

50 years of nutrition research.

Nutrition research has been going on at Wageningen for 50 years. Professors Edith Feskens and Sander Kersten mark the occasion by looking ahead.

text Astrid Smit photos Bram Belloni

Healthy diets worldwide

Edith Feskens was appointed to the new chair in Global Nutrition at the beginning of this year. 'In large areas of the world there is not just undernutrition, but a lot of overweight as well. With all the diseases that go with it.'

Where do you want to end up with the research?

'How can we feed 10 billion people in 2050 with a healthy, sustainable diet? Which means no vitamin deficiencies, overweight or underweight. It is theoretically possible: worldwide there is enough food available to provide us all with sufficient calories, protein, vitamins and minerals. It is just the distribution that goes wrong. Our contribution is modest, but I am optimistic. Just look at the impact of the discussion about climate change. In the past five years, vegetarian food has become enormously popular in the West. We couldn't have dreamt of that 10 years ago. Big changes are possible. To achieve them we must change the food system radically. Less emphasis on increasing production, for instance, and more emphasis on sustainability and health. We want to support that line with our research. To start with, we are focusing on the continents of Asia and Africa. How can we ensure that the people living there get a healthy diet?'

How are you going to approach it?

'A large international research programme on Food Systems for a

Sustainable Diet is already up and running, led by Inge Brouwer. And we are setting up new projects as well. Our focus: what is a healthy diet in these countries, how sustainable is it to produce, and how does it reach the consumer?'

What kinds of new projects do you have in mind?

'In the Netherlands there is a project run by the Nutrition Centre called 'The Healthy School Canteen'. Other countries would like to implement something like this with our help. In Ethiopia we research what schoolchildren consider healthy and why. They don't buy fresh fruit on their way to school because they are afraid it has suffered from air pollution. They eat a packet of crisps instead. They think that is healthier, and it has higher status. That is an interesting finding, and one you can use.'

'We must radically change the food system'

Until recently, you held the chair in Nutrition and Health in the Life Cycle. How have you ended up at Global Nutrition?

'For years I have been working on the prevention of diabetes and overweight. The research resulted in a successful method called SLIMMER, for preventing diabetes and overweight with an adapted diet and exercise. People who take this programme achieve permanent weight loss, as one of our PhD students proved. The method is even covered by the basic health insurance now, so what more could a scientist want? I began to think about the last 10 years of my academic career. Since 2005, I have also led quite a few projects on diabetes and overweight in developing countries. Now I am going to expand that research line, precisely because the problem of overnutrition is growing in those countries.'



What next?

HAPPY BIRTHDAY TO YOU...

The Human Nutrition and Health department at WUR is half a century old. Its establishment heralded the start of academic research on the link between nutrition and health in the Netherlands. The 50th anniversary will be celebrated with a scientific symposium with international speakers on Friday 18 October, and with an alumni day on the campus in Wageningen on Saturday 19 October. Also see wur.nl/humannutrition50.

Rock-solid dietary knowledge

Sander Kersten, professor of Nutrition, Metabolism and Genomics, is fascinated by the interaction between nutrients and genes. He wants to generate knowledge about it that ‘gets into the textbooks and is never dropped from them again.’

How does nutrition activate our genes?

‘Imagine you eat a meal that is rich in fatty acids. They get absorbed by cells in our bodies. The fatty acids serve as fuel, but they also bind to certain proteins in the cells, known as transcription factors. These ensure that parts of the DNA are transcribed, thus activating genes. We now know that there are transcription factors for fatty acids, glucose and amino acids. We wonder why it works like that. What is the underlying logic?’

What kinds of information has that delivered so far?

‘We have mainly focused on the fatty acids. Using a new technique called RNA sequencing, we can see at a glance which of all the 25,000 genes a human being has are switched on in cells of a particular tissue type. We concentrate on two genes that are active in the digestion of fatty acids. One of them ensures that the cell absorbs less fat. The other regulates the storage of the fats as fat droplets. So switching on that gene is part of the feedback so that not too much fat gets into the cell, or that at least it is safely stored.’

‘The way the body works is so wildly complex’

Have you found a link between nutrients and diseases?

‘I try to steer clear of that subject. I wonder whether we can ever demonstrate how any nutrient protects against diseases or causes

them. The way the body works is so wildly complex. I seek to understand how the body normally works, and we are making progress on that. A nice example is the work of my colleague Lydia Afman. She discovered that in people on a diet containing saturated fats, genes were switched on that are active in inflammation processes. This didn’t happen at all in people who ate equal amounts of unsaturated fats. A very significant result.’

What do you hope to achieve in the next few years?

‘We hope to obtain some rock-solid scientific findings. Things that will get into the textbooks and never be dropped from them again. In this respect, I’m worried about developments in our field. A lot of research results that get published in leading journals like *Nature* and *Cell* turn out not to be replicable or even to be wrong. An article in *Nature* in 2006 claimed that glucose controlled cells through a particular receptor. Now everyone knows that is not how it works, but the paper has never been retracted. That undermines the authority of our discipline. There is too much pressure to publish in top journals.’

How can that development be stopped?

‘By putting up resistance. That is relatively easy for me, I have a permanent post. Young people don’t always have any choice. We must protect them and allow them the time to do thorough research.’ 

