

Concept of Arthritis and its Management: A Review

* Dr. Ansari Nargis Bano¹, Dr. Badiuzzaman Shaikh,² Dr. Qutbuddin Shaikh³,

Dr. Ashfak Iqbal Mansuri⁴, Dr. Aatera Anees Ahmad⁵

¹ Professor (HOD), Dept. of Manafeul Aza, Markaz Unani Medical College and Hospital. Kozhikode. Kerala

² Professor (HOD) Dept. of Ain, Uzn, Anf, Halq wa Asnan, Ahmad Garib Unani Medical College and Hospital, Akkalkuwa. Nandurbar

³ Professor (HOD), Dept. of Tahaffuzi wa Samaji Tib, Markaz Unani Medical College and Hospital. Kozhikode. Kerala.

⁴ Associate Professor (HOD), Dept. of Amraze Jild wa Tazineeyat, Ahmed Garib Unani Medical College, Akkalkuwa, Nandurbar

⁵ Associate Professor, Dept. of Tashreehul Badan, Markaz Unani Medical College and Hospital. Kozhikode. Kerala

Abstract:

Arthritis is a chronic, inflammatory disorder that may affect many tissues and organs, but principally attacks flexible (synovial) joints. The word arthritis means inflammation of the joint (“arthro” meaning joint and “itis” meaning inflammation). Arthritis is a ravaging inflammatory and autoimmune illness that affects the joints. The process produces an inflammatory responses of the capsule around the joints, secondary swelling of the synovial cells. The aim in this review is to collate all available data on experiments reporting the anti–arthritic effect of plants and natural products in the last two decades. In the present study, interest is focused on experimental research conducted on medicinal plants, particularly those which show anti–arthritic activities alongside bioactive components. Various plant species have been identified as active or promising sources of phytochemicals with anti–arthritic properties. Most of the tribal people still depend on local medicinal plants for the treatment of different diseases using the knowledge of herbal treatment they have inherited from their forefathers. But this ethno–medicinal knowledge and also the medicinal plants are depleting at an alarming rate due to availability of modern medical facilities and other socio–economic factors. On the other hand, this knowledge is valuable in searching new medicine for human welfare.

Keywords: Arthritis, bone disease, anti–arthritic activity, inflammatory, Herbal Drugs and house hold remedies

I. Introduction of Arthritis:

Arthritis means joint inflammation, but the term is used to describe around 200 conditions that affect joints, the tissues that surround the joint, and other connective tissue. It is a rheumatic condition. The most common form of arthritis is osteoarthritis. Other common rheumatic conditions related to arthritis include Trusted Source gout, fibromyalgia, and rheumatoid arthritis. Rheumatic conditions tend to involve pain, aching, stiffness, and swelling in and around one or more joints. The symptoms can develop gradually or suddenly. Some forms

of arthritis, such as rheumatoid arthritis and lupus (SLE), can affect multiple organs and cause widespread symptoms.

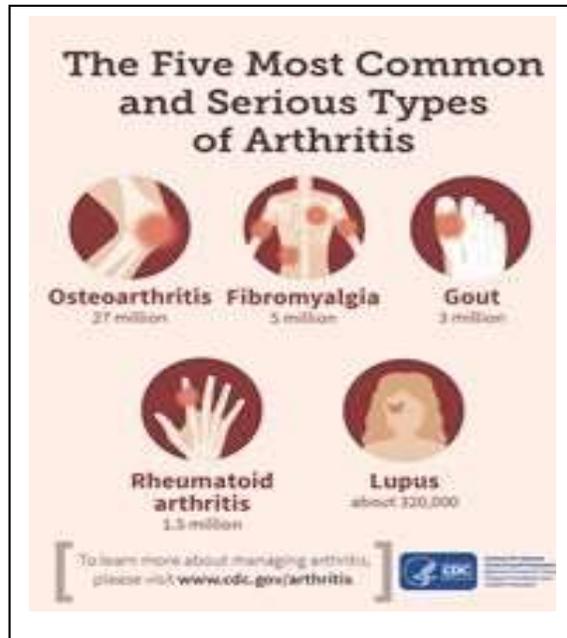


Fig. 1 various types of Arthritis

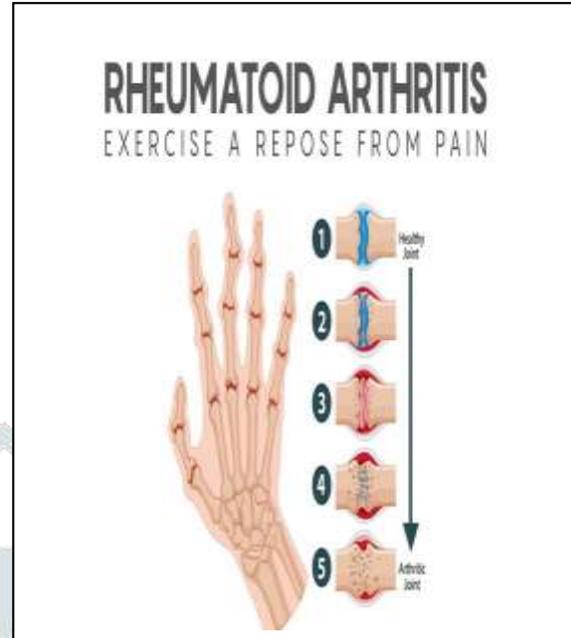


Fig. 2 Anatomy of Arthritis

The word arthritis means inflammation of the joint (“arthro” meaning joint and “itis” meaning inflammation). Arthritis is a ravaging inflammatory and autoimmune illness that affects the joints. Although its cause is still unknown. With RA, inflammation manifests in the lining of the joints causing pain, swelling, joint damage and deformity. It can occasionally involve other internal organs, such as the nerves, eyes, lungs or heart. The earliest symptoms of RA can be non-specific, including feeling unwell or tired soreness in or around joints, low-grade fever, and weight loss/poor appetite. As time goes on, RA can involve more and more joints on both sides of the body, often in a “symmetrical” pattern. Although various drugs have been used to control RA, there are numerous reports regarding the side effects of these drugs. A range of newer drugs called TNF blockers have been linked to a condition called leukocytoclastic vasculitis, or LCV. TNF blockers, specifically Humira and Remicade, reportedly increase the risk of cancer and serious infections. As a consequence, researchers are now searching for alternatives therapeutics.¹

II. Treatment of Arthritis:

The doctor will likely recommend a course of physical therapies to help you manage some of the symptoms of arthritis. Treatment for arthritis aims to control pain, minimize joint damage, and improve or maintain function and quality of life. A range of medications and lifestyle strategies can help achieve this and protect joints from further damage.

Treatment include:

1. Medications
2. Non-pharmacologic therapies
3. Weight loss
4. Surgery, including joint replacement
5. Physical or occupational therapy
6. Splints or joint assistive aids
7. Patient education and support

III. Medication of Arthritis:

Non-inflammatory types of arthritis, such as osteoarthritis, are often treated with pain-reducing medications, physical activity, weight loss if the person is overweight, and self-management education.

These treatments are also applied to inflammatory types of arthritis, such as RA, along with anti-inflammatory medications such as corticosteroids and non-steroidal anti-inflammatory drugs, disease-modifying anti-rheumatic drugs (DMARDs), and a relatively new class of drugs known as biologics.

Medications will depend on the type of arthritis. Commonly used drugs include:

1. Analgesics: these reduce pain, but have no effect on inflammation. Examples include acetaminophen (Tylenol), tramadol (Ultram) and narcotics containing oxycodone (Percocet, Oxycontin)
2. Non-steroidal anti-inflammatory drugs: These reduce both pain and inflammation. NSAIDs including ibuprofen and naproxen sodium. Some NSAIDs are available as creams, gels or patches which can be applied to specific joints.
3. Counterirritants: some creams and ointments contain menthol or capsaicin, the ingredient that makes hot peppers spicy. Rubbing these on the skin over a painful joint can modulate pain signals from the joint and lessen pain.
4. Disease-modifying antirheumatic drugs (DMARDs): used to treat RA, DMARDs slow or stop the immune system from attacking the joints. Examples include methotrexate and hydroxychloroquine .
5. Biologics: used with DMARDs, biologic response modifiers are genetically engineered drugs that target various protein molecules involved in the immune response. Examples include etanercept (Enbrel) and infliximab (Remicade).
6. Corticosteroids: prednisone and cortisone reduce inflammation and suppress the immune system.

IV. Natural remedies of Arthritis:

A healthful, balanced diet with appropriate exercise, avoiding smoking, and not drinking excess alcohol can help people with arthritis maintain their overall health.

Diet: There is no specific diet that treats arthritis, but some types of food may help reduce inflammation.

The following foods, found in a Mediterranean diet, can provide many nutrients that are good for joint health:

1. Fish
2. Beans

3. Olive oil
4. Whole grains
5. Nuts and seeds
6. Fruits and vegetables

Foods to avoid: There are some foods that people with arthritis may want to avoid. Nightshade vegetables, such as tomatoes, contain a chemical called solanine that some studies have linked with arthritis pain. Research findings are mixed when it comes to these vegetables, but some people have reported a reduction in arthritis symptoms when avoiding nightshade vegetables.

Self-management: Self-management of arthritis symptoms is also important. Key strategies include:

1. Staying physically active
2. Achieving and maintaining a healthy weight
3. Getting regular check-ups with the doctor
4. Protecting joints from unnecessary stress

Seven habits that can help a person with arthritis to manage their condition are:

1. Being organized: keep track of symptoms, pain levels, medications, and possible side effects for consultations with your doctor.
2. Managing pain and fatigue: a medication regimen can be combined with non-medical pain management. Learning to manage fatigue is key to living comfortably with arthritis.
3. Staying active: exercise is beneficial for managing arthritis and overall health.
4. Balancing activity with rest: in addition to remaining active, rest is equally important when your disease is active.
5. Eating a healthful diet: a balanced diet can help you achieve a healthy weight and control inflammation. Avoid refined, processed foods and pro-inflammatory animal-derived foods and choose whole plant foods that are high in antioxidants and that have anti-inflammatory properties.
6. Improving sleep: poor sleep can aggravate arthritis pain and fatigue. Take steps to improve sleep hygiene so you find it easier to fall asleep and stay asleep. Avoid caffeine and strenuous exercise in the evenings and restrict screen-time just before sleeping.
7. Caring for joints: tips for protecting joints include using the stronger, larger joints as levers when opening doors, using several joints to spread the weight of an object such as using a backpack and gripping as loosely as possible by using padded handles.

Physical therapies: Doctors will often recommend a course of physical therapy to help patients with arthritis overcome some of the challenges and to reduce limitations on mobility. Forms of physical therapy that may be recommended include:

1. Warm water therapy: exercises in a warm-water pool. The water supports weight and puts less pressure on the muscles and joints

2. Physical therapy: specific exercises tailored to the condition and individual needs, sometimes combined with pain-relieving treatments such as ice or hot packs and massage
3. Occupational therapy: practical advice on managing everyday tasks, choosing specialized aids and equipment, protecting the joints from further damage and managing fatigue



Fig. 3 Exercise for Knee Arthritis

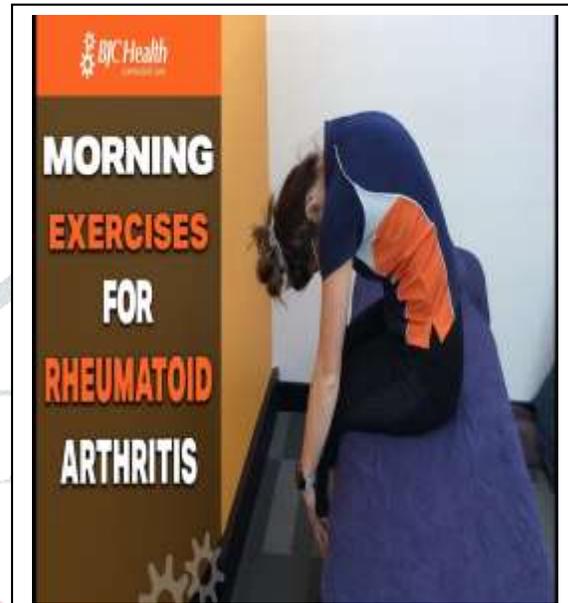


Fig. 4 Exercise of Arthritis

Physical activity: Research suggests that although individuals with arthritis may experience short-term increases in pain when first beginning exercise, continued physical activity can be an effective way to long-term. People with arthritis can participate in joint-friendly physical activity on their own or with friends. As many people with arthritis have another condition, such as heart disease, it is important to choose appropriate activities. Joint-friendly physical activities that are appropriate for adults with arthritis and heart disease include:

1. Walking
2. Swimming
3. Cycling

A health care professional can help you find ways to live a healthful lifestyle and have a better quality of life.

Natural therapies: A number of natural remedies have been suggested for different types of arthritis.

According to the organization Versus Arthritis, based in the United Kingdom, some research has supported the use of devil's claw, rosehip, and Boswellia, from the frankincense tree. Devil's claw and Boswellia supplements can be purchased online. There is some evidence Trusted Source that turmeric may help, but more studies are needed to confirm their effectiveness. Various other herbs and spices have been recommended for RA, but again, more research is needed. They include turmeric, garlic, ginger, black pepper, and green tea. Many of these herbs

and spices are available to purchase online in supplement form, including turmeric, ginger, and garlic. Anyone who is considering using natural remedies for any type of arthritis should speak to a doctor first.

V. Causes of Arthritis:

There is no single cause of all types of arthritis. The cause or causes vary according to the type or form of arthritis. Possible causes may include:

1. Infections, such as in the arthritis of lyme disease
2. Immune system dysfunction
3. Injury, leading to degenerative arthritis
4. Abnormal metabolism, leading to gout and pseudogout
5. Inheritance, such as in osteoarthritis

Most types of arthritis are linked to a combination of factors, but some have no obvious cause and appear to be unpredictable in their emergence. Some people may be genetically more likely to develop certain arthritic conditions. Additional factors, such as previous injury, infection, smoking and physically demanding occupations, can interact with genes to further increase the risk of arthritis. Diet and nutrition can play a role in managing arthritis and the risk of arthritis, although specific foods, food sensitivities or intolerances are not known to cause arthritis. Foods that increase inflammation, particularly animal-derived foods and diets high in refined sugar, can make symptoms worse, as can eating foods that provoke an immune system response.

Gout is one type of arthritis that is closely linked to diet, as it is caused by elevated levels of uric acid which can be a result of a diet high in purines. Diets that contain high-purine foods, such as seafood, red wine, and meats, can trigger a gout flare-up. Vegetables and other plant foods that contain high levels of purines do not appear to exacerbate gout symptoms, however.

VI. Risk factors for arthritis

Certain risk factors have been associated with arthritis. Some of these are modifiable while others are not. Non-modifiable arthritis risk factors:

1. Age: the risk of developing most types of arthritis increases with age.
2. Sex: most types of arthritis are more common in females, and 60 percent of all people with arthritis are female. Gout is more common in males than females.
3. Genetic factors: specific genes are associated with a higher risk of certain types of arthritis, such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and ankylosing spondylitis.

VII. Various Types of Arthritis:

1. Inflammatory arthritis

Inflammation is a normal part of the body's healing process. The inflammation tends to occur as a defense against viruses and bacteria or as a response to injuries such as burns. However, with inflammatory arthritis, inflammation occurs in people for no apparent reason. Inflammatory arthritis can affect several joints, damaging the surface of the joints and the underlying bone. Inflammatory arthritis is characterized by damaging

inflammation that does not occur as a normal reaction to injury or infection. This type of inflammation is unhelpful and instead causes damage in the affected joints, resulting in pain, stiffness and swelling. Inflammatory arthritis can affect several joints, and the inflammation can damage the surface of the joints and also the underlying bone. Examples of inflammatory arthritis include:

1. Ankylosing spondylitis
2. Arthritis associated with colitis or psoriasis
3. Rheumatoid arthritis (RA)
4. Reactive arthritis

2. Degenerative or mechanical arthritis

Degenerative or mechanical arthritis refers to a group of conditions that mainly involve damage to the cartilage that covers the ends of the bones. The main job of the smooth, slippery cartilage is to help the joints glide and move smoothly. This type of arthritis causes the cartilage to become thinner and rougher. To compensate for the loss of cartilage and changes in joint function, the body begins to remodel the bone in an attempt to restore stability. This can cause undesirable bony growths to develop, called osteophytes. The joint can become misshapen. This condition is commonly called osteoarthritis. Osteoarthritis can also result from previous damage to the joint such as a fracture or previous inflammation in the joint.

3. Soft tissue musculoskeletal pain

Soft tissue musculoskeletal pain is felt in tissues other than the joints and bones. The pain often affects a part of the body following injury or overuse, such as tennis elbow, and originates from the muscles or soft tissues supporting the joints. Pain that is more widespread and associated with other symptoms may indicate fibromyalgia.

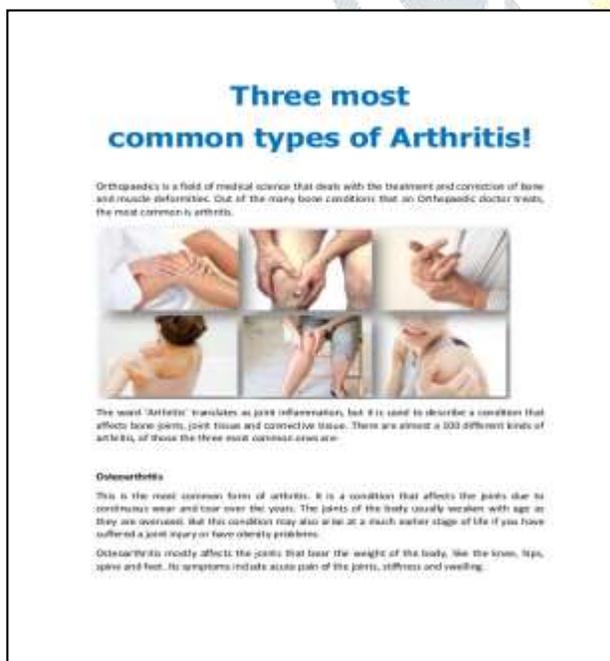


Fig. 5 various types of Arthritis

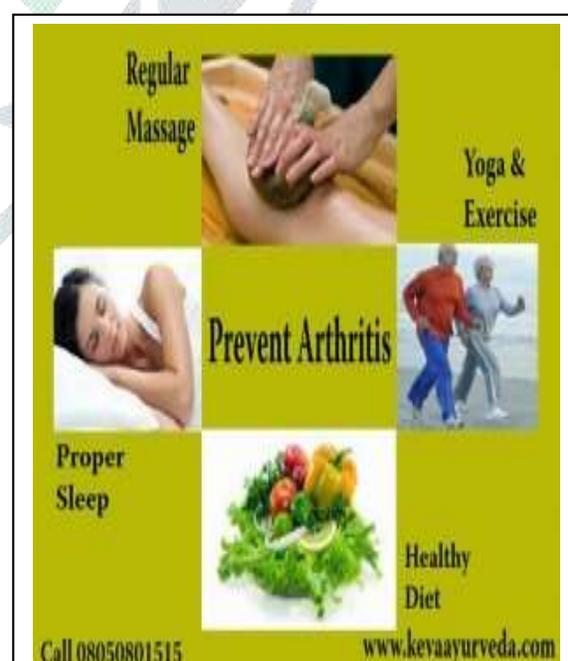


Fig. 6 Prevention of Arthritis

4. Back pain

Back pain can arise from the muscles, discs, nerves, ligaments, bones, or joints. Back pain may stem from problems with organs inside the body. It can also be a result of referred pain, for example, when a problem elsewhere in the body leads to pain in the back. There may be a specific cause, such as osteoarthritis. This is often called spondylosis when it occurs in the spine. Imaging tests or a physical examination may detect this. A “slipped” disc is another cause of back pain, as is osteoporosis, or thinning of the bones. If a doctor cannot identify the exact cause of back pain, it is often described as “non-specific” pain.

5. Connective tissue disease (CTD)

Connective tissues support, bind together, or separate other body tissues and organs. They include tendons, ligaments, and cartilage. CTD involves joint pain and inflammation. The inflammation may also occur in other tissues, including the skin, muscles, lungs, and kidneys. This can result in various symptoms besides painful joints, and it may require consultation with a number of different specialists.

Examples of CTD include:

1. SLE, or lupus
2. scleroderma, or systemic sclerosis
3. dermatomyositis.

6. Infectious arthritis

A bacterium, virus, or fungus that enters a joint can sometimes cause inflammation. Organisms that can infect joints include:

1. Salmonella and Shigella, spread through food poisoning or contamination
2. chlamydia and gonorrhea, which are sexually transmitted diseases (STDs)
3. hepatitis C, a blood-to-blood infection that may be spread through shared needles or transfusions

A joint infection can often be cleared with antibiotics or other antimicrobial medication. However, the arthritis can sometimes become chronic, and joint damage may be irreversible if the infection has persisted for some time.

7. Metabolic arthritis

Uric acid is a chemical created when the body breaks down substances called purines. Purines are found in human cells and several foods. Most uric acid dissolves in blood and travels to the kidneys. From there, it passes out in urine. Some people have high levels of uric acid because they either naturally produce more than they need or their body cannot clear the uric acid quickly enough. Uric acid builds up and accumulates in some people and forms needle-like crystals in the joint, resulting in sudden spikes of extreme joint pain or a gout attack. Gout can either come and go in episodes or become chronic if uric acid levels are not reduced. It commonly affects a single joint or a small number of joints, such as the big toe and hands. It usually affects the extremities. One theory is that uric acid crystals form in cooler joints, away from the main warmth of the body.

VIII. Natural Remedies for Arthritis:

A. Acupuncture

This traditional form of Chinese medicine is one of the oldest natural pain remedies around. It uses super-fine needles to stimulate energy along pathways in your body called meridians. The goal is to correct imbalances of energy, or qi (pronounced “chee”). There isn’t a lot of research specific to acupuncture for RA, although studies do show it lowers levels of chemicals in your body linked to inflammation. It also helps with chronic pain, especially back pain. It may also help with osteoarthritis.

B. Massage

This natural approach dates back thousands of years, and modern science shows that it can help ease pain. There are many different types. You’ll want to talk to your doctor before you try it. You can also ask for recommendations. It’s good to get a massage therapist who’s worked with people that have RA. Let them know if you have any sore spots they need to avoid. You can also ask them not to use scented products that could irritate your skin.

C. Exercise

You may not feel like moving, but it’s good for you. It won’t make your RA worse, and it could lower the swelling in your joints and help ease your pain.

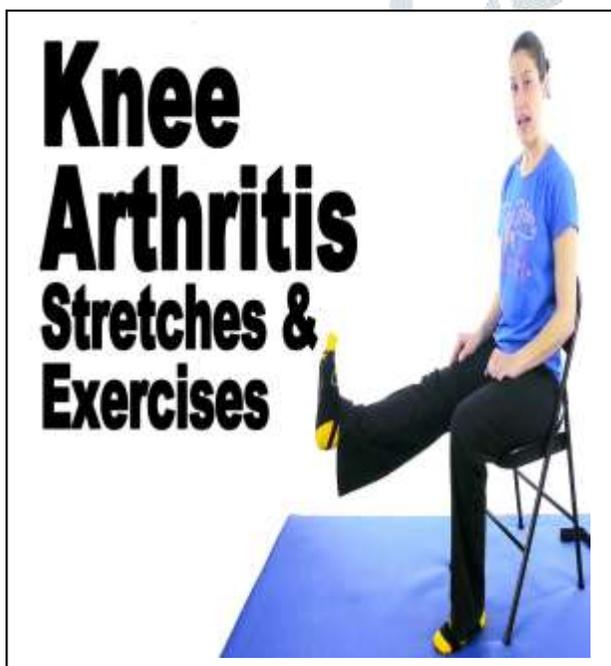


Fig. 7 Prevention of Knee Arthritis

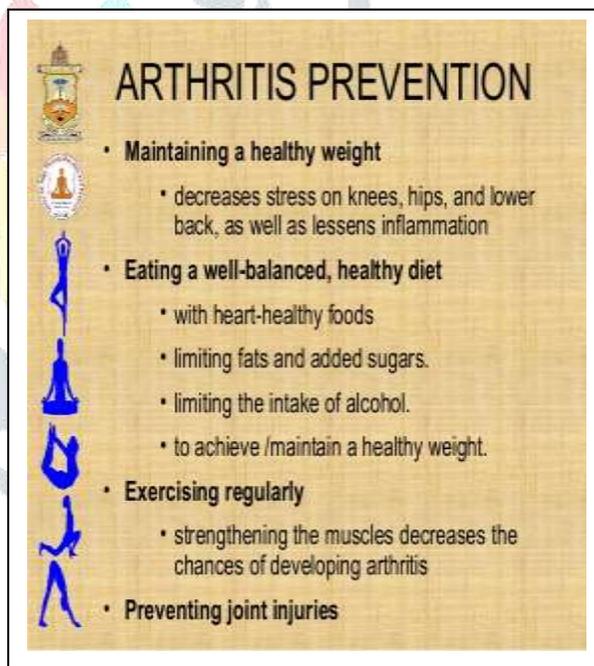


Fig. 8 Prevention of Arthritis

Because you have RA, talk to your doctor or a physical therapist before you get started. They can help create the right program for you. It’ll probably focus on:

1. **Aerobics**, like walking or swimming, to get your heart moving
2. **Strength training**, to keep the muscles around your joints strong

3. **Range-of-motion exercises** to help your joints move like they should

4. **Balance moves** to help you avoid stumbles and falls

D. Heat and Cold

Many doctors recommend heat and cold treatments to ease rheumatoid arthritis symptoms. Each offers different benefits:

Cold: It curbs joint swelling and inflammation. Apply an ice pack to the affected joint during an RA flare-up, for instance. Just don't overdo it. Apply the cold compress for 15 minutes at a time. Take at least a 30-minute break between treatments.

Heat: It relaxes your muscles and spurs blood flow. You can use a moist heating pad or a warm, damp towel. Many people like using microwaveable hot packs. Don't go too hot. Your skin shouldn't burn. You can also use heat therapy in the shower. Let the warm water hit the painful area on your body. That may help soothe it. A hot tub is another good way to relax stiff muscles. Just don't use hot tubs or spas if you have high blood pressure, heart disease, or are pregnant.

E. Deep Breathing

Take slow breaths from your belly. It can calm you and turn off the stress receptors that tighten your muscles and make pain worse. Plus, when you focus on your breathing, you take your brain away from thoughts about pain.

F. Meditation

This technique can be as simple as focusing on your breathing and just noticing each inhale and exhale. It doesn't require any spiritual beliefs, and it isn't about being super calm. Anyone can do it, and only a few minutes can make a difference. Your mind will almost certainly wander. That's OK. Just return your attention to your breath or whatever you choose to focus on.

G. Progressive Muscle Relaxation

To do this:

1. Breathe in as you contract your muscles.
2. Breathe out when you let go.
3. Tighten and then relax the muscles in different parts of your body.
4. Work your way down the body, starting with your face muscles, followed by your neck, arms, chest, back, belly, legs, and feet. Or work your way up from your feet.

H. Visualization

This can help reduce stress and pain. To try this simple exercise:

1. Close your eyes.
2. Breathe deeply.
3. Picture yourself in a quiet, peaceful place.

I. Yoga

This mix of low-impact exercise, breathing, and meditation was developed in India some 5,000 years ago. It's good for your body and mind. It can ease joint pain, improve your flexibility, and zap stress and tension. Studies show it can lower chemicals that cause inflammation and stress. Just talk to your doctor to make sure it's OK for you before you dive in. Work with them to find an instructor that knows how to handle people with RA.

J. Magnets

Magnet therapies come in a variety of forms, such as bracelets, necklaces, inserts, pads, or disks. You can find them at most natural food stores. Most research on magnets involves people with osteoarthritis, the wear-and-tear type of arthritis linked to aging, not RA. In people with knee and hip osteoarthritis, some early studies have shown they improved joint pain better than a placebo. But doctors don't know exactly how magnets might relieve pain, and there's no clear proof that they actually help people with rheumatoid arthritis.

IX. Herbal drugs used in the treatment of Arthritis:

A. Anti–arthritic activity of Liquorice.

Glycyrrhiza glabra (liquorice) is a herb belonging to the pea and bean family, liquorice is cultivated for its underground stems that are used to flavour confectionery; it is also valued for its medicinal qualities. Chemically it is reported to contain gum, resin, terpenoids and essential oils. A non–phenolic fraction obtained from its gum resin is reported to possess analgesic and psychopharmacological effects. In a study the investigation was undertaken to assess the anti–arthritic activity of *Glycyrrhiza glabra*. Then *Glycyrrhiza glabra* and *Boswellia serrata* extracts were combined to study the synergistic property for potent anti–arthritic activity. The methanolic extract of *Glycyrrhiza glabra* was administered orally at a dose of 150mg/kg and n–hexane extract of *Boswellia serrata* was administered 50mg/kg body weight for 21 days to the experimental animals after the induction of adjuvant arthritis. Further the combined formulation containing both *Glycyrrhiza glabra* and *Boswellia serrata* 100mg/kg was administered in separate group. The anti–arthritic activity of *Glycyrrhiza glabra* and *Boswellia serrata* were assessed by significant reduction of paw edema volume and its capacity to stabilize lysosomal enzyme activity such as ACP significantly ($P < 0.01$). Furthermore the combined formulation containing both *Glycyrrhiza glabra* and *Boswellia serrata* at proportion (1:1) showed significant synergistic action. As a better synergistic activity was observed in combined formulation it may be tried for therapeutic use clinically.

B. Anti–arthritic activity of Urtica.

Urtica pilulifera L. Stinging nettle (Urticaceae) are annual and perennial herbs, distinguished with stinging hairs. Leaves are opposite. In a study the anti–arthritic effect of methanolic leaf extract of the plant was evaluated and compared to untreated control as well as ibuprofen–treated groups in a rat model of Complete Freund's Adjuvant (CFA)–induced arthritis. The arthritis was induced by injecting CFA subcutaneously into the right paw. The extract was given orally one day before CFA injection up to the completion of study. Two extract doses (1.33 and 2.0g kg⁻¹) and ibuprofen (53mg kg⁻¹) as a positive control were used. Paw volume was measured on alternate

days up to 30 days. In addition, the effect of the extract on joint deformity, ankle swelling and inflammatory markers was evaluated. As results the extract prevented arthritis-induced increase in paw volume and joint deformity dose-dependently as compared to control. Moreover, the extract showed significant increase in the packed cell volume [$p < 0.05$]. No alteration of kidney or liver function tests was detected in rats during repeated dose treatment. This study supports the traditional use of *Urtica pilulifera* for the treatment of inflammatory disorders and rheumatoid arthritis and suggests further evaluation for its role in increasing red blood cells.

C. Anti-arthritic activity of Polygonum.

Polygonum viviparum Linn. (Family: Polygonaceae). In a study the effects of *polygonum viviparum* L. methanol extract (PVM) of rhizome was investigated on acute and chronic inflammation. As methods the acute inflammation carrageenan and dextran induced paw edema assays were used whereas chronic inflammation was assessed by mycobacterium induced arthritis and formaldehyde arthritis. Mechanism of action was predicted on the basis of the following assay models viz., carrageenan edema in adrenalectomized rat, castor oil-induced diarrhoea, pleurisy in rats, effect on gestation period and ulcerogenic effect. As results this study revealed a significant reduction of paw inflammation both in acute and chronic inflammatory models up to 250 mg/kg. In acute inflammation the inhibition was 18 to 34% whereas the reduction of the chronic inflammation was ranging up to 44%. It also inhibited the elevated levels of biochemical and hematological parameters such as SGPT, ESR and TLC in arthritic animals. Nonetheless, PVM also showed significant inhibition of the exudate volume and total count of pleural fluid. It did not show any analgesic, antipyretic, antidiarrhoeal and ulcerogenic activity. In conclusion PVM showed significant anti-inflammatory and anti-arthritic activity, without any analgesic, antipyretic and ulcerogenic activity, devoid of adverse effects of NSAIDs. The inhibitory mechanism seems to be non-traditional and also not by one mechanism.

D. Anti-arthritic activity of Cinnamon.

The Lauraceae are an economically important family consisting mostly of trees or tree-like shrubs. In a study the potential of TAPP extracted from Cinnamon bark in animal models of inflammation and rheumatoid arthritis in rats was evaluated. Type-A procyanidine polyphenols (TAPP) are reported to have immunomodulatory and anti-inflammatory potential *in vitro*. Carrageenan-induced rat paw edema (CPE) and adjuvant induced established arthritis (AIA), in rats were used as the experimental models for inflammation and arthritis respectively. Analgesic activity was evaluated in Randall-Selitto assay in AIA rats. TAPP showed significant anti-inflammatory effect at dose of 4, 8 and 25mg/kg, p.o. but not at 2mg/kg, p.o. dose in CPE model. The dose of 8mg/kg, p.o. was selected for the evaluation of anti-arthritic activity in AIA model. TAPP (8mg/kg, p.o., daily from day-12 to day-21) treatment in established arthritic rats showed significant reversal of changes induced in AIA with respect to body weight drop (cachexia), ankle diameter, arthritic score, serum C-reactive protein (CRP) levels. Moreover, TAPP was found to be non-ulcerogenic as compared to AIA control rats. However, TAPP did not show analgesic effect on AIA-induced pain as seen in Randall-Selitto assay. As a conclusion, TAPP showed disease-modifying potential in animal models of inflammation and arthritis in rats.¹⁹

D. Anti–arthritic activity of Rhabdophora.

Rhabdophora glauca (Wall.) Schott (Family: Araceae), an aroid liane native to the subtropical and warm temperate regions of the eastern Himalaya, are discussed; illustrations and a description of the species are provided together with a brief overview of *Rhabdophora* in the eastern Himalaya. In a study three Bangladeshi medicinal plants have been investigated for their in vitro Arthritic and membrane stabilizing activity. Inhibition proteinase actions were evaluated to assess the antiarthritic effect of the selected plant extracts and membrane stabilizing activity were assessed by using hypotonic solution and heat–induced method. In highest concentration of *Rhabdophora glauca* compared with Diclofenac–Na. Further in depth studies on this plant can result in an eco–friendly cost effective antiarthritic herbal drug with anti–inflammatory potential contributing towards the better healthcare of human society.

E. Anti–arthritic potential of Justicia.

Justicia gendarussa is a rare, shade–loving, quick–growing, evergreen scented shrub of the family Acanthaceae, which is considered to be a native of China and distributed in the forests of Sri Lanka, India and Malaysia. The leaves of *J. gendarussa* possess reverse transcriptase inhibitor, analgesic and antioxidant potential. *Justicia* has been found to contain lignans, naturally occurring phenolic dimers and triterpenoids. Lignans have been used as a lead compounds for the development of antirheumatic agents. In a study the anti–arthritic potential of the alcoholic extract of the plant *Justicia gendarussa* was evaluated using the Freund’s adjuvant–induced and collagen–induced arthritic rat models. The rats were treated with the ethanolic extract of *Justicia gendarussa* and with standard aspirin. As results the ethanolic extract of *Justicia gendarussa* showed significant anti–arthritic activity that was statistically similar to that of aspirin. The results suggest that the alcoholic extract of *Justicia gendarussa* exhibits significant anti–arthritic potential.

F. Anti–arthritic activity of Hibiscus.

Hibiscus platanifolius Linn, is a species of flowering tree in the mallow family, Malvaceae that is native to the India and Sri Lanka. In Sri Lankan texts, the plant is widely known by its synonym *H. eriocarpus*. In a study the anti–arthritic activity of leaves of *Hibiscus platinifolius* linn have been investigated on male Wister rats and estimation of paw edema, body weight measurement and measurement of activity of marker enzymes like alanine trans aminases (SGPT) and serum glutamate oxalo acetate transferases (SGOT) in serum by using Aqueous extract of *Hibiscus platinifolius* line. The study of anti–arthritic activity involves induction of arthritis to rats of all groups using FCA and turpentine oil induced in i.p route, followed by subsequent treatment with aqueous extraction at two different doses. i.e AEHP 200mg/kg and AEHP 400mg/kg respectively. Diclofenac sodium is used as a reference standard. paw edemas, paw height, paw volume were estimated from the serum by using Freund’s complete adjuvant (FCA) and turpentine oil induced arthritis .The bio chemical parameters were increased in all arthritic rats, there parameters were decreased by the administration of aqueous extraction of *Hibiscus platinifolius* Linn at dose of 200mg and 400mg respectively. From this study it has been concluded

that the aqueous extract of leaves of *Hibiscus platinifolius* Linn having good anti–arthritic activity, which is comparable to Diclofenac sodium.

X. Household remedies to control the Arthritis:

1. **Suranjan sheirein (*Colchicum autumnale*)-** This is one of the most commonly used Unani medicines. Packed with analgesics and anti-inflammatory properties, this herb alleviates inflammation and pain associated with arthritis.

2. **Aloe vera-**Aloe vera is one of the most commonly used herbs in alternative medicine. It's available in many forms, such as pills, powder, gels, and as a leaf. Known for its healing properties, it's popular for treating small skin abrasions, such as sunburn, but it may also help with joint pain. Possible benefits are the following:

- It has anti-inflammatory properties.
- It doesn't have the negative gastrointestinal effects of nonsteroidal anti-inflammatory drugs (NSAIDs), commonly used for arthritis pain.

You can apply a gel directly to the skin. Some suggested that taking aloe by mouth may help relieve osteoarthritis pain.

3. **Boswellia-**Practitioners of traditional and alternative medicine use *Boswellia serrata*, also called frankincense, for its anti-inflammatory properties. It's derived from the gum of *Boswellia* trees, which are indigenous to India.

According to a review Source, boswellic acid appears to have anti-inflammatory effects that could help people with RA, OA, and gout. Results from human trials have suggested that frankincense capsules may help improve pain, function, and stiffness due to OA.

4. **Eucalyptus-**Eucalyptus is a readily available remedy that people use for a wide range of conditions. Extracts of eucalyptus leaves feature in topical remedies to treat arthritis pain. The plant leaves contain tannins, which may help reduce swelling and pain related to arthritis. Some people follow up with heat pads to maximize the effect.

Eucalyptus aromatherapy may help ease the symptoms of RA. Always dilute an essential oil with a carrier oil before use. Use 15 drops of oil with 2 tablespoons of almond or another neutral oil.

5. **Ginger-**Many people use ginger in cooking, but it may also have medicinal benefits. The same compounds that give ginger its strong flavor also have anti-inflammatory properties, studies have found. Some researchers say ginger could one day be an alternative to nonsteroidal anti-inflammatory drugs (NSAIDs). People have long used ginger in traditional medicine to treat nausea, but you can also use it for rheumatoid arthritis, osteoarthritis, and pain in the joints and muscles. Ingredients in ginger could form the basis of a pharmaceutical treatment for rheumatoid arthritis. It could not only help manage symptoms but also help prevent bone destruction. Here are some ways of consuming ginger:

- Make tea by infusing tea bags or fresh ginger in boiling water for 5 minutes.
- Add powdered ginger to baked goods.
- Add powdered ginger or fresh ginger root to savory dishes.

- Grate fresh ginger onto a salad or stir fry.

6. **Green tea**-Green tea is a popular beverage. The antioxidants it contains may help fight the inflammation. You can take green tea as a beverage, while scientists have found evidence that extracts or specific components of green tea may have an effect on arthritis, it's unclear whether the concentration of active ingredients in a cup of tea will help relieve symptoms. That said, it's likely to be safe for most people. As a beverage, it is a healthier option than some coffees, soda, and other sweetened drinks, as long as you don't add sugar. More research is needed to confirm that green tea can help reduce inflammation and to find out which form and dose would be most effective.

7. **Turmeric**-Turmeric is a yellow powder made from a flowering plant. It adds flavor and color to sweet and savory dishes and teas. Its main ingredient, curcumin, has anti-inflammatory properties. It has long played a role in traditional Unani, Ayurveda and Chinese medicine. It may help with OA, RA, and other arthritic conditions. Turmeric is available as a powdered spice to add to dishes, in tea bags, as supplements that are taken by mouth.

8. **Willow bark**-Willow bark is an ancient treatment for pain and inflammation. You can use it either as a tea or in tablet form. Some research Source says it may help relieve joint pain related to OA and RA. However, results have been conflicting, and more studies are needed. Also, it may not be safe for everyone.

XI. Conclusion

Herbal medicines are popular as remedies for diseases by vast majority of world's population. Medicinal plants are a source of great economic value all over the world. Nature has bestowed on us a very rich botanical wealth and a large number of diverse types of plants grow in different parts of the country. There is considerable evidence that plant extracts have the potential to be developed into agents that can be used as preventative or treatment therapies for oral diseases. In this review, we have selected some medicinal plants in recent years that highlight some of the main advances achieved in the identification of plants with anti-arthritic activity. Arthritis is a common condition with significant impact on quality of life of affected individuals. Unani treatment is better and effective in treating chronic diseases of musculoskeletal system with no or least side effects. It uses complex and individually tailored interventions, including manual therapies, life style and nutritional advice, dietary supplements, pharmacological modalities and non-pharmacological modalities like massage, venesection, leech therapy, cupping and all other mentioned regimes have shown a great effect in the management of Arthritis.

References:

1. Arend W. The innate immune system in rheumatoid arthritis. *Arthritis Rheum.* 2001;**44**: 2224–2234.
2. David M., Weinblatt M. Rheumatoid arthritis. *Lancet.* 2001;**358**: 903–911.
3. Gregersen P. Genetics of rheumatoid arthritis: confronting complexity. *Arthritis Res.* 1999;**1**:37–44.
4. Silman A., MacGregor A., Thomson W., Holligan S., Carthy D., Farhan A., Ollier W. Twin concordance rates for rheumatoid arthritis: results from a nationwide study. *Br. J. Rheumatol.* 1993;**32**: 903–907.

5. Soden M., Rooney M., Cullen A., Whelan A., Feighery C., Bresnihan B. Immunohistological features in the synovium obtained from clinically uninvolved knee joints of patients with rheumatoid arthritis. *Br. J. Rheumatol.* 1989;**28**:287–292.
6. Hamilton J.A. Hypothesis: In vitro evidence for the invasive and tumor-like properties of the rheumatoid pannus. *J. Rheumatol.* 1983;**10**:845–851.
7. Courtenay J., Dallman M., Dayan A., Martin A., Mosedale B. Immunisation against heterologous type II collagen induces arthritis in mice. *Nature.* 1980;**14**:666–668.
8. Trentham D. Collagen arthritis as a relevant model for rheumatoid arthritis. *Arthritis Rheum.* 1982;**25**:911–916.
9. Arend W., Dayer J. Cytokines and cytokine inhibitors or antagonists in rheumatoid arthritis. *Arthritis Rheum.* 1990;**33**:305–315
10. Fang Y., Yang S., Wu G. Free radicals, anti-oxidants, and nutrition. *Nutrition.* 2002;**18**:872–879.
11. Gotia S., Popovici I., Hermeziu B. Anti-oxidant enzymes levels in children with juvenile rheumatoid arthritis. *Rev. Med. Chir. Soc. Med. Nat. Iasi.* 2001;**105**:499–503.
12. Mahdi A.A. Free radicals and other anti-oxidants. A text book of biochemistry by SP Singh. 3rd Ed. CBS publishers and distributors; New Delhi: 1996. pp. 545–555.
13. Kavanaugh A, Cohen S, Cush JJ. The evolving use of tumor necrosis factor inhibitors in rheumatoid arthritis. *J Rheumatol.* 2004;**31**(10):1881–1884.
14. Mohan N, Edwards ET, Cupps TR, et al. Leukocytoclastic vasculitis associated with tumor necrosis factor–alpha blocking agents. *J Rheumatol.* 2004;**31**(10):1955–1958.
15. Dharamsiri M, Jayakody J, Galhena G, et al. Anti-inflammatory and analgesic activities of mature fresh leaves of *Vitex negundo*. *J Ethnopharmacol.* 2003;**87**(2–3):199–206.
16. Fiore C, Eisenhut M, Ragazzi E, et al. A history of the therapeutic use of liquorice in Europe. *J Ethnopharmacol.* 2005;**99**(3):317–324.
17. Olukoga A, Donaldson D. Liquorice and its health implications. *J R Soc Promot Health.* 2000;**120**(2):83–89.
18. Kirtikar KR, Basu BD. *Indian Medicinal Plants. (Plates Vol. I).* Panini Office, Bhuwaneshwari Ashram, India; 1918.
19. Chatterjee G, Pal S. Anti-inflammatory agents from Indian medicinal plants. *Indian Drugs.* 1984;**21**:431.
20. Mishra NK, Bstia S, Mishra G, et al. Anti–arthritic activity of *Glycyrrhiza glabra*, *Boswellia serrata* and their synergistic activity in combined formulation studied in Freund’s adjuvant induced arthritic rats. *J Pharm Educ Res.* 2011;**2**(2):92–98.
21. Biswas K, Chattopadhyay I, Baerjee RK, et al. Biological activities and medicinal properties of neem (*Azadirachta indica*). *Curr Sci.* 2002;**82**(11):1336–1345.
22. Srikanth k, vikram G, Madhusudhan k, et al. Recent advances in elucidating the biological and chemical properties of *Strychnos potatorum* Linn. F. – a review. *Int J Pharm Bio Sci.* 2012;**3**(4):291–303.

23. Max-Neef M. Economic growth and quality of life: a threshold hypothesis. *Ecological Economics*. 1995;15(2):115–118.
24. Gulsel M Kavalali. *Urtica: therapeutic and nutritional aspects of stinging nettles*. New York: Taylor & Francis; 2003. 83 p.

