MRC talks: Career Inspirations, Nita Forouhi
February 2019

Welcome to the MRC talks podcast. I'm Isabel Harding.

In our 2019 'career inspirations' series, we're bringing you stories from 12 inspiring scientists who are working to improve lives through medical research.

Each month we talk to a different scientist, to find out how they got there and what makes them tick.

This month, I talk to Nita Forouhi. She's a professor of population health and nutrition, and a Programme Leader, from the MRC Epidemiology Unit at the University of Cambridge.

Nita Forouhi:

Believe in yourself, work hard, and surround yourself with people who you can talk to, who can be good peer mentors for you, and have other mentors. And keep your eye on the ball and keep working towards it, don't give up.

Interviewer (INT):

Nita looks at something that affects us all but is notoriously hard to study: the food we eat and how it affects our health.

From a very young age she knew she wanted to be a doctor. But while treating patients with diabetes, as a junior doctor, she realised this wasn't enough. She wanted to solve the puzzle of what causes diabetes and how to prevent it from happening in the first place.

Nita thrives on challenging herself. At the age of just 14 years old she left India to come and study in the UK and train as a doctor. She now leads an international research programme studying the impact of food and nutrition on our bodies. Some of her research has tackled the most pressing and challenging issues in this area: the role of sugars, fats and different foods on our health.

In her words, "Everyone feels they're an expert on nutrition: there are all sorts of books and blogs and programmes made on it. So I think taking it back to evidence, and good solid research, is very important."

By studying the diets and biology of hundreds of thousands of people, she and her team - together with collaborators in other countries - showed that regularly drinking just one sugary drink a day can increase your risk of diabetes.

Thanks to her passion for communicating her science, her research was part of efforts leading to the 2016 government tax on soft drinks. This tax encourages companies to cut the amount of sugar in drinks to help tackle childhood obesity and diabetes.

Nita balances her research and teaching, with writing and reviewing papers and grant applications. She also gives regular media interviews to tell the public about responsible and evidence-based nutrition research.

And as a woman from an ethnic minority in science, she's a passionate champion for equality, diversity and inclusion. By working with committees and individuals, she promotes best practice in the workplace, to secure the right systems and training to support others.

INTERVIEW

INT: How do you describe your research to your friends and family?

NF: Well, I usually describe what I do as food matters to us all and food matters both to the individual and to society as a whole, because so much of our chronic disease, like diabetes and heart disease, rests upon lifestyle, behavioural factors, such as dietary factors. So I tell my friends and family, and colleagues, that what I study is the link between diet, nutrition, food intake, and the risk of serious illnesses and what to do about their prevention.

INT: Can you briefly describe your career journey so far, how you got to this place?

NF: I left India at the age of 14, and for as long as I can remember I wanted to be a doctor from very young on, from a very young age. When I arrived in the UK as a first-generation immigrant, because I did not come with my parents, I came here to study, I found the schooling and the whole culture a very novel experience. But I kept that ambition all throughout, that I wanted to aim for picking up the science subjects as I did my O levels and A levels, and then I went to medical school in Newcastle. Then I trained as a junior doctor, but while doing the medical training I was interested in taking one year out to do an intercalated degree, a bachelor's degree, a BMedSci. For that I challenged myself by taking a topic that I was really rubbish at, because I felt that if I chose something that challenged me it would get me to really get to grips with it. So I chose an intercalated degree in immunology and I was absolutely delighted when I got a first-class honours for it.

INT: Congratulations.

NF: Thank you. So that really boosted my confidence that I could be perhaps interested in research in the future. But then I went through my NHS training and was working as a junior doctor in Newcastle and Edinburgh, working in the NHS is all-consuming, it keeps you very busy. But at one point I basically decided I wanted to get back to that love that I had developed for research when I was doing my intercalated degree, so I looked for opportunities and I found a Wellcome training fellowship was advertised at the London School of Hygiene and Tropical Medicine. So I applied for that and I was, again, delighted that the Wellcome Trust gave me that fellowship, a four-year fellowship to do a masters and a PhD in clinical epidemiology. And that's where my love for looking at populations as a whole really took a shape of its own, and that then led me to also train in public health.

So when I chose my clinical specialty after doing the PhD, I decided to train in public health. Then really the MRC Epidemiology Unit was a shining beacon of the place to be at for the areas that I was interested in, which was population health and the clinical condition of diabetes, obesity and related metabolic disorders. So I got in touch with Professor Nick Wareham, sent him a copy of my CV, and asked if we could meet up. And here I am. Once I started at the MRC Epidemiology Unit I started at a senior postdoctoral level and then worked my way up through the different grades of the MRC career progression, becoming an investigator scientist, and then senior investigator scientist, then a programme leader track, and then programme leader.

INT: Wow, so a long and varied path so far. You say you trained as a doctor before getting into research, you wanted to be a doctor from a very early age. What drew you to the research element, do you think?

NF: When I was practicing as a clinician, seeing patients in the diabetes clinics, I used to get very downhearted because every patient I saw I felt, for a proportion, as a junior doctor, I could advise them or give them medication, and their control of diabetes would be reasonably good. But ultimately, for most people it would still deteriorate, and for a lot of people I felt very frustrated that we were just handing out medications, basically. So I wanted to really try and understand how medical research happens and how one tries to understand why disease happens, and then what to do about its prevention. So for me, being a clinician wasn't enough, I really wanted to understand how to do medical research which is why I looked for opportunities to go and train in the research method. And my PhD was all very hands on about trying to understand the reasons why people get diabetes and heart disease.

INT: So your work focuses on how our diet affects our health and how that then can increase our risk of getting diseases like obesity and diabetes, like you've mentioned. What's your most surprising finding to date?

NF: I'm thinking about what the most surprising finding is, there have been so many bits of research that we have done. The part that I've found most exciting is to follow through on the research, not just publish a paper and think, "Right, that job is done, now I'll move on to a different topic." Typically, when we ask people about their dietary habits we rely on them telling us about their eating, what they've done in the last year or so typically, habitually. That, as you can imagine, is very limited. From that you can get very counterintuitive or surprising findings where you end up reporting that having a higher sugar intake, perhaps, isn't related to obesity, or a higher energy intake, calorie intake is not related to putting on weight. Then you have to follow through on that story and work out, well, why might it be, because intuition and also hypothesis generation tells you that if you have more calories and don't spend them, then you should be putting on weight. So it's then trying to work out, solve that puzzle, and thinking how can we assess diet better because the reason that might be happening, that example I've just given you, is because people consciously or subconsciously may under report what they're eating, so that would account for it.

INT: And they don't do that on purpose, they do that maybe because they forget, or just because they're not thinking about it?

NF: People absolutely forget, I myself forget what I've eaten last week, let alone what I on average, habitually eat over the past 12 months or so. Both consciously but particularly subconsciously people either under report, over report, misreport, can't remember. It's actually a bit like solving a jigsaw as to try and work that out, so we try and apply different ways of assessing diet, in

terms of asking people. But also we can apply objective measurements where we might take a urine sample or a blood sample and try and measure biomarkers.

INT: So you can use those to extrapolate, as like a signal in your body to give you an idea of what someone eats?

NF: Absolutely. So it's a little bit like, if I may draw the analogy, when we ask people about their physical activity, how much people exercise, how active they are, that has very similar problems of people may think that they're being more active, typically, than they usually are. Some might under report but mostly people will think, "Yeah, I'm being good, I'm being physically active." So with that, the objective assessment would be to have either a step counter or an accelerometer, and these days everyone's walking around with Fitbits and all sorts. So, if you like, it's the equivalent of that for assessing diet, and we've done that and it's been really, really exciting to measure dietary intakes and nutritional status measuring blood biomarkers.

INT: So to give us an idea of what it's like to work in your shoes, what does your typical working day look like?

NF: My typical working day is usually very rushed and very dynamic. I'm quite a busy bee who flits around from one project meeting, to a PhD supervision, to a research management meeting, or I might be preparing a talk, because I have an invitation to give a talk at an international conference, or a national conference. Or I might be preparing to teach students on the MPhil in epidemiology and the MPhil, which is a Master's degree, in epidemiology at the University of Cambridge. I could be approached by the BBC or another section of the media for a comment on some other research group's findings, that research could be from America or from Europe or from Asia, or from the UK, it could be from anywhere. So you have to just very rapidly assimilate what they have published and give your commentary on it. It could also be a media interview because of our own research that takes people's imagination or strikes an interest amongst the media.

INT: So you're supporting other scientists as well as feeding into the ongoing research that's happening, as well as communicating the results of that research to the wider world. Do you think that's important?

NF: I think it's really important to engage and to do public engagement both from our research studies, where the volunteers who took part in the study we feed back the results of the studies to them and tell them how their contribution of time is helping build a really solid foundation for understanding disease and what promotes disease. The other form is to engage with the media and also with policymakers and public health personnel to get the messages out and not just sit within a research publication. What was really, really very rewarding for all of us in my team, in the nutritional epidemiology group, is that for these efforts of engaging with public impact of research, we in 2016 won

the inaugural award, the Vice-Chancellor's Award at Cambridge University, for public impact of research.

INT: That's brilliant, so recognising you for your efforts of doing this public engagement and the fact that it is important.

NF: Yes absolutely

INT: Is there anything or anyone that inspires you to do your job?

NF: I have constantly been inspired by my students, my postdoctoral fellows, my peers, and my senior colleagues, in all my scientific endeavours because no one can really do research alone. You need good teams of people and you need good colleagues, and I've been very fortunate to have those. I got into the area of nutritional epidemiology in the first place because my senior colleague, Professor Nick Wareham, when he and I were chatting about what sort of research portfolio I might build, when I first started here, he said, "Well, for physical activity quite a lot has been done and progress is being made. But the whole landscape of research for dietary research in the UK is still quite far behind, and that that might be an exciting area to get into." So I was very grateful to him for that because initially I felt I may not have credibility in the field because I hadn't really trained in nutrition directly. But when you take something seriously and you put hard work and effort into it, and you're surrounded by colleagues who are supportive, then you can turn it around and make a success of it.

INT: Brilliant, it sounds like a really exciting and vibrant field for you, and you've built this up from, like you say, coming in from a different field and then becoming a specialist and giving expert advice, and assimilating evidence from other papers as well. It sounds like very varied, very exciting, lots going on. What do you think is the best career decision that you've made to date?

NF: Well, I guess I've made lots of good and bad career decisions over time, but the one that stands out as really the right one and a good one is to have embarked on that Wellcome fellowship where I did the master's and the PhD. To learn about how to do medical research and how to do population health research, that basically opened up huge new horizons for me. And I think that's why I'm here today, because I did that.

INT: Can you describe your proudest moment?

NF: I think there have been so many things to celebrate over the length of my career so far. A couple that stand out are when in 2016 our research was considered the best in terms of population impact and public impact of research in the inaugural University of Cambridge Vice-Chancellor's Award for Impact. And also I was delighted in 2017 to have been appointed a professor in population health and nutrition, it's been a long journey to get to that.

INT: Brilliant, well done for that, it's a brilliant achievement. You've talked a bit about the challenges in the field, but what do you think has been the biggest challenge in your research so far?

NF: Nutritional epidemiology is a field that in many circles is not taken very seriously, there's a perception out there sometimes, and sometimes even amongst other researchers who don't know this field, that it's a soft science, that you can't really take it very seriously because somehow the hierarchy of evidence, which at the top of it as the gold standard has the randomised clinical trial or randomised control trial. In this field, in nutritional epidemiology, that's a challenge to do because people won't stick to diets for years and years on end while you study them. So we have to use alternative methods to reach inferences and to try and get at whether X is really a cause of Y, for instance, this food really causes that disease, not just a correlation. So the field is pretty hard and there's a lot of scepticism about the field, and a lot of people feel that they know everything about nutrition themselves. So it's quite difficult and challenging to do sometimes, get messages across that people will take seriously.

But I equally feel it's very, very important therefore, all the more, to do very good research, to replicate your findings, and to collaborate and do findings in large samples, in diverse populations. And if you get very similar findings in different settings, then you can be so much more confident that your findings are for real. So there are ways of getting around those challenges.

INT: If you could go back and talk to your younger self at the start of your career, what advice would you give them?

NF: If I look back, when I was younger, when you're younger you can be unconfident, you can feel that things are all too difficult, so to my younger self I would say believe in yourself, work hard, and surround yourself with people who you can talk to, who can be good peer mentors for you, and have other mentors. And keep your eye on the ball and keep working towards it, don't give up. Because there could have been so many stages at which I could have given up. We know that, for instance, women in science or people of colour in science, these are all challenges. And you've got to have your inner resilience, but also you've got to have systems in place so that it's not just up to the individual to keep going. It's been fantastic that over my career alone so many good systems have come into place, for instance, the Athena SWAN charter which promotes gender equality is one example of trying to help women in the sciences, in the STEM subjects.

INT: This brings us on nicely to your role as an equality champion for the University of Cambridge, so can you talk a bit more about that?

NF: Yes. Equality, diversity, and inclusion are very close to my heart, I was delighted to be offered the opportunity to be the quality lead for the MRC Epidemiology Unit and for the Clinical School at the University of Cambridge. So I embraced that and have been very active and proactive in working with

the Athena SWAN gender equality charter from the Equalities Challenges Unit. I sit on the Athena SWAN governance group at the Clinical School, and I'm also the Clinical School's equality champion.

INT: Wow, that's a lot of roles there for you.

NF: Yes, so a lot of roles in equality, I sit on the university level gender equality steering committee, and also the race equality charter self-assessment team. And we're doing lots of very, very interesting and important work. There are so many good things going on at the University of Cambridge and at the MRC Epidemiology Unit in good practice throughout the professional journey, whether it be fair practice in recruitment and in progression, career progression, and opportunities given to all. This is really important work and I'm delighted that I'm part of it. It takes time, it takes you away from your day job in terms of the scientific agenda, the consortia you lead and the project meetings you have, all of that. But I think it's very important work and I think we should all try and engage with it.

INT: You're a role model as well to show people that it's possible that you can get to this stage of your career, and by talking about it you are being a role model for other people.

NF: I think it's really important to try to be a good role model for those who are still on that journey, and to be a good colleague to your other colleagues and people that you come across during your research career. So I think the equality agenda and the diversity and inclusion in the workplace is critical. You know I've had some experiences which could have been off-putting, and they were off-putting, for instance, it still happens but I'm more equipped to deal with it now, both because of my own resilience but also because we have systems in place that we can turn to if we need to do. I could you examples if –

INT: Yeah, that would be good if you can give us an example of something, some situation that you were in where you weren't comfortable or where you came up against a challenge.

NF: I'm sure everyone faces challenges in their professional life at different stages, but my own personal recent examples are, for instance, I went to a closed group meeting by invitation in London, just in the last couple of months. It was only about 40 people or so who had been hand-picked to be there for a particular high-level discussion across a range of sectors. I was the only one from Cambridge there and when I arrived at the roundtable to which I was assigned I was asked, "Oh, hello. Are you the notetaker?" And that happened very recently. Another one was when somebody came into my office, and I share my office with someone else, and they said to me, "Oh hi, are you the secretary?". This happens on and off, these are just two recent examples. But I think it's really important not to take offence, we all have unconscious biases, I'm the first one to put my hand up and I know that I have implicit and unknown

and unconscious biases, just like everyone else does. So I think one needs to be respectful of other people's unconscious biases and work around them. There are so many things we can do these days, and as an equality champion I'm very keen to promote that there are online modules one can do on equality and diversity training, on unconscious biases and how to recognise them. So it's great that things have moved on.

When I was doing my PhD and I took time out to have two children, at that point that was another point at which I could have been part of this so-called 'leaky pipeline', where women in particular, because of family-raising reasons, may not return to a science career. That could have been me. In those days, when I did my PhD, the systems were not as robust as they are now, now we've made progress, we have paternity leave, we have really good provision for good maternity leave and for annual leave when you come back, for flexible working, all of these are huge improvements that are taking place now.

INT: Thinking back to your career, but looking forward, where do you see yourself in, say, five years' time? What would you like to be doing in five years' time?

NF: There's so much more yet to do. We have published some very exciting research findings, we've had a lot of impact in terms of research impact, we've engaged with the public and through the media. But there's more to do, because some of the things in this space of diet and health are still very confusing and there are lots of mixed messages, and the public are left confused or scientists in different settings may question guidelines that have come from government institutions, and so on. So there's a lot still to be done and we want to be at the forefront of those developments in this field. And we have a whole lot of work still to do to describe diet better, to use objective markers of foods and intake of different diets by using biomarkers. Really I want to be ultimately in a position of being able to give advice in terms of the person individually, so-called personalised nutrition, so that somebody who is Asian or black or white and of a certain age, younger or older, living in a particular area versus other, they could have tailored advice based on all those things taken into account.

INT: Great. Well thank you very much for sharing your career inspirations with us. Is there anything extra that you'd like to add?

NF: Science is exciting and it is just so broad, you can choose to go for one small topic and go into huge depth on that, and that's the sort of stuff that Nobel Prizes are made of. But also you can investigate lots of different areas, experiment with certain things, particularly at a more junior stage, and then find something that excites you, that interests you, and that you will be motivated to do to the best of your ability. So don't be afraid, I would say, to tailor-make a career, one doesn't have to be on a rollercoaster or a conveyor belt of, "Okay, I've trained to do this, therefore I will stick with this." I have done sideways moves in my career many different times throughout my professional journey, and I would recommend it.

INT: Brilliant, so bringing in that expertise from different fields you get a different outlook probably because you've got a different background, and that's really important for team science, presumably.

NF: Yes, I think to do good team science, having a range of different expertise within the group is really helpful. And it's okay to try something out and if you don't flourish in it to try something else out, until you find something that really excites you and stimulates you, and you will be great at. So choose an area of science that works for you and that you can give back to, and you can be excellent at.

INT: This is obviously your area because you can talk so passionately about it, so thank you very much for sharing your career inspirations with me.

NF: It's been such a pleasure, thank you so much.

Presenter:

Look out for more about Nita's work on our blog: mrc.ukri.org/blog

For information about other biomedical career options check out our map at: mrc.ukri.org/interactiveframework

If you like what you hear, then please like, share and subscribe on iTunes, or wherever you get your podcasts.

Send us your feedback, via Twitter – at The, underscore, MRC – or on Facebook we're MRCComms.

Tune in for our next episode when we talk with Professor Fiona Watt about juggling her stem cell science with running the MRC as Executive Chair.

This episode was produced and presented by Isabel Harding, also produced and edited by Hasina Sacranie.

Thanks for listening.