyloarthritis IN WOMEN
A Family of Related Diseases

- Axial Spondyloarthritis including
  - Radiographic Axial Spondyloarthritis (Ankylosing Spondylitis)
  - Non-radiographic Axial Spondyloarthritis
- Enteropathic Arthritis
- Psoriatic Arthritis
- Reactive Arthritis
- Undifferentiated Spondyloarthritis
- Juvenile Spondyloarthritis
The Spondylitis Association of America (SAA) has produced this brochure to provide practical information about axial spondyloarthritis (axSpA) in women and to help dispel the myth that axSpA is a “man’s disease.”

**First, what is axial spondyloarthritis?**

- **Axial** – Relating to or situated in the central part of the body, encompassing the full spine and pelvis.

- **Spondyloarthritis** – Inflammatory arthritis that can impact the spine (axial), as well as the limbs (peripheral).

Further, axial spondyloarthritis can be split into two subtypes:

- Radiographic axial spondyloarthritis (r-axSpA) refers to axial spondyloarthritis where damage is visible on an x-ray (radiograph). *Ankylosing spondylitis* is increasingly referred to as radiographic axial spondyloarthritis.

- Non-radiographic axial spondyloarthritis (nr-axSpA) refers to axial spondyloarthritis where there is no damage or fusing visible on an x-ray.

In this brochure, we will discuss the full spectrum of axial spondyloarthritis (axSpA), including both radiographic and non-radiographic. More women than men have non-radiographic axial spondyloarthritis, and while there is a delay in axSpA diagnosis for everyone, women have a longer delay.

Many of the characteristics of axSpA in women are similar to those in men; however, there are differences. Some of these differences have been scientifically documented and are recorded in the medical literature, but others are not yet well understood.

That said, there is hope that current studies being conducted in this area by dedicated researchers will soon shed more light on these issues.

**Information in this brochure cannot replace treatment provided by health care professionals.** If you have questions as you read, you may want to consult with your doctor.

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Axial Spondyloarthritis in Women

Whether you have axSpA or someone close to you has received this diagnosis, the disorder and its associated social, functional, and economic consequences make disease management an important issue. It is especially important to take charge of the disease, since experts agree that taking an active role in managing the condition, backed by knowledge and education, will have a positive influence on its outcome. Thus, it is our hope that this pamphlet will make a solid contribution to that effort and provide important tools in the quest for optimal health.

AxSpA is a rheumatic disease (arthritis) and belongs to a group of related diseases called spondyloarthritis. Although axSpA primarily affects the sacroiliac joints and the spine, other parts of the body can be involved. That is why axSpA is called a systemic disease – meaning that it can affect the whole body.

All forms of spondyloarthritis (SpA), including axSpA, are chronic diseases. Hence, a person currently diagnosed with axSpA, given today’s knowledge, will have it to some degree for the rest of their life. Although there is no cure, there is much that can be done to help. In recent times, important advances have been made in understanding the condition and treating it much more effectively than in the past.
Who Gets axSpA?

It has been estimated that at least 2.1 million people in the U.S. have axSpA. It appears to be equally as common in men and women, and more common in those of Caucasian ancestry and certain Native Americans compared to African Americans and Hispanic persons.

AxSpA symptoms may start as early as the teenage years, or as late as the mid 40s, and more rarely in children, but it usually begins in people in their 20s and 30s.

For a long time, researchers suspected that ankylosing spondylitis (radiographic axial spondyloarthritis, which is the form of axSpA with damage visible by x-ray) had a hereditary component since about 20 percent of people with the condition also have a family member with the disease. Then, in 1973, scientists found an association between the genetic marker HLA-B27 and ankylosing spondylitis. While the marker is found in 7.5 percent of the Caucasian population in the United States, over 80 percent of those with ankylosing spondylitis will have the HLA-B27 gene. The gene is slightly less common in the broader group of axSpA. This can be confusing to understand. What it really means is that HLA-B27 is a relatively common gene found in people who will never get this form of arthritis, but that a high proportion of people with axSpA have the gene. Thus, identifying the gene is not, on its own, diagnostic.

While HLA-B27 does not by itself cause axSpA, most researchers believe that it plays a role in triggering the disease. One theory suggests that the presence of the gene in the human body may cause certain types of bacteria to thrive and to remain in the body a long time. This theory claims that the persistent presence of these bacteria may result in the type of inflammation that can lead to new bone formation; that is, bone formation where it would not normally exist. Another theory is that HLA-B27 may interact with other proteins and alter the body’s immune response.
There is a great deal of work being conducted worldwide to explore these and other theories regarding what causes axSpA. Many researchers believe that bacteria and the microbiome are important components.

How Does axSpA Impact Women?

Contrary to outdated beliefs, axSpA is NOT a so-called “man’s disease.” As of the printing of this brochure, the most recent information suggests that the male-to-female ratio of people who have axSpA is beginning to be more realistically documented, and now stands at 1:1. It is also now known that axSpA can be just as severe in women and children as it is in men, though men do tend to have more measurable inflammation and radiographic damage.

Diagnosis and Onset in Women

In general, it takes longer for a woman to be diagnosed with axSpA than it does for a man. It has been suggested in recent studies that axSpA can initially affect different parts of the body in women (neck, peripheral joints) than in men (low back, spine). In addition, one might speculate that the primary reason for a delayed diagnosis in women may be that oftentimes doctors are not looking for, and so do not find, axSpA in women. We hope that via wide dissemination of this brochure and additional outreach efforts, we will start to bring about change in this regard.
How Is axSpA Different in Women and in Men?

The average age of onset, 24-28 years, does not differ significantly between the sexes, but spinal fusion (ankylosis) may progress more slowly in women than in men. According to recent studies, women tend to be worse off than men when it comes to pain and the need for drug therapy.

Research studies suggest that early symptoms in women with axSpA often include peripheral arthritis, acute anterior uveitis, psoriasis, and inflammatory bowel disease.

Women report more frequent family histories of axSpA in first-degree relatives, i.e., their parents and siblings, though this finding may be influenced by the presence or absence of this knowledge in men and women.

Interventions and Treatment

Along with exercise and good posture habits, nonsteroidal anti-inflammatory drugs (NSAIDs) are the cornerstone of pharmacologic treatment and work well for many patients with axSpA. If NSAIDs are not capable of reducing symptoms sufficiently for you to be able to function properly in your everyday life, your doctor may suggest that you try a biologic medication, such as a TNF inhibitor or IL-17 inhibitor. These drugs can be remarkably effective in treating moderate to severe axSpA, although not everyone needs them or will benefit from them.
Why is Exercise So Critical?

According to doctors and patients alike, exercise is effective in controlling pain. However, pain relief isn’t the only reason to exercise. Exercise can counteract some of the impacts of SpA, helping you maintain more of your mobility and flexibility. In fact, in no other type of arthritis is the combination of medication and exercise as important.

Medication alone will not maintain nor increase mobility, strength, and function. You need exercise for that.

Exercise has been shown to optimize physical and mental health in everybody. In addition to directly increasing strength, endurance, balance, and flexibility, some of the other physical benefits of exercise include improving cardiovascular endurance, reducing high blood pressure, increasing good cholesterol (HDL), maximizing bone density, helping weight management and possibly even enhancing response to medications. The mental health benefits of exercise include reducing stress, improving self-esteem, and improving productivity.

In addition to the general benefits of exercise noted above, individuals with spondyloarthritis can benefit from exercise in other ways. Regular exercise can help improve posture, stiffness, pain, fatigue, breathing capacity, and therefore overall function. Through these physical effects, people with spondyloarthritis also report that exercise increases their quality of life and decreases the burden they associate with their disease.

Remember that it is your doctor’s job to help control the pain, inflammation and stiffness so that you can maintain a healthy exercise program. It is often difficult to exercise or participate in physical activity if pain persists due to active inflammation. A good treatment plan must include exercise/physical activity.
Recommendations for Different Types of Exercises

There are 4 main types of exercise:
- Range of Motion or Stretching
- Aerobic or Cardiovascular
- Strengthening
- Balance

An ideal exercise program will incorporate each of the types of exercise noted above. However, most of us have limited time to exercise. So, please ask your physician and physical therapist to help you decide which of these types of exercises are most important for you.

Getting Ready for Exercise

Allow time to “warm up” prior to beginning your exercise sessions – this reduces the chances of injury and improves comfort and performance during exercise, and can include walking, gentle stretching, and/or using heat (i.e., warm shower or bath, or heating pad on “medium” for 10-15 minutes).
Stretching Exercises

1. Kneel on all fours. Keeping your elbows straight throughout, tuck your head between your arms and arch your back as high as possible.

2. Lift your head and hollow your back as much as possible.

Keeping your head in line with your spine, raise your right arm forward as you raise your left leg backward to be level with the ground. Hold for 5 seconds. Return to all fours and change to raising your left arm and right leg.
1. Stretch up as tall as possible without lifting your heels. Hold this position. Raise your right arm forwards and upwards while keeping your elbow straight, your upper arm close to your ear and your thumb towards the wall. Lower and repeat with opposite arm.

Make Exercise Work for You

MORNING STRETCH. If you are typically stiff in the morning, this may be a good time to loosen up. You can do stretches to loosen up and save the range of motion exercises for later in the day after your stiffness decreases.

MAKE IT FUN. If you don’t like to exercise, be creative: exercise to your favorite music, or exercise with a friend.

START SLOWLY. If you’re afraid moving will hurt, start very, very slowly with gentle stretching and range of motion exercises.

MAKE TIME. If you can’t spare a big block of time all at once, try working in 15 minutes twice a day.

BE COMFORTABLE. Wear comfortable clothing and try to relax by counting out loud. This helps with your breathing. Why is this important? Because relaxed tissues stretch more easily.
Increased Risk of Osteoporosis

There are several aspects of this disease only recently becoming more widely acknowledged in the medical community that have major implications for its treatment. Magnetic Resonance Imaging (MRI) has enabled us to better understand why patients with axSpA have a more fragile skeleton despite the overgrowth of bone that is so typical of this disease. This, in turn, has led to the introduction of additional therapeutic approaches for the disease.

The introduction of MRI also helped to show just how different axSpA is from rheumatoid arthritis (RA). Although axSpA patients understand that, like RA, this is an inflammatory disease of the joints, what is not well appreciated is that the major site of inflammation is in the bone next to the joint. We call this an osteitis, which means inflammation in bone. Very often, MRIs from axSpA patients show minimal inflammation in the joint but striking inflammation in the bone next to the joint. This is different from RA, where inflammation within the joint is the major feature of the disease. In addition, what is essentially unique for axSpA is that this inflammation in the bone is also typically seen where ligaments and tendons attach to the bone.
A classic example would be the Achilles tendon attachment to the heel bone. Examples have been seen where the entire heel bone is inflamed. These patients often receive cortisone injections around the Achilles tendon with little benefit (we do not recommend this). This is not surprising since the major source of pain and inflammation is actually within the heel bone. Another example is the shoulder. This is a problem that is not well recognized by medical practitioners and often dismissed as “bursitis” or “tendonitis.” These patients can also have inflammation within the bone where the shoulder tendons attach to the point of the shoulder. Cortisone injections around the tendon are unlikely to be of benefit for many of these patients because the major site of inflammation is within the bone. These same features are observed on MRIs in the spines of patients with axSpA. The major site of inflammation is within the bone of the vertebrae.

If this local inflammation in the vertebrae is not controlled, it will ultimately cause severe loss of bone mineral, resulting in fragile bones. But there is also a second way in which those with axSpA can get fragile bones.

We think that severe inflammation — wherever it exists — causes the release of certain chemicals into the blood that activate cells in bone that can literally dissolve bone mineral. These cells are called osteoclasts. They are normally present in bone but are only activated periodically when bone undergoes re-modeling in response to the stresses of various activities, e.g., sports. These cells secrete acid, which dissolves bone very efficiently. It is therefore understandable that the body keeps these cells under tight control — most effectively by secreting sex hormones, which typically shut these cells down. This is why menopause is a precarious period for the bones of women. The rapid decrease in sex hormone production results in the activation of osteoclasts — as if they are emerging from a period of hibernation. Women then become at high risk for osteoporosis. Long-standing inflammation also causes persistent activation of osteoclasts.
How Does This Occur?

Inflammation, whether it occurs in the joints, the intestine, or the lungs, causes the release of a variety of molecules into the blood. Some of these cause an elevation of body temperature, others cause fatigue, and still others cause persistent activation of osteoclasts. This is why RA is a major risk factor for osteoporosis and fractures of the spine, even though the inflammation of RA does not occur within the spine other than the neck. Similarly, chronic inflammation of the bowel — colitis — also results in osteoporosis and an increased risk for fractures of the spine and hips. AxSpA patients also release these same molecules into the blood that cause activation of the osteoclasts. So axSpA patients suffer from a double-whammy when it comes to the development of fragile bones. They have inflammation locally within the bones of the spine but also release molecules into the blood that cause activation of osteoclasts. This is one of the reasons why patients with axSpA are at much higher risk of developing fractures of the spine. To make matters worse, fusion in the spine makes it rigid and inflexible, making it more likely to fracture if subjected to any significant impact.

Is There Anything That Can Be Done About This?

The answer is — a great deal. First, patients must make sure that they stay active, not only to preserve strength and flexibility but also to preserve bone mineral. The cells that make bone mineral — osteoblasts — love weight-bearing exercise. But they can only make bone effectively if they are supplied with the proper nutrients. This means plenty of vitamin D and calcium per day. We prefer calcium that is sourced through nutrition and the recommended amount depends on your bone health and risk factors for osteoporosis. A good rule of thumb is that a good helping of a dairy product, e.g. yogurt, cheese, a tall glass of skim milk, amounts to 300mg of elemental calcium.
calcium a day, as does one tablet of extra-strength Tums. Beware of expensive calcium preparations that often fail to deliver on the required amount of elemental calcium. Read the label and make sure you know how much elemental calcium is in the product, because this is what really counts, and not the total grams of each tablet (which is what is often on the front label). Good nutrition also means approximately 800 units of vitamin D per day, though this again should be discussed with your rheumatologist.

Is There A Way of Testing Whether You Are Already At Increased Risk of Having A Spinal Fracture?

This is normally done by having a bone density test — often confused with a bone scan. Bone density testing is widely available, and according to many rheumatologists, everyone who has axSpA should have this done. If a fracture has already occurred, a bone density test should be done regardless of how long the axSpA has been present. This is the same approach to the assessment of osteoporosis for women of post-menopausal age. Is such screening currently being done for those with axSpA? A recent survey of British rheumatologists showed that only a minority of axSpA patients had received bone density tests, and it is likely that the figures in North America would not be very different. Osteoporosis in axSpA is clearly not a well-recognized problem and requires more vigorous intervention.
Are There Any Effective Pharmaceuticals for This Problem?

Several agents have now been shown to be effective for the treatment of osteoporosis. These include agents belonging to a general class of drugs called bisphosphonates. They have been shown to be effective in most forms of osteoporosis and to be equally beneficial in men and women, however these have not been studied for this purpose in axSpA. The biologics have also been shown to increase bone density, likely by suppressing inflammation.

Questions in Regard to Fertility, Gestation, Delivery, and Postpartum: Is It Possible to Have axSpA and A Baby, Too?

AxSpA typically starts in both men and women around the mid-20s, just when they are making plans for life, which may include having a family. Not surprisingly, people with axSpA often have concerns and questions about having children. Women may feel insecure about going through pregnancy with a chronic disease and drug treatment. Men may worry about any harmful effect on their fertility from the drug treatment they receive. Future parents often are concerned about possible inheritance of axSpA.

AxSpA and Fertility

Fortunately, axSpA does not impair fertility in women or in men. A large international study of reproductive performance in Caucasian axSpA patients found on average 2.4 children per woman; not dissimilar from the number of offspring in the unaffected population. Among drugs used to treat axSpA, it is recognized that sulfasalazine can impair the maturation of sperm cells and therefore impair fertility in men. The sperm alterations recover in an average of 2.5 months after discontinuation of sulfasalazine. Azoospermia (meaning few or no sperm cells) occurs only rarely during therapy with methotrexate and is reversible after

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discontinuation of the drug. Neither of these drugs impairs fertility in women, though it’s important to note that methotrexate is strongly contraindicated in pregnancy, as it has caused birth defects and death in unborn babies when taken by pregnant women. Women and men who are planning to have a baby and taking methotrexate are advised to stop the medication before trying to conceive. Finally, some women experience problems with ovulation and implantation when taking nonsteroidal anti-inflammatory drugs and these are cautioned against in pregnancy and contraindicated in the third trimester.

**Pregnancy and axSpA**

Several studies have investigated the effects of pregnancy on the course and severity of axSpA. These studies suggest that, in contrast to rheumatoid arthritis, pregnancy does not improve the symptoms of axSpA.

In general there is no consistent pattern to disease activity in pregnancy. Patients tend to do well in the first trimester. Disease activity may increase from week 20 through the third trimester. It may be that pregnant patients stop taking their medications when they find out they are pregnant and therefore disease activity increases. It may also be that the mechanical loading of pregnancy contributes to disease activity. Studies suggest those women needing a biologic before pregnancy are more likely to flare during pregnancy if they stop their biologic. When disease activity increases in pregnancy, patients are more likely to have problems with gestational diabetes, preeclampsia, infection, preterm labor, preterm deliveries and small for gestational age babies.

During this period, a sudden swelling has occasionally been documented to occur in the knee or ankle joints. In some patients, pain at the site where ligaments and tendons attach to bone and feeling of tightness in the chest wall have been reported; uveitis can also be more active during this period.
Course of Pregnancy and Delivery

There is no reason to believe that axSpA has any harmful effect on the course of pregnancy or on fetal well-being, or on rates of miscarriage and stillbirth. As a rule, pregnancies conclude at term with the delivery of live, healthy children of normal birth weight, though some studies suggest babies can be born small for gestational age.

Pregnancy and Disease Activity Postpartum

Disease activity increases in many 4 to 12 weeks after delivery, but it is unclear how much of this relates to lifestyle change (less sleep and exercise) and more stress. As a rule, disease activity returns to a pre-pregnancy pattern during the year following delivery.

What Are The Chances of My Children Inheriting axSpA?

If you have axSpA, the likelihood of passing it on to your children is relatively low. There is generally a 50 percent chance that the child of an HLA-B27 positive axSpA patient will inherit the gene, but only a small percentage of those will develop spondyloarthritis.
Drug Treatments During Pregnancy and Breast Feeding

Patients with axSpA frequently have active disease at some stage of pregnancy. Hence, many people find it more helpful to plan ahead and talk to their doctor about these issues prior to getting pregnant. We recommend working closely with your physicians to determine the best course of treatment while pregnant.

For information on general findings on medication use and safety for pregnant women please visit spondylitis.org/women.

Addressing Affordability of Care

The rapid and steady growth in healthcare costs has had a disproportionate effect on women because of statistically lower incomes and greater need for health care services throughout their lives. In recent years, policymakers and employers have begun to embrace consumer-driven health care models such as high deductible health plans coupled with tax-protected accounts. There are concerns, however, that as a result of this trend, the high-out-of-pocket liability in consumer-driven arrangements could deter lower income and chronically ill people from getting health services that they need. Today, due to the high cost of some of the newer therapies for people with axSpA, access to medication is an issue. If you or a loved one cannot afford your axSpA medicines, it is important to know that there are numerous programs that provide these medicines at low or no cost. Your doctor will need to be involved should you decide to pursue medication via this route.

We invite you to visit the SAA website for more information or call our helpful toll-free line at 800-777-8189.
Women and Support Systems

Research tells us that women who have a solid support system do better than those who do not. Spondylitis Educational Support Groups can become an important part of a woman’s support network. Since we know that taking an active role in managing your condition, backed by a sound knowledge base, will have a positive influence on its outcome, a support group that focuses on spondyloarthritis education, as well as emotional peer support for those living with a chronic illness, can be tremendously empowering. Groups provide members with current information and education about how to manage their disease; the opportunity to hear from speakers who are educated about spondyloarthritis; literature and materials about these diseases; confidential, non-judgmental interaction with others; and understanding and assurance that you are not alone in your experience.

Women involved with these groups often find that they receive the benefit of practical, every-day information they don’t always receive at the physician’s office.

Is there a group near you? Find our support groups, and more ways of connecting with others at spondylitis.org/community.
Looking to the Future

It is important to emphasize that the majority of people with axSpA do well and are generally satisfied with their care. If your axSpA is not being treated, or you are unhappy with your treatment, it is important that you do something about it. Speak with your physician. Don’t downplay how you really feel, and explore ways to change your care.

The future looks promising for people with axSpA. We have learned much about the causes of the disease, and new treatments have been introduced that appear to not only reduce the symptoms, but may even slow down its progression. It is important to remember that much can be done to help, and more importantly, much that those living with this chronic illness can do to help themselves. SAA is here to offer support, information, and helpful resources. Reach out today! We look forward to hearing from you.

The Spondylitis Association of America™ acknowledges with great appreciation the expertise and guidance of its Medical and Scientific Advisory Board with regard to its programs and educational materials.

Special thanks to Lianne Gensler, MD, for updating this brochure in 2019.
The Spondylitis Association of America was the first, and remains the largest, resource in the U.S. for people affected by spondyloarthritis. For more than 35 years, SAA has dedicated all of its resources to funding medical research, education, advocacy, and supportive programs and services that directly benefit the spondylitis community.

By joining SAA you gain access to tools that will improve your own quality of life while also making a difference for the 2.7 million affected people throughout the nation. Join today and receive:

- “Spondylitis Plus,” our information-packed, advertising-free quarterly news magazine
- SAA’s Patient-to-Patient Recommended Rheumatologist Directory
- Access to exclusive Members-Only content on spondylitis.org
- A complimentary copy of our guidebook, “Your Guide to Living with Ankylosing Spondylitis”
- Discounts on SAA educational and awareness products, such as books, DVDs, and exclusive, limited edition SAA logo items
- The satisfaction of knowing that you are part of an extraordinary community of patients, friends, family, and healthcare professionals dedicated to finding the cure!

There are over 100 types of arthritis. At SAA, we focus on one – yours. So that no one has to face spondylitis alone.
How do I become a member?

It’s easy. Call toll free 800.777.8189 to speak with our friendly staff or join online at www.spondylitis.org