



# Ferment for a healthy gut?

Fermented foods like kefir and kombucha have burst onto the health scene, but experts say there is no evidence that probiotics benefit healthy people



Joyce Teo

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DR REUBEN WONG, a gastroenterologist from gutCARE at Gleneagles Hospital on taking daily probiotic supplements

Certain naturally fermented foods are becoming trendy as more people rush to populate their gut with probiotics, or good bacteria, to boost their overall health and mental well-being. Bottles of kombucha and milk kefir have shown up on supermarket shelves and in online stores. People here keen on making or drinking kombucha or milk kefir are gathering on Facebook. Restaurateurs have caught on to the trend, while businesses that sell cultured milk drinks – Craft & Culture, Miss Kefir, Bushwick – have surfaced in recent years. Naturally fermented foods contain probiotics – live micro-organisms that, when administered in adequate amounts, confer a health benefit on the host.

**WHAT'S THE BIG DEAL?**

The gut plays a role in the digestion and absorption of nutrients, and fermented and probiotic-rich foods help to maintain our microflora, said Dr Reuben Wong, a gastroenterologist from gutCARE at Gleneagles Hospital.

Our digestive system is home to about 100 trillion bacteria – beneficial and harmful – known collectively as the gut microbiota.

An imbalance between good and bad gut bacteria has been associated with inflammatory and metabolic disorders including inflammatory bowel disease, irritable bowel syndrome and obesity, said Professor William Chen, director of food science and technology programme at the Nanyang Technological University. This has led to a large amount of research on understanding what constitutes a health-promoting or disease-promoting microbial group, he said. The gut microbiota of each individual is unique. Factors such as diet, geography, host genetics and physiology and drug use influence gut microbial composition, with diet considered the most prominent factor, said Prof Chen. "Moreover, diet is simplest to modulate and provides the easiest route for therapeutic intervention," he said. "Recent studies have linked diet and microbiome with health."

Microbiome refers to all the genes that our microbiota contains. Prof Chen said fermented foods are generally easier to digest. This is because fermentation breaks down large molecules into smaller building blocks, such as carbohydrates into sugars, lipids into fatty acids

and proteins into amino acids. They are also rich in many vitamins, digestive enzymes, minerals and antimicrobials, which are produced by the fermenting microbes, he said. And the flourishing probiotic microbes in fermented foods can also give our gut a dose of healthy probiotics.

**DO HEALTHY PEOPLE NEED PROBIOTICS?**

Apart from a gut-healthy diet, which would contain carbohydrates, fruit and vegetables, gut health may be maintained or improved with food containing probiotics or prebiotics, said Prof Chen.

Prebiotics are non-digestible components of carbohydrates that help feed specific good bacteria. "Dairy products like kefir and yogurt contain live probiotic organisms and are thus a good source of beneficial bacteria to enhance our gut microbiome," he said.

Probiotic bacteria tend to prefer dietary fibre, while harmful bacteria use dietary proteins and fats to produce toxins that can damage health, said Prof Chen.

Evidence suggests that probiotics benefit those with severe food poisoning, as the repopulation of the gut with probiotic microbes inhibits the growth of harmful ones found in contaminated foods, he said.

Dr Alex Soh, an associate consultant at the division of gastroenterology and hepatology at National University Hospital (NUH), said that in general, probiotic drugs have been associated with supporting a healthy digestive tract.

In patients with acute infectious diarrhoea, probiotics may have beneficial effects in shortening the duration of illness and reducing

stool frequency, he added. And patients with irritable bowel syndrome may experience reduced overall symptoms and abdominal pain with probiotics, he added.

However, it remains to be determined whether probiotics are particularly beneficial for healthy people, said Prof Chen.

Indeed, there is no need for daily probiotic supplements as a healthy body self-regulates its microbiota, said Dr Wong.

"Think of them as vitamins pills, you don't need them if you have a healthy, balanced diet, but they are useful if you have a deficiency or medical condition which would benefit from supplementation," he added.

Children, too, can take probiotics supplements, but it has not been shown to have added health benefits, said Dr Michelle Tan, a consultant at NUH's division of paediatric gastroenterology, nutrition and hepatology.

There is, however, evidence that using probiotics shortens the duration of diarrhoea, she added.

"Probiotics have also been used anecdotally for various GI (gastrointestinal) complaints, such as infantile colic, constipation and recurrent abdominal pain, but the benefits in such situations are not consistent," she said.

**NOT ALL PROBIOTIC PRODUCTS ARE THE SAME**

Probiotics – the most common ones being lactobacilli and bifidobacteria – can be packaged in many formulations containing just one organism or a mixture, said Dr Tan. "Effects can differ considerably between one organism and another."

Many products such as fer-



**Kombucha**  
A fizzy drink made by fermenting tea and sugar with a culture

**Apple cider vinegar**  
Made from apples, sugar and yeast, this can be drunk in small quantities

**Yogurt**  
Made by introducing certain bacteria into fresh milk

**Probiotic supplements**  
These contain live micro-organisms believed to foster healthy gut bacteria

**Milk kefir**  
A drink typically made with a colony of beneficial bacteria and yeasts and cow's milk

**Sweetened cultured milk drink**  
These fermented drinks come packaged in small bottles

ST PHOTO: SYAZA NISIRNA, DESIGN: SALLY LAM

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**THREE FERMENTED FOODS AND THEIR POSSIBLE BENEFITS ON D2**



### Three fermented foods and their possible benefits

Some fermented foods and drinks have found new fans here, some of whom make them at home for daily consumption.

However, experts advise caution if you are attempting to cultivate or make fermented or cultured milk products at home.

"They may contain probiotics and, some of them, prebiotics, and it is believed that they help to maintain and contribute towards a healthy gut microflora," said Dr Reuben Wong, a gastroenterologist from gutCARE at Gleneagles Hospital.

"However, in the same way that they can grow good bacteria, if the fermentation process is not properly controlled, contamination with pathogenic bacteria can occur, which could result in food poisoning."

As there is no recommended daily allowance for probiotics, it is not clear how much fermented foods we need to eat to optimise our gut health, said Professor William Chen, director of food science and technology programme at Nanyang Technological University.

Fermented foods have similar benefits, though the strains of beneficial bacteria used in the fermentation process of different foods may lead to some being more beneficial for gut health than others, he said.

For instance, a common probiotic fermented milk beverage may contain just one species of probiotic bacteria. A good probiotic source should ideally have multiple strains as multi-strain probiotics have shown greater efficacy than single strains, said Dr Gwee Kok Ann, a gastroenterologist at Gleneagles Hospital.

We take a look at three naturally fermented products:

#### KOMBUCHA

A beverage that has been around for 2,000 years, it is made by fermenting tea and sugar with the kombucha culture.

The sour taste of kombucha is reflective of lactic acid formation during the fermentation process, said Prof Chen.

As with other probiotic foods or

drinks, kombucha is believed to help with digestion, detoxification, energy rejuvenation and immunity, but scientific evidence would be needed to substantiate these claims, he said.

Kombucha, similar to other trending health foods that advertise a probiotic effect, has very little direct scientific proof as the claims mostly rely on general and historical practices and observations, said Dr Gwee.

He added that there have been reported serious side effects (such as lactic acid build-up in the blood) in a small number of people.

#### KEFIR

A fermented beverage that generally tastes like a yogurt drink, it is made using a starter, which is a combination of microbes and milk powder.

The benefits of kefir are similar to those of kombucha, said Prof Chen.

Again, scientific evidence would be needed to substantiate these claims, even though most of the research about kefir has been positive so far, he added.

When compared with yogurt, which contains lactobacillus, kefir may be more beneficial for gut health as it contains a variety of probiotic microbes, Prof Chen said.

The fermentation of kefir breaks down the lactose in milk and turns it into glucose and galactose. Therefore, consumers who are lactose-intolerant can benefit from drinking this cultured milk product, he said.

#### APPLE CIDER VINEGAR

This is made by combining apples with yeast, which converts the sugar in the apples to alcohol. Bacteria added to the mixture then ferment the alcohol, turning it into acetic acid, said Prof Chen.

Several studies in animals and humans have found that acetic acid and apple cider vinegar may promote fat burning and weight loss, decrease blood sugar levels, increase insulin sensitivity and improve cholesterol levels, he said.

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(From top) Kefir, apple cider vinegar and kombucha. ST PHOTO: SYAZA NISRINA