



## NUTRITION CONNECTION

# POWERFUL PLATES

## HARNESS NUTRITION TO HELP PEOPLE WITH ARTHRITIS

BY CHRISSY CARROLL, MPH, RD

**ARTHRITIS IS A COMMON CHRONIC CONDITION** that affects millions of people worldwide. But is there a secret to quelling its relentless grip? While no one food or diet cures arthritis, there are some nutrition interventions that may help alleviate symptoms, improve functioning, and support overall health.

### TYPES OF ARTHRITIS

Arthritis is a general term that refers to inflammation or swelling of the joints. There are many different types of arthritis, but this article is focused on the two most common conditions:

#### Osteoarthritis

This is the most prevalent version, often called degenerative joint disease, affecting more than 13 percent of adults in the United States. It is characterized by a breakdown of the cartilage within the joints, along with changes to surrounding bone. This can cause symptoms like pain, stiffness, and swelling.

#### Rheumatoid Arthritis

This is an autoimmune disease. The body's immune system mistakenly attacks the joints, causing inflammation of the lining of the joint. There are flares and remissions in this condition. During a flare up, someone might experience pain, swelling, stiffness, tenderness, fatigue, and weakness.

### NUTRITION AND ARTHRITIS

Because different forms of arthritis have unique underlying causes, it's important to recognize that one nutrition approach will not address every form of arthritis. Despite their different pathologies, though, osteoarthritis and rheumatoid arthritis do share some overlapping nutrition recommendations. Let's take a look at the research.

### WEIGHT CONCERNS

Weight concerns—both excess weight and unintentional weight loss—can impact both types of arthritis.

Carrying extra body weight puts more stress on the joints, which can lead to further pain and degeneration in osteoarthritis. In both forms of arthritis, excess body fat may also increase inflammation. This could lead to damage of the synovium (a type of connective tissue in joints like the knee and elbow) and cartilage, which worsens symptoms.

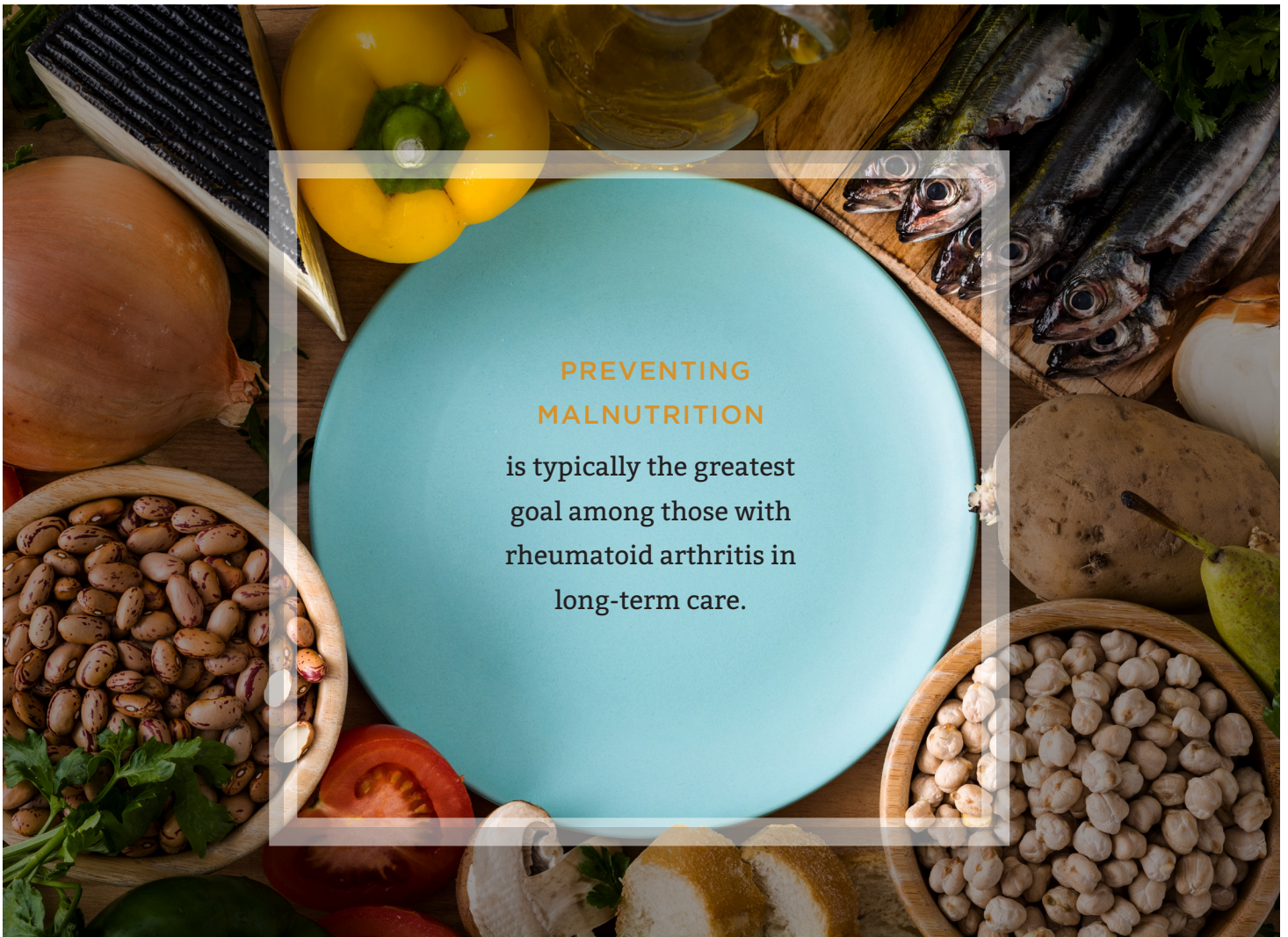
Among adults with osteoarthritis who are overweight or obese, studies suggest a 10 to 20 percent weight loss reduces the loading forces on the joint, reduces pain, and improves quality of life. Smaller amounts of weight loss may still be beneficial.

For patients with rheumatoid arthritis, severe obesity has been linked to worsening disease activity and disability, and some studies have shown intentional weight loss led to reduced disease activity.

There's a problem though: this research is often done on otherwise healthy middle-aged adults. It should not be extrapolated to all populations. In older adults in long-term care, for example, significant weight loss can lead to negative consequences like malnutrition, reduced bone mineral density, loss of muscle mass, and poorer prognosis.

Intentional weight loss is not recommended for many long-term care patients such as those with dementia, multiple chronic conditions, or limited lifespan, given the susceptibility to malnutrition and risk of decline in these populations.

In fact, research shows that malnutrition reduces quality of life in older adults with rheumatoid arthritis, adversely affects cognitive health and daily functioning, and may



## PREVENTING MALNUTRITION

is typically the greatest goal among those with rheumatoid arthritis in long-term care.

even increase mortality risk. One study found that a 5 percent loss of body weight—regardless of initial Body Mass Index (BMI)—was linked to a greater risk of worsening disability.

In addition, patients with rheumatoid arthritis may suffer from a decrease in muscle mass (even without weight loss). This condition, called “rheumatoid cachexia,” is thought to occur in about 15 to 32 percent of patients and is linked to poor clinical outcomes.

As such, preventing malnutrition is typically the greatest goal among those with rheumatoid arthritis in long-term care.

### MEDITERRANEAN DIET

The Mediterranean diet features ample fruits, vegetables, whole grains, legumes, and nuts, along with greater consumption of fish and olive oil compared to Western diets. Poultry, eggs, and dairy are included in



### THE MEDITERRANEAN DIET

may benefit individuals with both osteoarthritis and rheumatoid arthritis.

moderation. Compared to many other eating plans, the Mediterranean diet features less red meat and less added sugar.

This style of eating may benefit individuals with both osteoarthritis and rheumatoid arthritis:

- A 2018 systematic review in *Nutrients* found a positive association between the Mediterranean diet and improved quality of life in patients with osteoarthritis. Several other studies have found reduced pain metrics too.
- A 2017 review in *Rheumatology International* found the Mediterranean diet may reduce pain and increase physical function for people with rheumatoid arthritis. (However, they do note there is limited high-quality research.)

These results could be attributed to the diet containing more foods with anti-inflammatory properties, as well as antioxidants that reduce oxidative stress at the cellular level. Many of the foods in the Mediterranean diet—like fish and olive oil—have been independently linked to beneficial effects.

Research is still somewhat limited. However, the Mediterranean diet has been associated with numerous other health benefits (like improved heart health and reduced risk of cognitive impairment), so it's wise to weave some of its components into your menu.

### POLYPHENOL-RICH FOODS

Polyphenols include more than 8,000 natural compounds found in plant foods. These beneficial compounds have many roles in the body, including acting as an antioxidant and potentially reducing inflammation, which could be valuable for arthritis.

For example, *resveratrol* is a polyphenol found in the skin of grapes and certain berries (you often hear about it in red wine). One study found that adding resveratrol to conventional treatment reduced disease activity in those with rheumatoid arthritis, compared to only conventional

treatment. Of course, it's unclear if this would extrapolate to food-based sources as well, since this study was done using supplements.

Another potent polyphenol is *oleocanthal*, found in olive oil. In-vitro studies and animal studies suggest this may prevent cartilage damage in arthritis through antioxidant and anti-inflammatory effects, though further research is needed. In addition, it may inhibit a certain enzyme pathway associated with pain, which can lead to reduced perception of pain.

Interestingly, a meta-analysis looked at supplementation of polyphenols in patients with osteoarthritis, and found that polyphenols helped with pain relief more than placebos. In fact, there were no differences in treatment efficacy outcomes between polyphenols and NSAIDs (medicine like ibuprofen)! However, combining the two led to even better results.

There is little overall research on this topic, and much of it is on supplementation rather than food sources. Still, it seems plausible that polyphenols in foods could be valuable—plus, they have numerous additional health benefits (like reduced risk of other diseases).

It's easy to add more polyphenol-rich foods to your menu. Here are just a few examples:

- Berries
- Spices
- Cocoa (cocoa powder, cacao nibs, dark chocolate)
- Cherries
- Apples
- Pomegranate
- Grapes
- Beans
- Nuts
- Tea and coffee
- Olive oil

Think about how you might combine these foods into one power-packed dish. For example, could you offer a chocolate cherry smoothie for dessert? A cinnamon-spiced apple oatmeal topped with pecans at breakfast? Or maybe a fruity quinoa salad with berries and pomegranate tossed in an olive oil dressing at dinner?





Patients with both  
osteoarthritis and  
rheumatoid arthritis are  
more likely to have  
**VITAMIN D  
INSUFFICIENCY OR  
DEFICIENCY.**

### OMEGA-3 FATTY ACIDS

Omega-3 fatty acids are a type of polyunsaturated fatty acid known for several health benefits. These healthy fats may play a role in both osteoarthritis and rheumatoid arthritis, due to their anti-inflammatory properties.

For example, a 2022 systematic review in *Nutrients* concluded that omega-3 fatty acids may slow the breakdown of cartilage and alleviate low-grade inflammation present in osteoarthritis. These changes can improve function and reduce symptoms. However, the authors note that further research is needed.

Similarly, some studies have linked omega-3 fatty acid supplements to improved rheumatoid arthritis symptoms. A 2021 systematic review in *Nutrition reviews* found that omega-3 supplements were linked to a reduction in disease activity.

It's unclear whether the same benefits come from foods versus supplements. But since omega-3 rich foods have so many other positive impacts—like improving heart health and cognitive health—it's smart to incorporate these into your menu regardless.

The best sources of omega-3 fatty acids are in fatty fish, like salmon, herring, and sardines. You can also get some omega-3s from foods like chia seeds, walnuts, and flaxseed, but these sources aren't as impactful as fish.

Ideally, adults should eat fish at least twice a week – but approximately 90 percent of people don't meet this guideline. Consider out-of-the-box ways to include fish on your menu to create variety. For example, could you use canned fish to make a fun dip that could be served with crackers? Or could you create a fish stew that includes a tomato base and flavorful spices?

### VITAMIN D

Several studies have noted patients with both osteoarthritis and rheumatoid arthritis are more likely to have Vitamin D insufficiency or deficiency. This seems to be more prevalent among those with rheumatoid arthritis, with one paper in the *Journal of natural science, biology, and medicine* noting that 84 percent of rheumatoid arthritis participants had low Vitamin D levels, compared to only 34 percent of controls (those without the condition).

Because of this, additional research has investigated the impact of supplementation. Among those with osteoarthritis, studies suggest that Vitamin D supplementation may improve pain and function among those who were deficient.

Among patients with rheumatoid arthritis, some research linked low Vitamin D levels to greater disease activity scores (measuring the severity of symptoms). However, not all studies have found this same connection.

Regardless of whether supplementation improves pain and function, correcting Vitamin D deficiency is still essential for overall health. There are limited food sources of Vitamin D, so patients with a deficiency will need supplements prescribed by a doctor.

As a foodservice manager, though, it's still essential to include sources of Vitamin D on your menu to support adequate intake for all residents. The best sources include:

- Fatty fish
- Egg yolks
- Fortified dairy products
- Fortified orange juice
- UV-irradiated mushrooms



## REFERENCES

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### FOODS WITH FIBER AND FOODS WITH PROBIOTICS

Many researchers believe that gut health plays a role in both forms of arthritis. Patients with rheumatoid arthritis and osteoarthritis often have differences in their intestinal microbiome (the amounts and types of bacteria making up their digestive system) compared to controls. These differences may contribute to inflammation and, in the case of rheumatoid arthritis, autoimmune responses.

While further research is needed to understand these complex relationships, nutrition interventions like fiber-rich foods and foods that contain probiotics can support a healthy microbiome. Fiber-rich foods feed the bacteria already in the gut, while probiotic foods introduce new healthy bacteria to the gut (and may contain additional helpful compounds formed during the fermentation process).

In fact, scientists in a 2020 article in *Nutrients* concluded that a diet rich in dietary fiber and probiotics (along with omega-3s and polyphenols) may “decrease systemic inflammation, modulate gut microbiota and improve the gut barrier function, and consequently improve rheumatoid arthritis disease outcomes.”

You can easily incorporate both categories on your menu. Fiber-rich foods include vegetables, fruits, whole grains, nuts, and legumes. Probiotic foods include yogurt, kefir, sauerkraut, kimchi, tempeh, and traditionally fermented vegetables.

### THE BOTTOM LINE

No single food or diet is a cure for arthritis. However, as a foodservice manager, you can incorporate nutrient-dense foods (like those rich in omega-3 fatty acids, polyphenols, and fiber) as well as elements of a Mediterranean diet into your menu. For some patients, these nutrition interventions could slow disease progression and reduce symptoms, helping those with osteoarthritis or rheumatoid arthritis achieve better feeling and function. **E**

### SAMPLE ARTHRITIS-FRIENDLY MENU

#### Breakfast

- Oatmeal with berries
- Scrambled eggs with mushrooms and cheddar
- Vitamin-D fortified orange juice
- Tea or coffee

#### Lunch

- Chicken sandwich on a bun with optional kimchi topping
- Coleslaw
- Three bean salad tossed in olive oil dressing
- Fruit salad

#### Dinner

- Roasted salmon
- Roasted zucchini
- Quinoa salad with roasted grapes and feta, tossed in olive oil dressing
- Carrot soup

#### Snack/Dessert

- Yogurt parfait with cherries and dark chocolate



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## CE QUESTIONS | NUTRITION CONNECTION



This **Level II** article assumes that the reader has a thorough knowledge of the topic. The desired outcome is to facilitate application of knowledge into practice by drawing connections among ideas and using information in new situations.

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Reading *Powerful Plates: Harness Nutrition to Help People with Arthritis* and successfully completing these questions online in the ANFP Marketplace has been approved for 1 hour of continuing education for CDM, CFPPs. To earn 1 CE hour, visit [www.ANFPonline.org/market](http://www.ANFPonline.org/market) and select **Edge CE Articles** within the Publications section. Purchase the article and complete the quiz.

- Which form of arthritis is an autoimmune condition that can have flare ups and remission periods?
  - Osteoarthritis
  - Rheumatoid arthritis
  - Neither of the above
- A resident at your facility has a BMI of 29 and has been diagnosed with dementia and rheumatoid arthritis. Of the choices below, which would be the best option regarding their diet?
  - The patient should be placed on a low-calorie diet to start weight loss
  - The patient should not be allowed to eat any red meat or added sugar
  - The patient should enjoy meals that reduce the risk of malnutrition
- What is the name for compounds found in plant foods (of which there are more than 8,000) that have beneficial effects on the body?
  - Omega-3 fatty acids
  - Polyphenols
  - Probiotics
- You want to include more oleocanthal on your menu. Which dish below would be the *best* source?
  - Grain and vegetable salad dressed in olive oil, vinegar, and seasonings
  - Baked salmon (cooked with canola oil and lemon), steamed vegetables, white rice
  - Oatmeal topped with berries, pecans, and brown sugar
- You want to include more omega-3 fatty acids on your menu. Which dish below would be the *best* source?
  - Grain and vegetable salad dressed in olive oil, vinegar, and seasonings
  - Baked salmon (cooked with canola oil and lemon), steamed vegetables, white rice
  - Oatmeal topped with berries, pecans, and brown sugar
- Patients with rheumatoid arthritis seem to have a/an \_\_\_\_\_ risk of Vitamin D deficiency compared to the average adult.
  - Increased
  - Decreased
  - Equivalent
- Which dish would include *both* a fiber-rich food and a source of probiotics?
  - Yogurt parfait with raspberries and granola
  - Seared steak over mixed greens with oil and vinegar dressing
  - Eggs, bacon, and toast

