Lisa Te Morenga

Lisa, front, second from left, with the OL@-OR@ research group.

Born where and when

Taihape, 1972. Putahi te maunga, Wairoro te awa, Kohewhata te marae; Ngāpuhi, Ngāti Whātua o Ōrākei, Te Uri o Hau, Te Rarawa.

Schools and subjects

Primary schools in Aotearoa and Singapore; St Cuthberts College, Auckland, and Newlands College, Wellington – Chemistry, Physics, Biology and Calculus.

How she got into science

"I liked the logic and problem solving of science, and the structured way of approaching the problem with the scientific method – asking the question and working out how to get to an answer. It turned out I was really good at science subjects, and I didn't enjoy arts subjects like history and English as much."

Training and jobs

Bachelor of Forestry Science (Honours), University of Canterbury
BSc in human nutrition, University of Otago,
PhD in nutrition, University of Otago
Junior forestry scientist, NZ Forest Research Institute (now Scion); **Senior research fellow** in nutrition and **Associate Dean Māori**, Division of Sciences, both at the University of Otago.University of Otago; **Senior Lecturer** Māori Health, Victoria University of Wellington.

Field of science

Human nutrition, hauora, and health equity.

How she finds things out

Lisa's PhD focused on whether high-fibre and high protein diets helped prevent diabetes. She used two **randomised controlled trials** – "that's considered the highest quality evidence". In each trial, one group changed their diet (to high fibre, high protein, or both) and the other group didn't. People are randomly chosen for each group, "so we can be very confident that any health differences are due to the treatment."

At the University of Otago, Lisa did three **systematic reviews** for the World Health Organisation (WHO) of research about the impact of macro-nutrients – fat, sugar, carbohydrates and fibre – on health. The reviews are used by many countries to prepare guidelines about good diets.

"Systematic reviews start with a clear, tightly-defined question, and look for all the evidence to help answer it. You design a search to find all possible research studies about the topic. You may collect 10,000 scientific articles, and you have to read the title, the abstract or sometimes the whole article to find the 50 or so that specifically answer the question."

"**Meta-analyses** – statistical combinations of the results of multiple scientific studies – can be part of a review, if you find enough studies that report data about the question. You derive a weighted average from those studies, which gives more importance to studies that are bigger and better designed."

Lisa has also used **survey data** about eating behaviours. "We might ask a representative sample of people to tell us everything they ate and drank for the last day, take body measurements and blood samples, and collect information about things like age, ethnicity, occupation and income. We analyse the data statistically to learn about how what we eat affects our health."

NZASE
New Zealand Association of Science Educators

Representing the needs of science teachers

Lisa's team used a community-based, **participatory, co-design approach** to develop a mobile app that would support Māori and Pasifika people to live healthy lives, cut smoking, and exercise more. "This method brings researchers and community people together to co-create new products or services for the community."

"Our communities loved participating directly in the research, being heard and seeing their ideas come to life. We used a large randomised controlled trial to test whether using the OL@-OR@ app helped whānau to eat more healthily and exercise more. Over 600 Māori used our app, or a control app without special features."

"Unfortunately, the OL@-OR@ app didn't lead to healthier behaviours than the control app, but both groups improved their health. We think that just being in our study and using an app inspired people to make changes."

"The project changed my thinking – randomised controlled trials are not necessarily the best quality evidence for complex things like diet. When you use statistical and interview approaches together, you get interesting insights."

Most valuable results

1 "My systematic review finding that reducing sugars lowers bodyweight had the most international impact. It's key evidence behind WHO dietary guidelines, some European and US guidelines on sugar intake in adults and children."

2 "I'm most proud of co-designing the mHealth (mobile health) app. The way we worked with communities and the tools we developed was a great experience, and

Lisa and post graduate student Shukri Shire with blood samples collected to estimate how much sugar people ate.

the local impact was really important. A lot of researchers and community groups want to learn how to do that and apply it to other issues. I hope it will lead to better research being done in New Zealand."

3 "We found in a systematic review that the more wholegrains in foods like bread, the less the blood glucose of people with diabetes increases after eating them, which is what you want. We're now getting that result to dietitians and the food industry."

Mātauranga Māori and science

"I've become more confident in doing kaupapa Māori research over the years. My research focus has moved from experimental studies testing how diets or specific foods affect metabolism (the chemical processes in the body that sustain life) to more participatory research in Maori communities."

What she likes about science

"Lots of things – I like being able to answer important questions with my scientific method, it's creative. I like training new generations of Māori researchers and health professionals."

Ngā Kupu

Arotake – Review
Hauora – Health
Heke haere te tinana – To lose weight
Huka – Sugar
Mātauranga pūtaiao – Scientific technique
Mate huka – Diabetes
Pata – Grain
Taioranga – Nutrition

From Te Aka Maori Dictionary

Links

- [Radio NZ interview summary](#) & podcast on Lisa's review about sugar & weight, 2019.
- [National Institute for Health Innovation video](#) on the OL@-OR@ mHealth app (1m30s), 2019.
- [Weight loss research article](#), Science Learning Hub, 2013.
- [What is it with SUGAR?](#) University of Otago Magazine, 2014.