
AGM 2023:

Ultra-processed foods - Questions and answers

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Answers provided by Professor Kevin Whelan

If the scientific studies show UPF poses no risk to developing Ulcerative Colitis, can it be said that consuming UPF exacerbates/causes a flare-up for those of us who have Ulcerative Colitis?

There seems to be a link between UPF and developing Crohn's. Has there been research into the effect of UPF on people who already have Crohn's, i.e. is it likely to increase disease activity?

Ultra-processed foods (UPF) have been linked with the development of Crohn's Disease but not Ulcerative Colitis. We don't yet know if reducing the amount of UPF:

- Improves inflammation (treats the disease) in people with Inflammatory Bowel Disease (IBD).
- Keeps inflammation away (maintains remission) in people with IBD.

Does the fact that there is a difference in the observed effect between Crohn's and Ulcerative Colitis imply that it isn't just poor nutritional qualities in UPFs that are the issue, but something more particular?

We know in general some UPF have lower nutritional qualities - such as higher levels of salt, sugar, fat and energy. And UPF might be lower in the fibre, vitamins and micronutrients that are good for us.

But not all UPF have lower nutritional qualities and some maybe quite good for your health. In addition to the nutrient profile, there are some theories around whether the packaging UPF come in might affect the risk of some diseases. There's also a change in the food matrix, where lots of the cells in UPF are broken down during processing, so they might be digested or absorbed in a different way to usual. And finally, lots of processed foods also contain food additives - so that's another reason why there might be a small association of an increased risk of developing Crohn's with UPF.

If someone is looking for emulsifiers on a label, how easy is it to identify them?

Do manufacturers have to put the word 'emulsifier' on their ingredients label?

What is the easiest way to check what emulsifiers foods contain?

Are there apps available for food emulsifiers if you are not on the trial?

There are over 60 different emulsifiers in the UK so it can be very challenging.

Legislation around this is complex – they can be labelled in several different ways. They can be labelled as an E Number, emulsifiers usually begin E4 (E401, E402, etc).

However, it is not law that E numbers must be mentioned in ingredients lists. Suppliers might use the chemical name for them instead. We are currently developing an app where you can scan food and the app will tell you clearly what additives or emulsifiers are present. If our studies do show that a low emulsifier diet is effective for those with IBD, our intention is to release the app to the public to help them with this.

Is there a known link between xanthan gum and IBD?

I do not know of any studies of xanthan gum in IBD.

There has only been one very small intervention study (randomised controlled trial) looking at an emulsifier in IBD – and it looked at the emulsifier carrageenan. 12 people with Ulcerative Colitis who were all in remission and feeling well were put on a low carrageenan diet. Half of people were given a placebo (dummy treatment), and the other half were given carrageenan.

There were no differences in inflammation scores between those taking a placebo and those taking carrageenan. When looking at relapses (flare-ups), no one taking the placebo relapsed, but 3 out of 5 people taking carrageenan relapsed. So there was a small signal seen in a small study.

Why do emulsifiers lead to more pro-inflammatory bacteria? How can they distinguish between 'good' and 'bad' bacteria?

Emulsifiers change the microbiome. They cause lower levels of the good bacteria (types of bacteria that don't cause inflammation) and higher levels of bad bacteria (types of bacteria with the potential to cause inflammation). We do not know why emulsifiers cause changes in the balance of good (immunoregulatory) and bad (proinflammatory) bacteria in the gut. They just do, but some emulsifiers have more of an effect than others. In fact, we don't really understand WHY lots of aspects of our diet change the bacteria – merely that they do.

Emulsifiers also emulsify the mucus in our gut. The mucus is actually good for our gut - it protects our gut. Without it the cells can become inflamed. People with IBD have an increase in the permeability between their gut cells, known as leaky gut cells. Some emulsifiers can make this worse. Emulsifiers can also cause the activation of immune signals resulting in inflammation. This knowledge is all based on studies in mice, not on studies in humans.

Thank you for raising the issue about titanium dioxide and the fact that Britain has not followed the EU lead. This has concerned me for some time because I tend to avoid as Ulcerative Colitis drugs containing it appear to have aggravated my flares, I now have to take it in blood thinners (because of PEs) lifelong and have raised my concern with consultants. The EU is also exploring removing titanium dioxide in medications in a 10 year framework, I want the government to follow the EU's lead regarding titanium dioxide - do you think this it is worthwhile petitioning?

Firstly we do not 100% know the effect of Titanium dioxide in IBD. Professor Miranda Lomer did a randomised controlled study looking at microparticles (titanium dioxide) in IBD. She took 83 people with active Crohn's Disease and put half of them on a diet with normal levels of microparticles, and the other half on a diet with low levels of microparticles. She followed them up for 16 weeks.

Cutting out microparticles did not impact:

- The number of people going into remission (people who got better).
- Crohn's Disease activity - inflammation was the same on the low microparticle diet as the normal microparticle diet.

Although animal studies have shown microparticles might not be good for people with IBD, human studies have not been able to show this.

In terms of legislation in the UK, you are right that we have not adopted the EU legislation to ban it. My "ear to the ground" tells me that food industry are likely to adopt it anyway (otherwise they would be making two different products, one for the UK market with TiO₂ and one of the EU market without TiO₂).

How do you get involved in the ADDapt trial? Are the trials currently full?

There are lots of places still left to take part in our trial of restricting emulsifiers! We will give you lots of support (dietitian advice, an app) and some food and snacks, but it is also very intensive so only volunteer if you are committed for 8-weeks.

You can take part in the ADDapt trial if you're at one of the 8 hospitals in London, one of the 10 hospitals in England, or at a new hospital site opening in Edinburgh. If you're not at one of these hospitals, you can still take part by self-referring to the trial.

Anyone who wants to take part can email ADDapt@kcl.ac.uk

To be eligible to take part you need to have:

- Crohn's Disease
- No other major medical conditions (for example, no diabetes, no food allergies)
- Mild to moderately active disease (quite symptomatic with evidence of inflammation at the moment, e.g. faecal calprotectin, endoscopy)
- No recent change in your IBD medicines

Any tips for people managing their diet, between trying to reduce UPF while also not being able to eat high fibre or raw vegetables, etc?

It is so tricky as everyone's experience is different. This is why we need to test and be sure what may or may not help before giving advice. Always speak to your clinical team, ask for access to a dietitian, and explain to them what different foods do to you, so you can work together to find a diet that works for you.

We don't know yet whether reducing UPF will help your IBD, we need to do these studies. But as long as you can still follow a healthy diet then there is no harm reducing UPF. But remember, it is not a "no-UPF diet". Some people with IBD cannot tolerate high amounts of fibre, but some can. Your dietitian could help you navigate this balance.

Would you recommend a gluten-free diet for IBD?

Can I ask about nutritional programmes? Is following a gluten-free diet helpful - since gluten can pass through the gut wall and lead to foggy brain?

There is some evidence in animal studies that gluten can increase inflammation in the gut. However, this has not been confirmed in humans (except in people with coeliac

disease) or in those with IBD. So, in general there is no evidence that following a gluten-free diet is beneficial for IBD, and should not be recommended.

However, if you follow a gluten-free diet and you feel good on it, if you feel it helps your IBD stay in check then it is unlikely to be harmful, as long as it is not affecting your lifestyle, and as long as it doesn't nutritionally compromise you. However, it is good to be aware that lots of gluten-free foods do have additives and emulsifiers in them. You should always work in conjunction with your clinical team and a dietitian before following a restrictive diet such as a gluten-free diet.

If you think you have coeliac disease or gluten sensitivity, speak to your IBD team or dietitian before changing your diet. It's important to get a diagnosis so you can get the right monitoring and treatment. The tests for coeliac disease only work properly if you are already eating gluten.

There seems to be overlaps with your research and the Zoe Study (run by Tim Spectre) – do you share information?

Zoe is a commercial company which I am not associated with. Personally, I haven't used the app as I don't feel I need to know this level of detail about my blood glucose levels, etc. I eat a healthy diet, and I worry that using an app in this way could create a placebo effect. We must remember that food is in our life for enjoyment, and not just nutrition.

If you had a crystal ball, what do you imagine it would tell us about UPF and IBD in 10 years' time?

I wouldn't want anyone reading to think this is the advice I am giving to them right now. But honestly, I think if we do the clinical trials that are so desperately needed, I think we will demonstrate that UPF may impact the course of IBD, and I think we will show that emulsifiers worsen IBD. I think we will be looking at ways to reduce the amount of UPF and emulsifiers in diets in IBD, while also supporting patients to maintain a healthy balanced diet. But I wouldn't want anyone to think this is the advice I am giving now,

because we are not there yet in terms of the evidence. But that is where I think we will be in a few years' time with the right sort of studies.

Why is Ulcerative Colitis often secondary to Crohn's Disease in so many studies? / Just curious - why only Crohn's for the ADDapt study?

Good question. It does seem that most dietary studies are in Crohn's rather than Ulcerative Colitis, with a few exceptions. The biggest reason for this is that some diets and some diet patterns have been shown to be associated with Crohn's but not Ulcerative Colitis. For example, exclusive enteral nutrition (liquid diet) has been shown to be effective in Crohn's but not Ulcerative Colitis. Secondly, observational research shows UPF are associated with Crohn's but not Ulcerative Colitis. This is why our ADDapt trial is specifically in Crohn's. That doesn't mean that diet isn't important in Ulcerative Colitis, nor that people with Ulcerative Colitis don't struggle with their diet. I don't think that's true at all.

In the Crohn's emulsifier study, how do you differentiate between the effect of the diet and the effect of medication. Are people not to take medication during the trial?

Yes, some people are definitely taking medication during the ADDapt trial. But it has to be on a very stable dose and not being changed recently. So that any changes in inflammation can only be due to the change in diet, and not the drugs they are taking.

Do we know why UPF has a bigger impact on potentially developing Crohn's vs Ulcerative Colitis?

We really don't know why. Previous surgical studies have shown the content of the gut are more inflammatory in Crohn's Disease than in Ulcerative Colitis, but we don't know exactly why. It's not the only aspect of diet that is like this. Exclusive enteral nutrition (liquid diet) works in Crohn's, but is not so good in Ulcerative Colitis.

Are any of the emulsifiers known to be ok - E.g. added Lecithin derived from eggs - is it safe or still questionable?

In fact not all emulsifiers are the same. Some have lots of effect on the microbiome and some have very little. So I don't think it will be as simple as all emulsifiers cause these effects, because some may not cause the same effects in IBD.

There are also natural emulsifiers (in contrast to food additive emulsifiers), as you say lecithin in eggs, carrageenan in seaweed, etc. We really don't know whether these natural emulsifiers have the same effects on the microbiome, nobody has done those studies.

Are there any studies looking at Microscopic Colitis and UPF?

There are no specific studies of UPF or food additives in Microscopic Colitis. Sorry!

Diet with Microscopic Colitis is different for everyone. There isn't evidence to suggest that specific foods affect people with Microscopic Colitis but you may find that certain foods are a trigger for you. Fatty, spicy and high fibre foods make some people feel worse, but everyone is different, so keeping a food diary can help. A dietitian can help you find a healthy diet that works for you. Try the food diary in the Crohn's & Colitis UK information on [Food](#).

Key references from Professor Whelan's presentation

- Narula (2021): [Association of ultra-processed food intake with risk of inflammatory bowel disease: prospective cohort study](#)
- Vasseur (2021): [Dietary Patterns, Ultra-processed Food, and the Risk of Inflammatory Bowel Diseases in the NutriNet-Santé Cohort](#)
- Lo (2022): [Ultra-processed foods and risk of Crohn's disease and ulcerative colitis: a prospective cohort study](#)

- Meyer (2023): [Food Processing and Risk of Crohn's Disease and Ulcerative Colitis: A European Prospective Cohort Study](#) (purchase may be required)
- Chen (2023): [Intake of Ultra-processed Foods Is Associated with an Increased Risk of Crohn's Disease: A Cross-sectional and Prospective Analysis of 187 154 Participants in the UK Biobank](#)
- Narula (2023): [Food Processing and Risk of Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis](#)
- Srour (2022) : [Ultra-processed foods and human health: from epidemiological evidence to mechanistic insights](#) (purchase may be required)
- Bhattacharyya (2017): [A randomized trial of the effects of the no-carrageenan diet on ulcerative colitis disease activity](#)
- Lomer (2005): [Lack of efficacy of a reduced microparticle diet in a multi-centred trial of patients with active Crohn's disease](#) (purchase may be required)

Evidence-based answers provided by the Crohn's & Colitis UK Knowledge and Information Team

What is ultra-processing please?

A processed food is any food that has been altered in some way during preparation.

The NHS has general information on what processed foods are: <https://www.nhs.uk/live-well/eat-well/how-to-eat-a-balanced-diet/what-are-processed-foods/>

Ultra-processing is more than the standard preservation approaches described in the NHS link above. It includes industrially manufactured food products made up of several ingredients (formulations) including sugar, oils, fats and salt. These ingredients are generally found together and in higher amounts than in processed foods. UPF include food substances that are rarely used in a standard kitchen, such as high-fructose corn syrup, hydrogenated oils, modified starches, protein isolates or food additives.

The British Nutrition Foundation has created a Frequently Asked Questions document about processed foods, including information on UPF:

<https://www.nutrition.org.uk/putting-it-into-practice/make-healthier-choices/perspectives-on-processed-foods/faqs-on-processed-foods/>

Would porridge oats be considered as ultra processed food? Would fruit ever be considered ultra-processed? Considering the packaging/air miles involved

If the porridge oats contain no other additives or ingredients, then they would not be UPF.

A food classification method called NOVA is used to classify food based on how it is prepared and the amount of processing it's had. The definitions of UPF do not make any mention of air miles or sustainability.

Fruit and vegetables (including cut, packaged or frozen) and porridge oats would be considered unprocessed or minimally processed. If porridge oats are fortified, or any additional ingredients are added, they would be considered processed or ultra processed.

Talking about high protein/energy foods that are UPF, presumably Fortisip would be a UPF?

Based on the ingredients, Fortisip is considered to be a UPF – however, not all processed foods are unhealthy. Fortisip and other nutritional drinks can be an important treatment option or supplement for people with Crohn's or Colitis. They can give you the energy and nutrients your body needs.

UPF include many normal foods that contain important nutrients, especially for people with IBD. Lots of breakfast cereals are UPF - including those that are fortified with iron. And remember that iron is good for people with IBD if they have anaemia. Plant-

based alternatives are also often ultra processed. UPF can be cheap and tasty, and they can be easy to prepare. If you're feeling unwell with your IBD that might be quite important. UPF are often high in energy and protein which is good if IBD is making you malnourished. So it is not as easy as saying all UPF are always bad, it is much more nuanced than newspaper headlines would have you believe.

Professor Kevin Whelan

The NHS has general information on eating processed foods as part of a healthy diet: <https://www.nhs.uk/live-well/eat-well/how-to-eat-a-balanced-diet/what-are-processed-foods/>

The British Nutrition Foundation has created a Frequently Asked Questions document about processed foods, including information on UPF: <https://www.nutrition.org.uk/putting-it-into-practice/make-healthier-choices/perspectives-on-processed-foods/faqs-on-processed-foods/>

Would you say that the increase in consuming UPF is linked to the fact that there are more cases of IBD in the western world rather than in other places?

Do you still have to have a genetic predisposition?

There is no evidence that any particular food causes Crohn's or Colitis. We don't know exactly what causes Crohn's and Colitis. It is probably a combination of your genes, problems with your immune system, changes in the bacteria that live in your gut and an environmental trigger, like smoking, what you eat, infection or antibiotic use.

There is a higher rate of Crohn's and Colitis in westernised nations. And the rate of Crohn's and Colitis is increasing in developing nations as they become more industrialised. While there is a high amount of UPF eaten in westernised nations,

industrialisation also brings many other environmental factors. This includes other changes to what you eat and to your general lifestyle, as well as exposures to different bacteria, pollution and medicines. All of these changes might be contributing in some way to the increasing rates of Crohn's and Colitis.

The food you eat can affect your health in lots of ways. It is a complicated relationship. Food can have direct effects on the lining of your gut. It can affect your immune system. It can also change the balance between helpful bacteria and harmful bacteria that live in your gut. So what you eat might affect your risk of getting Crohn's or Colitis, but there is not enough evidence yet to say for certain. Eating UPF is associated with an increased risk of developing Crohn's Disease, but it is not yet proven to be a cause.

Have there been any studies looking at breastfeeding as opposed to bottle feeding and the risk of developing IBD?

There are some studies comparing breastfeeding and formula feeding during infancy. They suggest that being fed human milk for a shorter time or not at all may be linked with a higher risk of developing Crohn's or Colitis, but the evidence is very limited and more research is needed to be confident there is a link.

Do you think COVID-19 has played a causal role in Crohn's?

There is currently no evidence that COVID-19 causes Crohn's or Colitis. Our general COVID-19 information can be found here: <https://crohnsandcolitis.org.uk/info-support/information-about-crohns-and-colitis/all-information-about-crohns-and-colitis/living-with-crohns-or-colitis/covid-19-in-people-with-crohns-or-colitis>

Help and support from Crohn's & Colitis UK

We're here for you whenever you need us. Our award-winning information on Crohn's Disease, Ulcerative Colitis, and other forms of Inflammatory Bowel Disease have the information you need to help you manage your condition.

We have information on a wide range of topics, from individual medicines to coping with symptoms and concerns about relationships and employment. We'll help you find answers, access support and take control.

All information is available on our website: crohnsandcolitis.org.uk/information

Our Helpline is a confidential service providing information and support to anyone affected by Crohn's or Colitis.

Our team can:

- Help you understand more about Crohn's and Colitis, diagnosis and treatment options
- Provide information to help you live well with your condition
- Help you understand and access disability benefits
- Be there to listen if you need someone to talk to
- Help you to find support from others living with the condition

Call us on 0300 222 5700 or email helpline@crohnsandcolitis.org.uk.

See our website for LiveChat: crohnsandcolitis.org.uk/livechat.

Crohn's & Colitis UK Forum

This closed-group community on Facebook is for everyone affected by Crohn's or Colitis. You can share your experiences and receive support from others at: facebook.com/groups/CCUKforum.

Help with toilet access when out

Members of Crohn's & Colitis UK get benefits including a Can't Wait Card and a RADAR key to unlock accessible toilets. This card shows that you have a medical condition, and will help when you need urgent access to the toilet when you are out. See

crohnsandcolitis.org.uk/membership for more information, or call the Membership Team on 01727 734465.

Crohn's & Colitis UK information is research-based and produced with patients, medical advisers and other professionals. They are prepared as general information and are not intended to replace advice from your own doctor or other professional. We do not endorse any products mentioned.

About Crohn's & Colitis UK

We are Crohn's & Colitis UK, a national charity fighting for improved lives today – and a world free from Crohn's and Colitis tomorrow. To improve diagnosis and treatment, and to fund research into a cure; to raise awareness and to give people hope, comfort and confidence to live freer, fuller lives. We're here for everyone affected by Crohn's and Colitis.

This information is available for free thanks to the generosity of our supporters and members. Find out how you can join the fight against Crohn's and Colitis: call 01727 734465 or visit crohnsandcolitis.org.uk.

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We hope that you've found this information helpful. You can email the Knowledge and Information Team at evidence@crohnsandcolitis.org.uk if:

- You have any comments or suggestions for improvements
- You would like more information about the research on which the information is based
- You would like details of any conflicts of interest

You can also write to us at **Crohn's & Colitis UK, 1 Bishops Square, Hatfield, Herts, AL10 9NE** or contact us through the **Helpline: 0300 222 5700**.

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