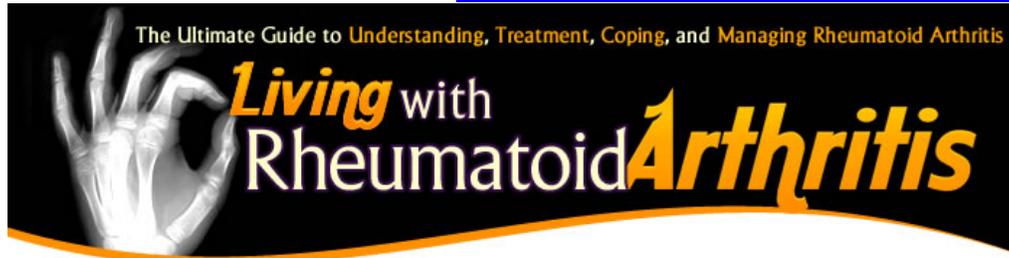


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Living with Rheumatoid Arthritis

*The Ultimate Guide to Understanding, Treatment,
Coping, and Managing Rheumatoid Arthritis*

By Peter Batty

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About the Author

Peter Batty’s father is severely affected by rheumatoid arthritis.

Peter was told that he had a higher than average chance of getting the disease because his brother, as well as his father, had it.

Peter decided to learn as much as he could about ways of dealing with and, if possible, reducing the chances of suffering from the debilitating and extremely painful condition.

He feels that rheumatoid arthritis is not understood by many people in the community.

It is really important that everyone is aware that rheumatoid arthritis has similar symptoms to some other conditions.

He hopes this book will help people to know the early signs which need to be checked by their doctor.

He has tried to include as much information as he could about the best current treatments and ways of coping with, or reducing the effects of rheumatoid arthritis.

Peter said that, so far, he has not shown any signs of it and his brother is in remission. His father is still affected by rheumatoid arthritis but has recently had some improvement in his condition.

Part-I: Introduction

Rheumatoid Arthritis - An Overview

Rheumatoid Arthritis (RA) is a chronic disease which affects the joints in your body. This is an “autoimmune disease”; a disease where your body’s immune system mistakenly attacks your body tissues that it would normally protect.

This disease slowly affects all body parts like blood vessels, skin, heart, muscles, and lungs.

There is no specific cause for rheumatoid arthritis.

The attack by your own immune system sends chemicals into the bloodstream that attack your healthy body tissues. This causes inflammation and abnormal growth across the membrane lining your joints. This condition is called **synovitis**. This is the main cause for development of rheumatoid arthritis.

Three Stages of Rheumatoid Arthritis



Rheumatoid arthritis develops in three stages.

The first stage involves inflammation of the **synovial lining** of your joints.

This causes extreme stiffness, pain, warmth, swelling and redness of joints.

The second stage is the rapid division of cells and thickening of the **synovium**.

The third stage is the release of enzymes which affect bones and cartilage severely and cause your joints to lose their shape and mobility. This causes extreme pain.

The name, rheumatoid arthritis, was derived from the Greek language. **Rheumatosis** means ‘flowing’ in Greek. This term was used with rheumatic fever, an illness causing joint pain and fever. The suffix ‘oid’ means ‘like’ or ‘resembling’. The ‘Arthr’ in arthritis means ‘joint’ and the suffix ‘itis’ means ‘inflammation’. So, rheumatoid arthritis means a form of joint inflammation, similar to rheumatic fever.

There are more than two million people affected by rheumatoid arthritis in the US alone. Women record a higher incidence of rheumatoid arthritis than men do. Women are two to three times more susceptible to rheumatoid arthritis.

This disease affects people across all social and ethnic groups and ages. The most vulnerable age group is between thirty-five and fifty years, although there is some rheumatoid arthritis among teenagers.

The rate of occurrence increases by two to three percent among people that have a close relative with rheumatoid arthritis. If your parents, brother, or sister has rheumatoid arthritis, you have a higher chance of getting it.

The most affected body parts with rheumatoid arthritis are the small joints in the hands and feet in the wrists and around the ankles.

However, with time and prolonged affliction, larger joints like those of the knees and elbows can also be affected. The small joints of the cervical spine can also be involved. This causes extreme discomfort and disability.

People with rheumatoid arthritis slowly start losing their mobility and have difficulty carrying out their normal activities. They find it

difficult to stand, walk, dress, use the toilet, wash, bathe or do any household chores.

More than half the people diagnosed with rheumatoid arthritis are unable to work ten to twenty years after their initial diagnosis.

Overall life expectancy is also a little less for rheumatoid patients.

Although rheumatoid arthritis is not a fatal disease, complications arising due to the disease and other treatment-related side effects may be major contributors towards a premature death.

Over time, rheumatoid arthritis affects major body organs and body systems, so it is also known as a **systematic disease**.

The muscles surrounding the joints could shrink and weaken.

Tendons and bones may develop deformities which may lead to osteoporosis and carpal tunnel syndrome.

Rheumatoid arthritis causes fluid accumulation around the heart.

This affects heart valves, heart muscles, and arteries.

Rheumatoid nodules form around the bony areas under the skin.

These turn dark purple in color and cause severe damage to blood vessels.

This could lead to skin ulcers.

Rheumatoid arthritis can affect your lungs in many ways. Fluid accumulation in one or both the lungs could cause stiffness and excess growth in the tissues which may affect your normal breathing.

Anemic conditions are common in rheumatoid arthritis, although they may not be due to RA alone.

Deformity of the joints often causes serious entrapment of nerves which may cause severe damage to your nervous system.

However, all symptoms of rheumatoid arthritis go through highs and lows. Sometimes, the symptoms flare and you experience a worsening condition while the symptoms may improve so that you feel better at other times.

There is no single cure or treatment for rheumatoid arthritis. Aggressive therapy coupled with early detection may prevent aggravation of the symptoms. It can reduce deformity and disability to a considerable extent.

Sometimes, regular and prolonged treatment may cause total and complete eradication of all symptoms and the disease.

The main treatment goal of rheumatoid arthritis should be twofold.

It should be aimed at reducing the current suffering and restricting further destruction of joints and development of greater handicaps.

Restriction of present suffering is usually possible through painkillers. However, you could probably need special anti-rheumatic medications to combat further growth.

Anti-inflammatory drugs and analgesics can restrict pain and stiffness but cannot prevent joint damage or slow down the disease progression.

Cortisone-therapy may be a good treatment choice.

Lots of rest and regular, specific physical activities may bring appreciable relief and improve your situation.

Swimming is often a very good form of exercise as it is physical exercise that doesn't strain the joints.

Application of heat and cold may also be a good option to ease symptoms before and after exercise.

In some cases of severely affected joints, knee replacement and similar joint replacement surgery could be a treatment option.

Recent research and advancements in drugs and treatment techniques has been able to alleviate the sufferings of many rheumatoid patients appreciably.

What Causes Rheumatoid Arthritis?

There is no defined cause of rheumatoid arthritis. Scientists are still looking for the exact cause.

Researchers and scientists are trying to locate the relevant specific factors and learn how they interact with each other. This might help to identify a specific cause or causes of rheumatoid arthritis.

Rheumatoid arthritis (RA) develops from your own body immune system. Normally, immune cells attack and kill bacteria, viruses, and fungi. In rheumatoid arthritis, these immune cells cluster around joints and cause inflammation of joints.

Normally, inflammation reduces after your body fights off the infection. However, in people with RA, the symptoms keep recurring which damages cartilage, the protective tissue around the joints.

Possible Triggers for Rheumatoid Arthritis

Researchers are debating which factors could act as triggers for rheumatoid arthritis.

These include:

Your Immune System: People with RA exhibit a rare, abnormal auto-immune response. Normally, white blood cells in your body produce antibodies to fight against infections and other foreign bodies. But, in people with RA, the body immune system attacks the healthy tissue of your body because they assume it to be a foreign body.

This is the **rheumatoid factor**. People with RA exhibit a high rheumatoid factor. However, not all rheumatoid patients exhibit the same type of rheumatoid factor.

In some cases, people diagnosed with RA may have a low rheumatoid factor.

It may be difficult to detect the rheumatoid factor in the early stages of the disease.

Gender: Rheumatoid arthritis is three times more common among women than men. The rheumatoid factor goes down if you are pregnant but the symptoms may become more intense after the birth of the baby or in the year following your pregnancy. These facts indicate that gender plays an important, but not yet defined role in rheumatoid arthritis.

Genetics: The specific genetic marker associated with RA is **HLA-DR4**. Recent studies indicate that specific genes including PTPN22 and two other similar genes are also involved in regulating immune responses.

Over time, it has been seen that people with this specific genetic make-up are highly prone to rheumatoid arthritis, it is not always a clear indication.

It is also not a proven diagnostic tool to detect a person’s risk of rheumatoid arthritis. Some people with this marker never get rheumatoid arthritis.

Further, you may pass this gene to your child. But, it is not definite that, if you have RA, your child will also develop it.

Infection: Some scientists and researchers think that RA is the result of some infection. RA is not a contagious disease but it is possible that a specific germ could over-react in people that have a greater susceptibility to RA, possibly due to some reactions within their immune system.

Other factors: Some scientists and researchers attribute rheumatoid arthritis to specific environmental factors which may include smoking, choice of lifestyle or an allergy to specific food substances.

These have been highlighted because some people with RA have had sudden flare-ups after eating specific foods or in specific environments.

Breast-feeding may aggravate RA. In some cases, use of certain contraceptives can modify your likelihood of developing rheumatoid arthritis.

Signs and Symptoms of Rheumatoid Arthritis

The signs and symptoms of rheumatoid arthritis may not be present permanently. The symptoms keep coming and going according to the degree of inflammation. Rheumatoid arthritis is an autoimmune disease. It affects the joints in your body primarily and later some other body organs. It first affects the smaller joints in your body like those in the feet and hands. The small joints of the cervical spine are also affected. It then affects joints like knees and shoulders.

It is common for all RA patients to be free of any symptoms of rheumatoid arthritis for some time. However, after few weeks or months, there could be a flare-up. Often, this attack is more severe and prolonged than the earlier one. Slowly, gaps between flare-ups could decrease gradually and symptoms start worsening.

Chest pain and severe coughing

Rheumatoid inflammation could affect the lungs. Inflammation of lung tissue and lung lining could lead to instances of severe coughing.

Sometimes rheumatoid nodules form within lungs.

Inflammation of the tissue surrounding the heart could be responsible for chest pain.

The intensity of the pain could change with changes in your sleeping position or while you are leaning forward.

Fever and Fatigue

A low and persistent fever is characteristic of rheumatoid arthritis. Pain, swelling and the inability to move freely make you feel tired and fatigued.

You could find doing small chores to be a huge ordeal.

Hoarse Voice

Sometimes, rheumatoid arthritis affects the joints of your vocal chords and causes hoarseness of voice.

Inflammation of joints

A notable symptom of rheumatoid arthritis is symmetrical inflammation of body joints. If rheumatoid arthritis affects your right hip, it also affects the left hip.

Inflammation starts from the smaller joints like wrists and hands, then progresses to others joints.

Small functions, like turning the doorknob or opening a jar can prove an ordeal. Redness, tenderness and warm joints are characteristic of rheumatoid arthritis.

Swelling of the joints could make your joints look and feel puffy and spongy.

Lack of appetite and weight loss

Rheumatoid arthritis causes severe loss of appetite. You may lose a considerable amount of body weight.

Loss of energy

Absence of proper appetite makes you consume less food. The condition deteriorates over time until your daily intake of food is very low.

This affects your energy levels that become very low.

Muscle and joint stiffness

Normally, all joints have a synovial membrane that produces synovial fluid to lubricate the joint. Thickening of this membrane makes it difficult to move the joint. This is the cause for stiffness in the joints.

This is a very persistent and common symptom of rheumatoid arthritis. The stiffness in the joints and muscles is very high early in the morning. It could last for an hour.

Sometimes, the stiffness increases during periods of inactivity.

Nodule formation

Sometimes, hard bumps appear and form near joints. They become visible near the joints, jutting out whenever you flex the joint. These nodules could vary between the size of a pea to a mothball.

Numbness and tingling in the hands

Rheumatoid arthritis could cause a tingling feeling in your hands. It could also be periods of numbness when you may not have any sensation in specific parts of your hands.

Pain

Pain is present in varying degrees in rheumatoid patients. The pain is normally due to inflammation.

It could also be due to repeated use of the joint.

This pain could prevent you from doing your normal work.

Tissue damage

Chronic inflammation causes severe damage to tissues around the joints or cartilage. It can also cause erosion of the bone underneath the cartilage.

This leads to joint deformity and loss of function.

Other signs and symptoms

Other signs and symptoms of rheumatoid arthritis may include:

- red and puffy hands
- bouts of weakness
- difficulty in sleeping, dryness in eyes and mouth
- anemia, and
- neck pain

Some of these symptoms are also common for other ailments.

So, you should have a thorough medical-checkup to define your actual ailment.

Progress of Rheumatoid Arthritis?

Rheumatoid arthritis affects the joints of bones, restricting flexible movements.

Bone movements are driven by muscles and the cartilage covering of bones. The cartilage around bones encompasses a small amount of a thick fluid called synovial fluid which acts as a lubricant, allowing smooth movement between bones.

Commonly affected joints include the smaller joints of fingers, toes, ankles, wrists and (later on) the knees.

In some cases, rheumatoid arthritis also affects the elbows, shoulders, hips, and the neck.

Further, rheumatoid arthritis simultaneously affects the same joints on both sides of your body.

Rheumatoid arthritis does not affect every patient in the same manner and intensity.

In some cases, the symptoms develop gradually over a span of a few weeks.

Normally, rheumatoid arthritis starts with stiffness in the hands, wrists and soles, and is most prominent in the morning.

The situation often eases by midday.

Initially, the stiffness may only occur occasionally. However, it soon becomes more regular.

It is then accompanied by pain and swelling.

In a few other cases, rheumatoid arthritis follows a different pattern altogether.

It may start with pain and swelling in some joints. This persists for few days.

In some others, pain and swelling affects different joints over a period of time.

In some others, it affects only the knees.

The other symptoms of rheumatoid arthritis, like weight loss, fever, anemia, and muscular pains may occur occasionally with occurrence of symptoms of the joints.

Mostly, rheumatoid arthritis shows a constant progress.

There could be sudden flare-ups, with symptoms becoming very severe. This could be followed by a period of lower occurrence.

Occasionally, the progress could be slow and several months pass by between developments.

However, rheumatoid arthritis causes continued increased disability, although it may not be easily noticeable.

In very rare cases, rheumatoid arthritis progresses extremely fast and causes severe damage to joints within months of diagnosis.

Joint damage usually progresses gradually and causes erosion and wearing out of the bones.

This slowly leads to deformities and it becomes difficult to use the affected joints. Although it is difficult to predict the progress of rheumatoid arthritis at the onset, modern treatments can restrict the progress substantially.

Who Gets Rheumatoid Arthritis?

There are more than two million people with rheumatoid arthritis in the United States. Anyone can get rheumatoid arthritis (RA). But, the rate of incidence is higher in women than in men.

The women are more than 75% of the two million. But, men may suffer from a more severe form of the disease than women.

Rheumatoid arthritis is an autoimmune disease and can affect people of any race.

In some cases, rheumatoid arthritis could run in your family. If your parents, brother, or sister has had rheumatoid arthritis, you may have a higher probability of getting it.

Doctors are of the opinion that people with genetic marker HLA-DR4 face an increased risk of developing rheumatoid arthritis.

There is no age bar for rheumatoid arthritis. It can affect children even as young as six months, and can equally affect the elderly in their sixties. Young children may get juvenile rheumatoid arthritis between the ages of six months and sixteen years.

Rheumatoid arthritis commonly affects men and women in their middle ages, from forty to sixty years. Usually, rheumatoid arthritis starts around the age of forty and increases more rapidly from their sixties and beyond.

Rheumatoid arthritis may go into remission during pregnancy. But, you may get intense rheumatoid arthritis after your child is born or in the following year.

Types of Rheumatoid Arthritis

There are four types of rheumatoid arthritis:

Juvenile rheumatoid arthritis (JRA): This rheumatoid arthritis affects children below the age of sixteen

Pauciarticular JRA: This is the most common type of Juvenile rheumatoid arthritis. It is most common among young girls below the age of eight. It affects the larger joints like the knees. This type of arthritis affects four or less joints.

Polyarticular JRA: This is a little less common form of JRA. It affects more than four joints. It often affects the smaller joints and in most cases symmetrical joints.

Systemic JRA: This is an uncommon type of JRA. It is also known as Still’s disease.

The Cause of Rheumatoid Arthritis

The actual cause of rheumatoid arthritis is still unknown. It is not contagious.

Some researchers believe it could be triggered due to some infection where a specific germ causes your body’s immune system to react against the healthy tissues of your body. But, if this is the actual cause, this germ does not act the same with all individuals. Some develop rheumatoid arthritis while others remain unaffected.

Rheumatoid arthritis (RA) is not a hereditary disease.

The HLA-DR4 gene is supposed by some to cause rheumatoid arthritis. Bur, having this gene does not necessarily mean that you will get rheumatoid arthritis.

Possible Indicators of Rheumatoid Arthritis

During the physical examination to try to detect rheumatoid arthritis, it is necessary to look for specific signs and symptoms.

These indicators help in the analysis of the extent of rheumatoid arthritis affliction in your body and how best to control and combat it:

Tenderness: Muscular tenderness may or may not be due to rheumatoid arthritis alone. It can also be present due to another regional pain disorder or fibromyalgia.

Checking for bone tenderness with muscular tenderness can provide direct results of the physical examination. The extent and depth of tenderness differs between patients with RA.

Stiffness: Rheumatoid arthritis causes stiffness of the bones and it occurs with greater intensity each morning.

Application of heat and regular exercise can alleviate stiffness in the hands. However, this is only a temporary reprieve.

Doctors examine the extent of motion restriction due to stiffness to analyze the extent of rheumatoid arthritis development.

Swelling: Swelling is a very common symptom of rheumatoid arthritis. This is due to enlargement of the synovial membrane and consequent thickening of the joint due to excessive accumulation of fluids and synovial cells. The swelling is more evident across the smaller joints of the body like those of the wrists and fingers.

Deformity: Prolonged inflammation and loss of cartilage could cause deformity of the joints. Such deformity develops over time and causes serious weakening of the ligaments. This leads to instability and affects the surrounding structures.

Pain which limits motion: Swelling of the tendons and supporting joint structures causes severe limitation of your free motion. It could also cause pain during movements of the fingers, hands and legs. Pain shows in the hips, cervical spine, and shoulders.

Severe damage to cartilage and bones is responsible for such pain.

It is further accentuated due to instability in the joints.

The Effects of Rheumatoid Arthritis

Normally, if you have rheumatoid arthritis, white blood cells of your immune system move into the joint tissues from the bloodstream. The amount of joint fluid increases and the white blood cell count in this fluid also increases.

The fluid and the white blood cells together produce various antibodies. These damage your joints and other places affected by rheumatoid arthritis.

Rheumatoid arthritis mainly affects your bones. Normally, it starts from the small joints like those of the fingers and wrists. It then progresses to the other bigger joints of your body like the knees, ankles, and elbows.

The effects of rheumatoid arthritis can be seen on:

Fingers: Normally, rheumatoid arthritis causes shortening of the phalanges, and the joints of your fingers become unstable. The joints could become deformed and bend in unusual directions over time.

Sometimes, even pulling of the fingers during examination may cause lengthening of digits. In very severe cases of rheumatoid arthritis, it might cause damage of the bones.

The deformity in the bones takes place due to non-reducible flexion at the proximal interphalangeal (PIP) joint, with hyperextension of the distal interphalangeal (DIP) joint of the finger.

The synovitis causes rupture of the PIP joint and lateral displacement of bands. Over time, the tendons shorten.

Eventually, it may cause loss of grasping power and lead to lack of mobility of the thumb.

Also, tightness of the muscles in the thumb or finger causes severe lack of mobility of the fingers. If there is formation and thickening of the nodules around the tendon, it could trap a tendon in a fixed position.

This could lead to tendon rupture and further erosion of the tendon and associated bones of the fingers.

Wrists: Rheumatoid arthritis can cause many deformities around the wrist. There can be serious disruptions in movement of the radioulnar joint with the caput ulna (weakness in the hand and wrist) and carpus rotation on the distal radius (related to flexibility). This drift and lack of rotation causes a zigzag deformity. It could also lead to shortening of carpal height in the wrists.

Dorsal subluxation (partial dislocation) of the ulna causes ruptures across the tendons of the ring, little, and long fingers. This causes further erosion of the bones and tendons during normal back and forth movements.

Eventually, it causes tendon rupture. It later leads to decreased sensitivity of the fingers and causes excessive loss of muscle mass and strength.

Elbow: Rheumatoid arthritis normally affects the elbow bones in the later stages. It is essential to check on palpable synovial proliferation at the radiohumeral joint (in the elbow, between the radius and the humerus) to detect the extent of damage at the elbow.

Normally, rheumatoid arthritis affects your elbows by causing flexion deformity making movement more difficult. Rheumatoid nodule formation is possible along the extensor surface of the ulna.

Shoulders: You can judge rheumatoid arthritis affliction in your shoulders through various symptoms like restricted motion, nocturnal pain and tenderness. Swelling could occur in the anterior (top) position. However, this swelling is not easily detectable.

Very few patients report such swelling and it is not very visible during examination except in rare cases.

Rheumatoid arthritis affects easy rotation of shoulders through rotator cuff degeneration. The humerus can be completely torn and glenohumeral damage could cause severe pain when in motion and at rest. Such restricted motion is commonly referred to as ‘frozen shoulder syndrome’.

Feet and ankles: The ankle joint does not develop any deformity immediately as it is a mortise joint.

However, rheumatoid arthritis affecting the ankles causes visible changes at the mid-foot. Your feet bear the entire weight of your body.

The combination of chronic synovitis and your body weight may lead to the rupture of tendons. This causes lateral (sideways) migration of the talus (a critical bone connecting the leg and the foot).

An affliction of the mid-foot causes flattening of the feet and loss of the normal contour of your feet. Normally, all joints of your feet become swollen due to pressure from your body weight.

Your toes show a compensatory flexion and the foot becomes flattened.

This causes severe pain and discomfort.

Knees: Rheumatoid arthritis affects the knee joints in the later stages of the disease. The knees develop an excessive accumulation

of synovium, translating into knee effusions and synovial thickening. Over time, this leads to degeneration of the knee bones and the knee cap.

This also affects your spinal reflexes. The loss of cartilage causes instability and weakening of ligaments. It becomes increasingly difficult to get up or stand for more than a few minutes.

Rheumatoid arthritis does affect your hips. However, rheumatoid arthritis affliction at the hips is not easily visible or felt during the early stages of the disease. This is because of the deep location of the hips. It is difficult to examine the hips or their movements directly.

Common symptoms of rheumatoid arthritis affliction at the hips are pain during movements, restricted motion and difficulty in lifting any weight.

Doctors normally adopt the Thomas test to detect the extent of hip affliction by rheumatoid arthritis.

Doctors allow flexibility of one hip while restricting the pelvic motion of the other by keeping it at neutral position. If you are unable to maintain one of your hips at the neutral position, it probably indicates rheumatoid arthritis is present.

Cervical spine: Rheumatoid arthritis, in the advanced stages, affects your spinal cord - specifically the cervical spine.

Occipital headache and pain during neck movements may be indications of cervical affliction through rheumatoid arthritis. The earliest indications are stiffness of the neck and difficulty in motion. The cervical joint is primarily a synovial-lined joint, so it is very susceptible to proliferative synovitis. This causes severe instability in the nearby joints.

If you develop severe deformities in your hands due to rheumatoid arthritis, you are more likely to suffer from symptomatic cervical spine abnormalities.

Development of rheumatoid arthritis across the spine can cause severe weakness due to spinal cord lesions, insufficient sensory effects, sphincter dysfunction and pathologic reflexes.

All symptoms of cervical problems due to rheumatoid arthritis have very mild symptoms. These may, however, become more intense over time and transfer to the body nervous system.

Rheumatoid nodules: These nodules form around and on the joints with regular friction. Formation of rheumatoid nodules is not a feature that is common with all rheumatoid arthritis patients. It occurs in around 25% of people affected by rheumatoid arthritis.

How Common is Rheumatoid Arthritis

Rheumatoid arthritis affects more than two million people in the United States. It affects around one percent of the adult population. This disease is more common among middle-aged people, normally between the ages of forty-to-sixty. However, there are also a few in all other age groups, even toddlers, with rheumatoid arthritis.

There is no particular age group for rheumatoid arthritis. It can start from as young as six months. However, it normally manifests around the age of forty and beyond. Women are more commonly affected with rheumatoid arthritis than men are.

Rheumatoid arthritis occurs across all race groups and ethnic groups. More than five percent of certain Native Americans like the Chippewa and Pima Tribes suffer from rheumatoid arthritis.

Rheumatoid arthritis is more severe among smokers than non-smokers.

Rheumatoid Arthritis in the Elderly

Joint stiffness and joint pains are a common ailment among the elderly. But, changes in the global demographic trends are indicating a significant new phenomenon among elderly people with rheumatoid arthritis. The mortality rate linked to rheumatoid arthritis is much higher and there are more elderly patients with it than before.



Musculoskeletal problems like arthritis can prove more troublesome and difficult for the elderly to manage.

Treatment options for the elderly have to be adjusted. The medications and their dosages may be changed to reduce the severity of any side effects.

Onset of Rheumatoid Arthritis in the Elderly

In cases of rheumatoid arthritis in the elderly where the onset is after the age of sixty, there are less chances of subcutaneous nodules or rheumatoid factor (RF). The elderly show a much lower count of RF positivity and have a much higher frequency of HLA-DR4 phenotype.

Although the onset of rheumatoid arthritis could be slow in the elderly, inactivity and stiffness is more prominent and may occur much earlier than with younger patients.

However, if you have a stroke or paralysis on one side, rheumatoid arthritis may cause asymmetrical affliction with the joints and bones, with the paralyzed side remaining unaffected.

But, if you have symptoms of rheumatoid arthritis before the stroke, you will suffer from rheumatoid arthritis on both sides.

Possible Complications

Rheumatoid arthritis is not usually a fatal illness by itself. However, it could cause various complications resulting in a fall in your survival chances by a few years.

The progress of rheumatoid arthritis is not the same with all people. Present day treatments for rheumatoid arthritis are many and may be more effective. Medications and treatments may restrict spread of rheumatoid arthritis substantially.

If you seek medical advice early in the disease, you may save yourself from much suffering through inflammation and restriction of joint movements.

However, if you seek medical advice after deformities start developing, your treatment progress could be very restricted. In most cases, deformities become permanent.

Rheumatoid arthritis can also affect other body parts other than the joints.

It could lead to peripheral neuropathy, which affects the nerves of the feet and the hands. This causes numbness, burning and tingling sensations.

Anemic conditions are considered by some to be synonymous with rheumatoid arthritis, as the total red blood cell count decreases considerably. Your body now produces more white blood cells.

The elderly who are affected with rheumatoid arthritis are more susceptible to infections, as their immune system is weaker.

Scleritis is another possible complication due to rheumatoid arthritis. This is an inflammation of the blood vessels in the eye. It results in corneal damage.

Rheumatoid arthritis can cause various skin problems, periodontal diseases, gastrointestinal disorders, heart ailments and lung diseases.

Osteoporosis is a common problem for menopausal women affected by rheumatoid arthritis.

Rheumatoid Arthritis and Women

Rheumatoid arthritis affects a larger percentage of women than men. Statistics show that rheumatoid arthritis in women is three times more than that in men. Further, different women suffer from different stages and types of rheumatoid arthritis.

The cause for this increased occurrence of rheumatoid arthritis in women is not known.



It mostly affects women between the ages of fifteen and sixty. In most cases, the onset of the disease is around the age of forty. However, a few women develop rheumatoid arthritis in their sixties. Teenagers and young girls can also develop rheumatoid arthritis, although the percentage is very low.

The common symptoms of rheumatoid arthritis include pain and swelling of joints, stiffness of joints and difficulty in joint movements with redness and warmth in the affected joints.

In most cases, diagnosis of rheumatoid arthritis involves detailed investigation into present symptoms and signs.

Most of the signs and symptoms are similar to those of some other diseases. So, doctors need to do a thorough examination to understand the correct ailment.

Doctors first do a physical examination of the joints and check for swelling, redness and pain. They next test the extent of movements in the joints to analyze how easily you can move the joints and whether the movements are complete.

The physical examination also includes a full examination of the heart, lungs, throat, eyes, and ears.

Doctors could also prescribe blood tests, urine tests, and synovial fluid tests.

How to Combat Rheumatoid Arthritis

There is no specific way to prevent occurrence of rheumatoid arthritis in women.

Rheumatoid arthritis causes an increased risk of infections. Taking annual influenza vaccines regularly can improve your immune system. Pneumococcal vaccine injections may be most suitable for women with arthritis.

Bone density screening should be done soon after a diagnosis of rheumatoid arthritis. Rheumatoid arthritis increases your risk of developing osteoporosis. Proper screening can help to monitor the effectiveness of treatments.

You should also take preventive medications for treatment of cardiovascular diseases, as rheumatoid arthritis increases your susceptibility to heart ailments.

Rheumatoid arthritis in women can have a serious impact on their mental health.

Rheumatoid arthritis causes restriction in free physical movements. Chronic pain, physical exertion, and fatigue could take a toll on you when you are still trying to carry out regular household chores.

The restrictions in your movements and inability to work independently can make you feel helpless and lower your self-esteem considerably.

You could become prone to anxiety and depression.

It is best to seek the help of professionals to combat depression problems. Further, a supportive family and friends can help keep your depression and anxiety levels at bay. They can offer immense mental support and help you to reduce the effects of your rheumatoid arthritis.

Juvenile Rheumatoid Arthritis

Juvenile rheumatoid arthritis affects children between the ages of six months and sixteen years. More than 300,000 children suffer from arthritis in the United States.

Juvenile rheumatoid arthritis (JRA) is a type of autoimmune disorder. The body’s immune system attacks healthy cells and tissues. The start could be as simple as a fever, a swollen knuckle or an unexplained rash.

This could develop into excessive pain and swelling coupled with redness and warmth in the area.

Causes

There is no specific indication of any sole cause for the development of the juvenile rheumatoid arthritis. Doctors and scientists suspect that the initial trigger could be due to something in the patient's genetic makeup.

Environmental factors, like a virus or bacteria, might aggravate the development of the disease.

In some cases, the rashes and fever might subside after a few days or weeks. There may not ever be any relapse.

At other times, these symptoms might continue for many months and become a chronic ailment that lasts for your entire life.

The severity of the disease depends upon the number of affected joints. If there are many affected joints, it could be a severe disorder.

Otherwise, the symptoms may lapse and eventually the disease may even disappear.

Types of Juvenile Rheumatoid Arthritis

There are three major types of juvenile rheumatoid arthritis:

Polyarticular arthritis

This type of juvenile rheumatoid arthritis is more usual among young girls than young boys. It affects small joints of the hands and those of the hips, feet, ankles and knees.

It could be accompanied by fever. Sometimes, bumps or nodules form due to pressure from sitting or leaning. Normally, this arthritis causes swelling and pain in five or more joints simultaneously.

Pauciarticular JRA

This type of arthritis affects four, or less than four joints simultaneously. The most common joints affected by this type of arthritis include those of the knees and wrists.

There could be stiffness, pain, and swelling in the joints. It can also cause an inflammation of the iris. Sometimes, the inflammation could be independent of swelling of joints.

Systemic JRA

This type of arthritis affects the whole body. Common signs are a high fever with the sudden development of a rash and an overall paleness.

The rash may appear and disappear suddenly. The spleen and lymph nodes could enlarge.

Gradually, all body joints swell and become stiff which causes excruciating pain.

Signs and Symptoms of Juvenile Rheumatoid Arthritis

The earliest signs could be very subtle and almost unnoticeable. It could be a sore finger or wrist, a limp or a pain in the knee.

Joints could swell suddenly, causing overall enlargement. There could be stiffness in the neck, joints and hips.

There could be the sudden appearance and disappearance of rashes.

Another common symptom is a high fever which increases during the evenings.

Diagnosis of Juvenile Rheumatoid Arthritis

Doctors normally study the medical history of the child in detail. Thereafter doctors would advise a thorough physical examination. Doctors would also advise X-rays and blood tests to exclude other possible medical conditions with similar symptoms. Tests include complete blood count, blood culture, bone marrow examination, test for rheumatoid factor, blood test to detect autoimmunity, and a bone scan.

Treatment for Juvenile Rheumatoid Arthritis

Doctors normally advise a combination of exercise, medication and physical therapy to help deal with JRA.

Doctors could also advise cortisone injections and sessions with a physiotherapist.

The main aim is to reduce inflammation and pain, and then prevent further damage to the child’s bones while trying to restore full use of joints and promoting a high level of physical activity.

When to Seek Medical Care

Rheumatoid arthritis can affect you seriously, both physically and mentally.

Therefore, seeking medical help and care immediately after detection of the first symptoms is a prudent decision.

Stiffness and pain in the joints with ongoing swelling may be the earliest indications of rheumatoid arthritis.

There is no specific cure for rheumatoid arthritis. However, an early diagnosis can help you start on the correct treatment. This will restrict or even avoid serious damage to your joints.

Proper and regular exercise, physical activity, medications, lots of rest, joint protection techniques and, if need be, surgery can help you overcome rheumatoid arthritis.

Early diagnosis and proper treatment could help you to again lead a productive and happy life.

Prognosis of Rheumatoid Arthritis

Rheumatoid arthritis may not be a permanently debilitating disease, except in very severe cases.



An early diagnosis may help you to overcome the disease to the greatest possible extent.

Modern treatment options and medications may bring a more positive outlook for recovery from rheumatoid arthritis.

Many patients can continue to maintain an active lifestyle if they adopt proper joint protection techniques, and couple it with adequate rest and physical exercise.

Rheumatoid arthritis affects different people differently.

Only one in about every ten people with rheumatoid arthritis reports severe disability.

Around two in every ten people suffer from a mild form of the disease and can continue with their normal activities.

The majority (around seven out of every ten people) suffer from varying degrees of disability due to rheumatoid arthritis.

Rheumatoid arthritis causes restrictions in the motion of various joints.

So, you may experience a reduced ability to do your work activities.

If your job involves lots of physical activity and labor, rheumatoid arthritis can cause severe restrictions and problems.

However, if you have lesser physical activities in your job, or can influence and restrict physical activities, you can reduce the effects on your job performance.

You may also have less time and ability for some of your leisure and social activities.

An important factor for consideration is that rheumatoid arthritis may cause increased susceptibility to various other diseases like heart ailments, nervous diseases and depression among others.

The average life expectancy of people with rheumatoid arthritis may be slightly reduced.

However, adopting certain lifestyle changes like quitting smoking, controlling your weight and diet may help you overcome some or all of the negative consequences of rheumatoid arthritis.

Rheumatoid arthritis does not occur uniformly across all patients. The same person can experience varying degrees of symptoms at different times.

Sometimes, you can be free of all symptoms. At other times, symptoms could be very severe and cause severe restrictions.

Similarly, some rheumatoid arthritis patients develop severe disability while others experience minor loss of function and do not find rheumatoid arthritis affecting their lives much.

Regular treatment can improve your symptoms substantially.

Although there is no permanent cure or medication to erase all rheumatoid arthritis symptoms, you may be able to control progression of the disease considerably with the help of your doctor.

Part-III: Treatment of Rheumatoid Arthritis

How is Rheumatoid Arthritis Diagnosed?

Rheumatoid arthritis symptoms are similar to many other medical conditions. So, doctors need to do a thorough analysis of your medical history, a complete physical examination and, maybe, various other tests to arrive at the correct diagnosis.

No single test can be used alone to indicate the existence of rheumatoid arthritis in a person.

Diagnosis of Rheumatoid Arthritis

Medical History: Doctors will question you in detail about your medical history.

They need to understand your current physical condition. They will check on:

- ? the number of joints that cause you pain
- ? severity of the pain
- ? presence of any stiffness in any of your joints
- ? whether the stiffness is more prevalent in the mornings
- ? whether the joint pains are symmetrical (the same on both sides of your body)
- ? any periods of fatigue
- ? whether there is any pain in the wrists, hands, and feet, and
- ? how well you are able to attend to your duties.

Physical Examination: Doctors will conduct a physical examination and check for:

- tenderness or swelling of joints
- degree of movement of your joints
- whether the alignment of your joints is normal, and
- rheumatoid arthritis signs in other body organs like skin, eyes, lungs, or heart.

Laboratory Tests: Doctors may prescribe a few laboratory tests, depending on your condition. Doctors may suggest more tests in serious cases.

Tests are not only for the initial diagnosis but also for monitoring the course of treatment and medications.

These tests include:

Complete Blood Count: This test checks for any abnormalities in the count of red blood cells, white blood cells and platelets.

Red blood cells carry oxygen to tissues, white blood cells fight infections and platelets help in blood clotting.

RA causes anemic conditions where the red blood cell count would be low. A high white blood cell count could indicate infection.

Inflammation in the body increases platelet count.

Erythrocyte Sedimentation Rate (ESR or sed rate): This test measures the speed at which red blood cells fall to the bottom of the test tube. High inflammation causes red blood cells to fall rapidly. Hence, a high SED rate may indicate severe rheumatoid arthritis.

But, only 60% of severe rheumatoid arthritis patients record a high SED rate.

A normal SED rate does not always indicate a complete cure from rheumatoid arthritis. It only indicates that medications are controlling your SED rate. This rate could be fast during flare-ups and subdued during periods of remission.

C - reactive protein (CRP): This is a body protein. High levels of this protein indicate inflammation. Although both ESR and CRP indicate inflammation, sometimes only one of these tests would show a high level.

Doctors may suggest regular repetition of this test to monitor inflammation and your response to medications.

Rheumatoid Factor: This indicates an antibody in your blood. Around eighty percent of people affected by rheumatoid arthritis have a high rheumatoid factor, or RF, in their blood. They are **seropositive**.

But, some people with RA do not have any RF in their body. They are **seronegative**.

Imaging Studies

Magnetic Resonance Imaging (MRI): This is specifically targeted at detecting inflammation of the joint linings. An MRI may detect inflammation even before X-rays.

Radiographs (X-rays): In the early days of diagnosis, doctors would take X-rays of your bones and soft tissues. This could prove to be a helpful tool for later diagnosis and comparisons. Serious cases would show small holes or erosions in bone ends and narrowing of joint space due to loss of cartilage.

Bone Densitometry (DEXA): RA often leads to osteoporosis in elderly women. This test can detect bone density, which is the prime indicator of osteoporosis.

Some doctors are of the opinion that this test should be prescribed for all RA patients and not necessarily just elderly women.

Ultrasound: This test takes pictures of joints and other structures within the body with the help of high frequency sound waves. It can help to detect abnormal fluid collection in soft tissues around joints like hips and shoulder joints.

This test is more useful in detecting rheumatoid arthritis in obese patients, as their soft tissues are not easily accessible for physical examination.

Antinuclear Antibodies (ANA): This test detects a specific group of auto-antibodies.

A positive result of this test indicates an unusually active immune system. Such auto-antibodies are present in around thirty to forty percent of people with rheumatoid arthritis.

However, it is not a surefire diagnosis tool as many people without rheumatoid arthritis, or with other ailments, may have such auto-antibodies.

But, this test could also be negative in many people with rheumatoid arthritis.

Arthrocentesis: Doctors numb the joint area and insert a long thin needle to take a sample of the synovial fluid. Microscopic examination of this fluid can indicate the presence of inflammation.

In some cases, doctors conduct a biopsy by removing a small sample of your body tissue. Microscopic examination of this body tissue may detect the presence of rheumatoid nodules.

Blood tests: Doctors could prescribe various blood tests to detect the levels of electrolytes in your body. Blood tests would indicate levels of proteins, calcium, potassium and magnesium.

It would also check liver and kidney functions.

But, anemic conditions, a high SED rate and the presence of rheumatoid factor may indicate various other diseases.

X-rays and MRI scans can indicate the condition of the bones. Joint aches and pains are also symptoms of some other diseases.

Infections, poor blood circulation and injuries are some of the other causes of such pain.

So, doctors require a complete physical examination and all test reports to arrive at the best possible diagnosis.

How is Rheumatoid Arthritis Treated?

There is no single known cure for rheumatoid arthritis.

If detected in the early stages, medications and physiotherapy exercises can improve your condition. You may be free of rheumatoid arthritis to a greater or lesser extent.



But, late detection could result in an aggressive case of rheumatoid arthritis. Treatment could take a longer time to show much effect.

The main aims of rheumatoid arthritis treatment are to:

- Reduce joint pain and stiffness
- Reduce disability and pain due to deformity caused by joint damage
- Prevent joint damage as much as possible
- Reduce development of associated conditions like those affecting the heart and lungs
- Improve functioning of your body and motivate a sense of well-being
- Provide an inexpensive way of combating the limitations.

Rheumatoid arthritis presents differently in different people.

Therefore, treatment options also differ according to individual requirements. Doctors will advise treatment options that best suit your present condition, lifestyle, and any other ailments.

Normally, a team of medical professionals would monitor your treatment process. This team would consist of a rheumatologist, an

occupational therapist, a physical therapist, an orthopedic surgeon, a psychologist and a nurse.

Medications for Treating Rheumatoid Arthritis

Rheumatoid arthritis is a progressive disease.

Medications can help keep its progress under control.

It is essential to start treatment as early as possible to avoid severe rheumatoid arthritis.

In very few cases, rheumatoid arthritis does go into remission.

Medications for rheumatoid arthritis may include a combination of drugs. A complete analysis of your physical condition can help doctors decide the most suitable medication for treatment of your condition.

It is essential to follow your doctor’s advice about medications and other treatments to get the best result.

There are various types of medications in use for treatment of rheumatoid arthritis.

There are non-steroidal anti-inflammatory drugs (NSAIDs), glucocorticoids, disease-modifying antirheumatic drugs (DMARDs), biologic response modifiers, and analgesics.

Common medications in use at the time of writing this book include:

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

These are mainly anti-inflammatory drugs. They have almost immediate effects and can reduce pain and inflammation.

Different people’s responses to NSAID medications may differ widely. Doctors may have to try various NSAIDs before deciding which specific drug delivers the best results for you.

There are many types of NSAIDs. These include naproxen, ibuprofen, piroxicam, ketoprofen, and diclofenac.

NSAIDs do not reduce or restrict joint damage. Therefore, these drugs are often a secondary treatment option, as they cannot treat on their own.

Doctors normally prescribe NSAIDs as a bridge for DMARD therapy.

The most common side effects of NSAIDs include stomach upset, belly pain, diarrhea, and bleeding. In very rare cases, it could cause serious skin rashes and infection. Sometimes NSAIDs increase the risk of heart attack and stroke.

Normally, NSAIDs work by blocking the function of a specific enzyme called cyclo-oxygenase, that can be present in two forms, COX-1 and COX-2. This enzyme is primarily responsible for causing inflammation.

However, only celecoxib, Celebrex is presently available in the US and world markets.

Some NSAID medications may have caused increased rate of cardiovascular ailments and death. Drug manufacturers therefore withdrew most medications from the market.

Rheumatoid arthritis patients with stomach and liver problems should not take this drug.

Rheumatoid arthritis symptoms normally peak in the morning at the time you wake. Therefore, doctors prescribe having NSAIDs with your evening meal. It gets easily absorbed and you may not wake

up with RA symptoms. Taking NSAIDs this way may not cause the discomfort normally associated with NSAIDs.

Disease Modifying Antirheumatic Drugs (DMARDs)

Presently, doctors prescribe DMARDs soon after diagnosis of rheumatoid arthritis. Taking DMARDs within three to twelve months of start of symptoms can slow down progression of the disease significantly. It can also cause the disease to go into remission.

DMARDs are the most important type of drug treatment for rheumatoid arthritis. These drugs can slow and stop the disease from progressing thereby controlling joint destruction and disability. Often, a successful DMARD therapy can do away with the need for any other painkillers or analgesics. However, the effect may not be the same for all people with rheumatoid arthritis.

DMARDs take a long time to show effect, sometimes as long as two to three months. Doctors prescribe anti-inflammatory medications to reduce swelling and pain until DMARDs start taking effect.

DMARDs are among the most successful drugs for treatment of rheumatoid arthritis.

Common DMARDs include Methotrexate like Rheumatrex, Folex PFS, Sulfasalazine, Azulfidine, Leflunomide, Arava, D-penicillamine, Hydroxychloroquine, Plaquenil, Azathioprine, Imuran, and Gold salts like aurothiomalate, auranofin, Ridaura.

Although these drugs can slow down the progress of the disease, they cannot fix any joint damage already done.

Methotrexate is claimed by some to be the most effective DMARD. Combining it with other medicines like etanercept (Enbrel), leflunomide (Arava), infliximab (Remicade) and adalimumab (Humira) may deliver better results.

It may cause fatigue, loss of appetite, nausea, or headache within the next 24 hours. You can choose to take this medicine as an injection if you are unable to absorb it in the pill form.

Gold injections are not very common presently. These are available as intramuscular injections. Doctors start on a low dose and progress to a high dose within five to six months. If your rheumatoid arthritis improves, you can gradually reduce the dose and increase the time gap between treatments. Doctors advise regular blood tests to judge the effectiveness of the treatment.

Analgesic Drugs

Analgesics are essentially painkillers. These can alleviate pain but do not cause any effect on joint swelling or joint destruction. Common analgesics include tramadol, acetaminophen or paracetamol, opioids, codeine, and propoxyphene.

Glucocorticoids or Prednisone

These medicines, in low dosages, may slow down joint damage caused by inflammation from rheumatoid arthritis.

Glucocorticoids are strong anti-inflammatory drugs for rheumatoid arthritis. These drugs can control joint damage by slowing or stopping the progress.

Your nurse or doctor can inject these drugs directly into a joint or as an intramuscular injection.

Some glucocorticoids are available as a pill. You can use these medications for short periods of few weeks or months. Sometimes, glucocorticoids help alleviate pain before starting on DMARD treatment.

Doctors start glucocorticoids treatment with a small dose. Occasionally, a high dose is given at the onset to take immediate action.

Glucocorticoids may cause serious side effects. Your doctor would analyze your condition before prescribing them for you. While weaning you from glucocorticoids treatment, doctors may advise on a gradual course.

Abrupt stopping of glucocorticoids treatment can be very dangerous.

Common glucocorticoids include Prednisone, Betamethasone, Celestone, Deltasone, Meticorten, and Orasone.

Biologic Response Modifiers

These medications are protein inhibitors and restrict the formation of cytokines, proteins that are responsible for inflammation. Restricting their formation can help to modify the immune system in a positive way. Such modifiers include infliximab, etanercept, anakinra and adalimumab.

These drugs essentially block the actions of substances like interleukin-1 or necrosis factor produced by the immune system. These substances cause abnormal reactions in the immune system.

So, blocking their action can reduce autoimmune reactions significantly and may relieve most symptoms of rheumatoid arthritis.

It is claimed that these drugs can cause rheumatoid arthritis remission in around forty to seventy percent of cases.

However, it is not a permanent cure as symptoms return if you stop the medication.

These are not suitable for long-term treatment of rheumatoid arthritis.

Doctors prescribe biologic response modifiers in combination with DMARDs to suppress joint inflammation and improve function of joints. Within three weeks of the start of the treatment, you start feeling better, although you may notice complete changes only after three months.

Doctors do not prescribe these medications for people recovering from any serious illness like tuberculosis, nervous disorders or cancer.

Common biologic response modifiers include Etanercept, Enbrel, Adalimumab, Humira, Infliximab, Remicade, Anakinra, Kineret, Abatacept and Orencia.

Common side-effects include mild skin reactions, colds, or sinus infections, headaches or dizziness, nausea or diarrhea.

This medication suppresses your immune system and it becomes difficult for you to fight infections.

You should inform your doctor if you are prone to frequent infections before starting on this treatment.

Biologic response modifiers are quite expensive drugs. Insurance companies could agree to cover you fully for this treatment or you may have to share the costs.

Alternative Treatment Options

You may use various alternative treatments to try to help suppress the pain associated with your rheumatoid arthritis.

These include acupuncture, meditation, relaxation techniques, acupuncture, hypnosis, yoga, and physical exercise.

They are claimed to build up your resistance and your ability to combat pain and suffering.

Swimming is a good option of physical exercise for relief from rheumatoid arthritis. It can be an excellent exercise for all body parts without pressuring any joints.

A diet rich in berries and fruits may help some rheumatoid arthritis patients.

Some people suggest that you include various nutritional supplements like bromelain, fish oils, pancreatin and vitamins like A, C, and E, selenium and zinc in your daily diet.

But, if your rheumatoid arthritis might be due to any food allergy, you should consult an allergy specialist to check out your diet.

A physiotherapist can offer useful guidelines and specific exercises to keep your joint muscles as supple and strong as possible. They could also advise a splint, if one may be needed.

An occupational therapist can advise you on how best to make simple adjustments and adaptations in your house to make daily and regular tasks easier and more comfortable.

Therapists can suggest wearing a splint at night or using a cane to protect and support your arthritic knee.

Simple lifestyle changes, like quitting smoking, reducing body weight if you are overweight and keeping other ailments like blood pressure under control can help you to overcome the effects of rheumatoid arthritis to some degree.

If you are over the age of sixty-five, you should take annual flu vaccinations to prevent some infections.

Prognosis of Rheumatoid Arthritis Treatment

Treatment options of rheumatoid arthritis are currently directed towards reducing pain and discomfort and improving the quality of your life.

Early diagnosis and starting your treatment while your RA is still in the early stages may help you to reduce the effects of rheumatoid arthritis.

However, if you suffer from a chronic and severe state of rheumatoid arthritis, it is best to make simple changes that, along with regular treatments, help you to be able to manage your life as independently as possible.

Normally, if your rheumatoid arthritis subsides within three months of diagnosis and treatment, you tend to stay in remission for some time. However, if your disease persists beyond three months, it is likely to be a long-term ailment.

Surgery for Rheumatoid Arthritis

Doctors would advise surgery of your joints with rheumatoid arthritis if the pain is unbearable or if any of your joints is severely damaged.



Similarly, if you are not responding to other treatment options for rheumatoid arthritis, surgery could prove beneficial.

Surgery may improve the movement and function of your joints. Pain could be less and, in most cases, surgery gives a better appearance.

Surgical options include excisions, myofascial techniques, reconstruction, joint replacement and joint fusion. Doctors consider various factors before advising surgery. These include your age, location of affected joints, level of disability, stage of rheumatoid arthritis, and presence of other diseases or ailments.

Surgery is a very effective treatment option. It often helps to improve your life quality.

Surgical options include:

Synovectomy

Synovectomy is a surgical procedure involving removal of the diseased joint lining. This surgery can alleviate symptoms and prove to be a good alternative to DMARD treatments.

If two or more joints are severely affected due to RA, this surgery may help to remove the diseased synovium or lining of the joint. This may reduce swelling, inflammation and pain substantially. It may also prevent further joint damage.

Arthroscopic Surgery

Arthroscopic surgery is an elaborate process involving cleaning or removing of damaged or infected tissue through a small incision.

The surgeon inserts a very thin, long tube with a light at the end through a small incision. This is connected to a closed-circuit television.

Once the light reaches the joint, the surgeon is able to clearly view the extent of the damage.

The surgeon can then choose to remove damaged synovial tissue and repairs tears or smoothes the rough surfaces.

This surgery is most common for knee joints and shoulders but can also be done for the hips.

This surgery has the highest success rate in removing the cartilage and not the bone.

The surgery requires only a mild anesthetic and you may be able to start mild activity within three days.

Complete recovery could take three months.

Osteotomy

This surgery is very rarely used in rheumatoid arthritis. This surgery involves cutting of a bone to improve stability by redistributing the weight at the joint.

Surgeons decide on osteotomy if rheumatoid arthritis damages and deforms only the medial part of the knee. Surgeons open the knee, remove the damaged or fragmented tissue, and then reshape the bone to remove the deformity.

This surgery best suits rheumatoid arthritis patients over the age of sixty and those with a heavy physical build.

Joint Replacement Surgery or Arthroplasty

This surgery involves reconstruction, or replacement of a joint.

Surgeons remove the affected joint, realign and resurface the bone ends and then align them with an artificial joint.

Doctors may recommend this surgery for people with severe RA and mostly to people over the age of fifty. This artificial joint can last for around two to three decades.

Arthrodesis or fusion

This surgery fuses two bones. This increases the stability of the joints in the toes, ankles, wrists, fingers and spine. However, this surgery may restrict movement extensively.

Surgery can realign or rejoin joints through fusion techniques. Joint reconstruction surgeries involve complete removal of infected parts and replacing them with artificial materials. These surgeries prove useful for specific joints of the feet, wrists, hips, elbows, shoulders, and knees.

In some cases, it could become necessary to insert artificial implants. These implants are normally of a chromium alloy and plastic and require attachment to the adjoining bones with cement. In some cases, the prosthesis could be of a porous material. This allows the bone to grow and adjust to the implanted device.

Alternative Treatments for Rheumatoid Arthritis

You can try alternative remedies and therapy for your rheumatoid arthritis. Alternative therapies are claimed to be harmless and without any side effects.

They should never be used instead of the medication and other treatments recommended by your doctor.

Get your doctor’s advice before you even consider using any alternative therapy with your standard rheumatoid arthritis treatments.

Some of the alternative and integrative treatments which some people suggest for rheumatoid arthritis include:

Hydrotherapy: This is same as balneotherapy or spa therapy. It involves the use of water with specific minerals as a mode of therapy.

Water is a great healer in any form. Warm water may temporarily ease sprains, inflammation and spasms.

You can try warm baths, whirlpool baths and similar water treatment techniques. Moving your affected body parts in water seems lot easier and causes much less pain.

Some people suggest that you soak your body parts in warm water for fifteen to twenty minutes to get the best benefits.

Over time, you could find such baths more relaxing and soothing.

Massage Therapy: This therapy is claimed to offer some relief from some types of pains and ailments.

Massage therapy is not restricted to easing pain from the affected parts or joints. It is an overall technique to relieve stress, pain and discomfort.

Masseurs use soothing oils, lotions and creams to deliver the best results.

Meditation: RA causes intense emotional upsets and you become tense and pensive. You are unable to carry out your regular chores independently.

This could translate into stress.

Meditation can quiet your mind and help you to control your emotions. You can choose to meditate on any specific object, phrases, or words, any image or just remain silent in a specific posture with your eyes closed.

Although, initially, you will not be able to control the flow of thoughts, you may learn to control and watch all your thoughts flow past you with regular practice and perseverance.

This is the ideal state of a meditative mind.

Yoga: Yoga involves sitting and standing in specific postures that exercise and keep different body parts in tune. It is claimed to relax your mind and body, reduce tension, improve blood circulation and help the overall healing process.

Practice yoga through relaxing breathing exercises. This involves breathing through your nose, inhaling and exhaling through your mouth and nose or holding your breath for a specific time.

These exercises may help you to relieve body tension, pain and aches.

Homeopathic Remedies: This alternative medicine is claimed to have far-reaching effects on your health. It is claimed to address the immediate problem, stimulate your body's immune system and improve your body's defense system.

Homeopathy is claimed to be good at controlling relapses and reoccurrences.

Aconitum napellus is claimed to control pain and inflammation due to rheumatoid arthritis.

Apis mellifica is claimed to help control joint swelling, stinging feelings, warmth and redness of joints. This is claimed to bring extensive relief.

Bryonia is claimed to control severe pain while **Calcarea fluorica** and **Kali Carbonicum** are claimed to be effective for treatment of hard joints.

Color Therapy and Music and Sound Therapy: Different colors are claimed to have a soothing effect on your nervous system by unconsciously easing your pains and discomfort.

It is claimed to also lift your spiritual balance in a unique way.

Music and sound therapy is claimed to have a great influence on your body's system.

Your body functions in a synchronized manner and every organ has a specific resonance with your entire being. Specific music sounds are claimed to be effective at controlling your pains and aches.

Acupuncture: This is an ancient Chinese remedy for all types of pains and aches. Registered practitioners say that they can alleviate your rheumatoid arthritis pain substantially. You undergo specific sessions to understand and evaluate your progress.

Dietary Control: Your diet may be partly responsible for some body ailments. Eat a balanced diet and restrict intake of sugars, fats, refined carbohydrates, red meats and other forms of saturated fats.

Consume foods rich in omega-3 fatty acids. Eat lots of fresh fruits and vegetables. Include more whole grains and cereals.

Physical Exercises: Regular physical exercises may help to keep your joints active with better mobility. Rheumatoid arthritis patients general conditions deteriorate with a sedentary lifestyle.

Regular movement of the joints may help to keep them more flexible and less prone to aches and pains.

Swimming is the best form of exercise for all rheumatoid arthritis patients. It exercises the whole body without stressing any of your joints.

Herbal Supplements for Rheumatoid Arthritis

There are various herbal remedies and supplements for helping with rheumatoid arthritis.

Herbal treatments do not require any FDA approval.

Although some people claim that some rheumatoid arthritis patients report substantial relief through herbal supplements, there is no conclusive evidence.

Some herbal remedies can cause serious side effects. Always consult your medical practitioner before starting on any herbal treatments for your rheumatoid arthritis.

Castor oil

Some people mix small quantities of castor oil with orange juice and drink some every day.

Coconut and Mustard oil

Some people claim to relieve some of their pain by mixing a few pieces of camphor into warm mustard or coconut oil. Then, they massage it on their rigid joints. They claim that it may relieve some pain and stiffness and reduce inflammation.

Ginger

Ginger is claimed by some people to have anti-inflammatory properties.

Glucosamine sulfate

This is derived from seashells and contains essential elements which some people claim may help to repair joint cartilage. They say that you can evaluate the benefits only after three to eight weeks of treatment.

Do **NOT** taking this supplement if you are allergic to shellfish.

Herbal Tea

Tea made using seeds of herb alfalfa is claimed by some people to offer relief from some symptoms of rheumatoid arthritis.

Herbal Tinctures

These are medicinal liquid extracts of specific herbs like Burdock, Alfalfa, Skullcap, Yucca, Valerian, Parsley, Buckthorn, Yarrow, Wild Lettuce, Cayenne, Lobelia, Arnica, and Slippery Elm.

Some of these extracts may have very serious effects on you.

Turmeric

Curcumin is an active constituent of turmeric. It is claimed to have anti-inflammatory properties that may protect your body against free radical damage.

Other Herbal Recipes.

Always consult your doctor before considering using any of these preparations in any way.

Mix a teaspoon of honey and two teaspoons of lemon juice in a cup of warm water and drink it twice every day.

Add half a teaspoon of cinnamon powder to one tablespoon of honey. Have this concoction daily on empty stomach for a month.

Make a paste of fresh ginger, one-teaspoon red chilies and half a cup of sesame oil. Strain and apply this gently on the painful joints.

Herbs like Boswellia, Devil's claw, topical Cayenne, and application of oils like Fish oil and Borage oil is claimed by some people to be helpful in relieving some symptoms of rheumatoid arthritis to an extent.

Rub cream containing small amounts of Capsaicin found in Cayenne Pepper to get relief from arthritic pain in joints. Apply it three to five times each day. **Initial and/or later applications could cause a burning sensation.**

Part-IV: Preventing and Coping with Rheumatoid Arthritis

Diet and Nutrition for Rheumatoid Arthritis

There are various myths and misconceptions about different diets for rheumatoid arthritis patients.

Some recommend sticking to vegetarian diets while some advocate Mediterranean diets.

There is **no** conclusive medical evidence to prove the benefit of any specific diet.

In some cases, flare-ups occur after consumption of a particular type of food. You then need to avoid that specific food.

However, nothing like this has proved to become a general rule for all rheumatoid arthritis patients.

Take the advice of your nutritionist who can chart a personal diet plan that best suits your condition.

The overall diet should be rich in fibers, antioxidants, omega-3 fatty acids and protein.

Diet and Nutrition Suggestions

You should have a diet which is high in protein to help build your muscles as rheumatoid arthritis erodes the muscular tissue significantly.

The recommended dose of protein is usually around six grams per day.

Coupling protein consumption with resistance exercises is a good option for rheumatoid arthritis patients. Resistance exercises like

lifting weights, using your arms and legs, can build the muscles in your body.

This allows for better protein storage.

Otherwise, rheumatoid arthritis may cause your body to store protein as fat, as the disease destroys most of the muscles at the joints.

Include foods containing vitamins B, E, and C in your daily diet. Vitamin E may help to reduce pain and is also claimed to combat the excess free radicals circulating in your body.

Fish oil supplements are claimed to be a good nutritional source for rheumatoid arthritis patients. It is suggested that they help to perhaps reduce damage caused by the overactive immune system.

Exercise suitable for your present condition should form a part of your daily routine. Do resistance exercises to build up your muscles. Exercise may reduce your body weight.

This may reduce pain and inflammation.

Eat lots of fruits and vegetables. Rheumatoid arthritis patients normally have increased free radicals, which use up the body's supply of antioxidants.

Fruits and vegetables contain lot of antioxidants that can replenish your stock.

Elderly rheumatoid arthritis patients might benefit from the use of vitamin B supplements consisting of B6, B12, and folate. As you age, you may be less able to absorb B12 from your food.

Taking supplements might help you to get the necessary amount of B12 vitamins.

Some people suggest that you might benefit from using some onions, garlic and herbs in your diet.

Make whole grains, legumes, beans, and nuts an important part of your daily diet.

Soy foods are a good source of necessary protein.

Tea is a better beverage than coffee for rheumatoid arthritis patients.

You might also want to drink a glass of wine every day but, otherwise, reduce your alcohol consumption.

Drink lots of water, with a minimum daily consumption of six to eight glasses. It may be better to drink distilled water.

Increase your consumption of cold-water fish like salmon, sardines and herring. These are rich sources of omega-3 fatty acids and may ease some of the pains and aches associated with rheumatoid arthritis.

Increase your intake of monounsaturated and polyunsaturated oils, available in olive oil.

Primrose oil and flaxseed oil may also be good sources of omega-3 fatty acids. Some people take a teaspoonful every day to try to reduce inflammation.

Always eat a balanced diet and do not go for fad diets that restrict consumption of specific foods.

Your diet should be low on sugars.

Restrict intake of cereals; rye, barley, wheat, corn and oats. Some people suggest that these may cause serious changes in the gut structure which may deteriorate your rheumatoid arthritis condition.

Simple Tips and Lifestyle Changes

You can control rheumatoid arthritis symptoms and problems to some degree with the help of your doctor and other medical professionals.

It is prudent not to ignore any pains and aches in your body.

Consult a medical practitioner immediately to evaluate the problem early.

Start with a regular treatment program for the best chance of recovery.

Gather information about your rheumatoid arthritis from your medical practitioner. Try to understand the pros and cons of the various possible treatments.

Understand your symptoms and learn to differentiate each of them. Notice their frequency and time of occurrence. Understand which activities cause more pain and discomfort. Do not force your body to do those chores.

Give prime importance to physical activity. Exercise may be very effective at reducing fatigue and pain due to rheumatoid arthritis. It helps increase your range of motion of your joints, improves flexibility and reduces stiffness. You could develop an overall feeling of being fitter and more active.

Your choice of exercises should include strengthening exercises, range of motion exercises and endurance exercises like cardio and aerobic types.

Water exercises, like swimming in heated pools, can deliver excellent results as it increases endurance levels and your range of motion.

Avoid straining your joints in any manner. Move your joints through their full range at least once every day. Do not strain your joints if they are very swollen and painful.

Learn body mechanics; the proper way of using your body joints without pressuring them.

Do not strain your body continuously. Alternate periods of rest and work can be a good idea.

Give plenty of rest to your joints.

If need be, make use of various assisting devices to do difficult activities. An occupational therapist can guide you on the best devices that can help you lead a normal life with rheumatoid arthritis.

If you have to sit or work at a specific posture for long periods, get up and move your limbs for a few minutes every hour.

Walk, stretch, and relax your joints before starting to work again.

Keep aside time each day for activities you enjoy and to relax. These could be simple activities like taking a walk in your garden, gardening and tending to plants, and listening to soothing music.

Aim to lose weight. Your joints could show more pain due to your excessive body weight. A healthy body weight can keep you away from other serious ailments of the heart and lungs.

Relax with a warm bath. Apply cold or hot packs as required on your joints.

A massage session can prove relaxing and make your joints more flexible.

If any of the exercises cause lot of pain, it is best to stop it immediately. You can try again after few days.

However, if the pain starts again, seek medical advice.

Rheumatoid Arthritis and Exercise

Rheumatoid arthritis causes joint pains and stiffness.

Exercise can bring substantial relief from such pains and stiffness.

Exercise helps to maintain your muscular strength.

Rheumatoid arthritis may cause thinning of some of your bones.

Exercise can help bones to maintain some of their strength. It increases the functional ability of your bones.

Exercise has a positive effect on your mind. You feel a lot better both physically and mentally after exercising.

Exercise helps you to stay energetic all day and encourages a good night’s sleep.

It may help to control your weight and thereby reduces strain on your joints.

Lack of proper and regular exercise with rheumatoid arthritis can increase the pain in your stiff joints.

Rheumatoid arthritis weakens bones and makes them more prone to breaking. Exercising can help to reduce this.

Types of Exercise for Rheumatoid Arthritis

Always consult your doctor or physical therapist on the suitability of any specific exercise for you.

Specific types of exercises which are sometimes recommended as among the safest for some rheumatoid arthritis patients are:

Range-of-motion exercises: These involve moving your joints through their normal, specific range of motion. They include rolling

your shoulders forward and backward and raising your arms over your head.

Stretching exercises: These are the easiest and the simplest. They may increase flexibility of some joints. These include stretching and holding different joint and muscle groups for ten to thirty seconds each.

Strength exercises: These are the same as resistance exercises; working of your muscles against resistance. You can choose to do them with or without weights. They strengthen your muscles and help use your muscles with less pain.

You can reduce or take a day off if any joints develop swelling or become painful.

Conditioning exercises: These are aerobic exercises. These help improve the health of your heart and blood vessels, improve blood circulation within your body and promote a sense of well-being. Aerobic exercises best suited for rheumatoid arthritis are swimming, walking, bicycling and using an elliptical machine.

Start by doing low-impact exercises daily for twenty to thirty minutes. You can split up that time into ten-minute blocks if that is easier on your joints.

It is best to avoid high-impact exercises like jogging on paved roads and lifting heavy weights. These have a direct bearing on your joints and put lot of stress on them.

You should plan your exercises while keeping all factors in mind, including any other medical ailments you have.

Tips for Exercising with Rheumatoid Arthritis

Use heat treatments like hot packs, warm towels or a warm shower for around twenty minutes before exercising. Heat relaxes joints and muscles and promotes easier movement.

Start exercising with slow and easy movements. Increase speed and intensity gradually.

Start your exercise regimen with some range-of-motion exercises.

Stop exercising if you feel sudden pain, warmth, or notice redness in any of your joints.

Apply ice packs or similar cold packs on joints after exercising if it helps.

Never exert yourself or force exercises on to your joints.

Rehabilitation for Rheumatoid Arthritis

Rehabilitation is an important aspect of dealing with rheumatoid arthritis. The main aim of rehabilitation techniques is to make you as independent as possible considering your rheumatoid arthritis condition.

It increases your range of motion, improves your endurance and strength, brings relief from pain, helps to correct and reduce the incidence or severity of deformities.

Providers of rehabilitation services also usually offer counseling and educational help.

Suitable Rehabilitation Programs

Splints and Orthotics: These devices may help to improve your functional ability, reduce pain and inflammation, reduce exertion on joints, reduce deformity and biomechanical mal-alignment.

If your lower joints cause more pain, you can use foot and ankle joint supports.

You can wear a deep, wide, soft leather shoe. A rocker-bottom sole can facilitate roll-off.

Knee orthoses may help to control pain, hyperextension, patellar alignment, or collateral and cruciate ligament instability.

Therapeutic Modalities: Heat and cold applications can bring extensive relief from joint pains and discomfort.

Rheumatoid arthritis causes severe joint stiffness and pain.

You might use heat application packs like a hot shower, hot packs, spa treatments, electric mittens, diathermy or paraffin. These

modalities increase intra-articular temperature and aid easier movements.

If there is acute inflammation in the joints, cold packs may reduce pain and decrease muscle spasm. Cold packs can be ice water, ice packs, topical sprays and ice sticks.

Therapeutic exercises: Low endurance levels and increasing fatigue are common symptoms of rheumatoid arthritis. This is normally due to failing muscular strength, limited physical activities and lack of aerobic strength.

Physical exercises, specifically aerobic, can increase your intake of oxygen and decrease exertion levels.

Include up to thirty minutes of aerobic exercise in your daily routine.

Isometric exercises best suit RA patients as they may restore strength without causing extra pain.

Resistance exercises may also provide necessary relief from pain.

Occupational Therapy: Your occupational therapist can help you adapt to a normal life with rheumatoid arthritis. Normally, occupational therapists suggest the use of splints and orthotics if you have limitations in the upper extremities due to rheumatoid arthritis.

Static splints can help support a weak joint, maintain functional alignment and provide rest for pain relief.

Dynamic splints increase manual dexterity. The thumb post splint, finger-ring splint, resting hand splint and the functional wrist splint are the most common splints.

Various adaptive devices may help you with simple tasks like feeding, toileting, dressing and cooking.

Joint Protection Education: This ensures you remain well educated about the various ways of using your joints. Although orthotics help you to use your joints with technical help, this education can teach you to avoid excessive strain on your joints.

You learn the correct maintenance of a good posture, how to modify tasks to decrease joint stress, and avoid overuse while a joint is inflamed.

The systemic nature of rheumatoid arthritis could cause regular bouts of fatigue. You should understand your body’s requirements and provide adequate periods of rest.

This can save on your energy levels and you may be able to handle your rheumatoid arthritis better.

Psychological and Emotional Factors with Rheumatoid Arthritis

Your emotional quotient plays an important role in coping with your rheumatoid arthritis.

There is no conclusive evidence to prove that stress and strong emotions accelerate development of rheumatoid arthritis. But, depression often increases your fatigue, disability and pain.

Stress management can soothe your emotions effectively and thereby reduce pain and discomfort due to rheumatoid arthritis.

Excessive emotional build-up is a factor with many ailments. An unhappy mind creates various disruptions in the physical self and negative factors may build up.

So, it may be more important than many of us realize to maintain our calmness in disturbing and difficult situations.

If you are able to harness your mental powers, you can better deal with any difficult situation.

Normally, people with rheumatoid arthritis try to suppress their emotions, as they want to hide their ailment and associated poor self-image.

They feel dependent on others and may be angry at their supposed shortcomings. This psychological stress and suppressed emotions may be part of the cause for some patients' poor response to remedial measures adopted for relief from rheumatoid arthritis.

Most children with juvenile rheumatoid arthritis are from broken homes. The disease often manifests within a short time after a

major emotional upset like divorce, death of a parent or similar event.

Although genetics logically may play an important role in the development of rheumatoid arthritis, such emotional upsets can aggravate the situation.

On the other hand, if you are emotionally stable, you can possibly overcome the limitations of genetics-influenced rheumatoid arthritis to some degree.

Coping Techniques

Meditation: Meditation is a very positive way to harness your emotions. It calms your mind to the realm of self-consciousness. This however, only comes through many days and months of practice.

Meditation is a simple process. You just have to sit in a comfortable position, fold your hands in a gentle clasp on your lap and close your eyes.

Try to drive away all the thoughts that come into your mind. Instead, imagine your mind to be an empty place and fill it with the image of any specific object, phrase, or word. Collect all your energies to concentrate on that particular thing.

Start by doing for a few minutes each day and slowly increase your time. You may find an unexplainable calmness overcoming your entire self.

Yoga: This is an excellent healing technique. It is claimed to relax your mind and body, reduce tension and improve blood circulation – thereby perhaps helping to accelerate your healing process. It involves doing breathing and physical exercises. You should inhale

and exhale slowly, concentrating on your breathing. This has a deep effect on your nervous system and may act positively on your rheumatoid arthritis.

Spiritual Writing: Some people with rheumatoid arthritis pen down their feelings in a spiritual letter. Writing provides an outlet to their grief and they say that this may show some improvement in their rheumatoid arthritis.

Support and Counseling for Rheumatoid Arthritis

Rheumatoid arthritis pain can make you feel frustrated and resentful. Support groups and counseling provide necessary motivation and reassurance.

Support groups consist of people in similar situations to yourself. You come across people having similar ailments and pain through such groups.

Discussing and sharing practical tips can make it easier to combat rheumatoid arthritis and come to terms with it.

You feel empowered with the thought that you are not the lone sufferer of the disease.

You can locate support groups through the Internet, public libraries or your health care provider. Investigate all information you receive through support groups and look how they apply to your medical situation.

Always consult your medical practitioner before adopting any remedial measure or technique.

Part-V: Glossary Terms

Medical Terms Related to Rheumatoid Arthritis

Abdominal: Relating to the abdomen

Abnormal: Differing from normal course of growth or position

Acetaminophen: Painkiller

Aggressive: Quick growing and fast spreading

Anemia: Low count of red blood cells causing reduction in the oxygen-carrying capacity of blood

Antibiotic: Drug for treating bacterial and other types of infections

Antibody: Specialized immune protein produced by introduction of an antigen into the body

Antinuclear antibody: An unusual antibody that works against structures and within the nucleus of its own cell. Its presence indicates a level of autoimmunity.

Apheresis: The process of removing a specific component from blood and returning the rest back to the donor

Arthritis: Joint inflammation causing stiffness, swelling, warmth, redness and pain

Arthrocentesis: Procedure involving insertion of a sterile needle and syringe to drain fluid from a joint

Arthroscopy: Surgical technique involving the insertion of tube-like instrument to inspect, diagnose and repair tissues

Autoimmune: Misdirected immune response causing a body's own immune system to act against the body

Autoimmune disease: Illness caused by the body’s own immune system

Biological response modifiers (BRMs): Substances that stimulate the body's response to infection and disease

Blood: Red-colored fluid in the body containing red and white cells, proteins and platelets

Bone: Substance forming the body’s skeleton, consisting of calcium phosphate and calcium carbonate

Bone marrow: Soft blood-forming tissue found in bone cavities

Breathing: Respiration process consisting of inhaling and exhaling due to contraction and relaxation of muscles

Bursitis: Inflammation of bursa, a small fluid-filled sac acting as a gliding surface to reduce friction between body tissues near the joints; elbow, shoulder, hips, and knees

C-reactive protein: Plasma protein that increases due to inflammation

Calcium: Mineral found in the hard part of bones

Cartilage: Firm, rubbery tissue cushioning bones at joints

Chronic disease: Disease persisting for a long time

Citrulline antibody: It is an antibody containing an unusual amino acid. The level of this antibody is an important determinant of rheumatoid arthritis

Clinical trials: Trials to test the effectiveness and safety of medications by monitoring its usage on large groups of people

Collagen: Principal protein of skin, cartilage, tendons, bone and connective tissue

Complication: Any additional problem arising due to a medical situation or treatment

Corticosteroid: Any steroid hormones made by the outer layer of the adrenal gland

Cortisone: Naturally occurring hormone made by adrenal cortex

Cytokine: Small protein released by cells, which has a specific effect on interactions between cells

Diagnosis: Identification of a disease

Disease: Illness or sickness characterized by symptoms

Drain: Device for removing fluid from cavity or wound

Fatigue: Feeling of weariness and tiredness

Genetic: Having to do with genes

Gout: High levels of uric acid in blood causing joint inflammation

High blood pressure: Repeatedly elevated blood pressure exceeding 140 over 90 mmHg

Ibuprofen: non-steroidal anti-inflammatory drug

Immune system: The system in your body which is responsible for protection against infection

Immunosuppressive: Suppression of immune response

Infection: Growth of parasitic organism within the body

Inflammation: The body’s response to infection; swelling, pain, warmth and redness

Interleukin-1: Protein produced by various cells to stimulate growth of disease-fighting cells

Joint: Area where two bones are attached for easy motion of body parts

Knee: Leg-joint

Laboratory: A place for doing tests and research procedures

Lymph: Colorless fluid traveling through vessels carrying cells to fight infection

Medication: Medicine

Methotrexate: Drug that acts as an antimetabolite

Minocycline: A tetracycline antibiotic

NSAID: Nonsteroidal anti-inflammatory drug

Onset: First appearance of signs or symptoms of an illness

Pain: An unpleasant sensation causing discomfort.

Plasma: Liquid part of blood

Platelet: Disc-shaped element in blood that assists in blood clotting

Platelet count: Calculated number of platelets in a volume of blood

Progressive: Increasing in severity

Rash: Skin eruption

Red blood cells: Oxygen carrying blood cells

Relapse: Return of disease signs and symptoms

Remission: Disappearance of disease signs and symptoms

Rest: Relaxation

Rheumatoid arthritis: Autoimmune disease causing chronic inflammation of joints

Rheumatoid factor: Antibody measurable in blood

Rheumatoid nodules: Firm skin lumps occurring mostly at elbows

Rheumatologist: Specialist in non-surgical treatment of rheumatic arthritis

Sedimentation rate: Blood test to detect and monitor inflammation in the body

Side effects: Problems occurring in addition to desired therapeutic effect

Surgery: Branch of medicine requiring use of operative procedures

Synovial fluid: Slippery fluid which lubricates joints

Synovitis: Inflammation of synovial membrane

Syringe: Device used to inject or withdraw fluid

Systemic: Affecting the entire body

Therapy: Treatment of disease

Wrist: Segment near the hand consisting of carpal bones and associated soft parts

X-ray: High-energy radiation waves capable of penetrating most substances

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