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THE ROLE OF PROBIOTICS IN HEALTH: A CLOSER LOOK AT FERMENTED FOODS

In the world of nutrition, 2016 is quickly shaping up to be the year of the gut. The link between our gut microbes and our health is an exciting and constantly evolving area of nutrition research. Probiotics and functional foods are taking front and centre stage in this year's health trends, so here we take a closer look at the evidence behind the bacteria-containing foods that are touted as the 'real food' answer to optimal gut health.

As diet can modulate our gut microbes and diet induced dysbiosis can affect people's susceptibility to many diseases, gut health is an exciting area of therapy in which dietitians, have a key role to play.

It has been estimated that our bowels contain around 10 trillion bacterial cells, or up to 10 times the number of human cells in our bodies.¹ Unsurprisingly, although we have isolated around 400 different strains of bacteria in our gut, most remain uncategorised.²

The main focus of current research is the understanding of the functional contributions of our individual bacterial populations to health. Emerging studies have suggested that our microbes may play a role in the risk of a number of diseases, including; obesity, diabetes, inflammatory bowel diseases and cancer, to name just a few.² Studies looking at the gut-brain axis have even linked our gut bacteria to our mood.³⁻⁶

With this in mind, one of the big questions facing nutrition professionals today is: How do we promote a healthy gut?

THE ROLE OF FERMENTED FOODS IN HEALTH

As clinicians, it's easy to think of probiotics simply in terms of supplements, most with very little (or very shaky) clinical research for their efficacy.

We know that many of these products may suffer with delivery problems. We aren't sure of the number of bacteria they carry, or if they can survive the acidic environment of the stomach, never mind thrive in our gut and make a meaningful difference to our bowel health.

However, we have been preserving foods through fermentation and eating bacteria rich foods for hundreds of years,⁷ so, what about the foods that are already teaming with 'good bacteria'? Can they play a role in promoting gut health and overall well-being and should they be promoted as part of a healthy and balanced diet?

Here's a summary of the evidence for the health benefits of a few popular fermented foods.



... lactic acid bacteria could have a host of potential beneficial effects on health ...



Kombucha tea

Kombucha tea

The popularity of Kombucha tea is on the rise. A probiotic tea which originates from Asia, Kombucha is made by adding bacteria, yeast and sugar to tea and fermenting it for at least a week.¹⁵

It's often referred to as 'mushroom tea' due to the mushroom shaped bacterial culture placed in sweet tea to ferment. It contains varying levels of alcohol, depending on the fermentation practices.

In mainstream health and wellness, kombucha has a serious health halo. Anecdotally, it is claimed to have a number of health benefits, including improved gut health, cancer prevention, immune system support and weight loss, to name but a few. Animal studies have shown it may be effective for moderating risk factors for heart disease, lowering blood sugar levels and improving liver and kidney function.¹⁶ However,

none of the health claims for kombucha are supported by clinical data in human trials, and so the health effects in people are unknown.

There are also a number of documented risks for kombucha tea, including dizziness, nausea, vomiting and even hepatitis and death. Because of this, kombucha can't be recommended therapeutically.

Sauerkraut and kimchi

Sauerkraut and kimchi are both types of fermented cabbage. Sauerkraut is of European origin and is usually fine cut and salted. Kimchi is a traditional Korean mixture of cabbage and other cruciferous vegetables, mixed with onions and spices, like ginger, red pepper and garlic. Both are usually served as a side dish to a main meal, or added to soups and stews.

There are many bacteria involved in the fermentation of sauerkraut and kimchi; however, like many probiotics, the main bacteria present in these foods is lactic acid bacteria.

It has been suggested that lactic acid bacteria could have a host of potential beneficial effects on health, from improving gut health and supporting the immune system, to decreasing the prevalence of allergy and reducing the risk of certain cancers.⁸

Both kimchi and sauerkraut are nutritious low calorie foods (approx 80Kcal/100g), which contain large amounts of lactic bacteria, vitamins (A, B, C and K) as well as minerals and some functional plant compounds.⁹ Some popular reviews on healthy living suggest that eating sauerkraut or kimchi regularly could be beneficial to maintaining a healthy gut flora through a probiotic effect.¹⁰ In vitro and in vivo studies have found that both kimchi and sauerkraut have potential for being anticancer, antioxidant and anti-obesity functional foods.¹¹ However, at this time, robust clinical trials in humans to investigate the health effects, are lacking.



Sauerkraut



Kimchi

... yoghurt could play a role as a functional food in weight management.

Interestingly, a recent review in South Korea, where kimchi is a dietary staple, has linked their traditional dietary intake of fermented foods, with a decreased risk of atopic dermatitis.¹² But so far, observational studies in humans haven't seen any link between the intake of fermented foods (like sauerkraut and kimchi) and cancer, or overall mortality.¹³

Sauerkraut and kimchi have been known to cause diarrhoea in some people when they are consumed regularly. They also feature on the monoamine oxidase inhibitors (MAOIs) restricted foods list, as they are high in the amino acid tyramine and monoamine oxidase inhibitors, which are occasionally prescribed for Parkinson's and mental health disorders such as anxiety and depression. They prevent the breakdown of tyramine in the body which can cause serious health problems.¹⁴

Yoghurt

Although not currently as 'on trend' as the other fermented foods in this article, yoghurt is probably the most widely eaten and 'mainstream' fermented food in Europe. It is made by fermenting milk with various strains of lactobacillus and Bifidobacterium bacteria and is seen as a staple in diets such as the Mediterranean diet, with known health benefits.

Although it can be difficult to attribute a specific health effect to an individual food, many studies have found that people who eat fermented dairy foods, like yoghurt, seem to have less of a risk of cardiovascular disease and metabolic syndrome.^{17,18}

It has also been noted that yoghurt could play a role as a functional food in weight management. Observational studies have noted a link between yoghurt and healthy body weight maintenance, including body composition. Higher yoghurt consumption has been linked with both lower body weight and weight circumference.¹⁹

However, it's not possible to determine cause and effect and results of trials investigating yoghurt's role in weight have been mixed, suggesting that the health effects may vary between individuals.

CONCLUSION

Functional foods, such as the ones discussed in this article, could play a key role in promoting bowel health. However, at the moment there is little research into their efficacy as a wellness product or dietary treatment and more clinical research is required to determine how they work and who they may benefit.²⁰ It's also possible that health effects may vary between batches of these foods, as the exact nutrition composition of many of these foods is dependent on the fermentation process.²¹

Currently, clinical nutrition and diet guidelines make very few references to fermented foods

and when they do, they are often treated with caution.²²

Probiotic foods, while mostly considered safe, may have some harmful effects and aren't suitable for all people. However, with the exception of kombucha, including some properly made and stored fermented foods in your diet shouldn't be risky and could be beneficial to health.

More research is required to determine how these foods could be used as functional ingredients for health.

