

GUT REACTION

After a decade plagued by gut problems, Sarah Lang spent four months trialling Dr Michael Mosley's "clever guts" diet – based on the latest microbiome science. She then sat down with the guru himself to talk about beating the bloat.

The world's leading gut guru, Dr Michael Mosley, is 15 minutes late to meet me and my mother, Alexandra Smith, for lunch at Japanese restaurant Masu in Auckland. He's jetting into New Zealand and Australia to spread the word about his book *The Clever Guts Diet: How to Revolutionise your Body from the Inside Out* and its accompanying volume *The Clever Guts Diet Recipe Book*.

But we don't expect a jet-lagged celebrity on a tight schedule to be bang on time – plus it gives my mother a chance to check her lipstick again. Mum, who has done Mosley's blood sugar diet, is a little giddy about meeting the man who helped turn her health around (see page 45). "Should I change into something less formal? I did bring another outfit."

Meanwhile, I'm wondering what to order given our various eating regimes,

but figure tofu, eggplant, edamame beans and broccoli should be safe. As the food arrives so does Mosley, somewhat dashing in person.

If you haven't heard of him, the medically qualified doctor is an award-winning presenter and producer of around 30 BBC documentaries, mostly on science, health and human biology. The 61-year-old has also written various bestselling books – mainly about eating to improve your health – including *The 8-Week Blood Sugar Diet* and *The Clever Guts Diet*; he also co-authored *The Fast Diet* (about fasting, not fast food), and collaborated on cookbooks accompanying each diet. I'm pumped to meet him as, having started the "clever guts" diet, I can now ask questions of the man himself.

Thankfully, an account of my decade of gut problems doesn't put Mosley off his lunch. After most meals and some snacks, my belly balloons. I've twice



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KEN DOWDIE

Writer Sarah Lang (right) and her mother, Alexandra Smith, at Masu restaurant in Auckland with “gut guru” Dr Michael Mosley. “Mine is a message of hope,” he says.

been asked when the baby is due. The bloating makes me feel uncomfortable, unattractive, embarrassed and bigger than I am (a healthy weight). I conceal it somewhat with “sack dresses” or constrict it with Bridget Jones-style “grandma knickers”. Plus, after a sugar overload, my blood sugar dips and my hands shake slightly. I also get alternating constipation/diarrhoea and sometimes suffer stabbing pains, often followed by dashes to the toilet. My abdominal gurgling and groaning have startled strangers. And I fart a lot.

Of course, I’ve tried to identify the cause. And no, as one friend teases me, you can’t blame 30 years of vegetarianism. I’ve had two negative tests for

coeliac disease, which is a serious autoimmune reaction to gluten (proteins largely found in wheat, barley and rye). A specialist wearily ruled out “serious” conditions and diagnosed me with irritable bowel syndrome (IBS): basically, the dumping ground for “can’t find anything wrong”. His advice was to avoid certain foods (most foods, really). Recently, though, doctors and dietitians have begun recommending the low-FODMAP diet – which eliminates certain groups of carbs – for IBS. It apparently helps 80% of sufferers. Unfortunately, I am among the 20%.

I also tried another elimination-and-reintroduction diet, testing for intolerances to amines, salicylates and

glutamates – essentially, natural chemicals present in most foods. This was ridiculously difficult, with early promise but limited success. I had (negative) breath tests for lactose and fructose intolerances (though such tests aren’t reliable). After all this, I joked that I was just intolerant to food. So I decided to eat whatever I liked (apart from meat) and to accept my symptoms for now. “Now” stretched on for about eight years.

Then, last year, I read Mosley’s book *The Clever Guts Diet* and did a Q&A by phone with him for this magazine (see NOTED.co.nz). The book is an absorbing, often amusing tour of the gut and the 50 trillion microbes (mainly bacteria) – of around a thousand different species

– that live there and make up your microbiome. They sure aren’t passive entities. There really is a second brain in your gut, one with millions of neurons, which communicates with the brain in your head through the vagus nerve. Through this “gut-brain axis”, the microbes produce more than two dozen hormones and chemicals that influence things like mood and appetite.

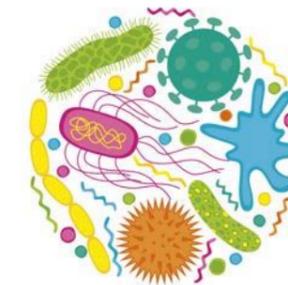
This new frontier of science is hurtling ahead now scientists can identify microbes through next-generation sequencing, via methods that include identifying bacteria by looking for fragments of their DNA in your faeces. What’s also helped is the introduction of the “pillcam”, which captures digital images of your gastrointestinal tract – a procedure also known as a capsule endoscopy. In 2012, Mosley swallowed a pillcam to “tour his gut” when he became a living exhibit at London’s Science Museum.

Mosley spent a year interviewing experts and examining studies globally before writing about the science behind this burgeoning field. The bad news? A diet limited in variety and heavy in processed food – along with antibiotic overuse – has ravaged the modern microbiome. This helps explain dramatic increases in health conditions including obesity, type 2 diabetes (which is often lifestyle-induced), inflammatory bowel diseases, allergies, food intolerances, asthma and eczema.

The good news? Eating right to reboot your microbiome can help you reduce gut symptoms, lose weight, strengthen your immune system, normalise your blood-sugar levels, lower the risk of and reverse pre-diabetes and type 2 diabetes, boost mood, and lessen anxiety and depression. “Mine is a message of hope,” Mosley says.

The Clever Guts Diet recommends a gut-friendly eating regime largely based on the Mediterranean diet: both are high in vegetables, fruits, legumes, wholegrains, oily fish, nuts, seeds and unsaturated fats such as olive oil. Also, to encourage the growth and variety of “good” gut microbes, it adds probiotics (fermented foods that contain live bacteria and yeast) and prebiotics (certain vegetables and pulses containing indigestible plant fibre). Helpfully, the book outlines an elimination-and-reintroduction method to identify foods that flare an individual’s gut symptoms. “But it’s

Researchers found the greater the variety of plants in your diet, the greater diversity of your gut microbes (a good thing).



for anyone wanting to improve their gut health and overall health,” says Mosley.

Eating a wide variety of veg is important. This year, the American Gut Project – the world’s largest microbiome citizen-science project, located at the University of California’s San Diego School of Medicine – analysed 11,000 stool samples. Researchers found the greater the variety of plants in your diet, the greater diversity of your gut microbes (a good thing). Now the American Gut Project and its sister initiative, the British Gut Project, have joined the global Microsetta Initiative, which will collect and analyse faecal samples to assist researchers to examine microbiome differences between populations. Meanwhile the Human Microbiome Project, hosted by the US National Institutes of Health, has created resources to enable the study of the microbiome’s roles in human health and disease.

“This area fires off in unexpected directions,” Mosley says. “I’m particularly interested in its use for mental health: anxiety, depression.” While this research is in its infancy, studies have already linked mental health to the microbiome. For instance, an Oxford University study found taking prebiotics and probiotics can affect mental health by changing the gut microbiome.

Last year, Australia’s Food & Mood Centre – a collaborative research hub – conducted direct-intervention study SMILES, which randomly assigned adults with major depressive disorders either to face-to-face social support (known to be helpful for depression) or to a Mediterranean-style diet with support from a dietitian over 12 weeks. One in three in the dietary group experienced full remission of their depression, compared to 8% in the social-support group. “It’s bloody brilliant and it’s astonishing no one’s done it before,” says Mosley. The Food & Mood Centre is currently running 13 studies in this area, also partnering with international researchers to examine the gut microbiome’s role in mental health problems.

Research keeps coming in. Two studies published in the journal *Science* last November found your mix of gut bacteria can influence your response to immunotherapies for cancer treatments. And a new Nigerian study has found that rural and urban infants have extremely different gut flora. In New Zealand, Massey University’s awkwardly acronymised PROMISE Study (PRedictors linking Obesity and gut MicrobiomE) is testing how New Zealand women’s diet, physical activity, sleep and taste (perceptions and enjoyment) affect their gut bacteria. So far very little research has translated into clinical treatment – but we don’t have to wait. We can change our diet now.

It’s about education, right? Not so, Mosley says. “I’m trying to change people, which isn’t the same as education. I’m showing people how to do this, and getting them to do it.” And people are. *The Clever Guts Diet* and accompanying recipe book have been sold in 21 countries – and numerous people have signed up for free to cleverguts.com to share stories and tips, and access recipes and resources. Mosley, his GP wife Clare Bailey and other doctors answer questions online and remove any users’ bad advice – all working for free. Making money isn’t Mosley’s motivation. He’s an evangelist taking his message to the world. Except it’s about the gut, not God.

Most of us have had gut disturbances at some stage, from constipation after long-haul flights through to bloating after overindulging. Mosley plots problems along a continuum. “At one end, there



Fifteen thousand New Zealanders have inflammatory bowel diseases (IBD), one of the developed world's highest rates. "IBDs are treated seriously," says Mosley, "but most medicines don't work: steroids make you feel like shit and negatively affect your microbiome."

are conditions doctors can measure: inflammatory bowel diseases [IBDs] like ulcerative colitis and Crohn's disease, and chronic gut infections including *Clostridium difficile* [*C.diff*]. Fifteen thousand New Zealanders have IBDs – one of the developed world's highest rates. "IBDs are treated seriously," says Mosley, "but most medicines don't work: steroids make you feel like shit and negatively affect your microbiome." Then there's coeliac disease, the autoimmune response to gluten estimated to affect 60,000-70,000 New Zealanders, though around 70% are unaware of it.

Mosley stresses you should consult a medical professional to identify or rule out these serious conditions. But could people with IBDs or coeliac disease (who already avoid certain foods) benefit from eating clever guts-style? No one knows, but it certainly can't hurt – and their dietary recommendations have plenty of crossover. (Currently, paediatric gastroenterologist Professor Andrew Day is undertaking research with South Island children to pinpoint aspects of IBD, including nutrition and gut bacteria.)

At the other end of the spectrum, but

still interfering with quality of life, is the aforementioned IBS. Then there are food allergies, which cause gut problems. As for food intolerances such as dairy and gluten, there are no reliable diagnostic tests, so the only approach is to eliminate then reintroduce them.

I've long suspected gluten irritates my gut but wasn't sure – and it's tricky to avoid. I did know very sugary and fatty foods bloat me, and quickly pad my thighs. Meanwhile, my wiry husband, Michael, has an iron gut and can't gain weight, despite large meals and bowls of chips and chocolate. Bastard. If

it time to look into this again? I picked up *The Clever Guts Diet Recipe Book*, by Bailey and nutritionist Joy Skipper, and decided its regime was doable. Still, I procrastinated for weeks before starting.

The first phase was keeping a food record and symptoms diary to help identify what triggers my gut symptoms. I dutifully scribbled in it after each meal and snack. Bread, wraps, pasta and muffins (aka "sweet and wheat") saw my belly swell. I wasn't sure about dairy. My daily breakfast, porridge, seemed okay.

Then came the stage one "restore-and-repair" (R&R) phase. This four-week elimination diet involves avoiding or ideally removing gluten and refined grains, dairy products, most pulses, very fibrous vegetables, some fruits, soy products, processed food, added sugar and alcohol (I know, I know). Instead, I ate at least seven portions of fruit and veg a day (mainly veg), gluten-free grains like quinoa (technically a seed) and buckwheat, oily fish, certain fruits, seeds, avocados, and non-dairy fats such as olive oil.

Before beginning, I chose my week's recipes, then did a supermarket shop. I could sometimes stomach eggs, mushrooms and spinach in the mornings. Roast vegetables with eggs and quinoa, and marinated tofu stir-fry with gluten-free soba noodles became favourite dinners. I couldn't eat any of the many meat recipes, but I've become partially pescatarian, managing to stomach smoked salmon and hoki fillets (the furthest you can get from a face).

The first few days were fairly easy. I was prepared and this had novelty and saintliness value. When I had questions, I visited cleverguts.com, where a moderator answered them reasonably helpfully. Then it got hard. So hard.

A week in, I was grumpy – craving Michael's pasta. My symptoms hadn't improved, I had intense sweet cravings, and three weeks to go. I dutifully logged my symptoms and feelings. "Still bloated," one entry says. "Over it!" Michael joked (well, half-joked) that I now had Irritable Syndrome. The book advises skipping meals occasionally, but it made me too *hangry*, so I stopped.

Two weeks in, I hadn't done a proper shop, was having salmon with salad most nights, and nearly cracked after book group when everyone else ordered pizza. The trickiest thing was the time-consuming meal planning and

shopping – and cooking different meals. Michael and our four-year-old son were never going to eat eggplant parmigiana nor a phyto salad, though they tolerated the ratatouille and kumara fishcakes.

Three weeks in, my symptoms began improving – and I wrote it all down so I wouldn't misremember anything later. My belly was far less bloated. My bowel motions were normal. The stabbing pains and fetid farts had gone.

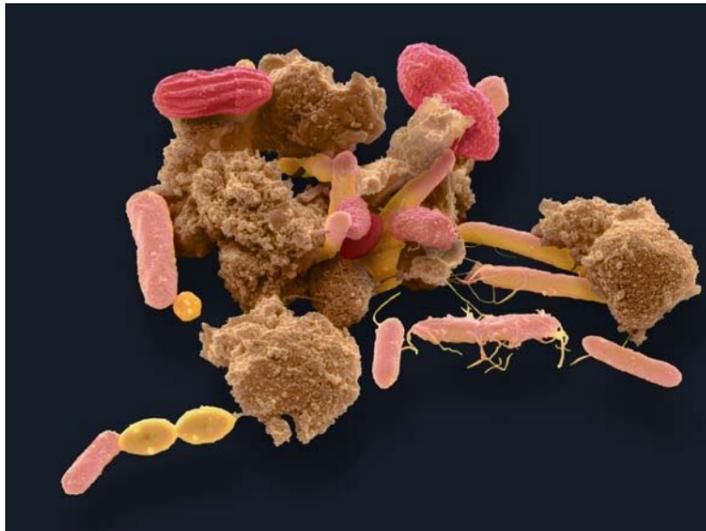
Phase two sees you test reactions to different food groups by re-introducing them one at a time, each over three days. If symptoms return, you return to "R&R" eating for three days. The first was gluten. I sent a side-on photo of my belly to a friend, who texted back "Congratulations on the baby!"

Next up was dairy. I hadn't thought it was a culprit, but the bloating was extreme and the farts were room-clearers. I was so reluctant to give up gluten or dairy that I tested both again. Same result. Thankfully, soy and eggs were both fine. Porridge, which contains a gluten-like protein, didn't flare me. Most coeliacs (who avoid gluten) can tolerate oats without noticeable symptoms, though they're warned gut damage can occur without symptoms. But quinoa porridge tastes like mud, and gluten-free cereals are too sugary, so I'm sticking with oats.

Then I introduced fermented probiotic foods. Think sauerkraut and kimchi (fermented vegetables), the delicious drink kombucha, apple-cider vinegar, miso soup and live, full-fat yoghurt (coconut in my case, given the dairy intolerance). I had to avoid fermented soft cheeses and the milk drink kefir, but enjoyed everything else. My bloating remained minor. And although it's impossible to separate my improved mood from other factors, I think part of my increased positivity came from knowing I was doing something proactive for my health.

We've all seen the rise of gluten-free food in health-food stores, cafes and supermarkets. Mosley doesn't believe claims that gluten intolerance is a fad. "I have zero doubt many people have a gluten intolerance. Yet doctors are very unsympathetic to it."

Some people try elimination-and-reintroduction regimes, while others



GETTY

Faecal bacteria at x8000 magnification. Scientists can now identify an individual's types and variety of gut bacteria through analysing their excrement. At least 50% of human faeces is made up of bacteria shed from the gut.

think gluten flares them so avoid it. "My only worry is people depriving themselves of gluten when they don't need to," Mosley says.

Could some people who believe they're gluten-intolerant simply feel better because they're cutting out many processed foods? "In some cases. But take my daughter. She had joint pain, terrible headaches, and doctors could find nothing. The foul moods – we thought it was being a teenager. The bloating – we thought it was hormonal. When she came off gluten, we were quite cynical, but everything improved."

Given I'm a vegetarian (well, partial pescatarian), avoiding gluten and dairy, is the clever guts diet really doable for me? "If you're well prepared," says Mosley. "I'm considering publishing a vegetarian cookbook, as vegetarians on cleverguts.com understandably agitate for that. I'm underwhelmed by the notion vegans and vegetarians are healthier, though it's more ethical. Most data suggesting red meat is bad is based on American studies." (Among other factors, the American Gut Project detected "agricultural antibiotics" – those fed to animals like chickens and cows – in many meat eaters.)

"I eat good-quality red meat, particularly grass-fed beef, maybe twice

a week. The idea that red meat will kill you is nonsense, but eating lots of it isn't a good idea."

Still, eating 20-30 types of fruit and vegetables a week (mainly vegetables) is absurdly difficult. I managed 13 on my best week. "Yes, I'm afraid it might be ludicrously impossible," admits Mosley. "I got that number from an academic who manages to do it. I should have tried doing it myself."

He agrees the regime is hard to stick to, but says it gets easier. "Ninety-nine per cent of success is preparation. Know your weaknesses and predict your behaviour in different environments."

Personally, I should avoid cafes – and avoid working from home as I snack for "breaks". Mosley can empathise. "I've failed miserably at giving up milky chocolate," he says. "I need a lockbox! But I advocate getting as much pleasure as possible out of life. I wouldn't exclude anything I didn't think I reacted badly to."

Still, isn't eating clever guts-style easier for high-income people? Avocados, quality meat, fish, gluten-free and probiotic foods are expensive, compared to white bread and chips. Mosley bristles at this. "You can have tinned fish like tuna, frozen veg are just as nutritious, some fruit and veg aren't expensive,

plus you can make fermented foods." Hmm. He can tell I'm not convinced.

"Look, my wife is a GP in a relatively deprived area. She says sharing this approach is the most rewarding thing she's ever done. She says, 'It's your choice: 90% of type 2 diabetics who eat this way can avoid or come off medication.' Some people say, 'I'll do it.' Some come back and say, 'I would rather die than eat this food'. Ha! The most unexpected people pick it up. Clare suggested clever guts to an obese man from the gypsy community, saw him later and said, 'Who are you?' He'd lost 40 kilos."

I lost 2kg over the first two months of clever guts. But my only exercise was a little walking – and I had roasted "Poor Man's Potatoes with Anchovies" (and capsicum, garlic, red onion, lemon juice and herbs) a few too many times.

Mosley stresses clever guts is a different approach to eating, not a weight-loss diet. "If you're overweight with a terrible diet, this will make a big difference to your weight. If you're a healthy weight, maybe not as much. This isn't about weight, it's about good gut health and long-term health benefits. But it's a myth that you can be overweight and healthy. It will catch up with you."

More than one in three New Zealand adults and one in eight children are obese, putting us third in the OECD rankings. University of Otago research projects that two million New Zealand adults will be obese by 2038 (45% of the projected adult population). Obesity is a major risk factor for diseases including several cancers, heart disease, stroke, and type 2 diabetes. The latter affects 7% of New Zealand adults – again, one of the world's worst rates. "There's a strong emerging link between your gut bacteria and your risk of developing type 2 diabetes," Mosley says.

He decries conventional recommendations for weight loss. "So, the only way to lose weight is to eat less and exercise more? That's the stupidest, shittiest thing you can say. It's sanctimonious and it irritates the hell out of me. People who have never looked at a physics textbook start talking about the second law of thermodynamics. It's much more complicated.

"Obesity has various causes, but studies show a clear link to gut bacteria. Some bacteria extract more energy from food, and some bacteria influence blood-sugar levels, cravings and appetite. Many

medical professionals consider all this a bit wacky, but what's encouraging is some of clever guts' biggest advocates are diabetes specialists and diabetes nurses. They've recommended it and gone 'F**k, it works.'"

While we're happy to talk about what goes into our mouths, we're not so keen on talking about what comes out the other end.

"We absolutely don't talk about poo enough," Mosley says, between mouthfuls of tofu. "But at cleverguts.com, people share their stories – and sometimes discuss their bowel motions."

Scientists can now identify an individual's types and variety of gut bacteria through analysing people's faeces. "Several reputable companies will

sequence your microbiome for under £100 [NZ\$190] if you send stool samples in a tube. I went through uBiome."

Mosley found he had lower-than-average levels of the obesity-linked bacteria firmicutes, and half his gut bacteria were bacteroidetes (associated with slimmness and less gut inflammation).

But, with the technology still developing, some experts say you can send your stool to different companies and get quite different results. "Well, uBiome uses the Simpson's Diversity Index: a reliable measure of your microbiome's diversity. But, right now, microbiome sequencing is certainly more a curiosity thing than a tremendous guide to anything." Sequencing also enables these companies – and gut-research projects – to collect data and start drawing conclusions. "For instance, we know

"We know men and women have different sorts of poos. We don't know why."



GETTY

TOP (AND CLEVER) TIPS

A jar of kombucha, fermented black or green tea with a yeast "mushroom" or Scoby (symbiotic colony of bacteria and yeast) brewing inside. Its probiotic properties have boosted the popularity of this naturally carbonated drink.

- Eat primarily **vegetables** – with a wide variety of different colours.
 - Eat **prebiotics**, including onions, leeks, garlic and asparagus.
 - Make or buy **fermented foods or drinks** such as live yoghurt, sauerkraut, kimchi, kefir and kombucha. Many prebiotic and probiotic supplements lack credible scientific evidence.
 - Fish-oil capsules may oxidise, so eat plenty of **oily fish** instead or take cod-liver oil.
 - Eat good-quality **red meat** about twice a week.
 - Eat **full-fat dairy products**, and good-quality fats such as olive oil.
 - **Avoid** very sweet tropical fruits such as **bananas**.
 - **Avoid refined carbohydrates**, which spike your blood sugar. Choose brown bread, wholemeal pasta, or non-wheat grains such as brown rice, buckwheat and quinoa.
 - Take a shot of **apple-cider vinegar** diluted with
- water before breakfast (an acquired taste).
 - If you can, **cut calories** to between 500 and 800 two days a week, and/or skip a meal occasionally. **Fasting** usually gets easier after 2-3 weeks; if it doesn't, flag it.
 - **Avoid snacking**. If you must, go for nuts, cut-up veg, seaweed or cheese.
 - **Eggs rock**.
 - **Coffee** is fine (maximum three cups a day).
 - Practise **portion control**; eat slowly and mindfully and wait for the brain signal that you're full.
 - **Sugar** is the devil.
 - **Avoid artificial sweeteners**, which can lead to glucose intolerance.
 - Occasional squares of **dark chocolate** are okay (pew).
 - **Cook then cool** brown rice and boiled potatoes, then reheat later to increase gut-friendly resistant starch. For blood-sugar levels, a fresh-boiled potato equates to a tablespoon of sugar.

“The more broccoli you eat, the more you’ll want it, as your microbiome changes.”



Mosley: “Amsterdam is the only city to reverse the trend towards ever-fatter kids. They banned drinks apart from water and milk in primary schools, and banned junk-food advertising before 9pm.”

men and women have different sorts of poos. We don’t know why.”

Is this why my husband can eat whatever he wants, while I gain weight after a bite of his doughnut? “Certain gut bacteria seem associated with slimness, and he may poo out more calories than you.” Genetics plays a part; the men on Michael’s mother’s side are wiry. “And I suspect he doesn’t eat whatever he wants,” Mosley says. He does! “Perhaps he doesn’t snack.” He does! “Small portions?” Nope! “Well, lucky him.” But Michael does have to flee from my farts. “I suspect you have methane-producing gut bacteria,” says Mosley, “and certain foods make them go bonkers.”

A current research focus is gut microbiome transfer – also known as faecal transplants – from healthy donors to trial participants. It’s done either via a naso-gastric tube, or by inserting poo into you know where. One trial showed 94% of patients fully recovered from *C.diff* after a single faecal transplant, while trials for their use in obesity, IBS and type 2 diabetes are underway.

What I call “stool squirts” (sorry) aren’t available yet but, one day, we might pop in for a faecal transplant like we do now for a flu jab. I’d totally do it, I say. Mosley doesn’t flinch. “It might help. Get yourself on a clinical trial. But, er, don’t try this at home.”

More palatable “poo pills” (donor faeces in tablet form) may be coming. At the University of Auckland’s Liggins Institute, the Gut Bugs Trial has turned

lean donors’ faeces into pills given to obese teenagers and researchers are charting changes in their microbiomes.

Mosley believes the future is individualised diets. He visited the Personalised Nutrition Project at Israel’s Weizmann Institute, which measures participants’ blood-sugar response to food, exercise and sleeping, and analyses poo samples. “One day, you’ll send off a poo sample with a questionnaire and get data on your smartphone about what to eat.”

Mosley is calling for policy changes. “Education doesn’t bloody work. A sugar tax is a no-brainer and will surely happen in New Zealand, too,” he says.

“When the UK introduced a tax on sugary drinks, there was opposition, but manufacturers removed sugar from products before the tax came into place. It’s like compulsory seatbelts, or not smoking in enclosed public areas – suddenly everyone accepts it.”

Dr Ross Wilson from the aforementioned University of Otago obesity study says smoking restrictions are a useful parallel for considering much-needed food policy change – including taxing unhealthy foods, subsidising healthy food and food advertising restrictions.

Mosley also wants advertising restrictions. “Amsterdam is the only city to reverse the trend towards ever-fatter kids. They banned drinks apart from water and milk in primary schools, and banned junk food advertising before

9pm.” Last year, a study by Auckland and Otago universities showed children aged 11-13 saw on average 15 ads for unhealthy food a day (not counting advertising on television and in dairies and supermarkets). I certainly get mad at Magnum when my son sees a billboard and starts whining for ice cream.

“What’s effective with kids,” Mosley says, “is telling them, ‘Companies like Coca-Cola are making zillions of dollars exploiting you, so fight against it.’ For adults, it helps to think, ‘I have sugar cravings because these corporations and bad microbes are trying to manipulate my preferences.’ But, the more broccoli you eat, the more you’ll want it, as your microbiome changes.”

He also wants changes in health ministries’ dietary recommendations. Remember that ubiquitous 1990s food pyramid, which recommended more grains than vegetables? That’s long gone. The New Zealand Ministry of Health’s Popular Diets Review actually recommends the Mediterranean diet for weight loss and some health problems if followed for 12 or more months. This recommendation fits with the ministry’s Eating and Activity Guidelines for New Zealand Adults.

Dr Harriette Carr, the deputy director of public health, says the ministry works closely with nutrition experts on interpreting evidence.

“Information related to the gut microbiome, and the use of prebiotics and probiotics, is part of this emerging



KEN DOWNIE

DODGING DIABETES

A blood sugar diet success story

During our lunch, Mosley whips out his phone to do a video interview with my mother, Alexandra Smith, to post online at thebloodsugardiet.com.

“I’m a 66-year-old high-school counsellor,” she tells him. “My weight has crept up over the past 15 years.”

Earlier this year, she was diagnosed with pre-diabetes: essentially, a warning that high blood-sugar levels will soon lead to type 2 diabetes (a condition that runs in her family but can usually be prevented through a healthy diet and lifestyle). “That shocked me into action – I need to be around for my family. I thought, ‘If I die tomorrow from things I can’t control, so be it, but I can control this.’ My doctor wanted to put me on meds but I wouldn’t do it.”

She bought Mosley’s book *The 8-Week Blood Sugar Diet* and adopted its low-carbohydrate, Mediterranean-style regime. Initially, your calorie intake is limited to 800 calories a day for eight weeks, to help lower your blood-sugar levels, avoid or reverse pre-diabetes or diabetes, and hopefully avoid drugs.

“I thought, ‘Let’s do this,’” she says. “I cut out the

‘whites’: sugar, flour, rice, pasta, etc, plus very sweet fruits and wine. Organisation is crucial. A month in, I joined the online forum, to get recipes, shopping templates and encouragement – it was so helpful.”

She lost 15kg in three months. “My blood sugars, liver function and cholesterol levels are now normal. My digestive symptoms have settled. I’ve halved my blood pressure pills. I feel so much better. More energetic. And I’ve lent the book to lots of people. My doctor rubbed his tummy and said, ‘I should do this.’”

“What’s empowering is I did it myself,” she tells Mosley, “with some help from you. Thank you so much.”

He can relate. Diagnosed with diabetes in 2012, Mosley reversed the condition and lost 10kg through eating only 600 calories on two days of the week, for eight weeks. He published *The Fast Diet*, about intermittent fasting, in 2013. Mum is now transitioning to the fast diet (generally known as the 5:2 diet); you eat around 800 calories two days a week, with five days on the low-carb Mediterranean-style diet.

“Now my challenge is to keep the weight off,” she says.



Last year, a study by Auckland and Otago universities showed children aged 11-13 saw on average 15 advertisements for unhealthy food a day.

“A sugar tax is a no-brainer. It’s like compulsory seatbelts, or not smoking in public enclosed areas – suddenly everyone accepts it.”

evidence. Naturally occurring prebiotics, such as dietary fibre, are recommended in our guidelines.”

The ministry’s guidelines also recommend low- and reduced-fat dairy products. “There’s some evidence to suggest some saturated fats found in dairy products may have less of a negative impact than previously thought,” says Carr. “However, the overall message about [avoiding] saturated fat remains the ministry’s recommendation.”

Mosley isn’t impressed. “They’re still subscribing to the low-fat-is-best myth.”

As for GPs, the nutrition component of New Zealand’s General Practice Education Programme requires awareness of MoH’s nutrition guidelines. Currently, University of Auckland dietetics expert Dr Jennifer Crowley is doing international research on how to improve the quality of nutrition information available to New Zealand GPs. For now, good luck finding a GP who will discuss the link between your diet, microbiome and wider health.

“It’s weird many doctors dismiss this approach,” says Mosley. “I think they haven’t been following the science. I

think they have no idea what they’re talking about. Part of this mission is changing doctors so doctors change other people. Lend a book to your GP. It’ll be a revolution from the bottom up!”

Mosley also wants mental health treatment to incorporate diet. No, don’t throw out your antidepressants or stop seeing your psychologist, but make nutrition part of the picture. “The effect food has on mood is a no-brainer and mental health professionals need better knowledge on this.” The International Society for Nutritional Psychiatry Research has noted gut bacteria’s potential effect on physical and mental health. New Zealand’s Government Inquiry into Mental Health and Addiction is considering several nutrition-related submissions.

I fell off the clever-guts wagon, of course. I’d made my sister’s birthday cake so I deserved a slice, naturally – and the blow-out (fish and chips, caramel slice, burgers, you name it) lasted three weeks. It wasn’t until I stopped clever guts that I fully realised how much it had been helping. My

extreme bloating and sweet cravings were back. I had IBS and Irritable Syndrome again. One night, severe stabbing pains saw me dash to the toilet five times. Mosley says slip-ups – and breaks – are fine. “But keep a daily eating record and don’t gain more than a kilo, otherwise your body wants to hang onto the weight.” Whoops.

Now I’m back doing clever guts – mostly. No dairy for me (goodbye, dear feta). No gluten (even gluten-free bread irritates me). So I’m breaking up with bread. Saying no to sourdough. Saying bye to rye. Okay, I’ll stop, before I cry. Still, I don’t usually feel deprived: I’m eating lots of vegetables (including starchier kinds), porridge, grains like quinoa, brown rice and buckwheat, avocados, fish and a little dark chocolate and red wine. I don’t fast, but I don’t snack as often.

Of course, some days I eat foods I know will irritate my gut – but now it’s an informed choice. And sometimes my gut plays up even when I’m eating clever guts-style, likely due to stress. But this approach has helped hugely.

In August, I assumed I’d have to wear my “sack dress” to attend any events at food festival Wellington on a Plate. Then I found the “We’ve Had a Gutsful” feast at Cafe Polo. While not based on clever guts, it could cater to people who were pescatarian, vegetarian, vegan, gluten-free, dairy-free and nut-free. I eventually convinced Michael to come.

Cafe Polo’s proprietor-head chef, Adrian Green, has colitis, so always offers gut-friendly dishes. He created five delicious courses for me, including black turtle beans and coriander, and coconut and tonka-bean panna cotta with fermented pineapple, ginger, oats and maple. I left just short of over-full but with barely any bloating.

Mosley would approve. As we finish lunch, I say I’m happy my gut symptoms have improved, and any other health benefits would be a bonus.

“The main thing is finding the motivation,” he says, “and everyone’s motivation is different. Stick a list of foods on the fridge. Get your family doing it. Join the online community. You’ll be letting them down by quitting. You’ll be letting me down! But seriously, let me know.”

He leaves without mentioning, kindly, that I’ve had lipstick on my teeth the whole time. My belly, however, is fairly flat. +