

# Impact of allergy research goes more than just skin deep

**Amanda Cassidy** talks to **Jonathan Hourihane**, Professor of Paediatrics and Child Health at UCC, about how he became a passionate leader in food allergy research, his frustration at the lack of services here in Ireland, and his hopes for transforming the lives of millions of children for the better.

“**Y**ou have an allergy,” Professor Jonathan Hourihane informs me within just moments of meeting him. We are sitting in his sunny office at Cork University Hospital, discussing the groundbreaking strides he and his team at UCC have made in the field of paediatric food allergies.

“The slight crease on your nose suggests an allergy to house dust mites. You are probably prone to sneezing and snore at night – yes?” I nod, stunned at the immediate, spot-on diagnosis of something I had always suspected.

Although extremely impressed, I was not surprised; Jonathan is head of the internationally recognised paediatric allergy service at CUH and is a renowned Professor of Paediatrics and Child Health at UCC. You can tell straight away that he loves what he does. His passion and knowledge, particularly when it comes to skin barrier dysfunction and immunotherapy trials, could potentially lead to the end of certain food allergies as we know them.

The root of his expertise began at a time when there was a dearth of knowledge about food allergies. “I was a trainee in paediatrics in England in the 90s when the so-called allergy ‘bomb’ went off, and it was immediately clear that few people knew much



about it – even the paediatricians involved. Most people were working off gut instincts and experience of one or two cases, but there was very little data on the extent of food allergies.”

He had planned to do a research project on asthma with his professor, who suggested they work on a food allergy project instead. When Jonathan did a literature search and only found about five papers involving very low numbers, he realised there was a huge knowledge gap.

Such a gap is also the opportunity to generate knowledge, of course, so they spent four years working on it solidly: “It evolved into a mature, well-established area, but at the time nobody knew much about it, so we had to answer a lot of primary questions. It was immensely exciting to build such a wealth of knowledge, and I’m proud to remain at the leading edge of this research now at UCC, as we constantly move forward.”

Once you answer one question and you get to another, you are building a pattern of information each time, which will ultimately transform someone’s life for the better, he adds.

His latest research at UCC, which is being hailed as a breakthrough, in child allergy treatment will undoubtedly have that outcome for many.

“We found that analysing the weakness of a newborn infant’s skin barrier could help predict which child would develop food allergies. This means that we can adopt simple, early preventative strategies which could offer hope to children who would have otherwise had a lifelong allergic condition.”

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• Jonathan Hourihane was researching skin barrier dysfunction and immunotherapy long before it became mainstream in Ireland. (Photography: Cathal Noonan)





This work has already had 50 citations in its first year, when normally the number is less than 10 in any paper. He is proud that they are putting the Irish stamp on things: "We have collated our own data about Irish children, rather than relying on estimates based on British data. The current immunotherapy studies are interesting, because we are trying to turn off allergies that are established."

These were discussed recently at the world's biggest allergy meeting in Orlando. "Our work centres around trying to get the body's recognition of safety ever higher, while 'switching off' severe allergic reactions – it is called desensitisation and tolerance induction."

He is also motivated by the responsibility to inform the wider public. "For example, a lot of parents think that eczema is caused by food allergy, when in fact it is the other way around – eczema causes food allergy," he reveals.

"It is the broken skin barrier that makes someone produce these danger signals in your body which an allergy probably represents. We've realised that if you are exposed to a certain food through your skin, rather than through your gut, your body is confused."

This research has led to what's called the two-hit, or the dual-exposure hypothesis, which is where if you are exposed to food through your gut before you are exposed through your skin, you are less likely to get an allergy.

Currently, however, we have no real cultural understanding of food allergy in Ireland. "Some of the advice being given, like not to eat peanuts when you are pregnant, is over 10 years out of date. It is the same with the myth that there's egg in the MMR vaccine. There hasn't been any egg in the MMR vaccine since the '90s.

"We need to get the message across in primary care, through our GPs and public health nurses. We are also now trying to introduce food into children's diets as soon as possible. We have families who are now on their third or fourth child, and they are getting diametrically opposite advice to what they got the first time around."

Jonathan is Chairman of the Irish Food Allergy Network, which has one of the best websites in the world for information for those with food allergies. When he started, the standard advice was to avoid food, to stop

people getting allergies. "That was flawed thinking," he says. "It was made on the basis of the data that was available at the time, but we are now at the stage where we are trying to put foods back into people's diet."

"A total of 80-90% of children will grow out of a milk allergy eventually, and 60-70% of those with an egg allergy will grow out of it too, if you just leave them alone. But getting them to eat the food, tolerance acquisition, is faster – up to 16 times faster."

The issue of allergies needs to be treated with the same level of respect and understanding as other conditions, he says. "I'm tired of being asked why it is so common – starting from scratch each time. My colleagues in Scandinavia and Germany don't have these conversations, because food allergy is understood."

The reason it is not understood here, is because there are no allergy services to move it along, he points out. Every hospital in the country should have an allergy service. "The medical advisors to the Government don't really understand food allergy because it is so common, yet – usually – not lethal. The Department of Education and the Department of Health need to come up with a policy. Schools keep asking us for individualised school guidelines, and we explain that a national level policy is needed."

He believes that allergy is a community disease looked after in academic centres and feels that his role is to help change that dynamic. "We are working on this with the Irish Food Allergy Network currently, and the research we are doing here at UCC is really, really important.

"We may not be front and centre, but we are heavily involved in the moving parts of allergy research on the cutting edge, as we try to learn more about how to treat them and even switch them off – and that is pretty amazing, especially for such a tiny team," says Jonathan. "I am so proud that our work here at UCC has global implications and, best of all, could transform the lives of millions of children for the better."

*Jonathan leads a research team in INFANT, the Irish Centre for Fetal and Neonatal Translational Research. For more information, visit [www.infantcentre.ie](http://www.infantcentre.ie).*