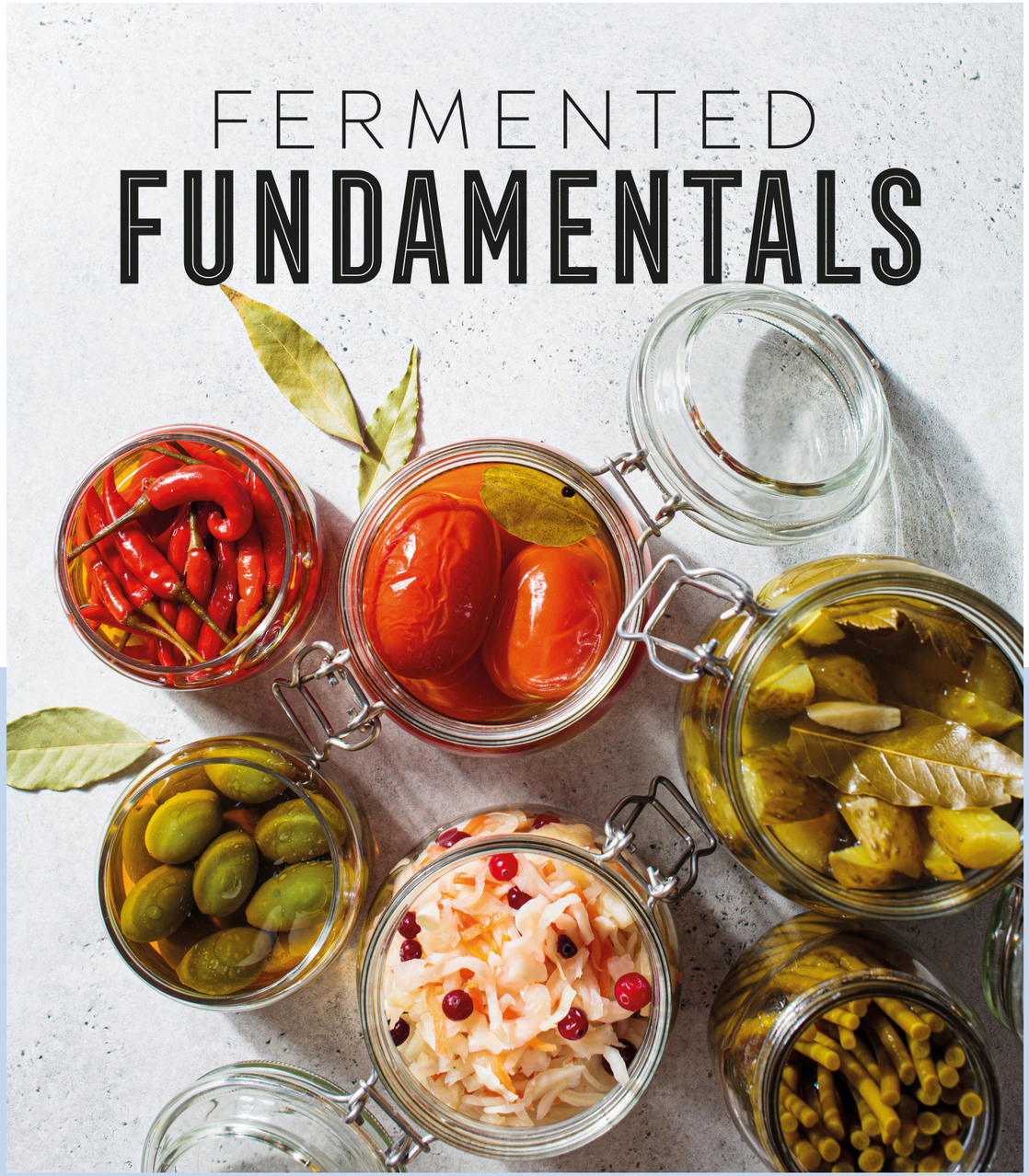
FERMENTED FUNDAMENTALS



Yoghurt, kimchi, sourdough bread. Despite their differences, they all have one crucial thing in common: they're fermented. But are they good for you?



Humans have used fermentation for almost 10 000 years to preserve food and improve its taste – tangy, savoury, umami – and texture. The Chinese fermented rice, honey and fruit in pottery vessels dating from 7 000 BC. Antoni van Leeuwenhoek was the first to discover microorganisms in the 1670s, and then people learned of their usefulness as antibiotics. Still, the primary function of food fermentation has revolved around enhanced food safety and extended shelf life, but researchers are starting to uncover its health benefits, too.

'Fermentation is a natural process where microorganisms, such as bacteria, yeast or fungi, convert sugars and starches in food or drink into alcohol, gases or acids. Different types of fermentation occur under specific conditions of time, temperature and oxygen availability. These include lactic acid fermentation, where bacteria like *Lactobacillus* convert sugars into lactic acid to preserve foods like yoghurt, kimchi and pickles, giving them their sour flavour; alcohol fermentation, in which yeast converts sugars into ethanol and carbon dioxide in beer, wine and bread; and various anaerobic biochemical reactions, where microorganisms break down sugars to produce acids, alcohols and gases as metabolic byproducts,' explains Registered Dietician Yolandé van der Riet.

These foods are grouped based on a) the type of microorganism used for fermentation, i.e. bacteria, yeast or fungi; b) the substrate or food in question, such as dairy (yoghurt, kefir or cheese), vegetables (kimchi, sauerkraut or pickles) or grains (sourdough or miso); and c) the type of end product achieved, whether acidic like yoghurt, alcoholic like wine or gaseous like bread.'

Common fermented foods in South Africa include Mageu (a drink containing maize that aids digestion and is nutrient-rich), *AmaRhewu* (sour porridge rich in probiotics) and Amasi (milk that boosts calcium absorption and supports gut health).



HEALTHY OR HYPED?

Why are scientists concerned about gut health, and how can fermented foods help? 'The gut is home to trillions of bacteria that play a massive role in digestion, immunity and mood regulation,' explains Registered Dietician Faaizah Laher. 'Modern diets, stress and antibiotics can disrupt this balance, leading to complications including poor digestion, inflammation and weakened immunity.'

Fermented food may restore gut microbiome balance, especially those that combine probiotics with prebiotics, such as high-fibre foods like sauerkraut, kimchi and sourdough. Think of probiotics as plants. They're live microorganisms you consume to help maintain a balanced gut microbiome by increasing the number of beneficial bacteria in your digestive system, which compete with harmful bacteria. This supports digestion, immune function and overall health. To maximise their ability to function, they eat prebiotics, which you can think of as fertiliser, and use these compounds as fuel. When probiotics digest prebiotics, they produce short-chain fatty acids (SCFAs), which support the gut's structural integrity, feed beneficial bacteria and may have a range of health benefits, including reducing the body's internal cholesterol production (for a healthy heart), inflammation and helping to regulate metabolism.



Registered Dietician Natasha Driescher-Engelbrecht adds, 'Eating fibrous foods also helps maintain the gut wall integrity by scraping away old food build-up – and a clean gut is better at absorbing nutrients.'

Emerging research suggests fermented foods could help with anxiety and depression. The gut-brain axis (GBA) connects the emotional and cognitive centres of the brain with peripheral intestinal functions. Probiotics may positively influence neurotransmitters like serotonin, responsible for regulating mood, cognition, reward, learning and memory.

That's one way to improve athletic performance because you're more likely to stay motivated if you're in a good mood, and since probiotics help regulate metabolism, you clear lactic acid efficiently during exercise. This means it takes you longer to get tired than an athlete who doesn't look after their gut.

What about weight management? 'By promoting the formation of SCFAs, in addition to reducing inflammation, fermented foods may help regulate hormones like ghrelin, which tells your brain you're hungry,' Yolandé says.

> ***A clean gut is better at absorbing nutrients***

One study examined the gut bacteria in 77 pairs of twins, one of whom had obesity and one who didn't. The researchers found that those who had obesity had different gut bacteria to their twins without obesity.

Fermented foods are a new area of study, so there's a lot of data still to analyse. 'It's also impossible to single out one as the healthiest because individuals, though similar in some ways, have different needs, genetics, lifestyle and medical conditions,' says Yolandé. 'Variability in production and individual responses are other factors.'

That being said and despite research gaps, incorporating safely produced fermented foods alongside a balanced diet and lifestyle is generally encouraged.

GET STARTED



Avoid products with added sugars, preservatives or artificial flavours.



Look for labels that mention live and active cultures to ensure probiotics are present.



Be cautious of pasteurised products, as heating often kills beneficial bacteria.



At-home fermentation is diverse and natural, but if you don't get it right you could cause harmful bacteria and risk food poisoning.



Start slowly to avoid possible headaches and digestive discomfort while your gut adjusts. Try adding 1 tbsp kimchi as a side on a stir-fry.

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