Science AMA Series: I am Dr. Edwin Kim, assistant professor of medicine and pediatrics at the UNC School of Medicine in Chapel Hill, N.C., here to talk about the use of immunotherapy in the treatment of food allergies. Ask me anything!

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Any idea why the number of people with food allergies has more than tripled in that 11 years?

newunit13

Unfortunately, this is the zillion dollar question and we don't know the answer. There a bunch of theories and all of them may be right. The hygiene hypothesis or us being too clean may be responsible for some off this. Clearly there is more allergy in developed countries than in 3rd world countries to back this. Below is a comment about birth which could tie into this. C-sections are done in a sterile operating room whereas vaginal births go through the vaginal canal where there are many species of bacteria normally living. Perhaps this early exposure could be important.

Overuse of antibiotics has been suggested as well. Again maybe getting lots of antibiotics either at birth or for all the ear infections and other early infections is not allowing our bodies the proper exposures.

The antibiotics could tie into the idea of gut bacteria and gut health. There is a lot of attention on the idea that a balance of bacteria in your gut can help your immune system and perhaps protect against allergy and even autoimmune diseases. Antibiotics wipe out all the bacteria and possibly allow the bad bacteria to take hold throwing off this balance. There could be a role for probiotics in helping although there is not a lot of data on this. One study of oral immunotherapy with probiotics from Australia seemed to support this.

People also wonder if vitamin D could have a role as vitamin D seems to have a role in modulating your immune system and these days because of the risks of UV, we have far less exposure than we used to.

All of these may play a role and there are likely many other thoughts out there that could be part of it. If you discover the answer, please remember me when you are rich and famous!

For years pediatrician have been advising parents of newborns to stay away from certain foods until the child is two years old. Such foods include peanuts and strawberries to name a few. However, the first years, the body's immune system cells, particularly the T cells, are sampling the environment to determine self from non-self. Could this advice contribute to food allergies?

Flembot4

Thanks for the comment, you are right that the allergy science has moved towards early introduction for the possible prevention of allergy. There is a thought that there may be a certain window early in life where your immune system is more likely develop tolerance to things that you are exposed to. With this in mind, there is some thought that avoidance could potentially increase the risk of developing allergy.

Hi, Thanks for the AMA!

I am wondering if this is just for allergic reactions that are life threatening or would this also work for food that gave you hives or various degrees of indigestion like celiac disease.

What about for something like contact dermatitis? How similar/dissimilar would that be?

kazneus

Hi kazneus, this is a great question. The idea of immunotherapy is to find an amount of the allergic trigger that is big enough for the immune system to see but not so big that there is outward symptoms. Then with continued treatment, the hope is that we can desensitize the immune system and increase the reaction threshold. The key here though is what part of the immune system we are talking about. So our treatments really focus on IgE and the immune cells related to this. Celiac, contact dermatitis, non-celiac gluten intolerance, and similar food intolerances are not caused by IgE so immunotherapy as we have been studying it is not likely to help.

Why am I having an adult onset of a food allergy (shellfish)?

jbaus

Hi Jbaus, I wish I could tell you why but just like we don't know why there are so many more allergies out there, we don't know why shellfish and fish allergy seems to pop up in adulthood different than milk egg and peanut which shows up in kids. Also different than milk egg and peanut where the reaction is often with the first exposure, with seafood patient usually have eaten it fine for a while then become allergic. Like other food allergies, I would assume that there is some genetic predisposition that made you more likely to become allergic and then an environmental trigger actually made you allergic. One thought could be that you had a protective part of your immune system suppressing the allergy for years and then this waned. This seems to be related to how many autoimmune diseases initially pop up.

For an allergy -such as peanuts- is immunotherapy treatment possible at any age or should it be performed at a young, developing age for the best results?

Btw, I'm from Charlotte, go Heels!

CommJimHoredem

There is a really big focus on early introduction in the wake of this LEAP study. Our newest food

immunotherapy studies also have been focusing on younger kids. However, it is important to remember that these studies are all based on data from the past 10+ years where we looked only at older kids, 5 years and older, and showed clear benefit in this age group. The hope is that in the younger kids the benefit will be as good and possibly better and longer lasting.

Will the "new" trained immune system go back to its original state after a while?

xiphias11

Great question! At this point, although we are hopeful that what we are doing is making permanent changes to the immune system, we don't know if this is true. There are lots of changes to the immune system that show we are making it less responsive but there is no one clear test that says you are tolerant and "cured". In our studies we have tried to see if the treatment is taken away what happens to the effect and for many patients the effect seems to last but that is only for 1 month so I would not be comfortable saying it is permanent. There are other studies that seem to show that given enough time, the effect does wear off. At this point, we are approaching the treatments as having a lasting but non-permanent effect so the recommendation will be to continue regular exposure to maintain the protective effect.

Let's get right to the point of your research:

When, realistically, will I be able to eat pecans and not die? Do we have a timeline of anticipated gains?

earthrise33

Hum, well I don't have a great answer for pecans at this point but I did want to take the opportunity to bring up that after years of research showing that immunotherapy has potential, finally there are 2 studies for peanut allergy that are currently ongoing that have received breakthrough therapy and fast-track status by the FDA. This means that if they can show clear safety and benefit, they will be brought to market in an expedited manner. This brings hope that possibly in the next 2-4 years, there may be 1 or more treatments available. For your case, the hope would be that once we have a couple of treatments proven and accepted, that perhaps over foods will come quickly afterwards. Hang in there!!!

Is immunotherapy something that people can administer themselves, or is there some non-obvious technique that is necessary? How long does treatment take? And can it reduce an allergy enough that it has no noticeable effect?

I've had a mild allergy to soy for over 20 years. And I've been consuming soy my whole life (over 40 years). Soy is in everything. I would think that my body would have built a tolerance to soy by now.

ronaldwreagan

the answer to this is yes and no.

99% of the doses that are given in our food studies is done at home by the patients without a physician. Patients are seen in our clinic under physician supervision every time the dose is increased as these days having a higher risk of an allergic reaction.

The important piece here though is that it is done in conjunction with a physician with experience in this. The goal is to find an amount of food that is big enough that your immune system can respond to it without being so big that you have a severe allergic reaction. The study protocols are designed to do

this in the safest way possible. My guess is that this threshold is different for most people so picking an arbitrary amount of food at home and starting it as therapy is very risky and I would not recommend it.

I am a first generation immigrant from India to Canada; All my four kids were born in Toronto; my two boys have severe allergies and asthma. They are allergic to eggs, nuts of all kinds. legumes and beans. They are now 17 and 14 year old respectively. Is there any potential treatment for them now to overcome these allergies. Thanks

Rizwan109

Hi there, milk, egg, and peanut are the 3 most common food allergens so most of the existing studies have focused on these foods. So far it does seem that immunotherapy can help many if not most of these patients. It is still experimental and there are risks that come with treatment as well as the significant time commitment that the treatments entail but I would say there is hope.

Hi Dr. Kim,

I have a strange form of exercise-induced food allergies. If I eat certain foods and then exert myself, whether it be at the gym or just hanging out with a big group of people, I have an allergic reaction. I get hives, my eyes swell, and my voice deepens. It isn't serious but it isn't mild either. It usually calms down with a few Benadryl.

No doctor I've visited has been able to pin down the food. I haven't had one in a while but I typically average three or so a year. I take Zyrtec every day which seems to reduce the severity of the reactions if I do have them. I had my first one when I was 11 or 12 and I am 20 now. The foods range from gummy candies to dominoes pizza to Chinese food to marshmallows to a cake with jello in it. There are a few others but it's hard to recall them right now. At first I thought it was red dye 40 but later I came to believe it was gelatin.

Have you seen anything like this? I have to eat the food and then exercise. But it is definitely only certain foods, because I eat before I work out every time and very rarely have problems. Thank you so much for reading.

t_bakez

Hi there, first of all, you are not alone. There are definitely others out there who have similar symptoms as you do. There are a few possibilities. One is that you are correct and that it is a food/exercise connection and we just have not isolated the food trigger. Another is that you have strictly an exercise anaphylaxis disease that doesn't show up every time you exercise. Another is that you have an issue with the allergic part of your immune system (mast cells) that puts you at higher risk for allergic reactions and in your case exercise and or food can bring this on. A lot of patients with daily hives can fall into this category. Unfortunately, at this point, you likely will need to focus on treatments to suppress this allergic part of your immune system while you continue to look for the trigger(s).

I have a mammalian meat allergy caused by a reaction to Galactose-alpha-1,3-galactose. I get sick 2-3 hours after eating the meat. It has actually gotten worse since it started 25 years ago when everyone told me it was in my head. I cant eat any beef. Any chances your therapy could work?

uglydork

Unfortunately, at this point, we are still trying to understand exactly what is going on with alpha-gal allergy. We know that it still involves the IgE antibody like peanut and other food allergies but the

involvement of ticks, the delays in reactions, and even the fact that it doesn't seem to happen with every exposure makes us worry that the same immunotherapy treatments may not work. At this point however, no one has studied this so we don't know. My colleague Dr. Scott Commins and Dr. Maya Jerath here at UNC are working to try to understand more about this newer food allergy.

Ooh allergy person - I've been waiting for this - I used to eat all nuts, but then we found out my sister's allergic to them and some fruits - stopped eating the nuts (cuz she might die) - 3 years later having eaten no nuts, apparently she can eat some nuts now - what are the chances I might be allergic to nuts tho? After having been told not to eat nuts for 3 years I'm kinda scared (might be 5 years)

doodspav

If you used to eat nuts before your sister's diagnosis, then your chances of being allergic now are very small and possibly none. It is probably worthwhile to see a local allergist to discuss this. They may choose to do a skin or blood test, or my vote would be to simply do what we call a food challenge. This sounds super fancy to make me feel important but it is basically having you bring in your favorite peanut containing food and eating it in a setting with medical supervision and emergency medications available. Keep in mind that at the end of the day, what happens when you eat the food makes the ultimate diagnosis.