Raising the Voice of Patients

A PATIENT'S GUIDE TO LIVING WITH ANKYLOSING SPONDYLITIS

First Edition

Welcome

to the first edition of **CreakyJoints**' patient guidelines for ankylosing spondylitis (AS) which is classified under the Axial Spondyloarthritis (axSpA) family. It is designed to help raise your voice with the decision-makers you'll encounter while living with this disease. This guide is the first of its kind, and is developed by leading experts including rheumatologists, patients, and other healthcare professionals. It's meant to serve as a roadmap to help you navigate your AS, while helping you get what you want, need and deserve from your treatment journey. It offers detailed, accessible explanations of symptoms and what may cause them, treatment options and plans, integrated medicines and therapies, diet and exercise, as well as how to talk to your insurance company, and your family and friends about your disease and the ways in which it impacts your life. This first edition has been edited by leading doctors and healthcare experts, and will be updated and improved regularly as new research, information, and AS treatments become available.

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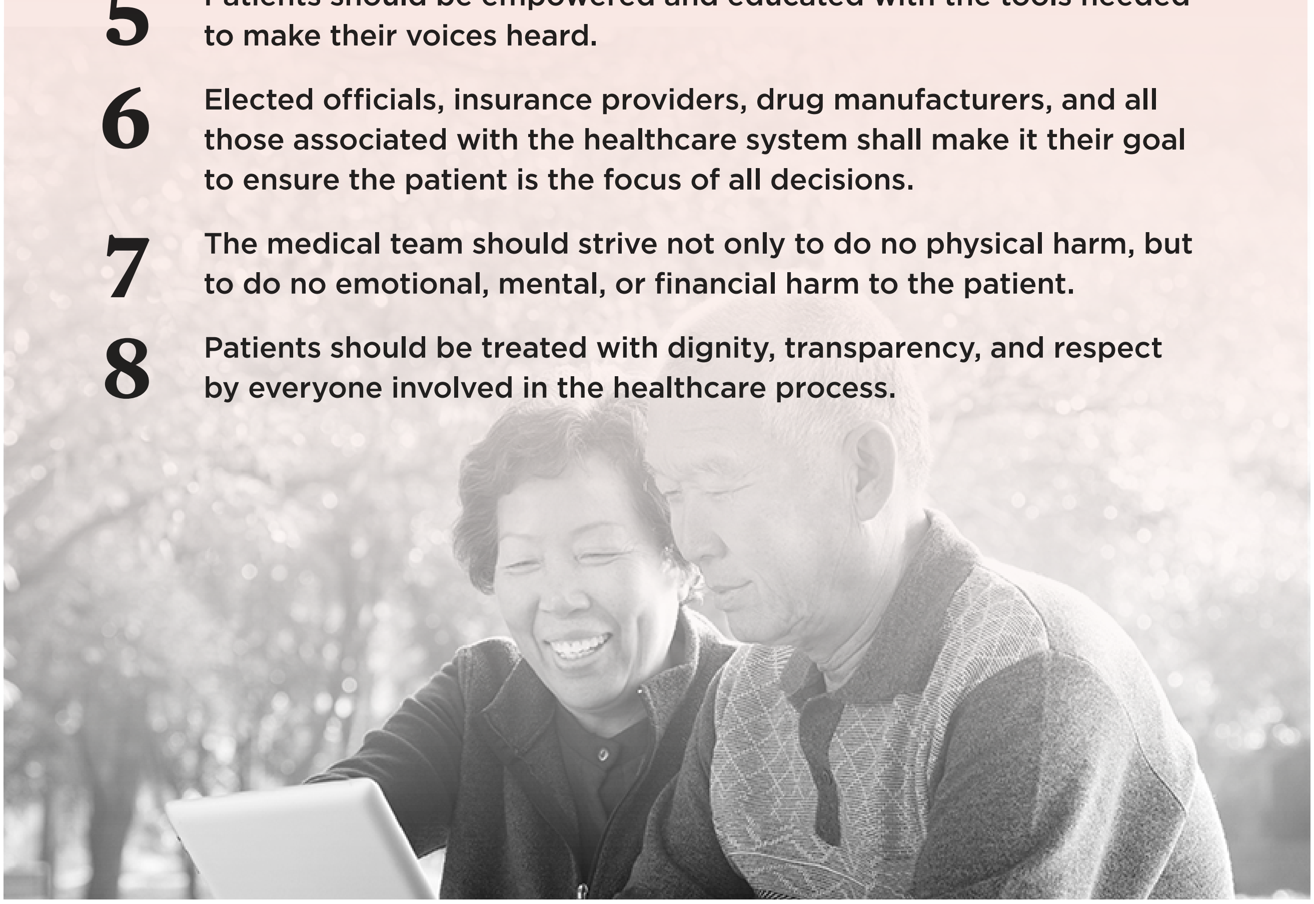
PART ONE

Patient Charter

CreakyJoints is a patient-powered community of people with arthritis (and their families) that is part of the non-profit Global Healthy Living Foundation. The CreakyJoints patient charter reflects our guiding principles, or the deeply held beliefs that drive our community's many efforts in arthritis education, support, advocacy, and research.

WE BELIEVE:

1. The patient experience is at the heart of medicine; thus the patient must be at the center of all medical decision making.
2. The medical process should stay between the patient and their care provider.
3. The patient should have access to all treatments deemed appropriate by their care provider.
4. Access to care should not be limited by external forces, financial or otherwise.
5. Patients should be empowered and educated with the tools needed to make their voices heard.
6. Elected officials, insurance providers, drug manufacturers, and all those associated with the healthcare system shall make it their goal to ensure the patient is the focus of all decisions.
7. The medical team should strive not only to do no physical harm, but to do no emotional, mental, or financial harm to the patient.
8. Patients should be treated with dignity, transparency, and respect by everyone involved in the healthcare process.



Patient Charter

RAISE YOUR VOICE: Get Active, Advocate, and Take Charge of Your Healthcare!

Speak up at each doctor's appointment. **Bring a notebook** with you or **use your smartphone's Notes app** to you write down information about your treatments, as well as your questions and concerns.

Write down questions or concerns ahead of time so you don't forget them at your appointments.

Always ask about the costs of each potential treatment, as well as any possible side effects.

Join other arthritis patients in local or national advocacy groups like CreakyJoints' 50-State Network. **Be an advocate** to make sure your opinions and concerns are always heard by the people who create healthcare laws.

Use the power of technology! **Email or direct-message** other arthritis patients online on CreakyJoints' Facebook or Twitter page, or on other social media platforms. As you get to know other patients, start one-on-one conversations on the phone or via text so you stay informed.

Add your name or sign online petitions with a simple click. You will make every advocacy effort stronger by joining with others.

Stay informed on social media and lend your voice to arthritis advocacy or healthcare issues when the time is right for you. Go online, sign up, join phone or email chats, share your thoughts and attend live arthritis advocacy events when you can. Check out Facebook.com/CreakyJoints or @CreakyJoints on Twitter.

Share your opinion or experiences. Fill out patient surveys. Talk to arthritis advocacy groups looking for patient input on important healthcare issues. Offer your thoughts on Facebook or other social media, but remember that nothing is private online so think about what you want others to know. You don't always have to give your name, but when it's appropriate, let others — including elected officials in your state government and at the national level — know that you are a constituent, you vote, and you care about these issues! Choose email, mail, postcards, social media, phone calls, or in-person meetings — whatever works best for you.

Stay informed and up to date. There may be ways for you to get help affording your treatments, new treatments that may be more effective or affordable for you, or clinical trials going on in your area. Follow CreakyJoints at www.creakyjoints.org for news and articles about patients like you to find out how others are dealing with treatments or coverage challenges. Follow @creakyjoints on **Twitter,** or like the CreakyJoints **Facebook** page to hear news updates and share your thoughts. Also, check out the American College of Rheumatology's website, www.rheumatology.org, for news updates on AS and new treatment approvals. There are also other nonprofits like the Spondylitis Association of America which has valuable information: www.spondylitis.org.

Speak up about your side effects or concerns about your treatments. Don't tell yourself that you just have to put up with it or downplay these effects. Your doctor may be able to make changes to your treatment plan to help ease your side effects.

Look for patient assistance programs from your drug's manufacturer if you struggle to afford copayments or coinsurance costs. Ask your doctor's office or pharmacy about any coupons or rebates available for you. Go online to find your drug's website, where these programs will be listed. You may be eligible for these programs, so find out! A great resource is: creakyjoints.org/support/arthritis-copay-cards-assistance/

Ask your doctor about clinical trials for new or existing AS treatments that may be available for you. Ask about current trials, and if you qualify for one, ask about any costs you may have to bear (such as travel to a clinic), or the trial's possible risks and benefits for you. All trials are listed at www.clinicaltrials.gov

Talk to your rheumatologist about biosimilars. These are being approved now for AS. They may offer you effective treatment at lower cost, but not every drug is right for every patient. So talk to your doctor about your options. Also, ask your insurance company or specialty pharmacy about your out-of-pocket cost for both your biologic and its biosimilar, if there is one. You deserve clear, simple information on all your treatment options. The Global Healthy Living Foundation's (GHLF) page www.healthybiologics.org is one good source of information.

Treat your emotional and mental health symptoms as seriously as your physical AS symptoms. Tell your rheumatologist and nurses if you're anxious, depressed, blue, not sleeping at night, or not able to get through the day because you're worried about AS. Seek care from a mental health professional or counselor. Find support and comfort from other AS patients in local groups or online. Remember that you are not alone.

Take advantage of any program that could help you afford the AS treatments you need and deserve. Ask your doctor or nurses about **copay assistance programs** like coupons or rebates from your treatment's manufacturer. Also, **go online** to find your drug's website. Look for **patient assistance programs** there that may help you lower your out-of-pocket costs if you qualify. Also, **call your insurance company** to ask about the details of your drug coverage, **talk to your pharmacist** or **call your specialty pharmacy** to ask about your options or possible discounts. **Compare pharmacies' prices** if that's an option for your drug coverage. **Ask your employer's HR department** if your insurer has a patient advocate or employee assistance programs as part of your coverage. These advocates or advocacy programs are designed to work on your behalf to provide information or assistance related to your healthcare.

PART TWO

Introduction

When you have **ankylosing spondylitis (AS)** you want to make sure you're getting the right treatments for your symptoms, feeling better, and protecting your joints and organs from possible damage.

You can make sure that you're receiving the right treatment by working with your **rheumatologist** to come up with a **plan** designed for your specific needs. Your AS journey will not be the same as others with AS. Your disease is personal and it is important to remember that not everyone fits into the same box.

RAISE YOUR VOICE: Your life with your AS is your journey to take. You can and should be involved in every step of decision making about your AS treatment. Never be afraid to speak out, speak up, or ask questions about your treatment plan. **Speak up** when you're at your first appointment with your rheumatologist, and at every medical appointment you have. **Bring a notebook** or with you or **use your smartphone's Notes app** to you write down any instructions from your doctor about your treatments, as well as your questions and concerns about your treatments. Write down questions or concerns ahead of time so you can share them or clear up confusion at your appointment. **Don't be shy** about asking about the costs of each potential treatment, as well as any possible side effects — including how each drug could affect you or your baby if you or your partner want to get pregnant in the future. While your doctor prescribes your drugs, **you're a full partner in any decisions** about your treatment options.

What's the goal of your treatment plan for AS? Typically your doctor will aim to reduce your pain and stiffness, help you maintain good posture, prevent deformity, and preserve your ability to perform normal activities.

Every person's AS is different. You won't start at the same point as other people with this disease. But no matter where your starting point is, you'll take certain AS treatments in order to reduce your symptoms and prevent deformity and/or loss of function.

In these guidelines, we'll talk about all of your treatment options, including things that you can do in addition to taking drugs, like:

- Integrative medicine and complementary therapies, including herbs and supplements
- Exercise, including yoga and aerobic workouts like walking or swimming
- Diet changes you can make to stay at a healthy weight and protect your heart and joints

The most important part of your treatment plan is *you*. You're the one living with AS every day. You're the one who feels the pain, stiffness, fatigue, and stress that sometimes comes with it. You're the one who has to manage your life with AS, including taking your meds and juggling appointments. The guidelines outline the most commonly understood treatments, but research is still being made to improve life with AS.

We want you to be an active part of your arthritis treatment and care. That's why we created this guide: So you can see which drugs are recommended to treat your AS, why you may want to try some drugs or combos before you switch to something else, and what other kinds of therapies may work for your symptoms too.

After you read this guide, you can have a discussion with your rheumatologist about your treatment options — not just listen. You may find that you have new questions about your treatment plan. You can feel more in control of your journey with AS, one that will lead you to a better quality of life and peace of mind.

This guide will also help you as you talk to your insurance company, your pharmacist, your benefits manager at work, or even your members of Congress. How many times have you wanted to speak up about your prescriptions, or ask questions about how well they work or their side effects — but didn't feel that you knew where to start? Now you can.

RAISE YOUR VOICE: You are never alone on your AS journey. **Join with other AS patients** in local or national advocacy groups like CreakyJoints' 50-State Network. **Be an advocate** to make sure your opinions and concerns are always heard by the people who create healthcare laws. Being an advocate doesn't mean you have to sit through lengthy meetings or write lots of letters — those are not everyone's favorite things to do, and you may worry that you don't have time to devote to advocacy. **But it's actually easy**. You can **email** other arthritis patients online and start talking about current treatments, insurance coverage issues, or new laws affecting your access to arthritis drugs. You can **add your name or sign online petitions** with a simple click. Or you can just **stay informed** on social media and lend your voice when the time is right for you. Go online, sign up, join phone or email chats, share your thoughts, and attend live events if you can. Check out Facebook.com/CreakyJoints or @CreakyJoints on Twitter. There's strength in numbers!

PART THREE

Treatment Guidelines

So how does your rheumatologist or other health professional come up with your treatment plan? The primary way is to follow the current AS treatment guidelines. In September of 2015, the first-ever treatment guidelines for U.S. physicians in AS were released by the American College of Rheumatology (ACR), the professional association of rheumatologists in the U.S.

Guidelines are usually written and funded by doctors' associations — what we call the "professional medical societies." The ACR is the world's largest society of rheumatologists and rheumatology health professionals. Every two years, guidelines for major types of arthritis are updated. Why? So new, important research can be considered by the best arthritis experts, and then they can all agree on how to turn that information into up-to-date recommendations for your arthritis treatment.

You can read the full, published guidelines online. If you find it a little hard to understand, that's because the AS treatment guidelines are written for doctors and other healthcare professionals.

Leading experts on AS create the guidelines as a team. This team or panel includes rheumatologists, rheumatology health professionals, and patients like you. They come up with a final report full of recommendations based on recent scientific information and patient feedback about how best to treat AS. They're meant to help your doctor make decisions about your prescriptions and other approaches to disease management. They recommend what treatments to use first in most people with AS, and then other options if the first try doesn't work well enough to lower your disease activity. It's hard to say how well you may or may not respond to a particular drug. Remember, guidelines are just recommendations. Each person with AS is different and there is no "one size fits all" when it comes to treating AS.

RAISE YOUR VOICE: If your rheumatologist asks you to be a part of a patient focus group or local advocacy event, or even just to answer a patient survey about AS treatments, take part if you have time. Even a little information from the patient's point of view can help influence healthcare policies that benefit you and others who are taking the same journey. Share your opinions, feelings, and advice with other AS patients and their families. You'll find that you're part of a caring, powerful community.

Your doctor may use the guidelines to decide if and when is the best time for you to switch treatments — such as if your first treatment doesn't work well enough to control your AS symptoms. Guidelines are recommendations — based on the best information on AS treatments available, and updated regularly (every other year).

The guidelines' recommendations are often used by people who make decisions about how AS is treated, including:

- Doctors like your rheumatologist or primary-care physician
- Nurses, nurse practitioners, or physician assistants who treat arthritis patients
- Insurance company staff who decide which drugs to cover in their formularies
- Pharmacists who dispense drugs, including at mail-order specialty pharmacies
- Members of Congress or state legislatures, who vote on drug and healthcare laws

All recommendations for how to treat different types of AS patients are based on **evidence**. That means the experts who write the guidelines take these important steps:

- Gather research done at the world's top hospitals, universities, and labs by the top experts in arthritis, including current studies and data published in top medical journals around the world

- Read, discuss, and debate all of the evidence on AS treatments in these studies
- Go over everything from drug side effects, interactions, risks of using treatments in patients with other diseases, ease of using the drug in real life, and even availability and cost
- Come up with recommendations based on this evidence on how to best treat people with AS

So that's why we've created these AS treatment guidelines for you. It's written by patients just like you, and it's designed for you to read and understand easily. You can use it when you:

- Talk to your rheumatologist or other health professionals about your treatment plan
- Call your insurance company about which drugs are covered under your policy
- Meet with to your local legislator or write your member of Congress about healthcare laws

You can use these recommendations to be an active voice in the conversation about your health and your AS treatment options. Too often, people who have AS aren't a part of conversations about their care, or the big debates about which drugs insurance plans will cover. You may feel like your doctor just hands you a prescription to fill, but you don't get to really talk about your treatment options — or what may happen once you are taking them. You may feel like your insurance company just decides which drugs are best for you — instead of getting your input on what really works and what's most "cost-effective."

RAISE YOUR VOICE: When you and your healthcare provider decide on a treatment plan, you're likely to encounter challenges along the way in accessing that care. You will inevitably become familiar with terms like "**fail first**," "**step therapy**," and "**prior authorization**," which all refer to processes established by health insurance companies to *manage care* to control costs — many times to the detriment of the patient. It is important to understand how these processes work so that you are prepared to advocate for yourself when you speak to your insurance company and doctor — especially if you are denied access to a medication you need. Information can be found online at www.FailFirstHurts.org, as well as from your individual insurance company. GHLF's advocacy initiative, the 50-State Network, is a coalition of patients that works to bring the patient perspective to state and federal lawmakers considering policies to prevent step therapy, which can wreak havoc on the lives of patients with chronic disease.

RAISE YOUR VOICE: Stay up to date with the latest changes to AS treatment guidelines and current drug approvals by following CreakyJoints online. Go to www.creakyjoints.org for news and articles about patients like you to find out how others are dealing with treatments or coverage challenges. Follow @CreakyJoints on **Twitter,** or like the CreakyJoints **Facebook** page to hear news updates and share your thoughts. Other sources: For updated guidelines and new treatment approvals, check out the American College of Rheumatology's website, www.rheumatology.org. The FDA, www.fda.gov, also posts updates on new arthritis treatments. Information is power, and it's just a click away on your phone, tablet, or computer.

These guidelines will give you all the information about AS treatments you need to make informed decisions, ask questions, and speak up about your healthcare. New treatments for AS are being studied now, and many will be approved and available for you to take in the next few years. So we'll update these guidelines regularly. That way you can get up-to-date information about all the treatments for AS.

We are including some information about arthritis medicines that are not yet available in the U.S. These are still being studied in what are called clinical trials (which we'll also explain). We want you to know what treatments may be in the works so you can keep an eye on the news and be ready to ask your doctor about them if they're approved soon.

As your doctor and you begin a treatment plan, you can talk more about what options may work best for you. If you have any specific questions or concerns about your treatments — including possible side effects, cost, how they need to be taken or stored, and how they may affect your family planning goals — please let your doctor know.

We hope this guide will help you feel more confident about asking questions and speaking up about your treatment plan. We also encourage you to check out the resources that the Spondylitis Association of America (⧉ www.spondylitis.org) provides. They have a robust support group network and are rated four stars (the highest) from Charity Navigator.

RAISE YOUR VOICE: Don't wait until side effects become too much to bear to speak up about your treatments. Call, email, or speak to your doctor's office right away to see if you can change your dose, take your drugs with food to ease nausea, switch drugs, or take another medication along with your drug to ease these effects. Also, if you struggle to afford your treatment copays, coinsurance costs, or payments against your insurance deductible, please contact your doctor's office, pharmacist, insurance company, or even the drug's manufacturer to find out if you can get help with these costs. Don't skip a dose of your medicine or stop taking it before you let your doctor know.

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PART FOUR

Ankylosing Spondylitis Overview

Ankylosing spondylitis (AS) is a chronic type of arthritis that causes inflammation, pain and stiffness most often in the spine and the joints located just above the tailbone, called the sacroiliac joints. Inflammation means that your body's immune system is releasing chemicals into your blood and joints that cause pain and stiffness. Why? Because when you have AS, the normal signals that tell your immune system to spring into action — to protect your body from harm by viruses, bacteria, or injuries — are crossed. That's called autoimmunity. In an autoimmune form of arthritis like AS, your immune system triggers inflammation and attacks your healthy joints and tissues by mistake. That's why you have pain and other symptoms.

The inflammation that AS causes in the spine and joints above the tailbone can, in some people, result in the fusing together of some of the bones in the spine. In severe cases, this can affect your posture to such a degree that you become hunched-forward and cannot lift your head high enough to see ahead of you. AS can also affect tendons or ligaments where they attach to the bones. This is known as enthesitis. For example, when it affects the ligaments in the ribcage it can make it difficult to breathe. AS may damage organs such as the lungs and may even affect the eyes. Men tend to get AS more than women and the disease typically begins in early adulthood.

While there is no specific cause of AS, experts believe that your genes may play a role. If you carry the gene called HLA-B27 in your family, you may have a significantly greater risk of developing the AS. However, you don't have to have the HLA-B27 gene to develop AS. In fact, most of the people with this gene never contract the disease. Experts believe that something in your environment, such as an infection caused by bacteria, is needed to trigger AS. One theory suggests that AS may be caused by bacteria from your intestines getting into your bloodstream in the area of the body where the sacroiliac joints are located.

It is important to note that the course of AS and the symptoms can be very different from person to person. Symptoms usually begin in early adulthood (between age 17 and 45), but in some people symptoms can start in childhood or much later in life. The most common symptoms of AS are pain and stiffness in the lower back and hips, and this pain is worse after periods of inactivity or when you wake up after sleeping. Areas most commonly affected are:

- The joints between the base of the spine and the pelvis
- Bones in the lower back
- Cartilage (a rubbery type of tissue) between the breastbone and ribs
- Between the shoulder joints

At first, you may feel pain only on one side of your body, or it may alternate sides. The pain is usually dull and feels like it's all over your body, rather than localized. In the early stages of AS, you might also have a mild fever, loss of appetite and general discomfort.

People with AS often describe an ongoing, dull pain that feels like it's coming from deep within their lower back or buttocks, along with morning stiffness. It is not unusual for symptoms to worsen, get better or stop completely at regular intervals. One very important symptom is back pain that wakes you up in the middle of the night. It is important to note that inflammatory back pain is different from mechanical back pain and often people with AS find that exercise can help reduce pain. People with AS may also have fatigue and lose range of motion and flexibility in their spine because the joints fuse together. Sometimes the disease makes it hard for the chest to expand when you breathe in. The most serious complication is fracture of the spinal bones. In approximately two to 10 percent of people with AS, AS causes various types of heart disease.

There is no cure for AS but early diagnosis and treatment can ease pain and other symptoms. To prevent these painful AS symptoms from happening or to slow them down, you have to get your inflammation under control. That's what your treatment plan — including your AS drugs and other steps like exercise — is designed to do. The goal of treatment is to reduce the pain and other symptoms, help you maintain normal posture and flexibility in your spine, reduce any limitations in your daily functioning and prevent or delay the complications of AS, including spinal deformity.

AS treatment is usually most successful if it starts before the disease causes irreversible damage to your joints. There are a number of medications used for AS. You can learn more about these in the Treatments section. Surgery is usually only used for people with AS who have severe joint damage.

Because AS can involve so many different systems and parts of the body, it can be difficult for your doctor to monitor your disease. Different doctors use different methods to measure your disease activity and check your progress, including your medical history, blood tests and various types of imaging such as x-rays or MRI. When you have AS, your disease activity includes three key things: persistence of your symptoms, how likely you are to develop severe AS disease and damage or deformity of your bones, and your response to treatment.

Doctors may use the the Bath Ankylosing Spondylitis Functional Index (BASFI) and the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) – two surveys that ask you about your symptoms such as overall fatigue, pain, joint swelling and stiffness, and how AS is affecting you and your daily activities. These surveys can help your doctor to determine whether you need a different or perhaps a more powerful drug.

There are signs of inflammation in your blood that your doctor can test. These test results can show how active your disease is and how well your treatments are working. These are often called inflammatory markers. You should know that not everyone's markers correlate with their disease activity. You may be having pain and swelling while these markers look normal or vice versa:

- Erythrocyte sedimentation rate (ESR) or "sed rate"
- C-reactive protein or CRP

X-rays of the spine or sacroiliac joints can show how your AS is progressing and whether you have any joint damage. Magnetic Resonance Imaging (MRI) of the spine is gaining wider acceptance among doctors as an important tool to show your level of ongoing inflammation. Your doctor will determine which drug or drugs to prescribe based on the results of these tests, along with other factors including:

- Joint or organ damage
- Other diseases you have, such as liver or lung disease
- Possible reasons that the drug could do you harm and mean you should avoid it
- Your personal preferences, such as drugs that are taken as pills or injections
- Potential medication side effects

Side effects are changes that can occur in our bodies as the result of using a particular medication or device. Side effects can be mild or severe and can vary greatly from person to person.

Contraindications are situations when you should avoid taking a certain medication for health reasons. For example, you should not take disease-modifying antirheumatic drug therapy (a medication that is sometimes used to treat AS when non-steroidal anti-inflammatory medicines (NSAIDs) are not enough to control the pain, stiffness and inflammation) if you are pregnant; have alcoholism; have alcoholic liver disease or other severe chronic liver disease; have immunodeficiency syndromes such as HIV/AIDS (some patients with HIV can take DMARDS and biologics under careful monitoring), in which your immune system is not working properly (overt or laboratory evidence); or have pre-existing blood dyscrasias (for example, bone marrow hypoplasia, leukopenia, thrombocytopenia, or significant anemia).

If you have active hepatitis A, B, or C, you will need to be treated for that by a liver specialist before you take any drugs for your AS that suppress your immune system or affect your liver. Your liver specialist and rheumatologist can both decide, if once your hepatitis is either stabilized or being treated, that you can start to take certain medications for your AS. But you'll need to be monitored closely. You may need to come in for blood tests often.

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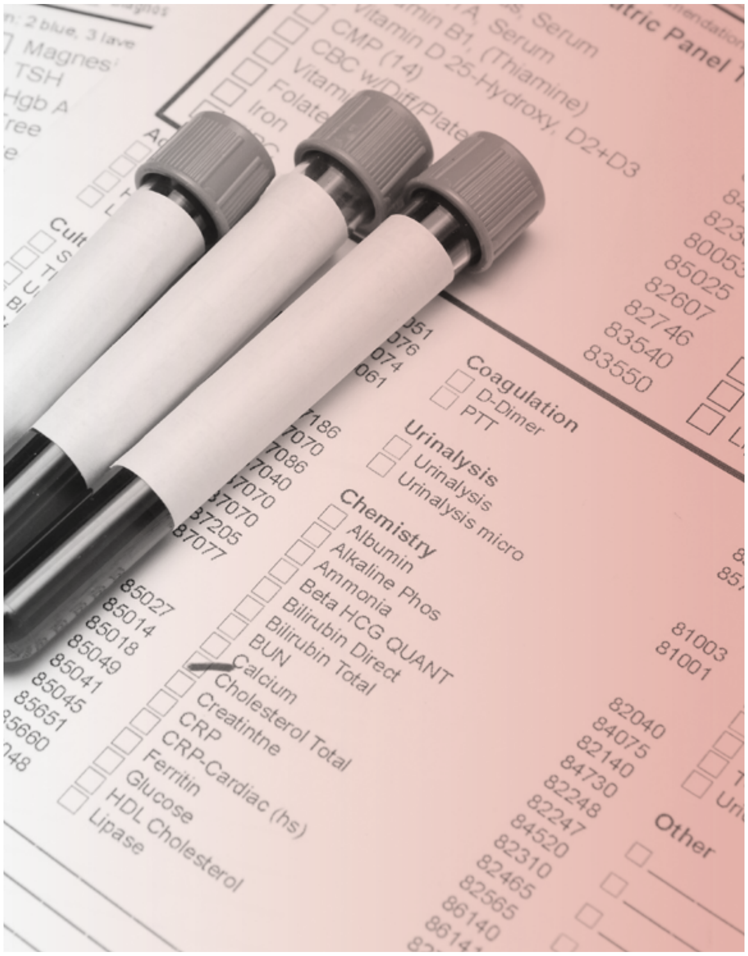
PART FIVE

Monitoring



How often should I see my doctor for lab work? Monitoring with blood tests (commonly referred to as "lab work") is recommended to make sure the treatment that you and your doctor select is both safe and effective. Your doctor may recommend lab work while taking medications for AS, especially when you first start a new medication.

What do my labs mean? Your lab tests are used to monitor your health during your treatment plan. The most common tests will monitor your liver, your kidney function, your blood counts and inflammation markers.

Liver toxicity is measured with **transaminase (AST/ALT)** levels. A transaminase is a type of liver enzyme. Your liver can make and release transaminases when it's injured in some way. Higher transaminase levels may indicate liver damage.

Creatinine and **BUN** (blood urea nitrogen) levels are used to assess your kidney function. Even if the AS medication you are taking does not impact the kidney, it is important to keep track of its function because a change in kidney function can affect the level of your AS medicine in your blood. Creatinine is a waste product that your kidneys filter and remove through your urine. Your kidneys also remove and flush out urea, a waste product of protein breakdown. If your creatinine or BUN levels are high, it means your kidneys are not able to filter these waste products and they could build up and cause problems.

Complete Blood Count (CBC) testing is done to ensure that you have the right amount of red blood cells, white blood cells, and platelets in your blood. Certain medications used to treat AS, such as DMARDs, can affect the bone marrow that makes these blood cells. It's important to keep these different types of blood cells in balance for good overall health. If your CBC is abnormal, your doctor may change the dose or type of drug you are taking.

Sometimes it might be necessary to measure levels of a medication in your blood to check for toxicity or to make sure you are taking enough of the medication. This test will ensure the drug level in your blood is both effective and safe. Drug levels and anti-biologic antibody levels are obtained when there is a question regarding a flare that may have occurred and the need to consider an alternate biologic.

Because AS is such a complex disease, there is a spectrum of outcome measures used to assess disease activity in people with AS. The blood tests most commonly used to check AS disease activity are C-reactive protein (CRP) and erythrocyte sedimentation rate or "sed rate" (ESR). However, only 50 to 60 percent of people with active AS disease show elevated levels of CRP and/or ESR. Your doctor may use these blood tests along with other tests, as well as asking you questions about your symptoms and daily functioning, to get a more complete overall picture of how your AS is progressing.

Imaging: There are various imaging techniques that can monitor the effect of AS on your bones and joints, and how well you are responding to treatment. The most common and widely used technique is the x-ray. MRI (magnetic resonance imaging) can show inflammation in the spine and sacroiliac joints and whether the inflammation has increased or decreased over time. MRI can give your doctor important information about disease activity.

ArthritisPower: Patient-Reported Data and Outcomes Measures

As an arthritis patient, you may think that you have to be passive about your treatment. But you can do more than just follow your doctor's instructions, take your medications, and speak up only when your doctor asks you if you have any questions.

In fact, **you** are the most important player on the team when it comes to fighting your AS or other rheumatic diseases. Your experiences—how your therapies work, how your symptoms impact you, what side effects you may have, what challenges you face day-to-day – are vital pieces of information that can help your rheumatologist track and improve your therapy. Your input, when combined with information given by other patients like you, can also drive AS research in the right direction and help uncover clues about the disease and how to manage it better.

Today you have an even easier way to provide meaningful information to guide your treatment and fuel new arthritis research: www.arthritispower.org

How does ArthritisPower work? You simply download the app onto your iPhone or Android phone or tablet, or load it onto your home computer. Then, as you go about your daily life, keep track of your treatments, medications, symptoms, pain flares, physical function and more via the app while automatically sharing the information with rheumatology researchers. You can also track your progress and see where you may need to make changes to your treatment plan.

ArthritisPower lets you share summary progress reports about your personal health with your rheumatologist through a secure email system. In addition, you can share your data securely and anonymously with the arthritis research community. The information you provide about your experiences are so valuable as researchers work to improve arthritis therapy.

How you fare day to day with your arthritis, or how you react to the drugs you take for your disease, are called **patient-reported outcomes** (PROs). That information is very important to arthritis researchers as well as your rheumatologist. Patient-reported outcomes let your rheumatologist measure how you're doing once you start (or taper from) a new therapy, or what impact certain therapies like exercise have on your function or well-being.

Monitoring

Your rheumatologist may ask you to fill out simple questionnaires that measure your outcomes. It's important for you to take a few minutes to respond to these questions. Your honest answers will help both you and your doctor track your health, how well your medications are working, and what may need to be changed so your symptoms or well-being improve.

Patient-reported outcomes are also used by arthritis researchers as they study the disease. So the information you give about yourself plays an important role in shaping the future of arthritis treatment – hopefully, making treatments more effective and safer for everyone with this disease.

While your blood tests and imaging scans are one way to track your disease activity or progress, your rheumatologist needs to know how well you are doing day-to-day. How can you track how well you can use your joints for ordinary tasks, how you feel or how much energy you have in between appointments? Through simple questionnaires and by tracking your daily experiences with ArthritisPower.

Outcomes are the results of your treatment. Patient-reported outcomes tell doctors how therapies may or may not improve your physical ability, symptoms or long-term progress. If a new treatment you take only improves indicators on your blood test results, but not how you feel, is it really working for you? Only by sharing and tracking your outcomes can you really tell how well your treatment plan is working.

Some patient-reported outcomes measures include:

- **HAQ-DI (Health Assessment Questionnaire-Disability Index)**: thorough questionnaire to measure your physical function or disability due to your arthritis
- **RAPID3 (Routine Assessment of Patient Index Data 3)**: short questionnaire where you report your physical function, pain and estimate of your status (how you're doing)
- **VAS (Visual Analogue Scale)**: easy tool to track and measure your pain
- **ACR Core Set**: Thorough measures that include results of three PROs (disease activity, pain and disability) along with laboratory test results
- **FACIT-F (Functional Assessment Chronic Illness Therapy: Fatigue)**: Questionnaire that helps to measure your levels of fatigue due to your arthritis
- **Bath Ankylosing Spondylitis Disease Activity Index (BASDAI):** Questionnaire that uses a scale of one through 10 to answer six questions about the five major symptoms of AS
- **Bath Ankylosing Spondylitis Functional Index (BASFI):** Questionnaire that measures how your AS is affecting your daily functioning, such as your difficulty or ease getting up from a chair, putting on your socks or picking something up off the floor

Learn more about ArthritisPower today. Download the free app and get started. And be honest! Stick with it so you provide meaningful information about your health over time. This data will really help you see how well you're doing, how well your treatments are working, where you need to make changes to your routine, and what arthritis researchers need to know as they find new treatments and, one day, a cure. It is a very simple, fast and reliable way to make sure your voice is heard!

PART SIX

Treatments

NSAIDS

Introduction

Nonsteroidal anti-inflammatory drugs, or NSAIDs, are the most commonly used treatments for AS inflammation stiffness and pain. While your DMARDs are designed to slow or stop your inflammation at the source in your body's immune system and, therefore, ease joint swelling and pain, you may also take NSAIDs from time to time **as needed for pain**. NSAIDs are generally safe to use for minor flares of pain, but they do have many possible side effects if you take them for a long time or in high doses. **Side effects include bleeding, damage to the kidneys, gastritis/bleeding ulcers, fluid retention and high blood pressure.**

What We Already Know

NSAIDs prevent the creation of fatty acids made by your body called prostaglandins. These acids are the products of COX-1 and COX-2 enzymes and play a role in inflammation and pain. Some NSAIDs block both COX-1 and COX-2, although COX-1 also helps keep your stomach acid under control. Meloxicam (Mobic) is an NSAID that blocks Cox -1 and Cox -2 receptors but preferentially blocks Cox-2. Celecoxib (Celebrex®) is an NSAID that only blocks Cox-2 receptors. They may be gentler on your stomach than other NSAIDs.

The ACR believes that most AS patients benefit from treatment with NSAIDs and that the positive consequences far outweigh undesirable consequences for most people. Your doctor may change your NSAID dose depending on how severe your symptoms are. Whether or not your doctor recommends that you use NSAIDs continuously will depend on the severity of your symptoms and how often you have them, other diseases you may have and your personal preferences.

Common NSAIDs you might take for your AS pain:

- Aspirin (Bayer ®)
- Ibuprofen (Advil®, Motrin®)
- Naproxen sodium (Aleve®)
- Celecoxib (Celebrex®)
- Diclofenac sodium (Voltaren®)
- Indomethacin (Indocin®)
- Ketoprofen (Actron®, Orudis®)
- Piroxicam (Feldene®)
- Meloxicam (Mobic®)

Some NSAIDs are available over the counter, generally at lower doses for mild pain. These include aspirin, ibuprofen and naproxen sodium. You can also buy generic or "store brand" versions of these medicines.

For stronger pain, there are higher doses of NSAIDs available by prescription. Some NSAIDs are only available by prescription. Don't take an over-the-counter NSAID if you're already taking a prescription NSAID. You could easily take too much medicine and put yourself at high risk for side effects like stomach pain, bleeding, fluid retention or kidney problems.

No one NSAID is more effective than others. It's up to you and your rheumatologist to decide which one may be right for you to take for your arthritis pain. Your rheumatologist will decide which NSAID to prescribe based on your personal history of NSAID use, the potential for side effects and other diseases or conditions you may have.

Why Am I Taking an NSAID?

You may need to take an NSAID for joint pain or stiffness from time to time. Or, your rheumatologist may prescribe a stronger NSAID for your pain if needed. You may not have to take NSAIDs long term. You may just need to take an NSAID on days when your pain feels worse than normal. If you overdo physical activity on certain days and ache afterward, an NSAID may be helpful for relieving your short-term pain.

If you have osteoarthritis (OA) in addition to AS, you may need to take NSAIDs to help you control your OA pain – which might be caused by a different process in your body.

Some people with AS control their joint pain, inflammation or stiffness with their DMARDs, biologics or steroids. So you may not need NSAIDs at all or only once in a while. Other people may find that DMARDs or biologics don't work well enough to control their pain, and need to take an NSAID too. For others, an NSAID is the only treatment they need. It depends on your body, your day-to-day pain, and how well your other drugs are working to keep your AS under control.

Since taking NSAIDs regularly for pain can cause serious side effects, talk to your rheumatologist about the best way to ease your pain. He or she may suggest that you keep NSAIDs on hand just in case you need them.

Lots of NSAIDs are available over the counter (OTC) in your local drugstore or supermarket, including ibuprofen (Advil®), naproxen sodium (Aleve®) and aspirin. Even these OTC pills can have serious side effects, especially if you take them often. Talk to your rheumatologist about your options for managing your pain. Also, make sure your rheumatologist knows everything you are taking for your pain, even OTC drugs or supplements.

What are the possible side effects of NSAIDs?

NSAIDs can be safe depending on your age and other illnesses that might affect whether you can take NSAIDs. If you have hypertension, diabetes, cardiovascular disease, history of ulcers or any type of kidney problems you may not be able to take even OTC NSAIDs or must be followed very closely by your doctor.

The most common side effect of taking NSAIDs is stomach pain or heartburn. Others include:

- Bleeding
- Kidney problems
- Raised blood pressure
- Fluid retention
- Increased risk of heart attack or stroke
- Ringing in your ears
- Lightheadedness or dizziness
- Headaches
- Allergic reactions, or liver problems (rarely)

If you notice any of these symptoms, get medical care right away:

- Vomiting
- Swollen ankles, hands or feet from fluid retention
- Black or bloody stool
- Unusual weight gain

Your risk of side effects goes up if you take higher doses of NSAIDs or take these drugs over long periods of time. Also, people who are older or have a history of ulcers may be at higher risk for stomach problems with NSAID use. Talk to your rheumatologist about your options for managing chronic pain.

Celecoxib and meloxicam treat arthritis pain as effectively as other NSAIDs, but because they only block COX-2 and not COX-1, they may be easier on your stomach. COX-1 is a prostaglandin that protects the lining of your stomach. So celecoxib and meloxicam may ease your pain and reduce risk of stomach pain or ulcers.

How to monitor for side effects

Let your doctor know if you have unpleasant side effects like heartburn, stomach pain or fluid retention. Don't "grin and bear it." **It is important to know that many times bleeding ulcers from NSAIDs have no symptoms at all. So it is important to be monitored by your physician for any drop in your red blood cell count or darkening of the color of your stools.** Your rheumatologist may be able to lower your dose or suggest another medicine for your pain. Don't try to treat severe stomach pain or heartburn on your own.

Keep up with all of your regular check-ups so you can track your blood pressure and other vital signs while you take NSAIDs. Taken over a long time, these drugs can raise your risk of serious heart problems. If you already have high blood pressure, it's important to **check your blood pressure often and if it is increased you may need to stop or adjust the dose of the NSAID. Increased blood pressure can damage your kidneys and increase your risk for a heart attack or stroke.**

What can I do to help prevent or ease side effects?

If you have side effects from your NSAIDs, such as stomach pain or heartburn, you may be able to add another medicine to lower your stomach acid. **There are many drugs called proton pump inhibitors that can reduce your risk of ulcers. They include:**

- omeprazole (Prilosec®, Prilosec® OTC)
- lansoprazole (Prevacid®, Prevacid® IV, Prevacid® 24-Hour)
- dexlansoprazole (Dexilent®, Dexilent Solutab®)
- rabeprazole (Aciphex®, Aciphex® Sprinkle)
- pantoprazole (Protonix®)
- esomeprazole (Nexium®, Nexium® IV, Nexium® 24 HR)
- omeprazole/sodium bicarbonate (Zegerid®, Zegerid® OTC)

Some of these can be purchased over the counter and others you may need a prescription.

Some simple ways you may ease NSAIDs' side effects include:

- Take the lowest possible dose you need to manage your pain.
- Take your medicine with food, such as your normal meals or a snack. **It should be noted that taking NSAIDs with food will not lower your risk of an ulcer. It may increase the tolerability of the NSAID but it won't reduce the toxicity.**
- Try coated aspirin instead of uncoated. **Please note, this may only increase the tolerability of aspirin and not decrease the risk of an ulcer.**
- Avoid the long-lasting, "once-a-day" NSAIDs, because they stay in your system for a longer time than quick-acting ones.

Consider using acetaminophen (Tylenol®) for occasional joint pain instead of NSAIDs. It has some side effect risks too, so talk to your doctor before you take any OTC drug for arthritis pain.

Discuss with your doctor the synergistic effect of acetaminophen (Tylenol®) with NSAIDs to allow the minimum NSAID dose possible.

BIOLOGICS

Biologics are a type of medication produced by living cells. They're designed to act like the proteins that are already in your body. They target specific areas of your immune system to block them from working. Because they're so specific, they can cause fewer side effects than DMARDs. Infection is one possible side effect of biologics. Your rheumatologist will watch you closely for any signs that you have an infection. Biologics can be used alone or in combination with methotrexate or another DMARD. Due to their specificity, if one biologic fails, another may work for you. Keep the dialogue open with your doctor in the case that you may need to switch.

TNF Inhibitor (TNFi) Biologics

These biologics work by targeting something called **tumor necrosis factor** protein, or TNF. TNF is a protein that sends signals to your body, eventually leading to inflammation that causes swelling, pain, and stiffness. By inhibiting, or stopping, TNF, these medications can reduce inflammation. That's why they're often called **TNF inhibitors** (or TNFi).

Some common TNFi biologics are adalimumab (Humira®), certolizumab pegol (Cimzia®), etanercept (Enbrel®), golimumab (Simponi®), and infliximab (Remicade®).

These biologics are molecules that are specially designed to target TNF and block it at the source. They can cool down your immune response that's out of control in AS in order to ease your AS symptoms. They may have the potential also to protect your joints from damage.

The ACR treatment guidelines strongly recommend using TNFi's for patients who have a lack of response to at least two NSAIDs, or cannot tolerate NSAIDs due to side effects. The guidelines do not favor any specific TNFi, although they noted that infliximab (Remicade®) or adalimumab (Humira®) would be preferable for AS patients who also have inflammatory bowel disease or recurrent iritis (inflammation of the colored ring around your eye's pupil).

Personal considerations such as out-of-pocket cost, comorbidities, and side effects may make TNFi therapy the best option. Make sure you have a talk with your physician about why a certain treatment option is best for you. Treatments like TNFi drugs are very case-specific.

How do I take my TNFi biologic?

You may be able to give yourself this medication, via injections, at home (known as "self-injection"), or via an infusion in the doctor's office or other infusion site. A healthcare professional will indicate where on your body it is safe to administer these injections (usually the upper leg or stomach). Make sure to rotate the injection sites. If you have psoriasis, do not inject in the affected areas. If you're afraid to inject yourself, talk to your nurse, clinic staff, or pharmacy about having someone there give you these shots.

Be sure you are confident on how to do this procedure before you inject the medication on your own. Don't be afraid to ask for help!

You may also get your biologic as an infusion instead of a shot. A healthcare professional gives you the drug through an IV. You'll get your treatment in your doctor's office, at a special infusion center, or at your local hospital. You and your doctor can decide if an infusion is the right option for you. The infusions can last as little as

30 minutes, or could take up to several hours — depending on the drug, dose, and individual.

Adalimumab (Humira®) is given as a 40 mg self-administered subcutaneous (under the skin) injection every other week.

Certolizumab pegol (Cimzia®) is given as a subcutaneous injection of 400 mg on weeks 0, 2, and 4, followed by 200 mg every two weeks or 400 mg every four weeks. Cimzia® can also be given in a lyophilized (dehydrated and freeze-dried) formula that is given in the doctor's office.

Etanercept (Enbrel®) is given as a 50 mg self-administered subcutaneous injection every week or 25 mg self-administered injection twice weekly.

Golimumab (Simponi®) is given as a 50 mg self-administered subcutaneous injection once monthly.

Infliximab (Remicade®) is given via IV infusion in the clinic or infusion center at weeks 0, 2, and 6, then by infusion every four to eight weeks. Dose is based on weight.

The benefits of TNFi medications are usually seen within a few weeks (but can take up to four to six weeks), unlike DMARDs, which can take up to a few months to have their effects.

Side Effects

Side effects of TNFi drugs might include injection site reactions, upper respiratory infections, laboratory abnormalities, and headache. The likelihood of experiencing these and any side effects vary from individual to individual, and should always be discussed with your doctor before beginning treatment.

Infliximab has been associated with the development of antinuclear and anti-double stranded DNA antibodies, nausea, abdominal pain, and infusion reactions. Serious side effects include increased risk of infection, especially tuberculosis and fungal infections. Untreated hepatitis B may worsen while taking TNFi's. You should be tested for TB and hepatitis before starting one of these medications.

Less common side effects include allergic reaction and development of other immune system disorders. If you have had cancer of any type, or have an increased risk, you will need to discuss the various options with your rheumatologist regarding the use of any biologics.

If you think that you might have an infection, check with your doctor before taking your drug. Biologic drugs make it harder for your body's immune system to fight off infections. They may even make it harder for you to spot the early signs of infection, so talk to your doctor about what to look for.

For more information, go here: www.rheumatology.org/I-Am-A/Patient-Caregiver/Treatments/Anti-TNF

If you're planning to have surgery, talk to your rheumatologist first. You may need to go off your biologic for some time before you have the surgery.

Contraindications

Live and attenuated live vaccines, such as the shingles vaccine, yellow fever vaccine, and Flumist® (intranasal flu vaccine), should not be given when taking a TNFi biologic. These medications can interact with vaccines and certain foods and medications. Make sure you talk to your doctor about current medications, planned vaccinations, and any diet changes you make (use of vitamins, herbal products).

Adalimumab (Humira®) specifically interacts with blood thinners (i.e. warfarin (Coumadin®).

Treatments

Existing Conditions

Congestive Heart Failure (CHF): TNFi biologic therapy is not recommended for patients living with uncontrolled CHF, as it can lead to a worsening of this condition.

Previous Serious Infection: TNFi drugs have been found to increase the incidence of pneumonia, tuberculosis (TB), certain fungal diseases, and skin/soft tissue infection. You will be required to be tested for TB before starting any biologic drug.

Hepatitis C without Receiving Antiviral Therapy: The ACR recommends that your physician speak with a gastroenterologist and hepatologist to consider the management of these two disease states. A TNFi can be carefully administered while managing treatment of hepatitis C.

Previously Treated Lymphoproliferative Disorder: TNFi's may increase your chances of lymphoma. While an increased risk of lymphoma in AS patients taking TNFi's compared to a non-AS population has been shown in studies, studies with AS patients taking these biologics showed a minimal risk of developing lymphoma if at all.

People who have or have had multiple sclerosis (MS) should not take TNFi drugs.

Be sure to tell your doctor if you are: pregnant or breastfeeding and/or have kidney or liver disease, cancer, CHF, blood or bone marrow problems, or any type of infection. Also mention any nervous-system problems such as Guillain-Barré syndrome or multiple sclerosis. They may indicate that you should not be on TNFi biologics.

When starting most biologics, you'll need to take frequent blood tests to monitor the drug's effects. Once you're established on a biologic, however, your tests will become less frequent. Specifically, for TNFi biologics, blood tests will be done to check bone marrow suppression, a low white blood cell count, or effects on the liver.

Other Biologics

What do we already know?

There are other biologics that target the immune system in different ways from TNFi drugs. They interact with different kinds of white blood cells, such as T cells or B cells, in your immune system. They can also block chemicals called cytokines that cause inflammation.

White blood cells and cytokines are made by your immune system to fight off infection. But in AS, they may be out of control and cause inflammation. So these drugs can suppress specific parts of your immune system, ease inflammation, stop AS's progress, and ease your symptoms.

What do the recommendations say?

For patients whose AS remains active despite treatment with a TNFi, the ACR's recommendation is to use a different TNFi, because there was not enough information at the time of writing the recommendation to support the use of the available non-TNFi biologic drugs. The ACR also felt that there was not enough clinical evidence to support the use of non-TNFi drugs in people with AS who could not take any TNFi, and instead recommended treatment with the DMARD sulfasalazine before the use of non-TNFi medications. However, the ACR's recommendations were published before the FDA approved the interleukin-17A inhibitor secukinumab (Cosentyx®) – a non-TNFi biologic for the treatment of AS. (See below for more information).

Why am I prescribed a biologic?

Your doctor may prescribe a biologic if taking an NSAID by itself or treatment with another biologic was ineffective. Personal considerations such as out-of-pocket cost, comorbidities, and side effects may make a biologic the best option.

A biologic that works differently than TNFi biologics is secukinumab (Cosentyx®).

Treatments

Secukinumab (Cosentyx®): In January 2016, the FDA approved the interleukin-17A inhibitor secukinumab (Cosentyx®) for the treatment of adults with active AS. It was also approved to treat active psoriatic arthritis, as well as moderate-to-severe plaque psoriasis (January 2015). Secukinumab works by blocking a cytokine known as IL-17A that can cause inflammation. It is the first and only IL-17A inhibitor approved for adult patients with AS and psoriatic arthritis.

While this approval has broadened the treatment options, there has not been much guidance for doctors and patients as to where this drug will fit in the treatment spectrum. Secukinumab's availability has put renewed focus on what your rheumatologist should do if you fail on your first TNFi. Because there haven't been any studies to determine whether it is more effective to try another TNFi or switch to secukinumab, there is no official recommendation or guidelines. Your rheumatologist will decide which treatment is best for you based on several factors including your current level of disease activity, any other conditions you may have and severity of your symptoms.

The most common side effects with secukinumab are colds with inflammation of the nose and throat and blocked or runny nose. Other side effects may include diarrhea, hives, oral herpes, athlete's foot, tonsillitis, oral thrush, impetigo, inflammatory bowel disease and eye infection or inflammation. Because secukinumab may increase the risk of infection, it must not be given to patients with serious active infections such as tuberculosis. Secukinumab is given by injection.

How will I take my biologic?

You may be able to give yourself this medication, via injections, at home (known as "self-injection"), or via an infusion in the doctor's office or other infusion site. A healthcare professional will indicate where on your body it is safe to administer these injections (usually the upper leg or stomach). Make sure to rotate the injection sites. If you have psoriasis, do not inject in affected areas. If you're afraid to inject yourself, talk to your nurse, clinic staff, or pharmacy about having someone there give you these shots.

Be sure you are confident on how to do this procedure before you inject the medication on your own. Don't be afraid to ask for help!

You may also get your biologic as an infusion instead of a shot. A healthcare professional gives you the drug through an IV. You'll get your treatment at a special infusion center, in your doctor's office, or at your local hospital. You and your doctor can decide if an infusion is the right option for you. The infusions can last as little as 30 minutes or could take up to several hours — depending on the drug, dose, and individual.

Side Effects

As with all biologics, the greatest risk while taking these drugs is infection. Notify your doctor immediately if you experience the signs of infection: fever, chills, or nausea.

How to Monitor

You may have to undergo regular blood testing while on a biologic. Blood tests are also used to measure liver and kidney function, as these are the organs that process what goes through your body. Complete blood counts (CBCs) are tests that measure your bone marrow health and immune cells. This is checked when you get your blood drawn while you're taking these drugs. By monitoring your blood, your medical team is able to ensure that your body can fight infection without causing the pain, stiffness, and swelling of arthritis.

Again, it's important for you to watch for any signs of infections, like coughs, discomfort when you urinate, or if you have cuts that aren't healing. If you have any of these signs in between your doctor's visits, let your doctor know before you take your next biologic dose.

Contraindications

With all of the biologics there are times when these medications should not be used. Some of these situations include a history of recurrent life-threatening infection, untreated tuberculosis or other active infection, history of lymphoma (except for rituximab), active MS or active hepatitis B.

Existing Conditions: Previously Treated or Untreated Skin Cancer (Non-Melanoma or Melanoma)
These biologics are not contraindicated in this condition, but it's very important to have careful monitoring by a dermatologist.

Comorbidities
Chronic respiratory conditions, diabetes, heart disease, and stroke. Talk with your doctor if you have any of these comorbidities. In some cases, medications to treat these conditions may interact with your biologics. It is important that your doctor is giving you the proper treatments for your health concerns.

BIOSIMILARS

There's another new option available to treat AS: biosimilar drugs. These are very similar copies of the various biologics that are already on the market. You may have seen this term in the news, or even heard your doctor or nurses mention it. Biosimilars are drugs that are made to be very similar to existing biologic drugs like TNF inhibitors.

Biosimilars are not exactly like **generic** drugs, which are exactly the same as the original, brand-name drug, but usually cheaper. But because they use already-completed research to be developed, biosimilars are designed to take less time and clinical trial data to approve, and ***should*** be cheaper than the original biologic drug. Biosimilars' names include the original drug's generic name and a four-letter suffix to distinguish it. Once approved, biosimilars should have registered (®) brand names of their own.

On April 5th, 2016 the FDA approved Inflectra® / CT-P13, a biosimilar version of the TNF inhibitor infliximab (Remicade®) for all of the diseases that Remicade® is approved to treat, including ankylosing spondylitis and psoriatic arthritis, making it the first biosimilar drug approved to treat AS. Inflectra® became available to patients in October of last year. This approval was based on a study that showed over a one-year period, Inflectra® was as effective and safe as Remicade® for treating AS. Renflexis®, another infliximab biosimilar, was approved in April of 2017.

The FDA also approved Amjevita® (adalimumab-atto), a biosimilar to Humira® (adalimumab), to treat AS last year.

More biosimilars to biologics used to treat AS are in development now. Due to patent exclusivity held by the innovator drug manufacturers, biosimilars may not be immediately available. There are ongoing challenges to patent rights that are currently in the court system to determine when the particular biosimilar will be permitted to be sold.

Biosimilars will be taken in the same way as their reference drug, and have the same possible side effects, contraindications, and monitoring tests. All biosimilars have to meet the same standards of safety and efficacy as any other prescription drug approved by the FDA. But because they cost less to develop and test, they may not be quite as expensive as other biologics. However, biosimilars are not identical to the original drug — they're just highly similar.

Each state has different laws about how biosimilars may be **substituted** for their reference biologic when a prescription comes to the pharmacy. If you have any concerns, talk to your doctor about your state's rules. More than 35 states have passed laws so far that require pharmacies, including mail-order **specialty pharmacies**, to notify doctors if they plan to substitute a biosimilar for the reference biologic. Physician associations, pharmacists' groups, the FDA, pharmaceutical companies, and others are still debating these issues.

In the future, there are expected to be biosimilars that are so close to their reference biologics that the FDA will designate them as **interchangeable**. There are no interchangeable drugs in development yet, and the FDA has not even established the criteria for designating a drug as "interchangeable."

When and if a drug is given the interchangeable tag in the future, pharmacists may be able to substitute that drug for the original reference biologic when they fill a prescription from a rheumatologist.

RAISE YOUR VOICE: More biosimilars for AS are sure to come, with a substantial number of these drugs in development. These drugs will offer you more options to treat your AS, control inflammation, and ease symptoms. The first step to take is to **ask your rheumatologist** if there's a biosimilar available that's right for you. Start a conversation with your doctor about biosimilars to your current AS biologic drug, and what potential risks, benefits, or savings you may have if you switch. **Call your insurance company** to find out if a biosimilar to your current AS biologic is on their formulary, and **how much the biosimilar may cost for you**. Information is power. You deserve clear, simple information — including side effects, risks, benefits, and out-of-pocket costs — for all your treatment options. Once approved by the FDA, biosimilars' manufacturers will also have websites that tell you more about these treatments and **patient assistance programs,** which may offer you discounts and savings.

DISEASE-MODIFYING ANTI-RHEUMATIC DRUG (DMARD) THERAPY

What is a DMARD?

DMARD is short for disease-modifying anti-rheumatic drugs. While these drugs are frequently prescribed for rheumatoid arthritis, DMARDs are only recommended for AS patients if there is "peripheral involvement," meaning you have pain and inflammation in your knees, ankles, arms or hips, and NSAIDs have not worked for you. There is no evidence that DMARDs will help with AS symptoms in the spine and neck.

The most commonly used DMARDs for AS are methotrexate (Rheumatrex®, Trexall®) and sulfasalazine (Azulfidine®). It should be noted that the ACR does not recommend the use of DMARDs in the treatment of AS with the exception of sulfasalazine, which it says can be considered for patients who cannot take a TNF inhibitor (see Biologics section) due to side effects or other factors, or for people with AS who have prominent arthritis that affects the arms and legs.

Methotrexate (Trexall®, Rheumatrex®, Otrexup®, Rasuvo®)

What do we already know?

Methotrexate works by blocking enzymes that help DNA (genetic material in the cells of your body) form or repair. This prevents some cells in your body from reproducing themselves. Experts believe that methotrexate also interacts with your immune system. It is not entirely clear how methotrexate works in AS, but it can be effective in reducing swelling, pain, and long-term damage to joint in the knees, ankles arms or hips.

Methotrexate is given once a week as either a pill or shot. Some people have better results with the shot, as the medicine is absorbed differently this way and is better tolerated by people who may have experienced an upset stomach when taking the pill form. Use of methotrexate is contraindicated in pregnancy.

What are the possible side effects of methotrexate?

It's important to remember that most patients do not experience serious side effects, and for those who do have them, they may improve with time. Side effects are more likely to occur at higher doses and you should always consult your doctor if you think you're experiencing any of these side effects:

- Gastrointestinal problems, such as nausea, stomach upset, and loose stool
- Mouth ulcers
- Hair loss
- Abnormal liver function blood tests
- Abnormal blood counts
    - Rare side effects include liver cirrhosis or scarring. This usually happens with patients who already have liver problems or are taking more drugs that impact the liver. Lung problems also occur rarely, and typically only with patients who already have lung issues. Report any difficulty breathing or a cough that won't go away to your doctor. Take these side effects very seriously.
- People with liver disease may not be able to take methotrexate or require closer monitoring or lower dosing.
- Increased skin sensitivity to the sun can also occur, but may stop when the medication is stopped. Supplements like folic acid may help you manage these side effects. If regular folic acid doesn't help, you may try another type called methylated folic acid. Talk to your doctor about getting methylated folic acid if you still get mouth ulcers, hair loss, or just a "yucky feeling" from your methotrexate. Vitamin A and dextromethorphan (the DM in Robitussin DM) can also be used to help with those side effects.
- Do not get pregnant while taking methotrexate. For women, recommendations vary from one month to 3 months as to how long you should be off methotrexate before getting pregnant. The package insert recommends male patients be off methotrexate for 3 months.
- Certain antibiotics such as "sulfa" drugs (i.e. Bactrim) should not be taken with methotrexate. Check with your physician before taking an antibiotic with your methotrexate.

Sulfasalazine (Azulfidine®)

Sulfasalazine (Azulfidine®) may be used to treat AS symptoms like pain or swelling in the arms, knees, hips or ankles. It may be used alone or in combination with other medicines.

What do we already know?

Sulfasalazine (Azulfidine®) is part of a class of medicines called sulfa drugs. It's a mix of salicylate, which is the main ingredient in aspirin, and an antibiotic. Some people are allergic to all sulfa drugs, so they can't take sulfasalazine (Azulfidine®).

Sulfasalazine (Azulfidine®) is sometimes given to AS patients whose AS remains active despite the use of NSAIDs. However, for most of these patients, the ACR's AS treatment recommendations recommend against the use of sulfasalazine (Azulfidine®). In patients whose AS is not adequately controlled by NSAIDs, the ACR recommends treatment with a TNFi instead of sulfasalazine (Azulfidine®). The ACR says treatment with sulfasalazine (Azulfidine®) could be considered for patients who cannot take a TNFi due to side effects of other factors. Sulfasalazine (Azulfidine®) could also be considered for people with AS who also have prominent arthritis that affects the arms and legs (called peripheral arthritis).

We don't know exactly why sulfasalazine (Azulfidine®) eases symptoms like peripheral pain, swelling, or joint stiffness in some AS patients. It may prevent joint damage and over the long term, loss of your joint function.

The typical dose is two 500 mg tablets of sulfasalazine (Azulfidine®) twice per day. Some people may start with a lower dose, such as one or two tablets per day, then build up to the normal dose. Some people may need six 500 mg tablets per day.

You should take your sulfasalazine (Azulfidine®) with food and a full glass of water to help ease stomach side effects. You shouldn't crush or chew up your sulfasalazine (Azulfidine®) tablets.

Sulfasalazine (Azulfidine®) should be safe to take during pregnancy but, as always, you should check with your physician if you are planning a pregnancy. It may be necessary to take extra folic acid if you continue on sulfasalazine during pregnancy. However, using it during breastfeeding may cause a serious type of jaundice in babies.

If you have an infection, your doctor may have you stop taking sulfasalazine (Azulfidine®).

What are the side effects of sulfasalazine (Azulfidine®)?

Most people have few side effects with sulfasalazine (Azulfidine®). The most common ones are nausea, stomach upset, and headache. Usually, this gets better over time. You can take a coated sulfasalazine (Azulfidine®) pill that may be easier to digest.

Rarer side effects include headache, skin rashes, itching, mouth sores, or liver or lung problems. If you get a severe rash, tell your doctor.

GLUCOCORTICOIDS

Introduction

Glucocorticoids are medicines used to reduce inflammation. They may also be called **corticosteroids** or even "steroids" for short. The most commonly prescribed glucocorticoids are prednisone and methylprednisolone (Medrol®), which are taken orally. Corticosteroids may also be injected by your physician directly into the affected joint(s).

What do we already know?

These strong inflammation-fighting drugs are similar to the cortisone made by your body. Glucocorticoids are designed to act the same way as the hormones (natural steroids) made by your adrenal glands that sit on top of your kidneys. They can suppress inflammation and make your immune system less active. However, increasing the dosage of oral corticosteroids to more than six mg per day can also raise the likelihood of side effects.

The ACR guidelines for the treatment of AS concluded that there is little evidence to support long-term treatment with systemic (oral) corticosteroids. Short-term treatment with rapid tapering off of a corticosteroid may be used in a very limited number of circumstances. More commonly, corticosteroids are injected directly into a joint to quickly relieve pain and swelling if you are having a flare in just one or two joints, or if your symptoms are not relieved by taking an NSAID.

Why am I taking a glucocorticoid?

More than likely, you are taking glucocorticoids short term to help treat joint pain and swelling. Because steroids have side effects, if you're prescribed oral corticosteroids it's best to take the lowest possible dose you need to ease your symptoms. You should never suddenly stop your steroids if you have been taking them for longer than two weeks, unless you have tapered to a low enough dose as directed by your doctor.

Corticosteroid injections work quickly but the results are temporary. Your doctor can inject corticosteroids in your sacroiliac joint (where your lower back meets your pelvis), knee, or hip joints. However, injections should not be used as your main AS treatment. The ACR does not recommend injecting corticosteroids around tendons due to the risk of tendon rupture.

What are the possible side effects of glucocorticoids?

- Increased infection risk
- Diabetes
- High blood pressure
- Weight gain
- Osteopenia and osteoporosis (thinning or weakened bones)
- Glaucoma or cataracts in your eyes
- Acne
- Roundness of the face or “moon face”
- Nervousness and inability to sleep (particularly if you take it at night)

Your chances of having these side effects depend on your dose, how long you take glucocorticoids, or if you have other medical conditions.

How to Monitor
You and your doctor should be on the lookout for any of the above side effects. If you have these, you may need to adjust your steroid dose. If you have diabetes you will need to check your blood sugar more often and may have to adjust your medication, as steroids can increase your blood sugar. Your doctor will review your use of glucocorticoids often. You probably won’t need to keep taking these drugs for very long.

How can I reduce the side effects?
Here are some steps you can take to lower your risk of side effects from glucocorticoids:

- Increase your calcium and vitamin D intake, and do weight-bearing exercises to protect your bones. You may need to take a medicine to protect your bones if you remain on steroids for a long time.
- Eat plenty of green, leafy veggies, and lower your intake of sugar and salt to prevent weight gain, diabetes risk, and high blood pressure.
- Cut back on or quit smoking and drinking alcohol to boost your bone and heart health.

Vaccines
If you have AS, you may have a greater risk for getting an infection like the flu, pneumonia or shingles. Why the high risk? The drugs you take that lower your immune system’s activity take a toll on your body’s ability to fight off infection.

Of course, there are vaccines that help protect you from these infections. Generally, the recommendation is for people with AS to receive an annual influenza vaccine, the shingles vaccine (given one time) and the pneumonia vaccine (given every five to 10 years). However, if you are taking certain medications, there may be some risks with vaccines. So you need to work with your rheumatologist to make sure that you get vaccinated safely, or find ways to help protect yourself from infection if it’s not safe for you to get vaccines. It’s an important conversation for everyone to have with their doctor, but it’s especially important for people with autoimmune conditions such AS.

Why are vaccines risky for you? Some common vaccines use versions of the viruses that cause the infection. These are often called “live vaccines.” The vaccine works by tricking your immune system into thinking it’s the infection, and then your immune system protects you from the viruses in the future – making you “immune.”

But if you’re taking a DMARD, a biologic drug, or a glucocorticoid, your treatments could make your immune system more vulnerable. It may not be able to handle **a live** or even a weakened version of these viruses. You could get very sick from the treatment that’s meant to protect you.

It **is** possible to get some vaccines if you're using DMARDs, steroids or biologic drugs. You need to work with your rheumatologist to create a plan for your necessary vaccinations. You may need to get vaccinated before you start your AS drugs. **You should avoid live vaccines if you are on a biologic. Some examples of live vaccines are the measles, mumps and rubella vaccine, as well as the shingles and chicken pox vaccine. There is a nasal form of the flu vaccine known Flumist® which is a live vaccine but the injectable flu shots are not live and able to be taken by those on a biologic. If you will be travelling it is helpful to know that the Yellow Fever vaccine is also a live virus and should be avoided by those on a biologic.**

While the ACR has **not** released vaccine recommendations specific to AS, the ACR recommendations for people with RA (see below) would apply to anyone with AS taking a DMARD or biologic.

In 2012, the ACR offered vaccine recommendations for people with RA who are either starting or currently use DMARDs and biologics. They recommended, based on your age and risk for getting these infectious diseases, that you could get these killed vaccines while you're on DMARD or biologic therapy: pneumococcal, intramuscular influenza (flu shot) and hepatitis B virus. They also recommended that, based on your age and risk, that you get the recombinant vaccine for human papillomavirus (HPV) vaccine, Gardasil®. The HPV vaccine is recommended for all people younger than 26. It can help protect you from an infection that can cause different types of cancer.

What about the shingles vaccine? Caused by the virus herpes zoster, shingles is a painful skin disease. It can also put you at risk for other health problems. The herpes zoster vaccine is a live vaccine, so the ACR recommended that people with RA who are already taking biologics not get this vaccine while on therapy.

If you have an autoimmune/autoinflammatory rheumatic disease like AS, you may be at higher risk for getting shingles, so the vaccine may help you prevent it. **As of now, however, you would need to stop the biologic for a certain amount of time before or after receiving the shingles vaccine. The exact amount of time would depend on the type of biologic that you are taking. This is a discussion to have with your rheumatologist to determine if this is right for you.** Because there's still a lot to learn about the risk, more studies and trials are going on now to test the herpes zoster vaccine's safety if you're on biologics.

The bottom line about vaccinations: Talk to your rheumatologist. Don't get any vaccines, even flu or shingles shots, at your local pharmacy without letting your rheumatologist know. You and your rheumatologist can plan to vaccinate you safely, or to watch for signs of infections if it's not safe for you to get vaccinated right now.

You can take other steps to help prevent infections if you're on a biologic:

- Avoid friends or family members who are sick with the flu or pneumonia. Excuse yourself from visiting sick people because it could put you at risk. Call, text or email them instead if you want to check on them.
- Wash your hands, especially if you're in public places like the mall, school or college, office buildings or restaurants and after you use hand rails, push elevator buttons, or open doors.
- If you notice that a lot of people at work are getting sick with the flu or even coughing, ask your supervisor if you can telecommute for a few days.
- Watch for any signs of infection, like fever, chills or rash. Let your doctor know right away if you think you have an infection, so you can get treatment promptly.

ON THE HORIZON: NEW DRUGS COMING DOWN THE PIPELINE

There are drugs that are being tested now for AS and some will be up for FDA approval next year. Many are still in **clinical trials**. That means researchers are still testing them to see if they work well to control AS symptoms; to make sure they are safe for you to take; and to make sure that they don't have side effects that would outweigh the possible health benefits of the drug.

Clinical trials happen in hospitals, clinics, universities, and even in your doctor's office. Patients like you can take part in clinical trials if you meet the qualifications the researchers need to test the drug. There are four phases of clinical trials for a drug:

Phase I Clinical Trial: A new drug is tested on a very small group of patients to see if it's safe, how much dosage of the drug is needed to work effectively, and the side effects the drug may cause.

Phase II Clinical Trial: The new drug is then tested on a larger group of patients to make sure it is effective and safe.

Phase III Clinical Trial: The drug is given to much larger groups of patients to further ensure it's safe and effective in different situations, to look for side effects, to compare it to other drugs that are available for the same condition, and to gather any information that will be needed so the drug can be safely given.

Phase IV Clinical Trial: After the drug is **approved** and available for prescription, or **on the market**, more trials are done to test its long-term effectiveness, possible side effects, or how it works in different patient groups.

Phase III Clinical Trials (as of March 2017):

- Ustekinumab

Phase II Clinical Trials (as of March 2017)

- Ixekizumab
- Tofacitinib

Additional clinical trials may be available. For a complete list of clinical trials, including eligibility information from the individual sponsors of the clinical trials, go to: www.ClinicalTrials.gov

RAISE YOUR VOICE: Patients just like you take part in clinical trials of arthritis treatments, including drugs not yet available to the public. These trials can help rheumatologists and drug manufacturers learn more about these treatments, including their effectiveness and possible side effects. If you're curious about clinical trials and whether they may be right for you, **ask your rheumatologist**. He or she may be conducting clinical trials or know of current trials looking for patients like you. You may also learn more about current AS clinical trials at www.ClinicalTrials.gov, or see advertisements online, and in major magazines and newspapers. Ask about all the possible risks of any clinical trial before you proceed, and also ask about any costs you may have to take on to be in a trial, including travel or time away from work.

Non-Pharmacological Treatments

I. INTEGRATIVE MEDICINE AND COMPLEMENTARY THERAPIES

Although there isn't a great deal of solid, scientific evidence to support many **complementary and alternative medicine** (CAM) therapies for arthritis, many people feel that using them in addition to your prescriptions could have some benefits. Before actively engaging in integrative medicine or complementary therapies, consult with your doctor. Here are some common CAM therapies used by people with AS:

- Exercise
- Tai Chi and Yoga
- Acupuncture, possibly cupping
- Massage therapy
- Magnetic therapy, copper bracelets
- Relaxation therapy or meditation
- Hydrotherapy, sauna treatment
- Nutrition, dietary herbs and supplements
- Physical therapy
- Aquatic exercise
- Weight management
- Osteopathic manipulation

Exercise is the most recommended therapy for arthritis. Be sure to ask your doctor about the safety of any CAM, even exercise, before starting it to make sure it is right for you.

Exercise Tips for When You Have a Flare

Disease flares are common in people with AS. Like other inflammatory diseases, AS is marked by periods of remission alternating with flares, though this pattern and the severity of flares can vary greatly from person to person. Listen to your body. Don't do anything that adds more pain and discomfort, or could cause an injury. If you can do some kind of movement even during your flare, you may find that it can help. Break up your exercise routine into shorter segments. Or do something light that just gets you moving. Water exercise may be a good option during a flare, because you can move your joints without putting pressure on them.

Exercise or regular physical activity can help curb the symptoms of AS, including pain, stiffness, and lack of mobility. How do you get started? What kinds of exercise work best? It really depends on your symptoms, your overall fitness and health, and what kind of exercise you might like to do the most — because if you like doing an exercise, you're more likely to keep doing it.

In the past, doctors told people with arthritis not to exercise. They thought exercise would damage fragile joints. But now, we know that exercise is safe and healthy for people with AS. It's not likely to make your disease flare or cause more joint pain, especially if you do it in moderation. So start slowly with any new exercise you try, and then work up to longer or more challenging routines. Weight bearing exercise is particularly important if you have taken courses of steroids for a long period of time or multiple times a year, to enhance your bone density and balance.

Talk to your doctor before starting any new exercise routine so you know that it's safe and healthy for you. You might start with something as simple as walking, or try working out in a heated pool at your local community center or gym. You can take local exercise classes that are designed for people with arthritis so you don't damage or injure your joints.

Here are a few suggested exercise options for people with AS:

Stretching
Daily stretching can help you manage your arthritis pain and improve your **range of motion**. After a three to five minute warm up (marching in place or arm circles), perform a variety of stretches and hold each for about 15 seconds. Reaching for the sky and touching your toes are good places to start. Don't be afraid to stretch any joints that tend to be problem areas. Listen to your body — don't push any stretch so far that it causes pain.

Walking
This simple exercise can fit easily into your daily routine no matter how old you are or where you live. It's free — just find a safe place to walk in your area and get moving. Find some friends, neighbors, or family members to join you for a walk to make it even more fun. Walking can be good for your heart health, joint health, and mood.

If the weather is bad, you can walk inside your local mall. If it's a pretty day, explore your neighborhood or local park. Walk on flat, paved surfaces to be safe. Make sure you have well-fitting, comfortable walking shoes and socks. Wear comfortable clothing that you can work up a sweat in. Drink some water beforehand or bring

a small bottle so you don't get dehydrated.

Start slowly and walk at an easy pace. As you feel more confident, challenge yourself to walk a little faster or farther, or both. Some people like to use personal fitness tracking devices (i.e. a FitBit or a pedometer) to track their daily activity and encourage consistent exercise.

Tai Chi and Yoga

Tai chi and yoga are two ancient forms of movement. Tai chi is a series of flowing movements designed to help you improve function and balance. Yoga, which comes in many different styles, usually involves poses and stretches that are meant to improve arthritis symptoms and mood. Both tai chi and yoga are used by many people with AS to feel better and improve some of their AS-related symptoms. Done properly, both tai chi and yoga can be safe for people with arthritis to do on a regular basis. There are a number of arthritis tai chi and yoga programs in local communities, as well as videos and online instruction tools. You can also take a class from an instructor who can show you how to adapt your moves to be safe for your joints. Talk to your doctor or physical therapist to find out if tai chi or yoga are right for you, and if they recommend any classes in your area.

Aquatic Exercise

Exercising in water is great if you have AS, because water's buoyancy supports your weight so you can move around without putting lots of pressure on your joints. But water also offers some resistance as you move, so it can help you work your joints and muscles, and get stronger. Check out water exercise classes in your area, especially ones designed for people with AS. Your doctor or physical therapist can refer you to the right water exercise classes in your community.

Biking

People with AS have a higher risk of cardiovascular disease because of the inflammation involved in the disease. Riding a bike, either stationary or regular, can help rev up and strengthen your heart. It can also help you ease stiffness, improve range of motion or flexibility, and build endurance and muscle tone.

Strength Training

You can relieve the stress on joints affected by AS if you build up the muscles around them. Strength training is the best way to do that. You can do specific exercises that target those muscles on your own, on a weight machine, or with small free weights. It's important to do any strength exercises the right way, so talk to a physical therapist (PT). Your PT can recommend strengthening moves for you and show you how to do them properly.

Acupuncture

This ancient healing practice uses thin needles that are inserted into specific points on the body. Acupuncture is meant to help balance your body's natural energy flow (also known as 'qi'). Its effects can ease your pain, increase a sense of calm, and improve digestion, to name a few possible benefits. Risks are typically mild, including transient lightheadedness, pain at needling site, initial exacerbation of symptoms, and bleeding. Acupuncture should ideally be performed by a licensed acupuncturist (LAc) who has completed a master's degree or higher level of training. Acupuncture sessions are typically performed once or twice a week. At least six to 10 sessions should occur before you decide on its effectiveness and whether to continue therapies. Insurance coverage varies for this therapy, so check with your carrier to learn if you have coverage for acupuncture. Recent research shows that acupuncture may have some benefits for people with chronic pain: https://nccih.nih.gov/research/results/spotlight/091012.

Massage Therapy

Performed by massage therapists as well as other health professionals, massage involves pressing or kneading muscles and tissues in a relaxed, quiet environment. The most common type is Swedish massage. Recent studies have shown pain-relief benefits for Swedish massage. Massage therapy can relieve anxiety, which helps ramp down the pain response as well. https://nccih.nih.gov/research/results/spotlight/020812.htm

Relaxation Therapies or Meditation

Techniques to help you relax or ease stress can help you manage chronic pain or anxiety that's common with having a disease like AS. Relaxation therapies include biofeedback, self-hypnosis, deep breathing techniques, meditation, or guided imagery. There are therapists trained to help you learn to do any of these relaxation techniques properly, but you can also teach yourself to do them by using online videos or tapes. Tai chi and Yoga may also be done in combination with techniques like meditation to help you relax.

Usually, relaxation is considered safe and healthy, but if you've had anxiety or depression, check with your doctor or psychologist to make sure it's OK for you. For more information, go here:
https://nccih.nih.gov/health/stress/relaxation.htm

Hydrotherapy

Water therapies use warm water in baths, showers, hot tubs, heated pools, or spas to help you relax tight, sore muscles or ease joint pain. "Hydro" means water. Hydrotherapy can also mean exercising in warm water. Studies show that warm-water exercise is a good way to build strength and fitness, and some research shows it can help with the stiffness, pain and posture issues common with AS. You can use a warm shower to loosen stiff joints in the morning, or you may find a soak in a spa tub soothes sore, aching muscles. Talk to your doctor or physical therapist about the best ways for you to use hydrotherapy safely and effectively.

II. MENTAL OUTLOOK

Being diagnosed with a chronic disease like AS can make you feel confused, distressed, or hopeless. You have to deal with physical pain that leads to emotional pain, because you're unable to go about your daily life or normal activities. While these temporary feelings of sadness are expected, if they last for more than a few weeks they may progress into depression that needs medical treatment. Some symptoms of depression are:

- Anxiety
- Feelings of sadness or irritation
- Emptiness, hopelessness, or worthlessness
- Fatigue or decreased energy
- Trouble concentrating, remembering, and making decisions
- Having irregular sleep patterns, either from not being able to sleep or sleeping too much
- Changes in your diet, such as either eating too much or not wanting to eat at all
- Thoughts of death or suicide (or suicide attempts)
- Aches, pains, cramps, headaches, or digestive problems without a clear physical cause that don't get better with treatment

People with chronic medical conditions have higher rates of depression for many reasons: the stress of treatment, the physical pain of the disease, and the interruption of a normal life. Although depression is common, it is NOT normal. What's important to remember is that you are not alone. Your depression can be treated. Talk to your doctor about seeing a psychologist or psychiatrist, starting different types of therapy, or taking medication to help ease your depression.

You can also take steps to develop better resilience, or the ability to learn from your challenges and stressors and rebound from them. This can help you keep up your mental and physical strength in the face of pain and anger due to your disease.

All people have natural resilience, but here are some ways to boost yours:

Focus on the positives: Studies have shown that the more hopeful you are, the more resilient you will be. Look at your experiences in a new way. Be aware of the negatives that AS brings to your life, but focus on the positives too. Stay optimistic about your treatment plan working well so you can get back to a normal, active life that you enjoy.

Learn from experience: Keep track of how different treatments impact you and what works best for your body. This will help you understand how to manage your disease, making you stronger and more confident about your future.

Expand your knowledge: Read up on AS and how to manage it. The more you know about your condition, the more power you will have to control its effect on your life and well-being.

Stay active in life: Make time to find and do things that you enjoy. Find new activities that are easy to do, like reading, watching movies, taking gentle walks, or visiting with friends.

Exercise: Movement is not just great for your joints and muscles, it's also known to improve your mood and decrease anxiety.

Get support: Turn to family or friends when you are struggling with your emotions or feel like you're in despair. Support groups of others living with AS, including in person and online, may help you share your feelings, find solutions to your challenges, or just feel that you're not alone. Support networks like CreakyJoints allow you to connect with other people who are living with rheumatic diseases like AS. Learn more and talk to others who share your experiences to help you build resilience.

Count your blessings: Gratitude can make you feel more connected with life. Be grateful for the things in your life that make you feel good. Focus on the people and activities that make you happy.

RAISE YOUR VOICE: Care for your AS includes not just the physical symptoms of the disease, but also your emotional health and personal happiness. **Seek help** right away if you ever feel like you're alone, that you're in need of emotional support, or that AS is becoming too much to bear on a day-to-day basis. Yes, doctors and nurses can seem like they're in a rush sometimes. **Ask them to slow down** and listen to your needs. Include emotional or mental struggles you have in your list of symptoms when you go for a doctor's appointment — they're just as important as pain or stiffness. **Seek a mental-health professional for therapy or counseling** if you sense that AS is making you depressed, anxious, ruining your sleep, or making it impossible to get through the day. Also, **online and local support groups** of fellow patients with AS and chronic illnesses can be places of comfort and companionship. You are not alone! Your emotional health and wellness are essential as you make your AS journey.

III. DIET AND NUTRITION

Arthritis deals with your body's inflammatory response. The joint pain, swelling, and lack of mobility all happen because of inflammation in your body.

While there is no special "diet" an arthritis patient should follow, and no diet that can treat or cure AS — despite what you may have heard or read online — research shows that eating certain foods, particularly those you'll find in a Mediterranean diet, can keep inflammation in check. Other diets include going gluten free and following the Autoimmune Protocol. Diets can also be good for heart health and just feeling your best. You can seek council from dietitians, naturopaths, and nutritionists, and always make sure to consult your doctor.

✓ **Try incorporating more of these foods into your diet.** Keep track of your symptoms to see if your symptoms improve. It may be beneficial for people with AS to keep a food diary and note any changes in how they feel when they eat or restrict specific foods.

Fish: Some fish are rich in omega-3 fatty acids, which reduce inflammatory proteins in your body. Some evidence suggests foods rich in omega-3s may reduce disease activity in people with AS. These are salmon, tuna, sardines, anchovies, and other cold-water fish. Get at least 3-4 ounces of fish twice a week.

Fruits and vegetables: Fruits and vegetables have antioxidants, which support your immune system and may fight inflammation. Eat a colorful variety of fruits and veggies like blueberries, blackberries, cherries, strawberries,

spinach, kale, or broccoli. Get at least 1.5-2 cups of fruit and 2-3 cups of vegetables per meal.

Nuts: These tasty treats are rich in monounsaturated fat, protein, and fiber, which help make you feel full and fight inflammation. Snack on or add these nuts to your meals: walnuts, pine nuts, pistachios, and almonds. Get 1.5 ounces (about a handful) of nuts per day. More nuts could add too many calories to your diet.

Beans: Rich in fiber and protein, beans are full of antioxidant and anti-inflammatory compounds.

Olive oil: This heart-healthy fat contains monounsaturated fat, antioxidants, and oleocanthal, an anti-inflammatory compound. Get 2-3 tablespoons per day of extra virgin olive oil in your cooking or salad dressings.

Onions: These simple, flavor-rich veggies contain lots of antioxidants and may help reduce inflammation, improve heart health, or help control cholesterol.

Fiber: In foods like beans, whole-grain breads and cereals, or fresh veggies and fruits, fiber makes you feel fuller longer and helps you stay regular. It also lowers C-reactive protein, which is found in the blood and is a strong marker of inflammation. Get plenty of fiber in your diet or try fiber supplements. Whole grains can trigger symptoms in some people with arthritis. If you're not sure, try keeping a food diary to determine if whole grains trigger a flare-up.

If you are taking NSAIDs, which can cause damage to your stomach, try taking bananas or live-culture yogurt with the NSAIDs to help protect your gut lining.

Foods to consider avoiding or reducing:

Processed food: Reduce the amount of processed food (like packaged snack chips, pastries, cookies, and other sweets). Avoid too much refined sugar, salt, and alcohol in your diet to help reduce your levels of inflammation and maintain a healthy weight.

Gluten/wheat: Gluten, a protein found in wheat, rye, spelt, kamut, triticale, and some other grains may irritate the digestive tract, exacerbating autoimmune conditions like AS. An elimination diet may be helpful for four to six weeks to note whether this food is a contributor to pain, digestive, and/or skin problems associated with AS. Consult your physician or nutritionist before embarking on a gluten free trial if you have issues with keeping weight on.

Nightshades: Some people believe that nightshade vegetables, such as eggplant, peppers, tomatoes, and potatoes, trigger arthritis flares. There is little evidence to support this, but you can still try an elimination for two weeks or more to see if you feel better. Reintroduce nightshades after the elimination period to see if your pain flares up, and if it does flare up, limit nightshades. If you feel fine after the reintroduction, then do not worry about eating nightshades.

Fad diets: Don't try any diets that list lots of claims about how they'll get rid of your AS symptoms, cure your AS or allow you to stop using all of your AS drugs. Talk to your doctor before you try any diet, start eating a certain food in large quantities, or start cutting out whole groups of foods. Also be wary of any diet that requires you to buy anything up front, such as the actual diet plan, foods, supplements, or products. You can eat a healthy, natural diet made of foods that you can find at your local store.

Alcohol: People with AS are a high risk for osteoporosis (a thinning and weakening of the bones that can lead to fractures). Consuming more than two alcoholic drinks per day increases your chances of developing weakened bones. Also, drinking alcohol with certain medications can cause serious digestive system side effects and may harm your liver and kidneys.

Starches: Some research suggests that limiting starch may reduce inflammation and improve symptoms in AS; however more studies are needed. Starchy foods include bread, pasta, rice, potatoes and pastries.

For more information on an anti-inflammatory diet, go here:
https://creakyjoints.org/education/anti-inflammatory-diet/.

Herbs and Supplements

Some people with AS also feel better or have symptom relief with herbal and dietary supplements. There are many to choose from, but there's not much solid, scientific evidence to show they really work. Some herbs and supplements have been studied in smaller scale tests compared to pharmaceuticals, due to several factors. Most notably, high quality research on natural products and dietary supplements are difficult to obtain due to the high cost of doing research and the difficulty for manufacturers to patent natural products. In almost every case, herbs and supplements need to be researched more to say if they will work for AS or not.

However, it's up to you if you want to give them a try. They may work for some people with AS, but not for others. Or they may make you feel a little bit better, but they won't replace your AS drugs. **Before you take any herbal treatments or dietary supplements, including vitamins or minerals, let your doctor know**.

Some herbs and supplements can interact with medicines, or even do the same thing — so they can add to the effects of your drugs. So let your doctor know everything you are taking for your AS.

In addition, there's not much testing of herbs or supplements you find in health food stores, online, at alternative healing shops or fairs, or other sources. Some products may not even contain what the bottle or package says it does. Or the actual concentration of the dosage may be very different from what the label states. So use caution and good sense before you buy or try anything. Consult a physician who is knowledgeable about dietary supplements and can guide you on selecting high quality supplement brands to enhance the safety and effectiveness of your treatment regimen. Physicians trained in the specialty of integrative medicine have the highest level of training and comfort level with dietary supplements, nutrition plans, and lifestyle modification to combine with conventional medicine treatments. Collaboration between your rheumatologist and integrative physician may help ensure the safest, most effective treatment plan if you choose to use supplements with your medications to control AS and promote wellness.

Here's an online source of information for choosing reputable, independently tested supplements:
www.consumerlab.com.

The following is a descriptive list of some dietary supplements patients have used to support their health. Take note that research on these products and other therapies for AS occurs over time to either support or discourage their use. Check with a physician who is knowledgeable about natural products to get the full assessment of risks, benefits, and potential interactions with your medications.

While research is mixed on the effectiveness of most CAM therapies for arthritis symptoms, some show promise. It's most likely that you will find these therapies helpful as part of your overall AS treatment plan, but they won't be a magic cure for your symptoms or allow you to stop taking your medications.

Treatments

Avocado Soybean Unsaponifiables (ASU)	A natural vegetable extract made from avocado oil and soybean oil.	May improve pain or function.
Black Currant Oil	An natural supplement made from 15-20% gamma-linolenic acid (GLA). Rich in omega-3 and omega-6 fats.	May ease inflammation.
Borage Oil	Made from 20-26% GLA. Also called borage seed oil. Rich with essential fatty acids.	May ease inflammation or act to block inflammatory cells.
Boswellia	Also called Indian Frankincense. Made from the boswellia serrata plant.	May ease pain and improve joint function.
Bromelain	Supplement made from pineapple enzymes.	May reduce joint pain.
Calcium	The most abundant mineral in the body and essential for many body functions including nerve transmission and bone and muscle function. Almost all the body's calcium is stored in the bones and teeth.	It is important for everyone to maintain adequate levels of calcium for bone strength, but particularly for those with AS, as they are at higher risk for osteoporosis. You can get more calcium in your diet from food sources such as dairy products and leafy greens, but you may need to also take supplements. Ask your physician about the dose you should take.
Capsaicin	Made from oil in hot chili peppers. It can be applied as a topical cream, gel, or patch. It depletes the amount of a neurotransmitter called substance P that sends pain messages to the brain.	It can distract you from sensing pain in a joint or muscle. *Take care not to touch the eyes or mouth after applying capsaicin to the skin; use gloves.*
Cat's Claw	Supplement made from a wild vine found in Central and South America.	May have healthy effects on the immune system.
Chondroitin Sulfate	Supplement made from the cartilage of cows, pigs, or fish.	Designed to help replace worn-down cartilage in your joints, to reduce pain and inflammation, and improve joint function. It's usually used by people with osteoarthritis.
Curcumin	Curcumin is derived from the root turmeric. This herbal treatment has potent anti-inflammatory effects.	Could help ease joint pain and swelling.

Treatments

Devil's Claw	Supplement made from a plant native to southern regions of Africa.	Used to relieve joint pain and inflammation, as well as back pain.
DHEA	Supplements made from a natural hormone made in your adrenal glands on top of your kidneys.	Natural DHEA levels have been found to be low in men with AS, perhaps due to corticosteroid use. There's good evidence that DHEA can help improve bone density, though more study is needed. *This hormone can convert to estrogen or testosterone, so patients with breast, ovarian, testicular, or prostate cancer should avoid DHEA.*
DMSO	Also called dimethyl sulfoxide. By-product of paper manufacturing, DMSO can be found in gel or cream form and rubbed into the skin.	Meant to ease pain and inflammation, and improve joint mobility. Research on DMSO for AS is scant.
Evening Primrose	Herbal oil rich in omega-6 fatty acids. It's used to lower pain and inflammation.	Some evidence shows it could ease morning stiffness.
Fish Oil	Supplements of natural liver oil from fatty fish in capsule form, or in fish you consume in your diet. Rich in omega-3 fatty acids.	Could reduce joint pain, inflammation, and morning stiffness.
Flax Oil	Herbal supplement taken in capsule form. It's rich in alpha-linoleic acid (ALA), an essential omega-3 fatty acid that builds healthy cells.	Could reduce joint pain inflammation.
Ginger	Natural root ground into powder, taken in capsule or oil form, added to foods or eaten in tea, pickled, or candied form.	Could reduce chemicals in your body that play a role in inflammation. Could also ease pain in a similar way as aspirin. Effective at easing nausea.
GLA	Gamma linoleic acid, found in other herbs like borage oil or evening primrose. Rich in omega-6 fatty acids.	Rich in omega-6 fatty acids. Used in supplement or food form to ease joint pain, stiffness, and swelling.
Glucosamine Sulfate	Supplement made from the shells of fish like shrimp or crabs (avoid if with shellfish allergy).	Used to slow deterioration of joint cartilage, relieve joint pain related to osteoarthritis, and improve joint mobility.

Treatments

Green-lipped Mussel	Shellfish found in the waters off New Zealand. Its hard shells are ground into powder and put in capsules. It's rich in omega-3 fatty acids.	May have anti-inflammatory effects and ease joint pain.
Melatonin	Supplement containing a natural hormone that's found in your brain. The hormone helps control your circadian rhythms, which tell your brain when to sleep and when to wake.	Melatonin capsules may help you sleep better if your AS symptoms keep you awake. Nightmares or vivid dreams may occur with this supplement.
MSM	Methylsulfonylmethane, an organic sulfur compound found in animals and plants. It's often taken in capsules or in a cream that you rub into your skin.	Meant to reduce pain and inflammation.
Pine Bark	Herbal extract from the bark of trees. Also called by a common brand name, Pycnogenol®. It contains procyandin, an antioxidant.	May block pro-inflammatory enzymes. Not much evidence supports its efficacy in AS.
Rose Hips	Herbal supplement made from the tiny fruits of wild rose bushes. Found in capsule form as well as teas. Rich in polyphenols and anthocyaninins, natural chemicals.	May ease joint inflammation. Also rich in vitamin C, an antioxidant.
Sam-E	Short for S-adenosyl methionine. Found naturally in the body, it is a precursor to making serotonin, which helps regulate mood. Taken in capsule or pill form.	Used as a supplement to treat pain, stiffness, and swelling, rebuild cartilage, and improve mobility. Sam-E may also help improve depressed mood.
St. John's Wort	Herbal supplement made from a flowering plant found mostly in Europe.	Used to ease mild to moderate depression symptoms, but some say it can reduce inflammation and pain in arthritis. *Do not take with birth control or HIV medications.*
Stinging Nettle	Herbal supplement made from a common plant that stings your skin if you brush by it. It can be eaten or cooked into food, or taken as a supplement.	Used to ease inflammation and pain, and may work best for hay fever. It may be helpful in reducing joint pain due to its ability to lower the levels of specific anti-inflammatory compounds in the body.

Treatments

Thunder God Vine (Tripterygium wilfordii)	Herbal supplement made from a plant. One large study compared it to sulfasalazine (Azulfidine®) which is used to treat AS and other rheumatic conditions, and found it effective, with a list of mild to moderate side effects.	Used to improve pain, tender joints, and inflammation.
Valerian	Herbal supplement made from a plant root. Can be taken in capsule form or as a tea.	Used mainly to treat insomnia, but may also ease pain, and have antispasmodic and sedative effects that could relax tense muscles or joints.
Vitamin D	A hormone used by every cell of the body, derived from the conversion of inactive vitamin D to its active form by sunlight exposure to the skin.	Is essential for your body to absorb calcium, which helps maintain bone strength and density. This is important because most people with AS are at high risk for osteoporosis. Can become toxic if taken in high amounts for a long period of time. Ask your physician as to what dose you should take and have your physician check your vitamin D-25 OH levels periodically.

▲ The information in these guidelines should never replace the information and advice from your treating physician. It is meant to inform the discussion that you have with healthcare professionals, as well as others who play a role in your care and well being.

PART SEVEN

Remission

What it means to be in remission

If your physician tells you that your AS is in remission... first of all, congratulations! That's the goal of your AS treatment plan.

What is remission? Remission of AS is defined by a low level of disease activity, with little inflammation and/or impact on your daily physical activities caused by joint stiffness and pain. Your rheumatologist can determine your level of disease activity with several pieces of information including:

- Answers to a questionnaire about your levels of pain, activity, and mobility
- Examining your joints to see how tender, sore, or stiff they are
- Lab tests, like blood tests, that measure levels of inflammation in your body — things like C-reactive protein (CRP)
- Magnetic resonance imaging (MRI)

There is no one "correct" tool to say you're in remission or you're not there yet. Your doctor's or nurse's judgment always comes first. Just because you have a certain test result doesn't mean that your AS isn't still active. And just because you feel great and can do tasks you couldn't do before you started your treatments — like wash the car or weed the garden — doesn't mean that your inflammation isn't still a problem.

The idea of remission in AS has not been widely studied. Experts are not sure how long you need to have low disease activity before you should be considered "in remission." There are also questions that remain unanswered, for example, if your sacroiliac joints are fused together but you have no symptoms, are you in remission? Or if you have minimal or low disease activity but damage to your spine is progressing, how should you be classified? More research is needed to answer these questions.

There is some research that shows that TNFi medications can halt your immune system from creating inflammation, so that your pain and stiffness improves, leading potentially to remission. The use of TNFi's has, for the first time in the medical history of AS, led to rates of partial remission above 30 percent in clinical studies. While remission in AS is possible, it is not common. However, as more effective AS treatments become available, more and more experts are looking at remission as a reasonable and appropriate goal of treatment.

What happens when you hit that goal and reach remission?

Your doctor may taper your medication dosage down to a smaller level, but not take you off AS treatment altogether. How soon and how quickly you begin tapering is different for each individual. It may take months or even years before tapering is right for you.

So your doctor may cut down on how much of one of the AS drugs you take, or cut back on how many times you take it per week or month. If you take more than one drug, your doctor can then taper the others one at a time. Tapering can have a lot of benefits for you. You may not have to take as many pills or shots as you once did. You may not have to fill as many prescriptions or deal with as many drug co-pays. You may not have as many side effects from your treatments, because your dosages are lower. But you won't stop taking AS drugs altogether in most cases. Because if you do, your inflammation could come back. As you taper your treatments, your doctor will watch your disease activity to make sure the new approach is working for you.

The evidence for tapering is not as strong with AS as it is with other types of arthritis. A Spanish study showed that tapering the TNFi etanercept did not increase disease activity among AS patients in remission. Another study found that tapering to a low dose (25 milligrams weekly) of etanercept was enough to keep most patients in remission, while completely stopping treatment led to flares.

Any decision about your treatment plan once you're in remission should be made with your values and preferences in mind. You and your doctor should have a conversation to go over all of your options so you can try to stay in remission and cut down on your risk of a flare or your disease activity going up.

PART EIGHT

Co-Pay Support Programs

In today's healthcare environment, co-payments for drugs are one of the most important and hotly debated topics. Your drug co-pay is the amount you will pay out of pocket for your prescription drugs — what's not covered by your insurance.

Because many complex AS medicines, such as biologics, can have very high retail prices, drug co-pay support programs offered by the drugs' manufacturers or others can help many people afford their treatments. Co-pay card programs are generally not accepted for use if you have any type of government insurance covering your medication such as Medicare, Medicaid, or Tricare.

There are three main types of support: co-pay assistance programs that are like coupons for your drugs; pharmaceutical companies' assistance programs; and patient assistance foundation programs. CreakyJoints.org has a great deal of information on these programs for arthritis patients:
https://creakyjoints.org/support/arthritis-copay-cards-assistance/

Or, you can email us at info@creakyjoints.org to ask any questions about assistance in obtaining your AS medication.

You can look at the websites for your drugs to find out if the manufacturer offers a co-pay assistance program, such as a coupon, rebate, drug card, or other options. Unfortunately, these programs are not available if you are on Medicare. You can find your drug's website by entering the brand name into any internet search engine (such as Google), but usually, they're the brand name of the drug followed by .com.

You can also ask your rheumatologist, rheumatology health professionals like nurses or physician assistants, rheumatology office support staff, or your pharmacist about copay assistance programs, how to get coupons, rebates, or other help paying for high drug costs.

RAISE YOUR VOICE: You always deserve access to the very best care for your arthritis. That's one of your fundamental rights as a patient. If you worry about being able to afford any treatments, you can and should take action now. First, **talk to your doctor's office**. They will have information about **copay assistance programs** like coupons or rebates from your treatment's manufacturer. Also, **go online** to find your drug's website. It will be listed under the brand name, so just do a browser search and it will come up quickly. There, you will find links to **patient assistance programs** that can help you lower your out-of-pocket costs in many cases. Also, **call your insurance company** to ask about the details of your drug coverage. **Talk to your pharmacist** or call your specialty pharmacy as well — they often have information about other treatments that may be more affordable, or know about programs that can help make your treatments more affordable. Let them know what type of drug coverage you have, so they can help you understand your options. If you're insured at work, **talk to your benefits manager** or HR department. They should have information about your insurance policy that may help you get your drugs covered or find out more options so you can afford your treatments.

PART NINE

Ways to Make Your Voice Heard

Living with a chronic disease can impact many areas of your life. On top of communicating with your healthcare team, you will also need to be able to speak with your insurance provider, employer, support network, and elected officials.

First, we begin with the doctor's office, which usually includes multiple staff members who have multiple roles in your treatment and care.

Who's Who in the Office

Receptionist: They will usually be the first person you interact with when you enter the office. Be nice to them, they can help ensure that others on the healthcare team are made aware of your situation. They handle the majority of the paperwork and process your insurance information

Office Manager: The office manager is there to ensure that the facilities are safe, up to date, and able to provide the best quality care to you. They are there to coordinate the goals of the medical staff, ensuring that each has you at its center.

Technician: Performs your medical tests and relays the results to your physician. These tests can be X-rays, blood-tests, or CT-scans. While they certainly can offer advice, know that technicians can't offer a definitive diagnosis.

Medical Assistant: Will not provide any medical advice, but may show you to an examination room and measure your height, weight, and blood pressure. They record information relevant to your visit and relay the information to your physician.

Nurse (RN): Depending on the size or specialty of your doctor's office, your nurse will perform different actions. They are usually the ones who coordinate your care with other doctors and medical professionals. They can administer vaccinations and, in some cases, can perform biopsies and other interventions.

Nurse Practitioner (NP): Your rheumatology office may have a nurse practitioner or NP. This is a nurse with additional graduate training, such as a master's degree or doctorate, beyond their registered nurse degree. They may have specialized training or knowledge in certain types of clinical care. NPs can order and interpret your tests, diagnose conditions like high blood pressure or an infection, or prescribe your medications in certain situations.

Physician's Assistant (PA): They have a license to practice medicine, but only under a physician's guidance. They can interpret your lab results, treat injuries, and also perform exams. Some are able to prescribe medicine in certain situations.

Physician: This is the one you're probably most familiar with. With AS, you are likely going to see a rheumatologist, or a doctor who specializes in autoimmune disorders. They will perform tests, provide you a diagnosis, and prescribe appropriate drugs. They have had the most schooling of those on this list.

It is important to disclose all information regarding medications, diet, and lifestyle choices to your physician. In order to make the best treatment recommendation, they have to consider a lot of information specific to you. Leaving out an important detail, like a medication, could lead to adverse side effects on a certain treatment.

Never hesitate to ask your physician any questions you may have about your treatment or AS in general. They are there to help! To see CreakyJoints' resource page on the healthcare team, go here:
https://creakyjoints.org/education/what-is-the-healthcare-team/

Before your talk with your provider, take a look at your plan and develop an understanding of what is covered. To do this, look at your list of benefits, or medical services that are covered. You may also find a list of closed benefits, which means your provider will not pay for the cost of any treatment not on the benefit list. On top of a benefits list you may find a “formulary,” which is a list of prescription drugs the health plan covers. It can include medications that are both brand name and generic. An “open formulary” or “preferred drug list” often has a greater choice of covered drugs. A “formulary exclusion list” is a list of prescription drugs not covered by a health plan. If you need a treatment or drug that is not on your benefits list or formulary, you and/or your doctor must ask the plan to cover it as an exception. Even if your prescribed medication is on your plan’s formulary, it will only cover that drug if it is deemed medically necessary through standards or research that states what care is most effective.

“Medically necessary” can also be referred to as “medically necessary services” or “medical necessity.” To keep track of what services your provider has covered and what money you may owe them, you can review your explanation of benefits (EOB) — a statement usually sent by mail or email from your health plan. You may find you owe money through a copay or coinsurance fee. Coinsurance is the percentage of health care expenses you pay after your deductible. Copay is the dollar amount you pay for health care expenses, most often after you meet your deductible limit.

When you speak with your insurance provider on the phone, be sure to have a good understanding of what your plan covers. If certain medications or treatments are deemed necessary by your doctor but not covered, there are appeals processes you can make to prove medical necessity.

For more information on how to talk to your insurance provider, go here:
http://www.ghlf.org/switching-survey-glossary/

How to Talk to Your Employer

In many cases, treatment and management of your disease mean you can experience few interruptions of your daily life. However, living with a chronic disease can sometimes impact your ability to be as productive as you’d like in your workplace. Employers may not understand the fatigue, pain, and difficulty arthritis can cause because these things are often not seen on the surface. You may wish to have a conversation with your employer explaining your diagnosis and how it might impact your performance to better their understanding. Here are some tips:

First, understand whom you should speak with. In many cases, a supervisor and your human resource department are good starting points.

- Explain your diagnosis, what that means for you, and why you feel they should know.
- Become familiar with your company’s disability plan and insurance policy.
- Know your rights:
    - Understand that the Family and Medical Leave Act (FMLA) allows you to take up to 12 weeks off each year for medical emergencies. This is unpaid, but will at least allow for job security.
    - The Americans with Disabilities Act (ADA) requires employers to make reasonable accommodations for disabled workers.
- If need be, it may be a good idea to request time off while you adjust to treatment.
- It is also helpful to go over your benefit plan with HR if you receive health insurance from your employer.
- If interviewing, it is suggested to not disclose your disease history — it could compromise your standing.

Here is a list of helpful websites you can use to research options should your condition impact your work:

State Legislature: https://www.dol.gov/odep/contact/state.htm
Job Accommodation Network: http://askjan.org/
FMLA: https://www.dol.gov/whd/regs/compliance/whdfs28.htm#.UNHq_2_hrFk
ADA: https://www.eeoc.gov/facts/fs-ada.html

Ways to Make Your Voice Heard

RAISE YOUR VOICE: If you're insured through your job, ask your HR department if your company or its insurer has a patient advocate or employee assistance programs as part of your coverage. These advocates or advocacy programs are designed to work on your behalf to provide information or assistance related to your healthcare.

How to Talk to Your Elected Officials

Your elected officials at the federal, state, and most importantly the local level are interested in helping you. After all, YOU are their constituent, and their job is to represent their constituents. Getting in contact with your elected officials' offices can help speed up the insurance claim process, help improve existing guidelines of care, and will send a message to your government that your issue is real, and needs to be taken seriously.

There are a number of reasons to contact your elected officials, and it's important to understand that many will work to help you, but mostly on an individual level as a "constituent service." As much as you and they may want sweeping change to the laws, change takes time and sustained interest from constituents.

So now that we've tempered your expectations about government, how should you go about contacting your local officials, and what can they help you with?

First you need to find them. To do so, follow this link: http://openstates.org/

Your state senator, house representative, or assembly person can work to be a powerful advocate in clearing up insurance coverage issues. Furthermore, sharing your story will provide your representatives a picture of their constituents that will help inform their decisions on future legislation.

How should you share your story? While a personal hand-written letter is the most impactful way of sharing your story, a phone call or personal email is a more practical way of contacting your elected official.

You can also get involved with the 50-State Network, a national organization of patients just like you who want to make their voices heard by their elected officials. Learn more and sign up at https://www.50statenetwork.org/ — this is a program developed and run by GHLF, the parent non-profit of CreakyJoints.

The ACR also brings together patients like you, rheumatologists and health professionals, and families of kids with rheumatic diseases to Washington each fall to lobby members of Congress about important legislative issues.

RAISE YOUR VOICE: Everyone involved in healthcare — including elected officials, insurance providers, drug manufacturers, hospitals, pharmacies, and physician groups — should focus on you, the patient, when setting any policies or making any decisions. Healthcare is about you — your health, your treatment options, your quality of care, and your needs. Speak up if you feel that a new law, regulation, or policy will make it harder for you to access the best care. Or speak up on behalf of legislation that you believe will make getting the best care easier! Use social media, email, phone, letters, or postcards to let your voice be heard at all times.

How to Talk to Your Family and Friends

When you have AS, you may not always look like you're sick or in pain on the outside. People around you may not realize you hurt, or that your joints are stiff or hard to move. They may not realize you struggle to get out of bed in the mornings, that you have to take shots or pills, or that some activities are harder for you to do. They may not know that you sometimes feel blue because you have a chronic disease.

Talk to your friends and family about your AS so they understand what's going on with you. Let them know some ways that they can help you cope better with the challenges of your disease, particularly if they want to be there for you. Find out which people in your life will be good sources of support. Some family members or friends could be great exercise buddies too.

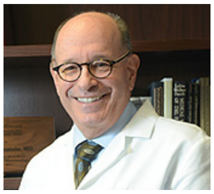
Here are a few tips for talking with your family and friends about your AS, and getting help when you need it:

- Explain a little bit about your disease, like how AS affects your body, what inflammation is, and how your joints or organs could be at risk for serious damage. Don't try to unload an encyclopedia of information on others — just give them a few ways that AS affects you.
- Don't hide your pain or other symptoms from those you love. It's OK to admit that you are having pain or struggling to get tasks done. Ask for help if and when you need it. Let people know ahead of time if you need help with regular tasks like getting dressed or lifting a cooking pot.
- Keep your friends and family up to date about your AS treatments. Make a list of the drugs and dosages you take, and give it to a couple of people in your inner circle that you trust. They may need to have this information handy in a medical emergency. Also, people that care about you want to know what you are doing to treat your disease, and how you're doing. They can be the best cheerleaders for your treatment success!

You may want to talk to coworkers or other people you deal with from time to time about your AS. They may wonder about your condition when you're not feeling well or if you need help with certain tasks.

PART TEN

About the Editors



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Dr. Borenstein is a Clinical Professor of Medicine, Division of Rheumatology at The George Washington University Medical Center in Washington, DC. He is Board Certified in Internal Medicine and Rheumatology and is a Fellow of the American College of Physicians and the American College of Rheumatology. He is a member of the 250 physician International Society for the Study of the Lumbar Spine and of the Rheumatology Society of the District of Columbia. Dr. Borenstein is the author of *Low Back Pain: Medical Diagnosis and Comprehensive Management*, and *Neck Pain: Medical Diagnosis and Comprehensive Management*, both textbooks for physicians.

MADELAINE HEDGPETH FELDMAN, M.D. FACR

Dr. Feldman is the founding member and past president of the Rheumatology Alliance of Louisiana, vice-president of the Coalition of State Rheumatology Organizations (CSRO), board liaison to the Association of Women in Rheumatology, and presently serves on the insurance subcommittee for the ACR. She is also a member of the working group for the Alliance for Patient Access. A Clinical Associate Professor of Medicine at Tulane University School of Medicine, she has been named one of the Top Doctors in New Orleans for over 10 years.

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Dr. Domingues is currently finishing his fellowship at New York University School of Medicine and serves on ACR's Fellows in training committee as well as the Committee on Rheumatologic care (CORC). His main research interests are in lupus, inflammatory arthritis, and antiphospholipid syndrome.

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Dr. Mendoza Temple serves as Medical Director of the Integrative Medicine Program at NorthShore University HealthSystem. She is a board-certified Family Practitioner who cares for adults, children, pregnant mothers, and infants with a wide variety of conditions and preventive health needs. Dr. Mendoza Temple combines conventional Western medicine with safe, evidence-based complementary medicine therapies to improve the health of her patients. She leads a large team of talented, dedicated practitioners who work together to integrate some of the best of the world's medicine.

REGAN REYNOLDS

Regan Reynolds is a lifelong North Carolina resident. She was diagnosed with Undifferentiated Spondyloarthritis as a teenager, then later diagnosed with Ankylosing Spondylitis at the age of 22. Regan is a volunteer patient advocate with the Global Healthy Living Foundation | Creaky Joints and is also involved with the Arthritis National Research Foundation. Regan enjoys participating in CrossFit as a means of staying active. She and her husband reside in Raleigh with their "dog-ter", Davie Pierson.

CHARIS HILL

Charis Hill is a chronic disease ambassador, writer, and speaker who lives with Ankylosing Spondylitis (AS), Major Depressive Disorder, Anxiety and Post-Traumatic Stress Disorder. She leads the Sacramento area Spondylitis Association of America Support Group, is a member of the CreakyJoints Patient Council, a WEGO Health Expert, and a speaker with the Stop Stigma Sacramento Speaker's Bureau.

These patient guidelines for Ankylosing Spondylitis were made possible by the generous support of **Novartis**, a global pharmaceutical company based in Switzerland.

GLOSSARY

A

Ankylosing spondylitis
A chronic type of arthritis that causes inflammation, pain and stiffness most often in the spine and the joints located just above the tailbone.

Anxiety
A general uncomfortable feeling of nervousness and apprehension about something that is happening or about to happen.

Approved
The Food Drug Administration (FDA) has issued permission for a given medication to be commercialized for a specific disease entity.

Autoimmunity
State in which our own immune system becomes dysfunctional and starts attacking ourselves. Examples of autoimmune diseases include rheumatoid arthritis, lupus, scleroderma, and Hashimoto's thyroiditis.

B

Biologic
Highly sophisticated and genetically engineered medications that target specific components that cause inflammation. These medications have been widely used in rheumatology and oncology.

Biosimilar
Genetically engineered medication designed to have structure and activity highly similar to the original biologic licensed.

Bone density
Measurement used to assess the strength of the bones. It is widely available and is the way the diagnosis of osteoporosis is made.

BUN
Stands for blood urea nitrogen. It is a marker of kidney function and can fluctuate a little depending on dehydration status.

C

C-reactive protein
Protein released by the liver; high values correlate with the inflammation status of the body. It is widely used in blood tests to assess overall inflammation. Although sensitive, it not specific for rheumatoid arthritis and many conditions can cause elevation.

Clinical trial
Lengthy and costly process that new medications have to go through in order to be approved by the FDA. Usually the new medication is compared to the current standard of care (best treatment available) or to placebo (no treatment).

Combination therapy
Treatement that involves being on more than one medication in order to control the disease. Some medications work better when used concomitantly (i.e. methotrexate + biologic).

Comorbidity
Refers to another concomitant disease one might have aside from the primary condition.

Complete blood count
This is a blood test that reflects our white cells (army against infection), red cells (cells that carry oxygen to tissues), and platelets (fragments of cells that prevent us from bleeding).

Contraindications
Statement used often to reflect that one should avoid a certain type of treatment or procedure because of possible harm (i.e. a pregnant patient should never take methotrexate because if would harm the baby).

Copayments
Portion of the cost of medication, procedure, or hospital stay that the patient is responsible for. Generally, insurance companies cover most of the cost but the patient may be responsible for some copayment.

Corticosteroid
Highly effective medication to treat inflammatory disorders and widely used. Given its multiple side effects, patients should not be on it for a long period of time.

Creatinine
A blood test that reflects the kidney function. Since many medications are cleared and can affect kidney function, it is a very commonly checked laboratory value.

D

Depression
A state in which patients have a persistent feeling of sadness, hopelessness, and difficulty finding pleasure in things that otherwise provided them pleasure. Depression is very common in chronic disease patients.

Disease activity
Objective measurement of inflammation attributable to the disease. Doctors have developed tools and scoring systems to assess how mild, moderate, or severe the disease state is at a given point.

Disease-specific markers
Blood tests that are associated with a given disease. In ankylosing spondylitis the most specific marker is the HLA-B27 gene.

DMARD
Stands for disease modifying anti-rheumatic drug. These are medications that not only alleviate symptoms but slow or stop the progression of the disease (i.e. preventing erosions, nodules, lung problems).

Dosage
Expression used to quantify the amount of a given medication a patient is taking. That can be expressed in many units (i.e. methotrexate 2.5mg; prednisone 30mg).

Double therapy
Treatment in which a patient takes two medications for the same disease. It is very similar to combination therapy but limited to two medications.

GLOSSARY

E

Erythrocyte sedimentation rate
Blood test used to assess inflammation. Very commonly used but it is not specific to rheumatoid arthritis and it can be elevated in a myriad of conditions including cancer and infections.

Evidence
Evidence is the presence of information through research studies regarding a given intervention. The evidence can be positive or negative and many clinicians use the scientific evidence to base their treatment choices.

F

Fail First
Terminology used by providers to describe Step Therapy, as patients must first fail on less expensive medications before an insurance company will cover the cost of potentially more effective but costly options.

G

Generic drug
Medication that is equivalent to the branded (original) drug in dosage, quality, and route of administration. Usually generic drugs are less expensive.

Glucocorticoid
Highly effective medication to treat inflammatory disorders and widely used. Given its multiple side effects, patients should not be on it for a long period of time.

I

Inflammation
Process where our white cells (army against infections) and their products become hyperactive. Physically shown as redness, warmth, swelling, and pain.

Inflammatory markers
Blood tests that are surrogate markers of how inflamed the body is at a given point. These markers are routinely used in rheumatology

Interchangeable
Designation given to a biosimilar beyond its structural similarity to the original drug after it has proven clinical efficacy in a patient. The practical implication is that interchangeable biosimilar may be substituted for the reference product without intervention of a physician.

M

Monitoring
Monitoring relates to the need of frequent objective assessments (blood tests or X-rays) to measure progression of disease and side effects from the medications.

Monotherapy
Term used when only one medication is being used to treat a given disease.

N

Non-disease-specific markers
Tests that can be present in ankylosing spondylitis but are also found in a variety of diseases. Examples include elevated C-reactive protein and sedimentation rate.

O

On the market
Relates to medications that are currently commercialized and available for patients.

P

Prior Authorization
A process through which a provider must request authorization from the patient's insurance company to prescribe a particular treatment. The process is often lengthy and complicated, and can delay important patient care.

R

Radiological progression
Objective rating used by doctors to assess changes in the joint structure using X-ray exams. Usually it reflects new erosions (tiny holes) in the bone and it is a sign that the medication is not fully working.

Recommendations
Statements made by a committee comprised by very knowledgeable experts in the field of ankylosing spondylitis. They help clinicians follow a basic algorithm but in the end, treatment should be individualized.

Reference drug
Relates to the original pioneer drug. For the biosimilar example, the reference drug is the original biologic (i.e. infliximab for Inflectra®).

Remission
State in which signs and symptoms are controlled, and based on objective examination by the doctor, the disease activity is low. This is the ultimate goal in treating ankylosing spondylitis.

Rheumatologist
Physician who specializes in systemic autoimmune illnesses and arthritis. Training comprises three years of internal medicine and later a two- to three-year fellowship in rheumatology.

S

Self-administration
Term used to characterize a medication that, although not necessarily as simple as a pill, can be administered by the patient without a healthcare provider being involved.

Side effects
Unwanted or undesirable effects of certain medications or procedures. All medications have side effects and that should be monitored carefully.

Specialty pharmacy
Specific segment of a pharmacy chain that deals with high-cost and complex medications.

GLOSSARY

Step Therapy
The process in which an insurer requires providers to follow "tiers" based on cost when prescribing medications. In most cases, the least expensive medication must be prescribed first, and progression to other options is only allowed after a patient has been shown to "fail" on the initial medication.

Substitution
Ability of the pharmacist to change from an interchangeable biosimilar to its reference drug. There is currently no available interchangeable biologic but this is expected in the near future.

Synovium
Membrane that surrounds the joint and produces synovial fluid, which "lubricates the joint" for smoother movement.

T

T cells
A type of white blood cell that's part of your immune system. T cells are normally activated when they find a sign of a foreign invader. When this happens, they send signals to wake up other parts of your immune system to deal with the foreign "invaders" like bacteria or viruses.

TNF
A molecule that drives the inflammation in ankylosing spondylitis, rheumatoid arthritis and other inflammatory diseases. Given the advances in pharmacology, there are now many drugs that inhibit its action, providing relief to patients.

TNFi biologic
Genetically engineered medication designed to inhibit tumor necrosis factor, which plays a major role in the inflammation seen in rheumatoid arthritis. These medications are approved for rheumatoid arthritis and have revolutionized the field of rheumatology.

Transaminase
Liver enzymes that are measurable through a blood test. The liver metabolizes most medications; therefore, it is important to monitor such enzymes to assess if the drugs are causing any damage to the liver.

Treatment Guidelines
Published periodically, treatment guidelines are designed to help standardize care for a given disease. It is normally a consensus of multiple experts in the field who thoroughly evaluate the scientific evidence and develop clinical guidelines.

Treatment plan
The result of a conversation between the patient and doctor. It outlines a strategy on how to cope with the disease. That includes medications, physical therapy, and alternative therapies.

▲ The information in these guidelines should never replace the information and advice from your treating physician. It is meant to inform the discussion that you have with healthcare professionals, as well as others who play a role in your care and well being.

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