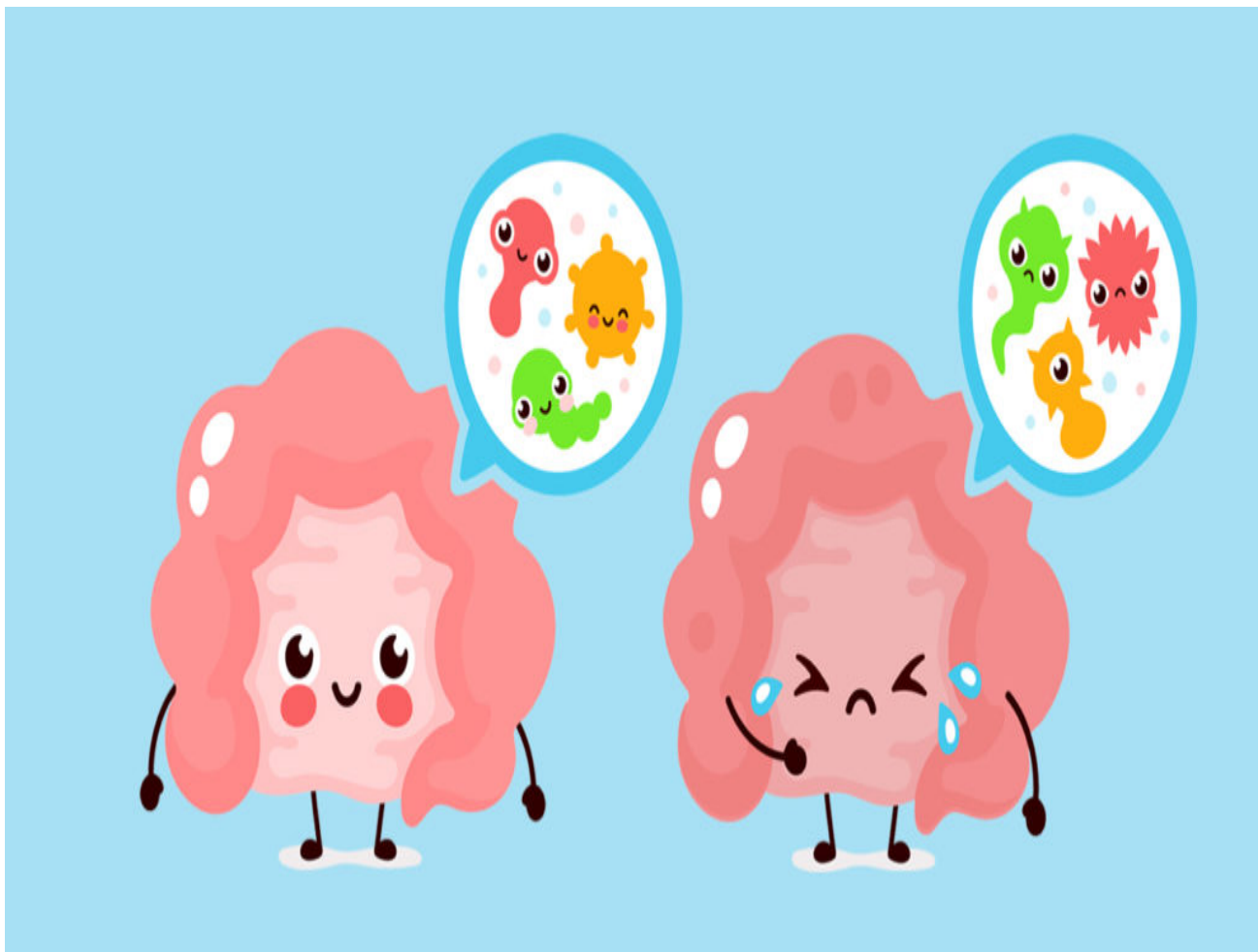


Resource

## Growing evidence for the importance of a healthy gut in JIA

Great Ormond Street Hospital (GOSH) are approximately 2 years into a study that is looking at how gut bacteria differs between healthy children and those with arthritis. GOSH are working in collaboration with hospitals in Oxford, Birmingham, Newcastle and New York for the study, and this group is called The IAMC – Inflammatory arthritis microbiome consortium.

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Changes to diet affect gut bacteria changes and this is simply because the gut bacteria have different

things to eat, but when you have a long-term condition, like JIA, gut bacteria can be changed for other reasons. However, researchers and doctors are not sure if changes are causative or happen as a result of the disease.

Scientists already know that your gut bacteria is different in diseases like diabetes and inflammatory bowel disease. So far, results have shown that in adults early on in their arthritis diagnosis, gut bacteria changes with treatment, which is why studies like this are so important.

## The importance of butyrate

Previous research by the team members have shown the importance of butyrate to maintain a healthy microbiome.

Butyrate is a type of fatty acid that helps your gut to work properly. It increases the anti-bacterial molecules in the macrophage and macrophages increase the barrier function against bad bacteria. Butyrate has a lot of other benefits, related to obesity, insulin sensitivity and anti-cancer effects.

Butyrate is important for creating tolerance in the gut and promoting an anti-inflammatory environment.

Many researchers show that butyrate can influence the activity of the immune system. On one hand, butyrate blocks the development of new immune cells participating in inflammation. On the other hand, it stimulates the production of some inflammatory proteins. Some research also suggests that butyrate can reduce inflammation, by suppressing the activity of cells and proteins that drive inflammation in the body.

You can get butyrate from vegetables such as asparagus and onions as well as certain fruits and oats (found in muesli and porridge and wholemeal bread). Vegetables and fruit are high in fibre. Fibre in the diet is broken down by certain types of bacteria which in turn produce butyrate.

## The effects of healthier and less healthy fats in the diet

Another study conducted by Dr George Robinson at UCL looks at whether changes to diet (such as a reduction of bad fats) could help to prevent overactive immune cells in lupus. These findings could have important implications for other auto-immune diseases like JIA, where the condition is brought on by overactive immune cells attacking parts of the body. In the future the IAMC may look at doing studies where diet is changed to investigate these effects in arthritis.

This research also showed that relationship that fat can have on your immune system, and bad fat – saturated fat, can have a negative impact.

In 2017/2018 only 16% of children consumed 5 or more portions of fruit and vegetables a day and 1 in 5 of year 6 children were classified as obese.

The healthy active cells that protect our guts are negatively affected by saturated fats. Immune cells are covered in fat. This fat can change the cell function, so too much fat and the cell become overactive. Whilst there is no specific evidence-based dietary recommendation for children with JIA, oily fish such as salmon, trout, mackerel, sardines and fresh tuna (containing healthier fats) may all be helpful in reducing inflammation. Some studies suggest that fish oils may help to manage some symptoms of arthritis.

Try making fish cakes, fish pie and wraps or jacket potatoes with these healthier fat fishes, making it easier for children to eat them.

Paediatric Dietitian, Tanya Thomas recommends the Mediterranean Diet as it has a good combination of being balanced and limiting refined or processed foods. Vitamins C and D are essential for growing bodies as are essential fatty acids. During digestion the body breaks fat down into fatty acids and these have a number of important functions, including fuelling our cells.

When your children lose their appetite and don't feel well, try giving them small frequent meals and stick to (healthy) things that they like; homemade soups, broths and stews – generally foods that are easy to eat, like a smoothie with nut butter, such as peanut or almond (high in healthier fats).

Unsaturated fats are found in the following foods and try to eat at least two portions of fish a week.

Olive oil	Rapeseed oil	Avocados
Almonds, brazil nuts and peanuts	Corn oil	Sunflower oil
Mackerel, kippers	Herring, trout	Sardines, salmon
Nut butter	Flax seeds (great on porridge)	

## Useful resources

[What is a Mediterranean diet?](#)

[Change 4 Life](#)

[Close Company – Seeing the world through bacterial eyes](#)

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