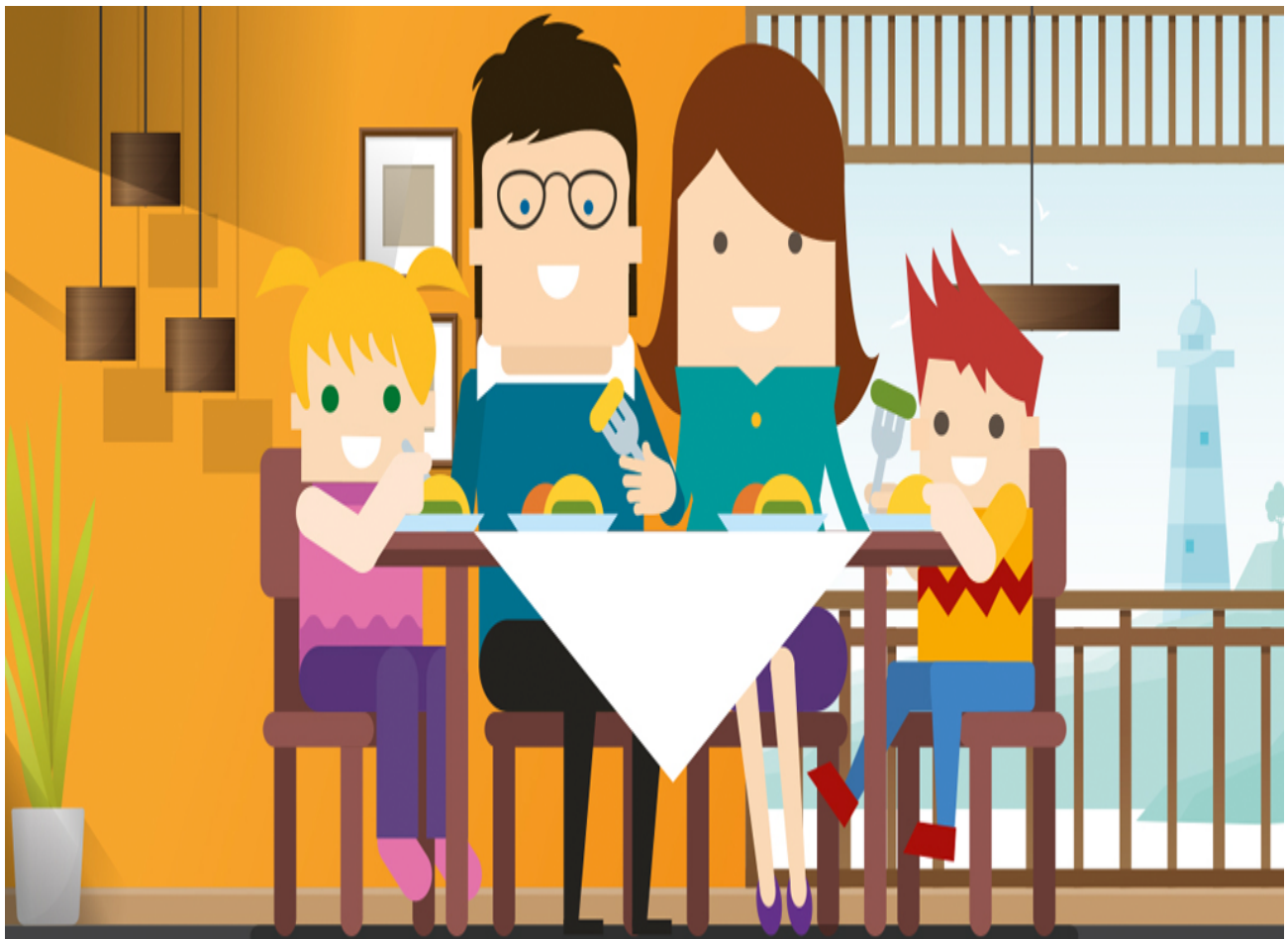


Resource

Diet

There is a huge amount of dietary advice aimed at people with RA. This article summarises some of the dietary advice for which there is evidence of benefit for people with RA.

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At a glance

Evidence suggests that diet can play an important role in the management of RA and JIA.

There is a lot of nutrition information out there and with that comes misinformation. Altering your diet to help your RA/JIA symptoms is very individual. Auto-immune conditions are complex. The effects they have on the body vary from person to person.

Good, evidence-based information shows that the following changes could improve your RA/JIA:

- Maintaining a healthy weight
- Exercising
- Adopting a Mediterranean diet
- Being mindful of what you eat, and eat for a healthy gut
- Including omega 3 fatty acids (and lowering omega 6)
- Increasing colourful vegetables and fruit
- Optimising Vitamin D intake
- Consider excluding gluten
- Decreasing red meat and salt

Read on for more detailed information on how each of these changes could help you to manage your RA/JIA. This article includes tips that are sensible, practical and evidence-based.

Nobody expects you to change your dietary habits overnight. Remember, any small changes you make from these suggestions are progress. You are more likely to stick to a good diet long term if you make gradual changes that suit your lifestyle.

Some quick changes you can make right now include:

- Weight loss – if you are over your ideal weight
- Exercise – it all counts – gardening, walking, swimming – do only what you love/enjoy
- Mediterranean diet – this is a wholefood and colourful way to eat and live as well as being good for your RA/JIA
- Increase the amount of colourful fruit and vegetables you consume
- Reduce the amount of processed and high sugar food and drink you consume
- Keep a food and symptom diary, monitoring what you eat the symptoms you have.

This

may help to identify any foods that might worsen your symptoms

- Boost Omega 3 levels by eating oily fish or taking supplements. Make sure that any supplement you take is safe with your medication. Omega 3 can reduce the number of tender and swollen joints in people with RA/JIA.

- Eat for gut health, by consuming foods such as:
 - natural or Greek yoghurt
 - bone broth
 - sauerkraut
 - garlic
 - onions
 - bananas
 - apples and oats

Watch your Weight

Keeping to a healthy weight is important in managing RA. Excess weight can worsen disease activity and increase flares, as shown below.

Carrying too much weight is not good for joint health and mobility. Pressure on weight-bearing joints such as knees is around 5-6 times that of body weight.

What's more important is the way that fat acts within the body. Fat plays an important role in the body's endocrine (meaning hormonal) system. Excess fat can increase inflammation by further activating your already over-active immune system. In particular, 'visceral fat' (fat around the abdominal area) can cause inflammation. If you are overweight, small amounts of weight loss can have a big impact.

Being underweight can also cause problems, as you may be low in muscle mass needed to support the joints. Please see your GP should you feel like this is an issue.

What to do

If you are overweight, follow the concepts in the Mediterranean Diet section below. Focus on whole foods and limit processed and refined carbohydrate foods. This can help you to maintain a healthy weight.

Exercise

Why?

Exercise plays an important role in managing RA and JIA. A good exercise routine can improve joint function and reduce stiffness and inflammation. It is also good for your health more generally.

Exercise can increase the function of synovial fluid, which sits inside the joint. Synovial fluid helps protect joint and reduces friction between bones. In RA and JIA, the quality and quantity of synovial fluid can be reduced by inflammation.

Exercise can also lower pro-inflammatory proteins called cytokines. which play an important role in your immune system. In RA and JIA, where the immune system is over-active, cytokines target healthy joints.

Doing little or no exercise also increases the risk of weight gain, especially if diet is not altered. This risk increased with age.

How?

The best exercise is the one that you do. It could be walking, swimming, dancing, tai-chi or yoga for example. Find something you enjoy that is within your limits and be consistent. It may be worth speaking to a fitness professional with some understanding of RA and JIA. The added bonus is the improvement in mood often experienced with regular exercise.

Benefits of the Mediterranean, anti-inflammatory diet

The Mediterranean diet (MD) is rich in fruits, vegetables, whole grains, olive oil, and fish. Many studies of this diet have shown a positive impact on all areas of health. Research suggests that a MD can improve RA/JIA. A MD diet can reduce disease activity and improve physical function. This may be due to high levels of antioxidants and polyphenols (plant chemicals). These can help regulate systems in the body. Left unchecked, these systems can cause the immune system to over-react, increasing inflammation. This is why we refer to the MD diet as an 'anti-inflammatory' diet.

Research has shown that following a Mediterranean diet can improve symptoms of RA. This included reduced swollen and tender joints and duration of morning stiffness. General wellbeing was also seen to improve.

The MD is a healthy way to eat in general and will have positive impacts above and beyond arthritis. A MD diet can increase weight loss and lower the risk of diabetes and cardiovascular disease. It can also lower the risk of certain cancers. It's no wonder it has gained such significant and well-deserved attention.

What is the Mediterranean diet?

There is often confusion about what MD is. This is because there isn't one, specific MD diet. MD is a way of dietary lifestyle change, adopted with other healthy habits. Research shows that these changes to your diet and lifestyle can help you to manage symptoms. To follow a MD diet, do the following:

Base meals and lifestyle on:

- Increased colourful fruit and vegetables in each meal. Aim for one half to two thirds of the plate to be non-starch vegetables. This includes greens, mushrooms, squashes, beets, cauliflower or broccoli. Don't forget to add them to breakfast too.
- Fibrous foods such as wholegrains, lentils, beans and vegetables
- Simple protein sources such as lean cuts of meat, lots of sea food, eggs and tofu
- Consume plenty of healthy fats – Extra virgin olive oils, nuts and seeds, avocado and oily fish
- Eat fish, especially oily fish (important enough to have its own section). Research shows that Omega 3 is important for brain development and function. It can also improve RA/JIA joint symptoms.
- Don't eat on-the-go. Life can be busy sometimes, but food is better digested when eaten at a slower pace. At mealtimes, try to relax and sit down to eat at a table.
- Lots of outdoor activity and gentle exercise
- Social connection

Consume less and limit:

- Processed foods (especially ultra processed foods) & take aways
- Sugary drinks – not only the big brand sodas but also fruit juices. People with high sugar intakes have much higher levels of haptoglobin in their blood. High levels of haptoglobin increase risks of diabetes, heart attacks, stroke and obesity.
- Omega 6 fats such as vegetable and seed oils. Use only extra virgin olive oil, avocado oil or

small amounts of coconut oil.

- Red meat can increase inflammation. This is especially true for processed meats (e.g. sausages or bacon). Public Health England suggests eating these meats in moderation. Instead, choose leaner meats such as fish and poultry.
- Added sugars
- Refined grains such as white flour, white rice and flour based foods. Focus on whole grains like quinoa, brown rice and bulgur wheat. White flour spikes blood sugar and adds to the inflammatory load.
- Confectionary
- Alcohol – Drinking too much alcohol puts strain on your liver. It may be best avoided or drunk in moderation with certain medications. If you do drink alcohol, it is better to avoid drinking too much in one sitting. Binge drinking put more strain on your liver. Alcohol also has a high calorie content and can contribute to weight gain. Your rheumatologist can discuss with you whether alcohol intake will affect your medications. Government guidelines can give you an idea of the number of recommended units.

Build your plate around lean protein, healthy fats and non-starchy vegetables. Add to this a small portion of wholegrains.

If this is a way of eating that is very far removed from where you are now, then make small and sustainable changes. You can start by adding protein, colour and whole grains to each breakfast and work from there.

Gut health – eat for your gut bugs

Why?

Our gut is home to trillions of bacteria, viruses and fungi. We call this our gut 'microbiome'. The gut microbiome's relationship with the immune system impacts autoimmune diseases. Emerging research highlights the importance of maintaining gut health in managing these conditions.

Dysbiosis is an imbalance of 'friendly' vs 'unfriendly' bacteria in the gut. This imbalance can lead to increased inflammation in the gut. This can worsen joint inflammation in RA/JIA as well as symptoms such as fatigue and brain fog.

Dysbiosis can also cause leaky gut syndrome. Leaky gut is a condition where the gut barrier becomes more 'permeable'. This means that more water and nutrients can pass (or 'leak') through it. This can cause toxins, food, bacteria and other substances to enter into our blood system. Our immune system reacts to this, which in turn causes inflammation.

It's vital to keep a healthy microbiome and what you eat matters. You are eating for two – for you and for your bacteria! Feed the helpful microbiota and they will help promote immune tolerance, lower inflammation.

How to do it

Increase fibre-rich foods (see Table 1), prebiotic foods and fermented foods. Fermented foods are probiotic foods which can feed the bugs we wish to increase and crowd out those we don't want. The bugs we don't want tend to feed on sugar and ultra-processed foods.

Take out refined carbohydrates, sugars and processed foods. These foods feed the 'unfriendly' bacteria, which can lead to inflammation and dysbiosis.

Probiotic foods

Probiotics are 'friendly' bacteria. They can improve our health by making our gut function better. They do this by restoring or maintaining a healthy balance in the gut. If you are on a biologic medicine and want to add fermented food to your diet, you should do so with caution. Look for shop bought and commercial sources of pro-biotics, rather than home-made. This is because people taking biologic medicines are more prone to infection. Fermentation can cause harmful bacteria to spread if not done under controlled conditions. Examples of probiotic foods include:

- Kefir
- Kimchi
- Sauerkraut
- Natural yoghurt/Greek yoghurt
- Kombucha

Prebiotic foods

Prebiotics are the food that fuels the friendly bacteria in your gut. They are types of carbohydrate that only gut bacteria can digest. Prebiotic containing foods include:

- Garlic
- Ground flax
- Onions
- Jerusalem artichoke
- Leeks
- Asparagus
- Bananas
- Oats
- Apples
- Avocado

Table 1. Whole Grains and Source of Dietary Fibre

Dietary Fibre Sources

Whole Grains 'high in fibre' = more than 6g fibre per 100g
a 'source of fibre' = at least 3g fibre per 100g.

	Wholegrain pasta
	Wholegrain bread
Wheat	Porridge
Rice	Oat bran
Oats	High fibre breakfast cereals
Corn	Potato skins
Rye	Sweet potato
Barley	Beans – baked beans, chickpeas
Millet	Pulses
Sorghum	Vegetables
	Fruits, especially where you eat the skin and seeds
	Seeds, e.g. linseeds, chia seeds, sunflower
	Nuts, e.g. almonds, hazelnuts, peanut butter

Dietary fibre comes from plant-based foods. It is the part of these foods that your small intestine cannot digest or absorb. It is instead broken down by bacteria in the large intestine.

Fish Oils and Omega-3 fatty acids

Omega 3 fatty acids play an important role in the inflammatory response in the body. Evidence suggests that omega 3 (from oily fish or supplements) can improve RA/JIA symptoms. It can take up to 3 months to see the benefits of taking regular Omega 3. These benefits can include a reduction in the number of swollen and tender joints.

Omega 3 Supplements

The amount of Omega-3 fats necessary to improve your RA/JIA symptoms is around 3g per day. The amount of omega 3 fats contained in a fish oil capsule varies. Check the amount per capsule when comparing prices. It is important to check that fish oil supplements are safe to take with any medications you are on. Ask a health professional such as your GP or a BANT registered Nutritional Therapist.

Omega 3 in food

Omega-3 fats can also come from food. Natural sources of omega-3 fatty acids are oily fish such as mackerel and fresh (not tinned) tuna. Choose fish from sustainable sources where possible. Look for Marine Stewardship Council (MSC) certified products. You can also refer to The Good Fish Guide from the MSC for guidance. Some fish can contain higher levels of mercury and environmental toxins. Avoid older and larger fish (the type that may feast on smaller fish). These include shark, swordfish and king mackerel.

Smaller fish are better sources of omega 3. The following 'SMASH' acronym may help you to remember them:

Salmon

Mackerel

Anchovies

Sardines

Herring

Eating oily fish 2 or 3 times a week provides a reasonable intake of Omega 3. Omega 3 can also come from plant sources such as linseed and evening primrose. This has a weaker effect on inflammation than Omega 3 from fish oil.

Note: If taking fish oil supplements, please make sure that it is omega 3 EPAs and DHA.. Always use pure fish oil products and check that it is certified for purity, potency and safety. Fish oils can interact with some medications, e.g. Warfarin. Always seek medical advice before starting supplements.

Omega 3 fish oils can perish, so make sure you keep any liquids in the fridge and any capsules in a dark cupboard. Make sure the capsules have an added antioxidant such as vitamin E to also keep it more stable.

The omega 3:omega 6 ratio

Whilst Omega 3 fats reduce inflammation omega 6 fats may increase inflammation. It is important for you to reduce Omega 6 fats in the diet whilst increasing omega 3.

One of the best ways to reduce Omega 6 is to stop using sunflower oils/margarines/spreadable butters. Replace these with real, grassfed butter or using olive oil. Most 'spreads' have a high volume of rapeseed oil which is a source of omega 6.

Omega-6 fats are present in:

- vegetable/seed oils (not extra virgin olive oil)
- margarines
- ultra processed foods
- seeds and nuts
- spreadable butters
- all deep fried food
- crisps
- confectionary
- most ultra-processed foods and even the healthy looking foods in the deli. Look at the ingredients in your houmous, salsa and even the oil in the olives!

Nuts, seeds and poultry can contain Omega-6. Yet some benefits of these foods may outweigh the negatives. Concentrate on removing man-made 'factory fats' rather than fats that are 'naturally' present. Nature does fats right!

Reducing inflammation is not only important for improving your joint pain and stiffness. It will also reduce your risk of heart disease, which people with RA are at increased risk of.

Table 2. White Fish, Oily Fish and Plant Sources of Omega-3

Whitefish 1 portion per week, 1 portion = 140g	Omega-3 Oily Fish Sources 2 portions per week 1 portion = 140g (a small fillet)	Omega-3 Plant Sources ?
Cod	Sardines	Walnuts
Haddock	Mackerel	Pumpkin seeds
Plaice	Anchovies	Vegetable oils, e.g. rapeseed and linseed oils
Pollack	Herring	Soya and soya products, e.g. beans, drinks, tofu
Coley	Salmon	Green leafy vegetables
Dover	Snapper	Some fortified eggs, yoghurt, bread and spreads
Sole	Pilchards	
Dab	Trout	
Flounder	Sprats	
Red Mullet	Crab (fresh)	
Gurnard	Whitebait	

Vegetables, fruits and antioxidants

Antioxidants are substances that can prevent or delay some types of cell damage. Fruits and vegetables contain antioxidants. Eating foods which are rich in antioxidants on a regular basis can benefit your health. They can reduce the symptoms of chronic diseases, including inflammatory arthritis.

Brightly coloured varieties of fruit and vegetables are particularly good sources of antioxidants. These include:

- berries
- leafy greens
- red onions
- oranges
- apricots
- carrots
- peppers
- tomatoes.

The most common antioxidants are Vitamins A, C and E but there are many more, some of which we do not know yet.

When inflammation occurs in RA, your immune system produces substances called 'free radicals'. These can be harmful to your body. Antioxidants found in brightly coloured fruit and vegetables can help limit this damage. They can also have an anti-inflammatory effect. This is important for improving symptoms and reducing your risk of heart disease.

There are many ways to increase your vegetable intake. Aim to 'eat the rainbow' and have at least

three colours of fruit or vegetables in each meal. More colours means more variety. This variety will help you to get all the different nutrients your body needs.

Other tips

- Pick one new vegetable a week to cook with
- Top your breakfasts with colourful berries
- Swap pasta or rice for courgette or cauliflower rice
- Batch cook a mix of roasts at weekends and add to weekly meals
- Stack your freezer. Farmers pack fruit and veg for frozen foods within hours of picking. This helps to seal in the nutrients.
- Vegetable smoothies can be a helpful way to increase your intake
- Eat fruit as dessert

Table 3. Fruits and Vegetables

Fruits

2+ portions per day, 1
portion = 80g
Frozen, fresh or tinned in
fruit juice

Seasonal Fruits

Dried plums
Grapefruits
Grapes
Blueberries
Pomegranate
Mango
Banana
Peaches
Apples

Vegetables

4+ portions per day, 1 portion = 80g
Frozen, fresh or tinned

Seasonal vegetables

Peas
Parsnip
Mixed vegetables
Green beans, carrots, Sweetcorn
Green Leafy vegetables, e.g. mustard/collard greens, kale,
spinach, lettuce, arugula, broccoli

Vitamins and Minerals

There are specific vitamins and minerals that people with RA are more likely to be deficient in:

Calcium

Use of steroid medication can increase the risk of osteoporosis (a weakening of the bones). This is because steroids can prevent the body from absorbing calcium as it should. Choose organic whole milk. If using soya milk or other alternatives, use calcium-enriched products. Remember, soya milk on its own contains no calcium. Calcium and Vitamin D are important for ensuring strong, healthy bones.

Vitamin D

Vitamin D deficiency is more common in people with RA. Evidence suggests this can lead to more rapid disease progression. Vitamin D is more like a hormone than a vitamin and has a powerful effect on the immune system. It is important for those with joint issues to keep their vitamin D intake at good

levels.

Your GP can determine whether your vitamin D levels are too low with a blood test. Those with little exposure to the sun may need a supplement. Some people with RA/JIA take medications that can make them more susceptible to sunburn. This may limit their sun exposure.

It is important for anyone with an auto-immune condition to check their vitamin D levels. If taking vitamin D supplements, check these levels every three months. Your body can store fat soluble vitamins like A, D and E, which have the potential to be toxic at high levels. Ask your doctor to check your Vitamin D levels before taking high levels of vitamin D.

Table 4. Dietary Sources of Iron, Calcium and Vitamin D

Iron-rich foods	Calcium-rich foods	Vitamin D sources
Lean red meat	Yoghurt	
Eggs	Milk	
Green leafy vegetables	Cheese	Oily fish,
Peas	Almonds	Fortified breakfast
Beans and lentils	Sardines/pilchards (fish where you eat the bones)	cereal
Fortified breakfast cereals	Fortified soy drinks	Fortified margarine
	Dark green leafy vegetables	
	Fortified cereal, milk or milk-substitutes	

Excluding Gluten

Coeliac disease is an auto-immune condition. It is a condition where the immune system attacks the body when you eat gluten. Coeliac disease has a lot of features in common with RA and people with RA are more prone to developing it.

Gluten-free diets can be of particular benefit to those with Coeliac Disease. They can also help those with a less severe sensitivity to gluten. A study in BMC Gastroenterology demonstrated the benefits of a gluten free diet. The study found improved symptoms and lowered inflammation for those with gluten intolerances. This included those with Coeliac disease.

Gluten is present in a lot of processed foods. It is a protein that is present in wheat, barley, and rye. Deciding whether a gluten free diet would benefit you is very individual. A food and symptom diary can help you to see whether you have a sensitivity to gluten. See below for more information on how to start a food diary.

How to do it:

Take out all gluten containing grains for three weeks. This includes

- Wheat (pasta, couscous, bread, biscuits, cake)
- Rye
- Barley
- Malt

Read all ingredients and be strict for the three weeks. Pick a time when you don't need to be dependent on others to cook (eg. Holidays, weddings).

After three weeks reintroduce one large portion of gluten-containing food (e.g. baguette). Stop eating it again for 72 hours but notice all symptoms. Should you have a bad reaction, you may have a sensitivity or coeliac disease. If you think you may have an issue with gluten then please speak to your GP. They can test you for coeliac disease, as there is evidence that those with RA and JIA may be more prone to it. You should have this test whilst you are still on a gluten containing diet so it's best to get the test and then exclude.

Decrease refined carbohydrates and sugary foods.

When excluding any types of food from your diet, it is important to get the right nutrients from other food. Seeking advice from a nutritionist or dietician can help you to do this.

Dietary Supplements

There is a lot of evidence to show that some supplements can help to improve RA/JIA. This may be through anti-inflammatory and anti-oxidation effects or by supporting the joints. Before taking any supplements you should seek the guidance of a health professional. Check with your rheumatology team that the supplement won't interfere with your medication. This includes medication taken for other conditions, whether prescribed or over the counter.

Methotrexate lowers levels of a vitamin called 'folic acid'. Folic acid supplements are usually prescribed alongside methotrexate to top these levels up. They can also reduce some of the side effects of methotrexate.

Your GP may recommend calcium and/or vitamin D supplement if you are taking steroids. It is important to take only the recommended dose. A healthcare professional should review this every few months.

Making changes to diet and adding supplements is very individual. What may work for some could either not work at all for someone else, or create more issues.

How to keep a food and symptom diary

A food and symptom diary can help you to identify food types that may worsen your RA/JIA symptoms. It can also help you to identify more general food intolerances or sensitivities.

See below for an example of a food and symptom diary. Include a column for 'gut symptoms' if you suspect some foods may be irritating your stomach. Use the diary to track the foods you eat and the effects they may be having on your body. It is also good to have a column for 'other important information'. This is a place for you to note non-dietary reasons your symptoms may be better or

worse.

If you notice that certain foods are causing your RA/JIA symptoms to worsen, try leaving them out of your diet. Do this for several days to see if symptoms improve. You can also try re-introducing these to see if symptoms return. You may need to do this more than once to be certain.

It can take a lot of trial and error to identify foods that might be causing you problems. It can be hard to separate the impact of food from that of other factors. Where possible, it is better to use a food and symptom diary under the care of a dietician or nutritionist. They can help you to identify problem foods. They can also help you to get the right nutrients from other foods after cutting any foods out of your diet.

Example food and symptom diary

Date	Foods eaten	RA symptoms	Gut symptoms	Other important information
Day 1	Breakfast: Porridge Lunch: Chicken Caesar salad Dinner: Vegetable casserole	Better than usual	Normal	New medication starting to kick in
Day 2	Breakfast: Muesli Lunch: Chicken wrap Dinner: Roast chicken with boiled potatoes and salad	Average	Upset stomach	Had a job interview after breakfast, so upset stomach may have been due to being nervous.
Day 3	Breakfast: Porridge Lunch: Cheese on toast Dinner: Steak and chips with fried tomato	Joint pain worse than usual in evening and overnight	Normal	None

Conclusion

Making changes to your diet can help you to manage your RA or JIA. Simple dietary changes can reduce inflammation and help support a healthy immune system. The Mediterranean diet shows strong evidence for reducing disease activity and improving symptoms. Excluding gluten may benefit certain individuals, especially those with gluten sensitivity. Vitamin D supplements can improve immune system function and bone health. Maintaining a healthy gut can help you to manage your RA/JIA. Probiotics and a diet rich in colourful vegetables will help keep your gut healthy. Nutritional therapy can improve quality of life and help you to manage your symptoms. It is an important part of

your treatment plan and will help aid self-management of your RA/JIA.

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For more information from Gemma, [click here](#) to visit her website and read her blogs on nutrition:

If this information has helped you, please help us by [making a donation](#). Thank you.

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[Exercise](#)

Exercise is important not just to reduce the risk of further joint damage but for reducing the risk of heart disease, improving muscle strength and mental wellbeing too. There are exercises for people at all stages of their RA journey.

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