

## PREVENTION AND MANAGEMENT OF RHEUMATOID ARTHRITIS (WAJA-UL-MAFASIL) IN ANCIENT GREEK AND MODERN MEDICINE: A REVIEW

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Article Received on 21/11/2023

Article Revised on 11/12/2023

Article Accepted on 01/01/2024

### ABSTRACT

Waja-ul-Mafasil (Rheumatoid arthritis) is a long-standing inflammatory condition of undecided causative factors with the stamp of symmetric joint involvement. It is an autoimmune disease in which the body's immune system of the patient innocently targets its own body tissues. A principally attacks the synovial membrane, resulting in inflammation, proliferation, articular cartilage loss. The most prevalent inflammatory arthritic condition, rheumatoid arthritis, affects. In Greek, Waja ul-mafasil is described in detail for all types of arthritis, and one of its types Hudar has clinical features that are similar to those of Rheumatoid Arthritis which is mentioned in the modern system of medicine. According to the Unani System Waja-ul-Mafasil occurs in various joints caused by derangement of the body's natural humours i.e. dam, balgham, safra, and sauda with various explanations mentioned by great scholars in Unani literature. The main emphasis of this review article is on the important characteristics of rheumatoid arthritis with reference to Waja-ul-Mafasil to understand the status of the disease as described by Unani scholars and to offer a preferable option in terms of adverse effects and affordable treatment by various herbs and Drugs. Now days Waja-ul-Mafasil is treated by some household remedies.

**KEYWORDS:** Waja-ul-Mafasil, Unani Medicine, Prevention and management, Ilaj-bit-Tadbeer.

### I. INTRODUCTION AND BACKGROUND OF RHEUMATOID ARTHRITIS

Arthritis and diseases of the joints have been plaguing mankind since ancient times. In around 1500 BC the Ebers Papyrus described a condition that is similar to

rheumatoid arthritis. This is probably the first reference to this disease. There is evidence of rheumatoid arthritis in the Egyptian mummies as found in several studies. G. Elliot in his studies found that rheumatoid arthritis was a prevalent disease among Egyptians.



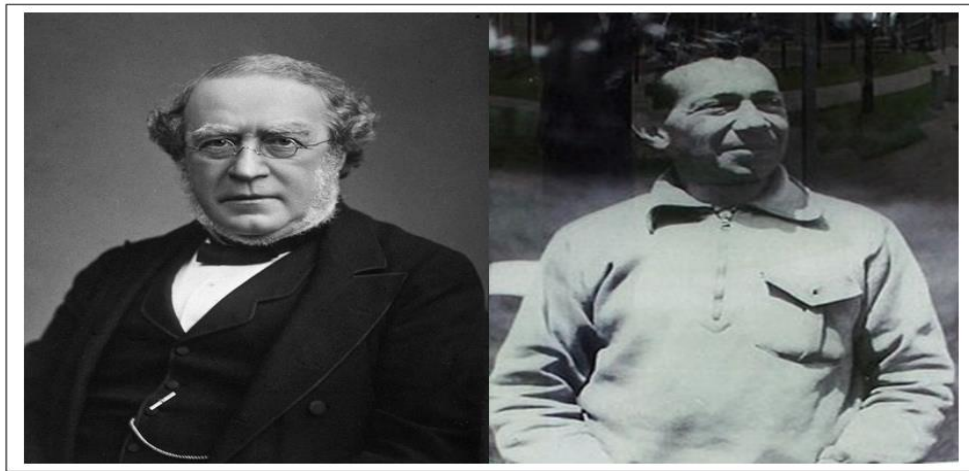
Fig. 1: Ancient Greek Therapy for Arthritis.

In the Indian literature, Charak Samhita (written in around 300 – 200 BC) also described a condition that describes pain, joint swelling and loss of joint mobility and function. Hippocrates described arthritis in general in 400 BC. He however did not describe specific types of arthritis. Galen between 129 and 216 AD introduced the term rheumatismus. Paracelsus (1493-1511) suggested that substances that could not be passed in urine got stored and collected in the body especially in the joints and this caused arthritis. Ayurveda in ancient Indian medicine also considered arthritis as one of the Vata. Practitioners attributed rheumatic disorders to humors (rheuma). Thomas Sydenham first described a disabling form of chronic arthritis that was described later by

Beauvais in 1880. Brodie went on to show the progressive nature of this disease and found how rheumatoid arthritis affected the tendon sheaths and sacs of synovium in the joints. He found how there was synovial inflammation or synovitis and cartilage damage associated with rheumatoid arthritis.

## II. History of the terms rheumatoid arthritis, rheumatology and rheumatologist

A B Garrod in 1858 named the disease rheumatoid arthritis replacing the old terms arthritis deformans and rheumatic gout. He is thus credited to make a distinction between rheumatoid arthritis and osteoarthritis and gout.



**Fig. 2: A B Garrod in 1858 & Hollander in 1949.**

Appearance of rheumatoid arthritis affected joints was first described by Bannatyne (1896). It was in 1940 that Camroe coined the term rheumatologist and the term rheumatology was coined by Hollander in 1949. In 1932 the International Committee on Rheumatism was formed. It later became American Rheumatism Association and then American College of Rheumatology. In the olden days treatments for rheumatoid arthritis included bloodletting and leeching. In the Far East developed practises of acupuncture, acupressure, moxibustion (use

of heat), cupping etc. were used. After several failed treatments that did not improve the condition of the patients, came the use of heavy metals in treatment of many diseases including rheumatoid arthritis. Gold, bismuth, arsenic and copper salts were used with varying rates of success. Gold however has shown success over years of use and is still a part of Disease Modifying Antirheumatic drugs (DMARDs). DMARDs are widely used in treatment of Rheumatoid arthritis.



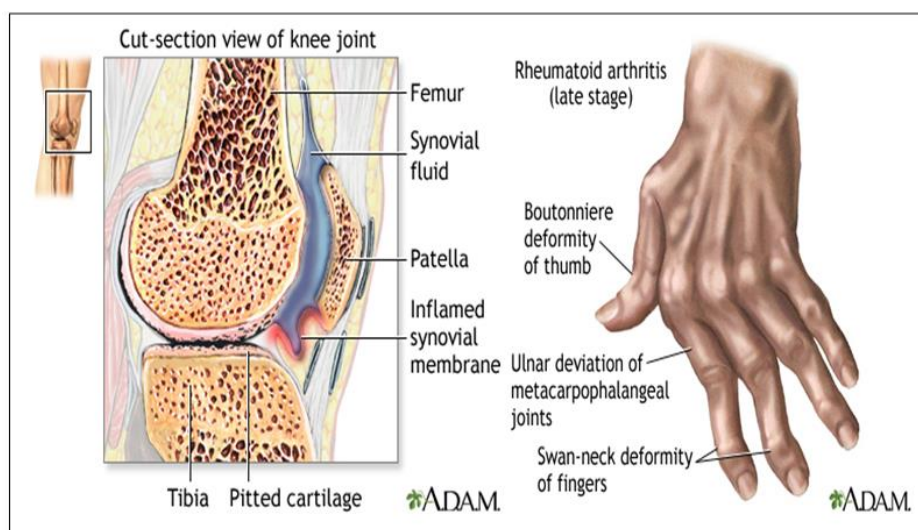
**Fig. 3: Rheumatoid arthritis Treatment in in ancient Greek in era of Hippocrates.**

Rheumatoid arthritis is derived from the Greek word  $\rho\acute{\epsilon}\upsilon\mu\alpha$ -rheuma (nominative),  $\rho\acute{\epsilon}\upsilon\mu\alpha\tau\omicron\varsigma$ - 'rheumatos' (genitive) ("flow, current")The translation is joint inflammation resembling rheumatic fever due to the suffix "oid," which means "resembling". 'Rheuma' which translates to the watery discharge, may refer to the fact that the swollen joints or the disease are aggravated by the wet weather.<sup>[1]</sup> Rheumatoid arthritis (RA) is a long-lasting inflammatory condition of undetermined causative factors with the hallmark of symmetric joint involvement.<sup>[1]</sup> It is an autoimmune disorder characterized by the patient's immune system unintentionally attacking their own tissues in the body. Due to the synovial membrane being the primary target of RA, the synovium becomes inflamed and proliferates, articular cartilage is lost, and the bone is eroded.<sup>[3]</sup> However, aberrant systemic immunologic reactions are noticeable and may result in a number of extra-articular symptoms, including vasculitis, nodules, and accelerated atherosclerosis.<sup>[2]</sup> Combined, these conditions can shorten life expectancy by up to 10 years in severe cases.<sup>[5]</sup> It is a multifarious disorder due to its varying intensity, the unpredictable course of disease progression, and inconsistent therapeutic response. Even though the prevalence of RA varies geographically, this

disease represents a significant global public health challenge. Mostly prevalent inflammatory arthritis, RA, affects 0.5% to 1% of persons globally.<sup>[2]</sup> The disease is also highly prevalent in India with a prevalence rate of 0.3–0.7% and it occurs more often in women than in men (female: male, 3:1).<sup>[7]</sup> Despite substantial study and modern medical advancements, there is no long-lasting healing for RA. The main therapy goals are to lessen disease activity, establish remission, prevent joint damage, and improve the functional ability and overall well-being of the patient. Standard methods of medication like nonsteroidal anti-inflammatory drugs, corticosteroids, Disease-modifying anti-rheumatic drugs, and biologics are effective but have a number of side effects. NSAIDs irritate the digestive tract, while long-term usage of corticosteroids can lead to peptic ulcers, osteoporosis, and delayed wound healing. DMARDs can have adverse effects that include liver and renal impairment. The immune system is suppressed by biologics, which causes bacterial and fungal infections.

### III. Causes of Rheumatoid arthritis

The cause of RA is not known. It is an autoimmune disease. This means the immune system of the body mistakenly attacks healthy tissue.



**Fig. 4: Rheumatoid arthritis- Anatomy and Physiology.**

RA can occur at any age, but is more common in middle age. Women get RA more often than men. Infection, genes, and hormone changes may be linked to the disease. Smoking may also be linked to RA. It is less common than osteoarthritis (OA) which is a condition that occurs in many people due to wear and tear on the joints as they age.

### IV. Symptoms of Rheumatoid arthritis

Most of the time, RA affects joints on both sides of the body equally. Fingers, wrists, knees, feet, elbows, ankles, hips and shoulders are the most commonly affected. The disease often begins slowly. Early symptoms may include

- Minor joint pain

- Stiffness
- Fatigue

#### Joint symptoms may include

- Morning stiffness, which lasts more than 1 hour, is common.
- Joints may feel warm, tender, and stiff when not used for an hour.
- Joint pain is often felt in the same joint on both sides of the body.
- Joints are often swollen.
- Over time, joints may lose their range of motion and may become deformed.

**Other symptoms include**

- Chest pain when taking a breath (pleurisy)
- Dry eyes and mouth (Sjögren syndrome)
- Eye burning, itching, and discharge
- Nodules under the skin (most often a sign of more severe disease)
- Numbness, tingling, or burning in the hands and feet
- Sleep difficulties

**The diagnosis of RA is made when**

- You have pain and swelling in 3 or more joints.
- Arthritis has been present for longer than 6 weeks.
- You have a positive test for rheumatoid factor or anti-CCP antibody.
- You have elevated ESR or CRP.
- Other types of arthritis have been ruled out.

**V. Exams and Tests of Rheumatoid arthritis**

There is no test that can determine for sure whether you have RA. Most people with RA will have some abnormal test results. However, some people will have normal results for all tests. Two lab tests that are positive in most people and often help in the diagnosis are

- Rheumatoid factor
- Anti-CCP antibody

**These tests are positive in most patients with RA. The anti-CCP antibody test is more specific for RA. Other tests that may be done include**

- Complete blood count (CBC)

- Metabolic panel and uric acid
- C-reactive protein (CRP)
- Erythrocyte sedimentation rate (ESR)
- Antinuclear antibody
- Tests for hepatitis
- Joint x-rays
- Joint ultrasound or MRI
- Joint fluid analysis

**VI. Unani Concept of Waja ul-Mafasil**

Ibn-e-Sina describes Waja-ul-Mafasil, as a clinical condition marked by pain and stiffness in one or more joints brought on by the accumulation of ratubat-e-ghariba (foreign humour) in the joints.<sup>[18]</sup> Zakariya Razi states that “Waja-ul-Mafasil” is a condition that manifests itself as repeated or paroxysmal episodes and is brought on by the accumulation of exaggerated fluid within the joint. He considered that gout, Ireq-un-nisa (sciatica), and Waja-ul-Mafasil all belongs to the same genus of disease.<sup>[20]</sup> Ismail Jurjani described waja al-mafasil as such when morbid matter builds up in the organs of the joints and causes discomfort and inflammation.<sup>[19]</sup>



**Fig. 5: Rheumatoid arthritis- History in papyrus.**

Waja-ul-Mafasil is described by Akbar Arzani as discomfort in the hands and feet joints and inflammation. Pain can occasionally be present either with or without inflammation of the joint.<sup>[16]</sup> Waja-ul-Mafasil has been further defined by Samar Qandi as pain and inflammation in the tissues that surround joints, including the synovium, ligaments, tendons, muscles, and membranes that cover the muscles. Sometimes the disease's causative agent affects the membrane encasing

internal organs such as the heart and lungs, causing them to become inflamed and appear reddish. Mandibles, spines, and auditory ossicles may occasionally be involved, and the problem grows so complex that a diagnosis is impossible.<sup>[6,17]</sup> Ibn Rushd (1188 AD) in *Kitab-ul- Kulliyat*,<sup>[22]</sup> Rabban Tabri (898 AD) in *Firdaws al-Hikma fi'l Tibb*,<sup>[23]</sup> Majoosi (930 AD) in *Kamil al-Sana'a al-Tibbiyya*<sup>[24]</sup> discussed the disease in their treatise.

## VII. Classification of Waja ál-Mafasil

Renowned Unani specialists have categorized Waja-ul-Mafasil based on a number of factors, some of which are listed below

### A. In accordance with the disease's severity

- (a) Haad (Acute)
- (b) Muzmin (Chronic)

### B. In accordance with the presence of inflammation

- (a) Haar (Hot) (with inflammation)
- (b) Barid (Cold) (without inflammation)

### C. In accordance with the etiology

- (a) Waja-ul-Mafasil Sada
- (b) Waja-ul-Mafasil Maddi
- (c) Waja-ul-Mafasil Reehi
- (d) Wajaul-Mafasil Ufooni

### D. In accordance with the type of Madda (Morbid Substance)

- (a) Waja-ul-Mafasil Damvi (Sanguinous)
- (b) Waja-ul-Mafasil Safrawi (Bilious)
- (c) Waja-ul-Mafasil Balghami (Phelgmatic)
- (d) Waja-ul-Mafasil Saudavi (Melancholic)
- (e) Waja-ul-Mafasil Murakkab (Compound)

### E. In accordance with the number of morbid substances present

- (a) Mufrad
- (b) Murakkab<sup>[12]</sup>

### F. In accordance with the occurrence of swelling Waja ul-Mafasil is divided into the following categories by Akbar Arzani

- (a) Dard ba warm (Waja ál-Mafasil with swelling)
- (b) Dard be warm (Waja-ul-Mafasil without swelling).<sup>[25]</sup>

### G. In accordance with the accumulation of excessive abnormal fluids (Akhlát-e-fasidah)

Waja-ul-Mafasil may result from Akhlát-e-fasidah building up in the joint spaces, or it may just be a simple waja ál-mafasil (without accumulation of Akhlát-e-fasidah). Thus, Waja-ul-Mafasil (especially of the chronic type) may be divided into two sorts according to the situation as follows: (a) Hudar-e- Zulali (Synovial type) (b) Hudar-e-Azali (Muscular type)

- **Hudar-e-Zulali (Synovial type)** which is also known as Istisqa-e-Mafsali, is characterized by an excessive accumulation of ratubat-e-zulali (synovial fluid) in the joint spaces, resulting in swelling, discomfort, and restricted joint movement.
- **Hudar-e-Azali (Muscular type)** is characterized by inflammation of the muscles that surround the joints without apparent fluid accumulation, causing the muscles to thicken, harden, and contract, resulting in painful joints.<sup>[17]</sup>

### H. In accordance with the joint involved

- (a) Irq-un-Nisa (b) Niqras (c) Waja ál-Zahr (d) Waja ál-

Warik (e) Waja ál-Rukbah (f) Waja ál- Khasira (g) Waja ál- Saqain (h) Waja ál-Aqib.<sup>[10,12]</sup>

## VIII. Etiology Modern Aspect of Rheumatoid arthritis

Although the main etiology of RA is unknown, genes, environmental factors, and hormones may contribute to its onset and advancement. RA seems to be more likely in those who have certain risk factors, such as

- Age (highest incidence among those 25 to 55 years old)
- Gender (higher incidence in women)
- Genetics: RA is more prone to occur in those who were born with specific genes, especially human leukocyte antigen [HLA] class II genotypes, such as HLA-DRB1. In comparison to the general population, first-degree Relatives of patients are 2–10 times more likely to have RA.
- Smoking: Smoking and other bronchial irritants, such as exposure to silica, enhance a person's likelihood of acquiring rheumatoid arthritis if they carry the HLA-DR4 susceptibility allele because it increases the process of citrullination which lead to the production of ACPA (anti-citrullinated protein antibodies) is increased when smoking and HLA-DRB1 alleles are present simultaneously.
- Drinking coffee: Drinking coffee increases the risk of developing rheumatoid factor release.<sup>[21]</sup>
- APCA-positive people will develop rheumatoid arthritis in case of work exposure to silica.<sup>[21]</sup>
- Modifications in the composition and function of the gut microbiome have also been associated with rheumatoid arthritis. RA patients experience unhealthy gut and dysbiosis, a change in the gut microbiome's composition, whereby these patients have less diversity in their gut microbiota than healthy people. The genera Actinobacteria, Collinsella, Eggerthalla, and Faecalibacterium are increasing. Collinsella increases rheumatoid arthritis disease severity and modifies gut mucosal permeability.<sup>[15]</sup>
- The typical "western" diet, which is fatty, calorie-dense, and poor in fiber, raises the chance of developing RA.<sup>[15]</sup>
- Previous live birth data
- Early life exposures
- Patients who have rheumatoid factors (RFs).<sup>[4]</sup>

**VIII. Etio pathogenesis of Waja-ul-Mafasil:** Ibn-e-Sina was the first to explain the etiopathogenesis of waja ál-mafasil, and other renowned physicians soon followed.

**A. Asbab-e-Faila (Primary causes):** Refers to conditions whose pathophysiology and disease onset are directly related to joint pain.

- **Su-e-Mizaj (Derangement of temperament):** Su-e-Mizaj can either be sada (producing only functional alterations in the articular tissue without the participation of humours) or maddi (with humoral involvement leading to organic alterations in joints). mufrad or baseet (single), such as reeh, or murakkab (compound), made up of two, three, or four akhlát

(humours), and it may affect a single vital organ, such as the heart, or the entire body. Su-e- Mizaj can be either haar multahib (heat-producing and inflammatory), barid munjamid (refrigerant and consolidate temperamental disorder), or yabis munqabiz (desiccant and dehydrating). Either su-e-mizaj mustahkam (persistently unstable temperament) or su-e- mizaj barid (cold derangement) are the main causes of pain.<sup>[6]</sup>

- **Fasid Madda (Morbid Substance):** Fasid madda is dam (sanguine), dam-e-balghami (phlegmatic sanguine), dam- e-safrawi (bilious sanguine), dam-e-saudawi (melancholic sanguine), balgham (phlegm), sudda-e- balghami kham (obstructive raw phlegmatic), mirra-e- muftrat (simple bilious), safra-e-balghami (phlegmatic bile), middah (pus) and reeh-e-motashabika (pent up gas), ghair pukhta khoon (immature blood).<sup>[16,18]</sup> Samarqandi claims that the disease's cause is thick white mucoid as the synovial membrane secretion is rich in white and mucoid fluid, while Ibn-e-Sina claims that the cause is similar to pus (reem).<sup>[13,17]</sup>

#### B. Asbab-e- Munfailah (Secondary causes)

Factors that have an indirect impact on the joints and make them more prone to absorbing the morbid substance with their eventual collection, which causes alterations to the joints' structure and functionality. These factors are also indicated by Jurjani, Baghdadi, and Arzani. Jurjani has claimed that the joints contain characteristics that draw the fluid (rutubat) to themselves. The movement of the joint generates heat, which attracts fluid, causing it to flow toward the joint. According to the Unani concept, the joints cannot absorb energy (quwat-e- jaziba). The ability to absorb fluid is influenced by the heat and the cold and dry temperament of the bones, cartilage, and ligaments that make up the joint. As a result, fluid penetrates the joint but cannot be fully absorbed to collect in the joint spaces. Additionally, there is a theory that weakened joint quwat-e-hazma wa dafa (digestive and excretory powers) causes an accumulation of decomposing matter and, in turn, disturbs joint function. The resulting liquid is purified into dangerous components that cause Waja-ul-Mafasil.<sup>[6]</sup>

### IX. Clinical Features (Alamaat) of Rheumatoid arthritis

According to the type of etiology, several variants of Waja-ul-Mafasil have different clinical traits, which are described below.

#### A. Waja ul-Mafasil Sada

This type is uncommon and lasts for a shorter period of time. It lacks swelling and Imtila (congestion) symptoms. The signs are alleviated by exposure to heat or cold.<sup>[12]</sup>

#### B. Waja-ul-Mafasil Damvi (Sanguineous)

There are Ghalba-e-Dam (sanguine preponderance) symptoms present both generally and locally. The onset

is relatively abrupt, and the symptoms and signs are severe. As the pain increases, the swelling becomes more obvious. Pain is throbbing in nature. Marked redness and warmth of the skin over the affected joint. Exacerbated by heat exposure and relieved by cold application or by venesection.

#### C. Waja-ul-Mafasil Safrawi (Bilious)

The presence of both generalized and localized signs of bile dominance (Ghalba-e-Safra). The skin above the joints has a faint yellow discoloration, which could also have a red tint. The swelling is less marked, with warmth compared to Waja-ul-Mafasil damvi, and throbbing pain over the joints are substantially worse. There is a desire for sour foods. Aggravated by heat and relieved by exposure to cold application across the affected portion.

#### D. Waja-ul-Mafasil Balghami (Phlegmatic)

There will be both generalized and specific signs of phlegm dominance (Ghalba-e- Balgham). There is a gradual appearance of symptoms and signs. The damaged joint's area appears swollen, white, soft, and cold to the touch. There is mild pain and throbbing and the swelling is soft and cool. Aggravated by cold and relieved by applying heat to the affected part.

#### E. Waja ul-Mafasil Saudavi (Melancholic)

The presence of both generalized and specific signs of the black bile (Ghalba-e-Sauda) dominance. On touch, the damaged joint area reveals a dusky, cold, and dry area. Sometimes the color changes to a bluish or purplish tinge. Aggravated by exposure to cold. The pain is less, and the swelling is moderate but stiff to the touch. Heat treatment over the afflicted portion can provide relief.

#### F. Waja-ul-Mafasil Murakkab (Involvement of compound/mixed humours)

Waja ul-mafasil is a disease that can be brought on by any humour, although mixed humour can also do so. Pain and a combined clinical picture of all the relevant accumulating humours will be present. Heat or cold exposure can relieve symptoms.

#### G. Waja ul-Mafasil Reehi (Pneumatic)

It is a unique variety of waja ul-mafasil. Pain is light, doesn't feel heavy, shifts, and has a lot of distension.

#### H. Waja ul-Mafasil Maddi

The affected joint appears extremely hot and itchy, tickly, and burning. Exposure to cold relieves symptoms, whereas exposure to heat makes them worse.

### X. Unani Herbal drug used in Management of waja ul-mafasil (Usool-e-Ilaj)

#### A. Boswellia

Boswellia, also known as frankincense, has been used for centuries in traditional Ayurvedic medicine. This herb exhibits anti-inflammatory activity, including inhibition of microsomal prostaglandin E2 (PGE2) synthase-1 and

5-lipoxygenase, reducing production or activation of inflammatory mediators such as matrix metalloproteinase (MMP)-9, MMP-13, cyclooxygenase (COX)-2, and nitric oxide (NO), as well as analgesic and anti-arthritic effects. *Boswellia* is thought to exert its beneficial effects on arthritis by improving the knee joint gap, reducing osteophytes, and attenuating inflammatory mediators, such as C-reactive protein and hyaluronic acid, associated with knee OA. The safety and efficacy

of *Boswellia serrata* have been investigated in several studies. Majeed *et al.* found that OA patients receiving oral *B. serrata* extract for 8 weeks demonstrated significant improvement in their Visual Analog Scale (VAS), Japanese Knee Osteoarthritis Measure (JKOM), and their Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores in comparison to placebo.



**Fig. 6: Boswellia and Turmeric in the Treatment of Rheumatoid arthritis.**

### B. Curcuma or Turmeric

Roots of *Curcuma* are used as a spice commonly known as turmeric. Curcumin, a polyphenol extract of turmeric, is well known for its anti-inflammatory and antioxidant effects, and it has a long history of use in traditional Chinese and Ayurvedic medicine. The anti-inflammatory activity of *Curcuma* may be attributed to multiple mechanisms. Treatment with *Curcuma* has been found to strongly inhibit the production of inflammatory mediators, such as interleukin (IL)-1, tumor necrosis factor-alpha (TNF- $\alpha$ ), IL-8, NO, and a variety of MMPs, via diminishing the activation of NF- $\kappa$ B, protein kinase B (Akt), and MAPK signaling pathways. *Curcuma* has also demonstrated a COX-2 inhibition, leading to a

reduction of prostaglandin synthesis. Recently, *Curcuma* extracts and curcumin have been studied extensively for their anti-osteoarthritic effects. Kuptniratsaikul *et al.* demonstrated that patients randomized to *Curcuma domestica* experienced significant improvement in WOMAC scores in comparison to baseline over a 4-week period and less abdominal pain and discomfort compared to ibuprofen.

### C. Eremostachys laciniata

Decoctions of the roots and flowers of the Iranian herb, *Eremostachys laciniata*, is usually given to alleviate inflammatory conditions, including arthritis.



**Fig. 7: Eremostachys laciniata & Paeonia lactiflora in the Treatment of Rheumatoid arthritis.**

The mechanistic action of this herb is unclear. However, one study reported that the treatment with either crude methanol extract or fractions of *E. laciniata* resulted in a reduction in the inflammatory response induced by carrageenan in rat paw. The aqueous extract of *E. laciniata* has also shown promising antioxidant activity as indicated by a strong DPPH radical-scavenging activity and reduction of H<sub>2</sub>O<sub>2</sub>- or HOCl-luminal chemiluminescence.

#### D. *Eucommia ulmoides*

*Eucommia ulmoides* is an herb that has recently demonstrated potential for OA and RA treatment. Mechanistically, *E. ulmoides* has been found to reverse LPS-induced production of IL-1 $\beta$ , IL-6, TNF- $\alpha$ , inducible nitric oxide synthase (iNOS), and COX-2 via modulating the activation of toll-like receptor (TLR) 4 in murine macrophages. *E. ulmoides* has also demonstrated a reduction in the production of IL-17, IL-1 $\beta$ , IL-6, MMP-3, and TNF- $\alpha$  by attenuating the activation of the phosphoinositol 3-kinase (PI3K)/Akt signaling pathway in OA and RA rat models. Furthermore, an aqueous extract of *E. ulmoides* was found to reduce serum MMP-1, MMP-3, and MMP-13 and protect the articular cartilage in a rat OA model. Lastly, aucubin, a bioactive component of *E. ulmoides*, has been found to reduce reactive oxygen species (ROS) production, caspase-3 activity, and cell apoptosis.

#### E. *Matricaria chamomilla*

*Matricaria chamomilla*, also known as chamomile, has been used for centuries to treat joint pain. The dried flower part of the plant has historically been used in the treatment of rheumatic pain and inflammation. Now, chamomile is on the FDA's "generally recognized as safe" herbs list. As a member of the Asteraceae; Compositae family, Chamomile has two common varieties, German chamomile, and Roman chamomile. The most popular formulation of chamomile is herbal tea. Chamomile contains several phenolic compounds such as apigenin, quercetin, patuletin, luteolin, and glucosides. These compounds show anti-inflammatory

action by reducing cytokines and PGE<sub>2</sub>, which play a role in the pathogenesis of arthritis.

#### F. *Paeonia lactiflora*

Radix *Paeonia*, the dried root of *P. lactiflora* Pallas, has a history of traditional use in Chinese medicine. Decoctions of Radix *Paeoniae* have been used in the treatment of RA and other inflammatory/autoimmune disorders. Water/ethanol extracts of Radix *Paeoniae* Alba contain total glucosides of paeony (TGP), consisting mainly of paeoniflorin. Previous studies have demonstrated an inhibition of the production of PGE<sub>2</sub>, leukotriene B<sub>4</sub>, NO, ROS, and other pro-inflammatory mediators by TGP and paeoniflorin. *Paeonia* has also demonstrated anti-inflammatory activity by reducing microvascular permeability and the infiltration of inflammatory cells. The paeoniflorin component of TGP may also inhibit osteoclast differentiation and TNF- $\alpha$ -induced apoptosis via inhibition of NF- $\kappa$ B.

#### G. *Tripterygium wilfordii*

*Tripterygium wilfordii* is a Chinese herb that has demonstrated immunosuppressive effects and has historically been used in the treatment of RA. Numerous preclinical studies have shown that extracts from the root of TwHF inhibit the expression of pro-inflammatory cytokines and mediators, adhesion molecules, and matrix metallo-proteinases by macrophages, lymphocytes, synovial fibroblasts, and chondrocytes. TwHF can also induce apoptosis in lymphocytes and synovial fibroblasts and inhibit their proliferation. The immunosuppressive, cartilage protective and anti-inflammatory effects of Tw extracts are well demonstrated, making it a good alternative for patients with RA refractory to conventional therapy.

#### XI. Tips & Remedies for Arthritis Pain Relief At Home

Are you experiencing arthritis pain? Home exercises and diet changes can help alleviate discomfort. Discover these and other arthritis pain relief remedies here. Are you experiencing tenderness or pain around your joints?

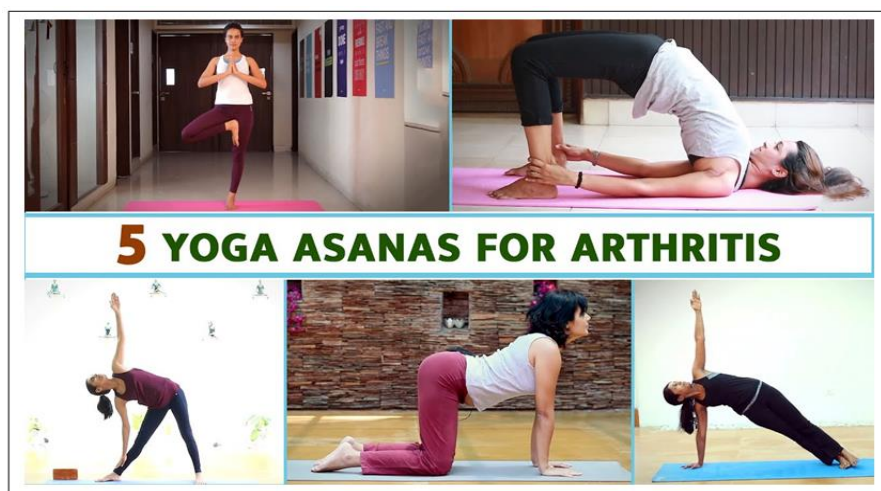


Fig. 8: Yoga in the Treatment of Rheumatoid arthritis.



Joint pain is one of the main symptoms of arthritis, along with inflammation, stiffness and swelling in the affected area.<sup>[1]</sup> With 1 in 4 adults in the United States diagnosed with arthritis,<sup>[2]</sup> pain relief can be a helpful way to ease these symptoms at home so you can carry on with everyday life. Not sure where to start? There are a range of home remedies for arthritis that may help relieve joint pain and make your other daily symptoms more manageable. Just make sure you discuss any treatment with a doctor first, to check if they're right for you. Here are some of our top arthritis pain relief tips, including exercises, medications and natural remedies you can try in order to help manage your arthritis.

#### A. Manage Arthritis With Low - Impact Exercises

While achy joints may put you off exercising, they could actually benefit from some light movement. In fact, exercise can be a great way to reduce pain and stiffness caused by arthritis.<sup>[3]</sup> Some of the most effective examples of low-impact exercise for arthritis include.<sup>[4]</sup>

- **Walking** a daily walk can get the blood pumping, improve your mobility and enhance your cardiovascular health.
- **Cycling** ride your bike through the great outdoors to get your joints moving. Try to stick to a moderately intense pace where you can still hold a conversation.
- **Swimming** this can be easier on your joints than walking, especially if you have knee arthritis. But it still offers a full-body workout that increases your range of motion.
- **Weight training** – strengthen your muscles with simple weighted exercises two or three times a week.
- **Stretching** simple exercises for those with hand arthritis involve stretching and flexing hands and wrists to help prevent muscles from weakening. Consider leveling up with a hand arthritis exercise ball, which can help aid grip strength and fine motor skills. Consistent exercise can also help you manage your weight, which can have a huge impact on your arthritis as it relieves excess stress on your joints. Speak to a doctor about how or if you can integrate exercise into your routine safely to support your treatment.

#### B. Distress With Yoga and Mindfulness

- Reduce arthritis pain
- Build strength and balance
- Encourage joint flexibility
- Increase physical activity
- Release stress and tension
- Improve sleep

Yoga, in particular, may be a great home remedy for arthritis as it may help<sup>[5]</sup>. You can tailor the type of yoga you practice to suit your needs. You should also consider modifying certain moves or poses to accommodate any pain points, using blocks, straps and chairs where required.<sup>[6]</sup>

#### C. Make Healthy Changes to Your Diet

Your diet can also have an impact on your arthritis.<sup>[7]</sup> Certain foods may trigger inflammation and increase your joint pain. Some common types include.<sup>[7]</sup>

- Dairy
- Meat
- Eggs
- Citrus fruits
- Nuts
- Wheat
- Caffeine
- Alcohol

Cutting down on these foods or removing them from your diet may help improve your pain. Here are some other ways a healthy diet may offer arthritis relief

- **Vitamin D** adding more vitamin D into your diet can help support bone health and may play a role in reducing inflammation. One of the best food sources of vitamin D is fatty fish, such as salmon, tuna and mackerel.<sup>[8]</sup>
- **Anti-inflammatory foods** try an anti-inflammatory diet by cutting out processed foods and switching to whole foods.<sup>[9]</sup>
- **Switching to a plant-based diet** plant-based diets are often low in fat and high in fiber, which may help with weight management and lowering inflammation.<sup>[10]</sup>

#### D. Try Acupuncture to Treat Arthritis Pain

Acupuncture is a natural remedy for arthritis.<sup>[11]</sup> This ancient Chinese practice uses fine needles, which are inserted at certain trigger points on the body, to restore the flow of energy known as qi<sup>[11]</sup> (pronounced “chee”). But how can acupuncture potentially provide relief from arthritis pain? A well-placed needle may stimulate the activity of pain relieving chemicals in the body. A release of hormones such as endorphins may help reduce the sensation of pain, while an increase in cortisol may help control inflammation.<sup>[11]</sup> If you're interested in trying acupuncture as a natural pain relief for arthritis, you should book a consultation with a licensed and experienced practitioner. Your doctor may also be able to recommend one.

#### E. Work Massage Therapy Into Your Routine

Learning how to relax your muscles also has its benefits. Massage therapy is a popular form of pain management, with 25% of Americans using massage for pain relief in 2020.<sup>[12]</sup> So, how can this help with arthritis? Incorporating regular massages into your monthly routine may act as a natural arthritis relief that can.<sup>[13]</sup>

- Reduce stress
- Ease pain around the joints
- Increase blood flow
- Bring warmth to the surrounding muscles

Before you book a session, you should ask your doctor for further recommendations on how to treat arthritis pain with massage therapy. You can then ensure you

choose a style that supports your treatment plan.

#### F. Find Short Term Relief With Hot and Cold Therapy

You might have moments where your joints are more painful than usual. If that happens, you could get some short-term pain relief using hot or cold therapy.<sup>[3]</sup>

**Hot Therapy:** You can ease arthritis pain and loosen your joints by applying moist or dry heat to the problem areas. As the joint warms up, your blood vessels get bigger, which means better blood and oxygen circulation,<sup>[14]</sup>? Here are some popular heat therapy methods you can try

- Soaking in a warm bath
- Taking a steamy shower
- Applying a heated pad or compress to the joint
- Sitting in a sauna

**Cold Therapy:** Cold therapy may also help reduce arthritis pain and swelling. Unlike it's heated counterpart, cold therapy reduces your blood flow to minimize inflammation.<sup>[15]</sup> Here are some simple items you may have at home for cold therapy on your joints

- Ice or frozen gel pack
- A bag of frozen vegetables
- A damp towel you can freeze

#### G. Avoid Smoking to Reduce Stress and Pain

One of our top tips for arthritis pain is to quit or avoid smoking. Smoking doesn't just increase your risk of lung disease and cancer, but it can also cause more damage to your joints and weaken your connective tissue.<sup>[16]</sup> In fact, smoking is considered a risk factor of rheumatoid arthritis, as this type of arthritis is commonly linked to your environment.<sup>[17]</sup> A study has also shown that smokers with osteoarthritis have significantly more cartilage loss than non-smokers, possibly due to the toxins and high carbon monoxide levels could limit cartilage repair.<sup>[16]</sup> So, it's recommended you quit smoking to reduce stress and pain.

#### CONCLUSION

Rheumatoid arthritis is a chronic autoimmune disorder with the characteristic features of the destruction of synovial membranes, cartilage, and joints. The disease develops with pathological processes that are influenced by environmental and genetic factors. Rheumatoid arthritis is described in Unani medicine as Hudar which is a type of waja ul-mafasil that refers to a variety of joint disorders which includes inflammatory, non-inflammatory, infectious, metabolic, and other musculoskeletal disorders. The primary goal of treatment is to re-establish a healthy temperament and balance the Khilt (humour) through both Imala (diversion of morbid material) Istefragh (evacuation of morbid material). It can be said that the Unani method of treatment offers an alternative approach for RA both affordable and virtually without adverse impacts.

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