Rheumatoid Arthritis and Your Body
A System-by-System Look at the Impact of RA on Your Body
The mission of the Arthritis Foundation is to improve lives through leadership in the prevention, control and cure of arthritis and related diseases.

Good Living with RA is more possible now than ever before! Get the most up-to-date information so you can RELIEVE PAIN, REDUCE STRESS, BOOST ENERGY and LIVE WELL.

Organized in an easy-to-follow guide format, this book helps you:

- Understand Your RA
- Join Your Health-Care Team
- Develop a Good Living Lifestyle

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**American College of Rheumatology**
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**Association of Rheumatology Health Professionals**
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Introduction
Rheumatoid arthritis (RA) is more than just a joint disease. It can cause inflammation throughout the body. The good news is that the risk of developing symptoms outside of your joints is lower today than ever before. This is largely due to people getting earlier diagnoses and better treatment, and being more vigilant about monitoring their disease.

This brochure will help you understand how RA can affect your joints, and the impact it can have on your whole body and overall health. With this information, you’ll be better equipped to evaluate your treatment options, understand potential side effects and ward off symptoms to stay as healthy as you can.

What is Rheumatoid Arthritis?
The word arthritis literally means joint inflammation. Rheumatoid arthritis is a common form of arthritis. It causes inflammation of the lining of the joints (synovium), leading to warmth, tenderness,
swelling and/or stiffness in the joints.

RA is an autoimmune disease that causes your body’s immune system to mistakenly attack healthy cells found in your joints and other organs. When this happens, fluid builds up in the joints and causes inflammation that can lead to joint damage. If the inflammation continues, the cartilage that covers and protects the ends of the bones can also be damaged. Once the cartilage wears away, it does not repair itself. The joint can become painful and difficult to move.

The same faulty immune response that causes inflammation to the joints can affect many body (organ) systems. That is why RA is called a systemic (whole body) disease. Body systems that may be affected outside the joints include the blood and blood vessels, eyes, heart, lungs, nervous system and skin. When RA affects these or other body systems, the effects are known as extra-articular manifestations of RA, or non-joint effects of RA.

In the United States, almost 1.3 million people have RA. It often occurs in middle age, however, anyone can get RA.

Depending on the severity of the illness, the average life expectancy for a person with RA may be about three to 15 years shorter than for people in the general population. However, as RA treatment continues to improve, so do their effects, including reducing pain and stiffness and slowing joint damage.

**RA’s Effects on Body Systems**

To understand your RA, it is important to be aware of the impact it can have on your whole body, not just your joints. Here is a
system-by-system account of how RA can affect the rest of your body:

**BLOOD**

**Anemia** – A reduction in red blood cells that can result in headache and fatigue, among other symptoms. Uncontrolled inflammation in RA causes anemia. High inflammation may also lead to thrombosis, or high levels of blood platelets, which can cause blood clots. On the other hand, aggressively treating the inflammation could lead to thrombocytopenia, an abnormally low number of blood platelets.

**Felty syndrome** – A condition characterized by an enlarged spleen and a low white blood cell count. Felty syndrome is an uncommon complication of longstanding, severe RA. People with Felty syndrome may also be at increased risk for infection and lymphoma, a cancer of the lymph glands.

**BLOOD VESSELS**

**Vasculitis** – Inflammation of blood vessels. This is a rare but serious possible result of longstanding RA. Vasculitis associated with RA most commonly affects the small blood vessels supplying the skin. Similar to RA, it can affect many of the body’s organs, including the eyes, kidneys and heart. Symptoms of vasculitis to watch for include the development of ulcers on your legs or under your fingernails on your nail beds.

**EYES**

**Scleritis** – Inflammation of different parts of the eye. Symptoms of eye inflammation depend on where the inflammation occurs, but could include pain, redness, blurred vision and sensitivity to light.
A rare complication of scleritis is scleromalacia perforans, in which the eye can be permanently damaged by severe inflammation. Autoimmune diseases like RA also can cause uveitis, inflammation of the area between the retina and the white of the eye. Uveitis can become serious enough to cause blindness if not treated. If you have RA, you should get eye checkups at least once a year. See an ophthalmologist immediately if you develop redness in the white part of your eye or feel sudden pain in your eyes.

**SJÖGREN’S SYNDROME**

Having RA also makes you more susceptible to Sjögren’s syndrome, a condition in which the immune system attacks the body’s glands. This can lead to a dry mouth and eyes that feel dry and gritty. If not treated, the condition can potentially lead to eye infection and scarring of the cornea and the conjunctiva (the membrane that covers the white of the eye and inside of the eyelid). A chronic dry mouth can allow bacteria to grow quickly. It is important to see an ophthalmologist and a dentist to prevent and/or treat the symptoms of Sjögren’s syndrome.

**HEART**

Heart disease – A condition that makes it more likely that you will have a heart attack, or other heart related problem. The systemic inflammation associated with RA also means people with RA are at increased risk of heart disease or cardiovascular disease (conditions that concern blood circulation like, stroke). In fact, the death rate among people with RA is 35 percent higher than that of the general population, mainly
due to the increased heart disease risk. A person with RA is about 2.5 times more likely to have heart disease as someone in the general population. Recent research shows that people with RA have an increased risk of heart attack that is about the same as for people with type 2 diabetes.

**LUNGS**
Up to 30 percent of people with RA will develop some type of lung or pulmonary condition. These can include pleurisy, pulmonary fibrosis and pulmonary nodules.

**Pleurisy** – Inflammation of the lung lining that makes it painful to take a deep breath.

**Pulmonary fibrosis** – Scarring of the lungs, which leads to progressive difficulty breathing.

**Rheumatoid nodules** – Lumps of tissue that can form in the lungs as well other parts of the body (most commonly these are found on the hands). Nodules, no matter where located, typically do not cause symptoms or problems.

**MOUTH**
**Gum disease** – Inflammation and infection of the gums, which can lead to dental troubles such as tooth loss and other health problems. People with RA tend to have a higher rate of gum disease, or gingivitis, than the general population. Although the reason is unknown at the time, inflammation in general may play a role in the increased risk. If RA affects the joints in your hands, brushing and flossing can be difficult, which can increase your risk of cavities in your teeth and gum disease. Dryness that can come with RA can also make gum disease more likely.
NERVOUS SYSTEM
Numbness, tingling or weakness in the arms and legs often occur in people with RA. These are signs of RA affecting the nervous system.

Carpal tunnel syndrome – A common nerve condition that can accompany RA. The nerve that runs from the forearm into the hand gets squeezed at the wrist, resulting in tingling, numbness and decreased grip strength.

SKIN
Rheumatoid nodules – Lumps under the skin that typically are not painful unless they are located in a sensitive spot, such as where you hold a pen. Up to half of people with RA have rheumatoid nodules under the skin, often over fingers, elbows or other bony areas exposed to pressure.

Skin color and quality changes – Red dots or ulcers (small raw patches of skin or open sores). If RA is accompanied by inflammation of the blood vessels, one of the first symptoms may be red dots on the skin, signaling the need for treatment. In more severe cases, blood vessel inflammation can cause ulcers on the skin of the legs.

RA’s Effects on Well-Being
Aside from joint inflammation and organ-specific symptoms, RA can also cause fatigue, loss of appetite, weight loss, low-grade fever and feelings of depression.

Fatigue
One of the most common symptoms of RA, fatigue is sometimes the first sign of inflammation. Fatigue is a feeling of tiredness,
exhaustion, low energy, physical weakness or sleepiness. Fatigue can make it harder to concentrate or deal with pain – it can even make people feel helpless. Like pain, fatigue is a signal that something is wrong. Coping with fatigue can help you feel better.

Fatigue may be caused by inflammation, overdoing routine activities, medication side effects, stress, depression or a combination. Poor sleep and nutrition, and absence of regular exercise also may also contribute.

Feeling tired all the time can lead to stress and depression. And, if you become physically run-down, your immune system will be less able to fight infection and illness. By setting priorities, making smart choices and conserving your strength, you will still be able to do most of what is important to you.

Loss of Appetite
RA may cause you to feel sick all over, especially during flares. When you feel sick, you don’t always feel like eating but it is important, to keep eating a healthy, balanced diet. While you are having a flare, you may need more energy than normal because your body is working harder to make you well. You can try to boost your energy by eating more calories found in food. Having more calories will give your body more fuel to fight inflammation. But you don’t have to eat extra large amounts of food to boost calories. Here are some tips for adding calories to your diet:

- Put more protein in your diet, add lean meats, or fish.
- Look for calorie dense foods – avocado, granola, nuts and dried fruits are calorie-packed, good-for-you foods
• Drink whole milk instead of skim, and eat full-fat yogurt and cheeses instead of fat-free.
• Add cream to soups, fruit, cold cereal, and other foods.
• Try whole grains instead of refined, processed, white bread and rice.

Weight Changes
It can be common to experience weight changes with RA. That’s because your body is sick and may cause you to lose your appetite, or a suddenly sedentary lifestyle may cause you to gain weight. Unintentional weight loss can become serious. It can leave you exhausted, weak, and interfere with your treatment. Talk to your doctor about how to maintain a healthy weight with RA.

Low-Grade Fever
RA is often accompanied by a low-grade fever, which may register one or two degrees higher than normal (98.6 degrees). Fever is an important part of the body’s defense against infection. Many infants and children develop high fevers with minor viral illnesses. While a fever signals to us that a battle might be going on in the body, the fever is fighting for you, not against.

Mental Health
If you have RA, you may find it difficult to cope with the disease. Some feelings of depression are normal, but they can make it more difficult for you to successfully manage the disease. Symptoms of depression may include:
• Sleeplessness or oversleeping
• Loss of appetite or overeating
• Frequent tears and feelings of sadness
• Inability to concentrate
• Fatigue, irritability, restlessness or moving about in slow motion
• Feeling of worthlessness or overwhelming guilt

Medications, rest and exercise are the best combination for relieving symptoms, but staying focused on the positive aspects of life can also help. It’s important for you and your family to learn all you can about the disease and to discuss it with each other, with your doctors and with other health professionals involved in your care. Counseling from mental-health professionals on how to develop coping and problem-solving skills may also help.

Some people with RA may need special medications to relieve depression. Knowing that you are not alone and that others understand something about the challenges you face can be your best emotional support.

Infections
Research has shown that people with RA are at greater risk of developing infections than those who don’t have RA. This may be due to the autoimmune effects of RA, or to some of the immunosuppressive effects of certain medications.

Because your immune system is already compromised with RA, taking care of your overall health is important in preventing infections. Here are some ways to help lessen your chances of getting an infection:

• Get plenty of sleep.
• Choose colorful organic fruits and vegetables.
• Control your body weight.
• Engage in moderate physical activity on a regular basis.
• Wash your hands regularly to avoid germs and bacteria.
• Manage stress.

Talk to your doctor about other ways to prevent infection.

Cancer
Studies have also shown that people with RA could have an increased risk of cancer, especially if they take methotrexate, which could triple the risk of lung cancer and melanoma. Studies have also shown that people with RA have an increased risk of getting cancer. People with RA have about 2.5 times this risk compared to the general population. Medications that dampen the immune system in an effort to control inflammation may also increase risk of cancer. However, it has not been confirmed whether it is RA itself or immune suppressing medications often used in treating RA that are the cause of an increased risk of cancer. Speak with your doctor about the latest knowledge on this risk.

RA Treatments’ Effects on The Body
While there is no known cure for RA, rest assured that highly effective treatments are available. Early treatment is crucial to prevent the damage that RA can cause. Once you receive a diagnosis, it’s important to begin treatment right away. Treatment methods – including medication as well as lifestyle modifications – focus on relieving pain, reducing inflammation, stopping or
slowing joint damage, and improving your overall well-being.

Medications used to treat RA can be divided into two groups: symptomatic and disease-modifying. Symptomatic medications – or those designed to relieve your symptoms – include NSAIDs (nonsteroidal anti-inflammatory drugs), aspirin, analgesics (pain relievers) and corticosteroids. Disease-modifying antirheumatic drugs (DMARDs) – or those with the potential to modify the disease – include methotrexate, sulfasalazine, leflunomide and biologic response modifiers. Evidence suggests that treatment with a DMARD can decrease pain, swelling and slow further joint damage. (See page 15 for more information on biologics.)

Your treatment program should be tailored to meet your needs, taking into account the severity of your arthritis, other medical conditions you may have and your individual lifestyle. Your rheumatologist and other members of your health-care team will work with each other and with you to determine the best treatment program.

Treatment Side Effects: The Impact on Your Body
As with any medication, you may experience unpleasant side effects while taking medications to treat your RA. To minimize the risk of prescription medication side effects, your doctor should prescribe the lowest dose of a medication that helps. You should let your doctor know of any medical problems you have or medications you are already taking. This includes telling your doctor about any vitamins, sup-
plements or over-the-counter medications you may be taking such as aspirin.

Keep in mind that some potentially serious problems can be detected only by regular lab tests ordered by your doctor. If you experience serious prescription medication side effects, your doctor may decide to stop a drug. Only start or stop medications with guidance from your doctor. Doing so on your own could have harmful affects on your health.

Listed below are some of the more common side effects of RA treatment. Risks are organized by body part affected, and examples of medications that may cause possible side effects are listed.

**EYES**
Certain medications for RA may impact the eye.

Corticosteroids such as prednisone may lead to glaucoma, a group of eye diseases that cause damage to the optic nerve, and cataracts (clouding of the eye’s lens that interferes with vision).

Hydroxychloroquine (*Plaquenil*), in rare cases, can produce pigment changes in the macula, the central part of the eye’s retina that is responsible for fine vision, leading to vision loss.

**KIDNEYS**
Typically, the kidneys are not affected by RA. However, in some people with RA, reduced kidney function is a side effect of drugs they take for their disease. Drugs such as cyclosporine (*Neoral*) or certain nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen may affect your kidneys.
LUNGS
Methotrexate, a commonly used medication for RA, can sometimes cause lung side effects. These side effects generally go away when the medication is stopped. Methotrexate sometimes causes breathing difficulties known as methotrexate lung or methotrexate pneumonia. Injectable gold and penicillamine can also cause similar drug-induced pneumonias.

MOUTH
Methotrexate and injectable gold sometimes can cause dry mouth, mouth sores or oral ulcers. To help relieve these side effects, try the following:

• Moisten your mouth with sugar-free gum or hard candies, or by sucking on ice chips.
• Try saliva substitutes, such as Salivart, Xerolube or Glandosan.
• Avoid alcohol or alcohol-containing mouthwashes that can make dry mouth worse.
• Avoid salty or spicy foods or citrus fruits that can irritate ulcers.
• Try topical pain relievers such as Orajel or Zilactin or ask your doctor or dentist about a prescription rinse or mouthwash to help ulcers heal.

SKIN
Arthritis medications such as corticosteroids and NSAIDS can cause skin side effects. Corticosteroids can cause thinning of the skin and susceptibility to bruising. People taking NSAIDs are also more susceptible to bruising.
RA is more than joint pain and stiffness. It can cause joint damage, which can begin within the first year or two that you have the disease. That’s why it’s so important to see a rheumatologist (a physician who specializes in the treatment of rheumatic diseases like RA) right away.

The treatment of RA has come a long way in recent years. Now, not only are people with RA being treated for pain, but they are being treated with medications that help to prevent further joint damage. One class of medication, called disease-modifying drugs (DMARDs), has been shown to help slow further joint damage. In some patients with more moderate to severe RA, another class of medications, called biologics has been shown to help prevent further joint damage.

Biologics are a class of drugs genetically engineered from a living organism, such as a virus, gene or protein. Biologics block inflammation, so they are often used to treat autoimmune diseases like RA. They are given by intravenous infusion or by injection. Often, biologics are used in combination with another type of DMARD.

Together, you and your rheumatologist can consider the benefits and risks of various treatments and decide the right options for you. When deciding on your treatment plan, you should be aware that biologics are associated with serious side effects. Some of these include an increased risk of infection, tuberculosis, congestive heart failure, liver problems and certain types of cancer.

In short, RA is a lifelong disease that can cause damage to your joints. Seek treatment and find out about the treatment options available to you. Partner with your rheumatologist to decide how to best manage your RA.
It is not uncommon for various NSAIDs and DMARDs to cause stomach pain, nausea or in some instances, stomach ulcers. Talk to your doctor about ways to relieve these side effects, such as taking medication with food, if allowed, or taking NSAIDs with a drug that reduces stomach acid or switching from an oral to an injected form.

**Weighing the Benefits and Risks of Treatment**

All drugs, even over-the-counter medications, have potential side effects. For those with arthritis, side effects of medication are an understandable worry. No medication is completely safe, and the potential risk of side effects can be frightening.

It is important to consult with your rheumatologist about the benefits and risks of treating RA. Medications can ease the pain, prevent further joint damage and improve your ability to perform daily activities.

But because risks are real, it is important to educate yourself as much as possible about medications and other treatment options your health-care team may recommend. Talk with them about it, ask to see prescribing information, go over the pros and cons of treatment options to make the treatment choices you feel best about. Don’t be afraid to ask questions. Also, do your own research online by visiting trusted health sites. You can read prescribing information and other data on drug manufacturers’ websites. You can also ask your doctor if there are other people you may speak with about their experiences with their medication. You have a voice in your own
health care and it is your job to help make decisions about treatment as a member of your health-care team.

Once you are prescribed a medication, read package labeling and be sure to ask questions as they come up. The goal of treatment is getting the right balance to make living with arthritis better.

While pharmacy sheets are provided with prescriptions as a service to make you aware of side effects that can occur with a certain medication, you shouldn’t assume that the listed side effects will necessarily occur in you. Even if you do experience one or more side effects, you may be able to reverse or halt them by stopping or changing medications, but do not do so without calling your doctor. In most cases, no action is needed; many side effects resolve on their own.

Many factors can influence how your body reacts to a drug. Some are largely controllable – such as when and how you take your medicine. Factors that can’t be changed, such as your age and other health problems, may be compensated for with choice of medication or a dosage adjustment. Life is full of risks. The key is weighing risks against potential gain. Your doctor can help you weigh medication risks and choose the drugs that provide the most help and do the least possible harm.

**Strategies for Staying Healthy**

Having RA doesn’t mean you will be constantly ill or in pain. It does, however, mean that you and your doctor – preferably a rheumatologist – will need to keep close watch on your condition. With proper
monitoring and treatment, most non-joint complications of RA can be avoided or at least minimized.

There are several steps you can take to keep yourself as healthy as possible:

**Visit your rheumatologist and other doctors – regularly.** You may not always know if your RA is impacting body systems in addition to your joints. You may need to make more frequent appointments with an eye doctor, dentist and/or other specialists to ensure all your organs and body systems are working properly. The sooner a system or organ problem is found, the easier it may be to treat.

**Pay attention to your body.** For example, do you see any new rashes or bumps on your skin? Red dots on your skin may indicate blood vessel inflammation. Is your mouth dry or are your eyes feeling gritty? These signs may indicate Sjögren’s syndrome (see page 5). Are you feeling extra tired? You could be anemic or your RA could be more active (you may be having a flare). Know what feels normal in your body and, if something does not, seek your doctor’s advice.

**Exercise.** It used to be widely thought that if you have arthritis, you should rest your joints to protect them from damage. Today, experts recognize how much moderate exercise helps to keep joints flexible, increase strength and stamina, and improve heart and lung function. Work with your doctor to develop a fitness plan that is right for you and your condition. In general people with arthritis should try and be physically active for 30 minutes most days of the week in addition to their daily activity. The
Arthritis Foundation offers a number of evidence-based exercise programs designed for people with arthritis. (For more information, visit www.arthritis.org). Walking is the easiest and possibly one of the best activities for people with arthritis.

**Rest when and if needed.** If a joint is swollen, painful or stiff, rest can help reduce inflammation. To preserve joint mobility, continue moving your joints through as much of their range of motion as possible. You can also strengthen your muscles by tightening and then releasing them, without moving your joints.

**Make diet a priority.** Scientific studies have not proven that diet change can help or hurt arthritis. But omega-3 fatty acids, found in cold-water fish such as salmon and trout, can modestly reduce RA inflammation if taken in sufficient quantities.

In general, maintaining a wholesome diet – by including lean proteins, calcium, a variety of fruits and vegetables, and enough calories for energy – can help keep you physically, and often mentally, healthy.

**Avoid or reduce alcohol consumption.** Alcohol and most arthritis medications do not mix. Read medication labels and discuss your limits with your doctor.

**Don’t smoke.** Smoking makes you more likely to get RA. If you already have RA, smoking makes it worse. Talk to your doctor about quitting tobacco.

**Take supplements.** People with RA, particularly those taking corticosteroids, should take calcium supplements (to help support your bones) and a multivitamin with vitamin D (which helps your body absorb calcium).
If your doctor finds that you may have bone loss, he or she may prescribe something to reduce bone loss or help prevent further loss.

Seek outside emotional support. Having a chronic illness, especially one that can be unpredictable, painful and debilitating, can be emotionally difficult as well as physically challenging. Share your feelings with a support group, or friends and family. Though it is normal to feel depressed and stressed at times, talk to your doctor if these feelings last for an extended amount of time.

The Arthritis Foundation

The mission of the Arthritis Foundation is to improve lives through leadership in the prevention, control and cure of arthritis and related diseases.

The Arthritis Foundation supports research with the greatest potential for advances and has invested more than $400 million in these efforts since its inception in 1948.

The Arthritis Foundation offers many resources to help you live better with arthritis. If you are looking for ways to take more control over your health the Arthritis Foundation’s Life Improvement Series of exercise and self-management programs may get you started. Classes are taught by certified instructors.

To learn where these classes are offered near you or to get additional arthritis information, call 800-283-7800 or visit www.arthritis.org.
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