

# Welcoming clinical nutrition in Rheumatology – summary of first dietary recommendations for patients with chronic inflammatory rheumatic conditions

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## ABSTRACT

Nutrition has been identified as playing a significant role in inflammatory rheumatic conditions. Available recommendations for managing these diseases have recently included lifestyle changes as well as dietary advice as complementary to pharmacological treatments. This is a summary of the first dietary recommendations for patients suffering from rheumatic diseases, postulated by the French Society for Rheumatology. The work was performed by a group of multidisciplinary experts and it was based on a systematic literature review of available published data, also considering the quality of studies. The eight principles and nine recommendations issued target both joint and extra-articular effects of nutritional intervention. The recommendations state following a Mediterranean diet, supplementation of omega-3 polyunsaturated fatty acids. Restrictive-type diets like gluten-free, dairy-free, fasting or vitamins and trace elements supplementation are not recommended because of lack of scientifically proven benefit. The use of probiotics or spices have insufficient rationale to be recommended.

**Keywords:** rheumatic diseases, diet, clinical nutrition, inflammation, recommendations, omega-3, Mediterranean diet

## INTRODUCTION

It has already been proven that nutrition plays a central role in promoting well-being in all types of patients. Nutritional deficit, either by under- or overnutrition is a frequent state diagnosed in our clinical daily practice, mainly caused by the underlying conditions[1]. Screening of nutritional risk or dietary habits is not frequently assessed in rheumatic patients when having regular follow-up visits. In patients with chronic rheumatic and musculoskeletal diseases (RMD), both inflammation and undernutrition are usually combined, since high inflammatory processes require increased metabolic demand for energy and protein, but the latter are diminished since patients present with appetite loss in active phases of the disease[2]. Thus, undernutrition is a contributor to poorer prognosis in patients without adequate nutritional support.

Nutritional changes have been shown to impact disease activity by modulating the immune response and inflammatory status, let alone improve the cardio-vascular risk[3]. Certain dietary habits like unjustified exclusion of gluten or meat lead to restrictive patterns of regime that inhibit patients' level of nutrients, food intake or social life[4].

Non-pharmacological intervention like lifestyle changes (smoking, diet, exercise) and mental health has been proven to highly impact the outcome of the disease and has been included in most recent guidelines as strong recommendations to follow[5][6][7].

Formulating dietary principles and recommendations arose from the need to guide RMD patients and clinicians alike for achieving a better disease outcome. Consequently, the French Society of Rheumatology (Société Française de Rhumatologie, SFR) issued the first international set of such recommen-

dations based on systematic literature review by a multidisciplinary team of experts[8].

## GENERAL PRINCIPLES AND RECOMMENDATIONS

The French Society of Rheumatology has partnered with other national associations involved in clinical nutrition and in the care of rheumatic patients to design a set of core principles and dietary recommendations in inflammatory rheumatoid conditions, with focus on rheumatoid arthritis (RA), spondyloarthritis (SpA) and psoriatic arthritis (PsA). Elaboration of these items was made in compliance with EULAR's procedures and by a team of experts including rheumatologists, internal medicine specialists, a dietician, a physician specialized in nutrition and patient representatives. Their work was initially based on a systematic literature review including Medline articles available until June 2020 but also topic-related abstracts from EULAR and ACR meetings. The main focus points were the extent to which diet influences the disease activity, the extra-articular involvement, the response to treatment and whether there are potential adverse events and patients' consistency with the diet[8].

After voting for entry statements that required over 75% agreement, the recommendations were reviewed by other experts and adjustments were made accordingly. This system led to the release of 8 principles and 9 recommendations.

The principles start with an essential observation from the experts, namely that non-pharmacological intervention like dietary advice is not a replacement for traditional therapeutic strategies available in current guidelines. Most recent recommendations for management in rheumatic diseases include non-pharmacological measures, including lifestyle and diet changes[8].

Nutrition does not interfere with the progression of the disease, and it should not delay treatment initiation. Moreover, nutritional recommendations should be based solely on scientific data to avoid unjustified food exclusion or excess of certain nutrients.

One of the published principles emphasized the importance of patients' education and active involvement in their dietary choices, in order to better cope with their disease. Nonetheless, nutrition counseling should consider individual cultural and socioeconomic factors and favor social interaction[8].

When recommending the regime, clinicians should acknowledge the presence of other conditions, like osteoporosis or cardiovascular disease, in relation to the disease itself or treatments[8].

Exercise-related advice was not included in the present recommendations, but experts promote it in order to maintain weight goals[8].

The last principle refers to coexistent conditions that might impose certain diets like celiac disease,

gout, kidney or heart failure; in this case, initial recommendations for the disease still apply to avoid exacerbations.

Principles are listed in the Table 1 below.

**TABLE 1.** General dietary principles for patients with inflammatory rheumatic diseases

- Nutritional advice is not a substitute for pharmacological treatment of chronic inflammatory rheumatic diseases;
- The nutritional advice given to patients affected by chronic inflammatory rheumatic diseases should be based on data from the scientific literature;
- Nutritional support is integrated into the overall care of patients affected by chronic inflammatory rheumatic diseases;
- Broaching dietary habits can help patients get actively involved in the overall care of their chronic inflammatory rheumatic disease ;
- The nutritional advice given to patients affected by chronic inflammatory rheumatic disease must take into account the intra- and extra-articular effects, particularly cardiometabolic and bone;
- The nutritional advice must take the cultural and socioeconomic context into account;
- Nutritional advice is indissociable from the promotion of exercise;
- If other nutritional recommendations exist that are specific to a disease, clinical condition or associated treatment, these continue to apply (e.g. undernutrition, obesity, sarcopenia, osteoporosis etc.).

Source: adapted from Daien et al, 2022

The first recommendation targets weight control in overweight or obese patients with chronic rheumatic illnesses.

It is well known that obese patients with rheumatic diseases receiving biological therapy have an overall reduced drug efficacy and persistence rate to treatment due to increased body mass index (BMI), the latter leading to a disbalance between pro- and anti-inflammatory cytokines[9]. Effectiveness of anti-TNFs is impacted by body weight that modifies drug pharmacokinetics[10]. This was suggested by a systematic literature review in patients with PsA that stated a low-calorie diet and weight loss are predictors for reaching minimal disease activity status[11].

Despite being fashionable worldwide, recommendations state that gluten-free diet is not advisable if celiac disease is not confirmed. Scientific data to date do not sustain its benefits, let alone the costs of gluten-free products that are prohibitive for a certain patient population.

A relatively small number of studies assessed the effect of vegetarian diets or fasting in RA but apart from early drop-outs, results were not consistent with improvement of swollen or tender joints[12].

Because of potential harmful effects, prolonged fasting is not recommended in patients with rheumatic diseases.

The fourth recommendation targets dairy product consumption which has reached lower levels worldwide without proof of being harmful. On the contrary, patients with inflammatory rheumatic conditions are prone to developing osteoporosis related to the disease or to long-term corticosteroid treatment[13]. Thus, a higher calcium intake in fermented dairy products might help prevent it, together with a lower risk of hip fracture and a decrease in the risk of cardiovascular events such as stroke, myocardial infarct, or sudden death of cardiac origin[14]. Recommended intake is two servings daily.

The following recommendation refers to consumption of essential polyunsaturated fatty acids (PUFA) including omega-3 and omega-6 that cannot be synthesized by the body, so supplementation is required.

Extensive data was published regarding PUFA consumption on a mean duration of 3 to 6 months, mainly in RA patients, showing a significant decrease of disease activity measured through visual analogue scale (VAS), disease activity score (DAS) 28 and health assessment questionnaire (HAQ)[15]. Moreover, cardiovascular benefits from PUFA consumption was previously shown[16].

The PUFA dose should be of a minimum 2-3 g per day, for 3 to 6 months and come from fish oils, mainly eicosa-pentaenoic acid (EPA) and docosahexaenoic acid (DHA)] but also from foods.

Five large studies observed the impact of the Mediterranean diet in patients with inflammatory rheumatic diseases. Despite heterogenous results on the joints, certain benefits have been noted on the cardiometabolic functioning, thus the experts included following such a diet in patients suffering from chronic rheumatic conditions[17][18].

The designated team of experts searched for justification for prescribing vitamins (B9, E, K), selenium or zinc in rheumatic diseases, but published studies do not show any improvement in joint symptoms. Therefore, they highlighted continuing vitamin D supplementation and folic acid in patients with methotrexate[8].

Given conflicting data on probiotics in inflammatory rheumatic diseases from studies with *Lactobacillus (L.) casei*, *L. acidophilus*, and *Bifidobacterium (B.) bifidum* in RA and SpA, this set of recommendations state they are not yet recommended, and their position will be further re-assessed if other data becomes available[8].

The use of spices like saffron, cinnamon, garlic, ginger, sesamin, pomegranate concentrate is too premature to be recommended in rheumatic diseases despite their ancient use for anti-inflammatory roles. Moreover, disease-effective dosage of these spices is not yet known. Thus, spices have not yet

entered official recommendations, but they can be brought into discussion during nutritional advice in patients with inflammatory rheumatic diseases[8].

SFR's released recommendations are briefed in Table 2.

**TABLE 2.** First dietary recommendations for patients with inflammatory rheumatic diseases

1. In patients who are overweight or obese, weight loss support should be proposed to control chronic inflammatory rheumatic disease activity; weight loss also has beneficial cardiometabolic and psychological effects;
2. A gluten-free diet should not be proposed as a means to control chronic inflammatory rheumatic disease activity, in the absence of confirmed celiac disease;
3. Fasting or vegan diets should not be proposed to control the activity of chronic inflammatory rheumatic diseases;
4. Eliminating dairy products should not be proposed for managing chronic inflammatory rheumatic disease;
5. Supplementation with polyunsaturated fatty acids, mainly omega-3, of more than 2 g per day, could be proposed for symptomatic relief in patients who have rheumatoid arthritis and likely for those suffering from other chronic inflammatory rheumatic disease;
6. A Mediterranean-type diet could be proposed to patients who have rheumatoid arthritis and likely to those affected by other chronic inflammatory rheumatic disease given its effects on joint symptoms and foremost the cardiometabolic diseases;
7. To control the activity of chronic inflammatory rheumatic diseases, there is no indication for proposing vitamin (B9, D, E, K) or trace element (selenium and/or zinc) supplementation;
8. Given that the data on the effectiveness of probiotics is insufficient and disparate, they are not recommended for controlling chronic inflammatory rheumatic disease activity;
9. Certain supplements (saffron, cinnamon, garlic, ginger, sesamin, pomegranate concentrate) could have beneficial effects on rheumatoid arthritis disease activity but the data are currently too limited to propose their use in current practice.

Source: adapted from Daien et al, 2022

## DISCUSSIONS

The influence of daily diet on triggering chronic inflammatory diseases has been suggested for several decades. The link between nutrition and disease onset like diabetes or inflammatory bowel disease is based on gut microbiota[4][19]. Changing patients' dietary habits can be of use for the disease outcome and should be integrated in the holistic approach of the disease, together with modern pharmacological therapies.

The first set of nutrition recommendations from the French Society of Rheumatology include eight principles and nine recommendations that come as a result of a systematic literature review. Through the selection of significant work in the field of in-

inflammatory rheumatic diseases, exclusion diets like gluten-free, dairy-free, vegan or fasting have been ruled out as beneficial for patients with no solid proof for disease activity or outcome[8].

Authors emphasize the fact that nutritional advice comes in addition to pharmacological therapy and cannot substitute it. Moreover, patients' education and facilitation of self-involvement in the disease might be constructive.

Two firm recommendations arise, namely the supplementation of omega-3 and the Mediterranean diet, while administration of vitamins B9, E, K or selenium, zinc is not recommended. Calcium from fermented dairy products and vitamin D ought to be included in the daily regime[8].

The research recognized some limitations like the scarcity of studies on diet and inflammatory rheumatic disease, especially on patient reported outcome like fatigue. However, gathering data on the topic reveals as being difficult since there are significant inter-individual differences to diet because of the composition of gut microbiota[8].

The expert team has drawn a number of future research directions, like the influence of exercise on

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inflammatory rheumatic diseases, the impact of weight loss on disease activity or of dietary changes on patient-related outcomes and its link to gut microbiota. Dietary interventions are a topic of interest in patients at risk of developing rheumatic conditions and so is the effect of intermittent fasting that should be assessed in more extensive studies[8].

## CONCLUSIONS

The release of recommendations for patients with inflammatory rheumatic conditions have had a central role in patient management, providing the best standard-of-care for physicians to follow. Clinical nutrition has recently been incorporated in patient care, complementing pharmacological treatments. These are the first dietary recommendations for patients with chronic inflammatory rheumatic conditions coming from the French Society of Rheumatology that require a period of implementation. Nonetheless, recommendations need regular update according to latest results from detailed studies on rheumatic populations.

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