

# Rheumatoid Arthritis Treatment

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- [Beneficial effects of \*Elaeagnus rhamnoides\* \(L.\) A. Nelson and its most abundant flavonoids on the main mechanisms related to diabetic bone disease](#)
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Treatment focuses on reducing inflammation, managing symptoms, and preventing joint destruction.

## 1. Medications

### a. Disease-modifying antirheumatic Drugs (DMARDs)

Conventional DMARDs (first-line treatment)

Methotrexate (most commonly used)

Leflunomide

Sulfasalazine

Hydroxychloroquine

Targeted Synthetic DMARDs

Janus kinase (JAK) inhibitors: Tofacitinib, Baricitinib, Upadacitinib

### b. Biologic DMARDs (Biologics)

TNF Inhibitors:

Etanercept

Infliximab

Adalimumab

Golimumab

## Certolizumab

### Non-TNF Biologics:

Abatacept (T-cell inhibitor)

Rituximab (B-cell inhibitor)

Tocilizumab, Sarilumab (IL-6 inhibitors)

### c. Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Ibuprofen

Naproxen

Celecoxib (COX-2 inhibitor)

### d. Corticosteroids

Prednisone (used for flare-ups and short-term symptom control)

## 2. Lifestyle Modifications

### a. Exercise & Physical Therapy

Low-impact activities (e.g., swimming, yoga, cycling)

Strength training to support joint stability

Range-of-motion exercises

### b. Diet & Nutrition

Anti-inflammatory diet (Mediterranean diet, omega-3 fatty acids from fish, nuts, and seeds)

Avoid processed foods and excess sugar

### c. Weight Management

Reducing excess weight can decrease stress on joints and inflammation.

### d. Smoking Cessation

Smoking worsens RA and reduces medication effectiveness.

## 3. Alternative & Supportive Therapies

Acupuncture

Massage therapy

Heat & cold therapy

Mind-body techniques (meditation, Tai Chi)

Supplements (turmeric, vitamin D, omega-3s)

#### 4. Surgery (For Severe Cases)

Synovectomy (removal of inflamed joint lining)

Joint replacement surgery (hip, knee, or hand joint replacement)

Joint fusion ([Arthrodesis](#))

#### 5. Regular Monitoring & Early Treatment

Early diagnosis and aggressive treatment are essential to prevent irreversible joint damage and maintain function.

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[Treatments](#) for [rheumatoid arthritis](#) include both [medication](#) and non-pharmacological measures - the goal being to control joint [inflammation](#) and prevent [joint](#) damage and disability. Non-pharmacological treatment includes physical therapy, splints and braces, occupational therapy and dietary changes but these do not stop the progression of joint destruction. painkillers and anti-inflammatory drugs, including steroids, suppress symptoms, but do not stop the progression either. Disease-modifying antirheumatic drugs (DMARDs) may slow or halt the progress of the disease. Biological DMARDs like anti-TNF agents are effective but usually avoided in persons with active disease or hypersensitivity to these agent. They have been shown to decrease the number of tender or swollen joints and the pain and disability due to the disease but there is little data about side effects. Alternative medicine is not supported by any evidence.

RA affects between 0.5 and 1% of adults in the developed world with between 5 and 50 per 100,000 people newly developing the condition each year. Onset is most frequent during middle age, but people of any age can be affected. The name is based on the term “rheumatic fever”, an illness which includes joint pain and is derived from the Greek word  $\rho\acute{\epsilon}\upsilon\mu\alpha$ -rheuma (nom.),  $\rho\acute{\epsilon}\upsilon\mu\alpha\tau\omicron\varsigma$ -rheumatosis (gen.) (“flow, current”). The suffix -oid (“resembling”) gives the translation as joint inflammation that resembles rheumatic fever. The first recognized description of RA was made in 1800 by Dr. Augustin Jacob Landré-Beauvais (1772-1840) of Paris.

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[Anethole](#), a prominent compound derived from fennel (*Foeniculum vulgare*), possesses a spectrum of therapeutic properties, including anti-arthritic, anti-inflammatory, [antioxidant](#), and tumor-suppressive effects. However, its specific impact on RA remains underexplored. A study sought to uncover the potential therapeutic value of anethole in treating RA by employing an [H2O2](#)-induced inflammation model with HIG-82 [synovial cells](#). The results demonstrated that exposure to [H2O2](#) induced the [inflammation](#) and apoptosis in these cells. Remarkably, anethole treatment effectively countered these inflammatory and apoptotic processes triggered by  $H_2O_2$ . Moreover, they identified the [aquaporin 1](#) (AQP1) and [protein kinase A](#) (PKA) pathway as critical regulators of inflammation and apoptosis.  $H_2O_2$  stimulation led to an increase in the AQP1 expression and a decrease in p-PKA-C, contributing to cartilage degradation. Conversely, anethole not only downregulated the AQP1 expression but also activated the PKA pathway, effectively suppressing cell inflammation and apoptosis. Furthermore, anethole also inhibited the enzymes responsible for cartilage degradation. In summary, the findings highlight the potential of anethole as a therapeutic agent for mitigating  $H_2O_2$ -induced inflammation and [apoptosis](#) in synovial cells, offering promising prospects for future

## Rheumatoid Arthritis Treatments <sup>1)</sup>.

Findings suggest that patients with [rheumatoid arthritis](#) with osteopenia or osteoporosis, particularly those with lower body mass index (BMI), should be screened regularly to determine the status of their cervical spines. <sup>2)</sup>.

# Infliximab for Rheumatoid Arthritis

[Infliximab for Rheumatoid Arthritis](#).

# Tocilizumab

see [Tocilizumab for rheumatoid arthritis](#).

<sup>1)</sup>

Huang TL, Chang YC, Tsai BC, Chen TS, Kao SW, Tsai YY, Lin SZ, Yao CH, Lin KH, Kuo WW, Huang CY. Anethole mitigates H<sub>2</sub>O<sub>2</sub>-induced inflammation in HIG-82 synoviocytes by suppressing the aquaporin 1 expression and activating the protein kinase A pathway. Environ Toxicol. 2023 Nov 21. doi: 10.1002/tox.24023. Epub ahead of print. PMID: 37987213.

<sup>2)</sup>

Han MH, Ryu JI, Kim CH, Kim JM, Cheong JH, Bak KH, Chun HJ. Influence of systemic bone mineral density on atlantoaxial subluxation in patients with rheumatoid arthritis. Osteoporos Int. 2017 Mar 2. doi: 10.1007/s00198-017-3972-9. [Epub ahead of print] PubMed PMID: 28255666.

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