

National Center for Complementary and Alternative Medicine Turmeric and Rheumatoid Arthritis Symptoms

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Lead Agency:

National Center for Complementary and Alternative Medicine (NCCAM)/
National Institutes of Health (NIH)

Agency Mission:

- Explore complementary and alternative healing practices in the context of rigorous science.
- Train complementary and alternative medicine researchers.
- Disseminate authoritative information to the public and professionals.

Principal Investigator:

Barbara Timmermann, Ph.D.
Department of Medicinal Chemistry
University of Kansas, School of Pharmacy
4070 Malott Hall
1251 Wescoe Hall Dr.
Lawrence, KS 660457582

Partner Agencies:

Office of Dietary Supplements (ODS)
Office of the Director/National Institutes of Health

General Description:

Turmeric and Rheumatoid Arthritis Symptoms

Rheumatoid arthritis (RA) is an autoimmune disease that causes inflammation in the joints, resulting in pain, swelling, stiffness, and loss of function in the affected joints. Scientists estimate that about 2.1 million people in the United States have RA, which occurs in all races and ethnic groups. The financial and social impact of this disease is substantial: the medical and surgical treatment costs and the wages lost because of disability add up to billions of dollars annually.

Using an experimental animal model of arthritis, NCCAM-supported investigators demonstrated that a curcuminoid-containing turmeric extract, similar to that found in

turmeric dietary supplements, significantly inhibited joint inflammation and joint destruction. These findings suggest a mechanism for turmeric's protective, antiarthritic effect. The investigators documented the chemical composition of a curcumin-containing compound tested in an animal model for antiarthritic activity; provided evidence of antiarthritic efficacy of a turmeric extract similar to turmeric dietary supplements; and proposed a mechanism of action of curcumin-containing extracts in arthritis treatments.

The centuries-old practice of Ayurvedic medicine supports the use of turmeric as an anti-inflammatory agent. Turmeric, a botanical supplement, has been widely promoted in the United States as a treatment for arthritis, despite the lack of standardization of over-the-counter products and paucity of scientific efficacy data. This scientific advance builds on and extends previous findings that turmeric can prevent joint inflammation in an animal model of RA. It also demonstrates the application of sophisticated research techniques to assess the potential therapeutic benefits of botanicals. Thus, these results lay the foundation for further clinical evaluation of turmeric dietary supplements in the treatment of RA.

Excellence: What makes this project exceptional?

More than 2 million Americans suffer from rheumatoid arthritis (RA), a condition in which the body's immune system attacks the joints, causing pain, swelling, stiffness, and loss of function. Using an animal model, this project provided evidence of antiarthritic activity of a turmeric extract, similar to that in turmeric dietary supplements.

Significance: How is this research relevant to older persons, populations and/or an aging society?

Rheumatoid arthritis affects the middle-aged and occurs with increased frequency in older individuals. This study has demonstrated that a turmeric extract, similar to that found in turmeric dietary supplements, significantly inhibited joint inflammation and joint destruction. The successful translation of these results from an animal model to human use would provide another effective treatment for arthritis and, potentially, other inflammatory diseases.

Effectiveness: What is the impact and/or application of this research to older persons?

These investigators demonstrated *in vivo* efficacy and identified the mechanism of action for a well-characterized turmeric extract, which lays the groundwork for clinical evaluation of turmeric dietary supplements for the treatment of RA.

Innovativeness: Why is this research exciting or newsworthy?

A variety of medical and lifestyle approaches are used to treat RA-associated pain and inflammation, and slow down or halt the subsequent joint damage. This study lays the foundation for the clinical evaluation of a potentially new treatment for a painful and debilitating disease that affects older adults. In addition, the research results provide a proof-of-concept for the potential use of a botanical to treat other inflammatory diseases, such as inflammatory bowel disease, asthma, and multiple sclerosis.