

South Africans should prioritise gut health as a focus area for intervention to achieve their nutrition and health goals



The One Health Summit themed **Your Gut's Instinct** took place on the 27th of August 2020. The event, hosted in webinar format given the current COVID-19 context, was attended by 500 healthcare professionals and key opinion leaders. Two renowned international experts and South Africa's own Mpho Tshukudu, a registered dietitian with a special interest in South Africa's food culture and heritage, shared developing science on the topic of gut health, and applied relevance for the South African context, considering local beliefs, behaviours and dietary practices.

Professor Rob Knight, the founding director of the Centre for Microbiome Innovation in California explored the emerging science of the gut microbiome as a gateway to overall health and described the gut and its microbiome as “the new frontiers impacting your whole lifespan and health outcomes”. According to Knight, the microbiome can be a predictor and influencer of traits and outcomes for health and disease. In fact, some traits are better explained by the microbiome (with up to 90% accuracy for obesity), than the host genome (with up to 60% accuracy).^{1,2,3} A review conducted by Montiel-Castro *et al.* (2013), summarised evidence of several health conditions which may be affected by intestinal microbiota, including pain, autism, obesity, cardiovascular risk, anxiety, depression and multiple sclerosis.⁴

Maintaining equilibrium in the gut is protective against disease, however modern life stressors can influence the gut microbiome negatively.⁵ Evidence has shown that modern lifestyles have resulted in the disappearance of large groups of microbes, lending towards gut dysbiosis.⁶

Lifestyle factors strongly influence the structure, diversity, and composition of the microbiome, and diet can have a large effect, even compared to the impact of disease and drug intervention.⁷ According to Knight, “we can reshape the gut microbiome with nutrition”. In particular, the intake of fruits and vegetables rich in fibre and phytonutrients, and fermented foods may have a positive effect.^{7,8}

Andrea Hardy, a registered dietitian and known as ‘Canada’s gut health expert’ explored the role of nutrition in influencing gut health. According to Hardy, “Nutrition is the quickest and easiest way to influence our gut microbiota”. A Western

diet characterised by a high intake of sugar and fat, red and processed meats consumed in excess and low intake of dietary fibre is associated with depletion of microbial diversity and abundance, impaired growth and function of the mucous layer affecting gut permeability and low-grade chronic inflammation. Conversely, a diet focused on adequate fibre and variety, with intake of phytochemicals, omega-3 fats, probiotics, prebiotics and fermented foods is associated with microbial diversity and abundance, enhanced function of the mucous layer and decreased inflammation. The latter dietary approach promotes production of short chain fatty acids, which help maintain the gut microbiota, the gut barrier function, and overall gut health.⁹

Hardy elaborated on the role of probiotics delivered through foods and described them as a ‘win-win’ in which patients can obtain nutrients and beneficial bacterial cultures in a manner that is simple and easily adopted into most patients’ lifestyles. The International Scientific Association for Probiotics and Prebiotics (ISAPP) and the International Probiotics Association (IPA) have developed the following four criteria to define probiotics: the probiotic must be sufficiently characterised, be safe for intended use, be alive in sufficient numbers in the product at an efficacious dose throughout shelf life and be supported by at least one positive human clinical trial conducted according to generally accepted scientific standards.¹⁰ Hardy cautioned that these factors should be investigated to ensure the efficacy of probiotic-containing foods, and illustrated with an example of a yoghurt containing a blend of five cultures including the bacterial strain *Bifidobacterium lactis* CNCM I-2494 (known by the trade name Bifidus ActiRegularis™), which has been shown in clinical trials to reduce digestive discomfort.¹¹ Some evidence indicates that this effect may be associated with an improvement in the objective markers of abdominal distension (bloating) and decreased transit time.¹²

Mpho Tshukudu shared unique insights into the cultural and dietary factors affecting gut health among South Africans and lobbied a call to action to all healthcare professionals to “better understand all the layers influencing an individual's food choices and behaviours, in order to deliver relevant, meaningful advice”.

Although data exploring gut health explicitly in South Africa is limited, the insights gained from the study of the nutrition transition (showing an increase in the intake of total energy, added sugar, sodium and ultra-processed foods associated with urbanisation), suggests that digestive wellbeing is neglected.^{13,14,15} Among South African women, initial interventions in response to digestive discomfort include the use of laxatives, herbal preparations and enemas. These interventions are not recommended as a first line approach and may perpetuate gut health disorders if used long-term. Lifestyle approaches, including dietary intervention, are the preferred first line defence, minimising the need for extreme measures to achieve digestive comfort.^{16,17}

According to Tshukudu, in the modern circumstances, some South Africans believe that rural, traditional foods have no role in a modern, healthy diet, and these traditional foods often carry negative connotations of being 'poverty foods', despite their valuable nutrient credentials. Tshukudu recommends integrating South Africa's traditional food culture with modern application for advice that appeals both to heritage and health trends. For example:

- Encourage the use of prebiotics like onion, ginger and garlic, as well as spices such as black pepper, cayenne pepper, cinnamon, oregano, rosemary and turmeric for the flavouring of foods. Through acculturation, these flavours have been adopted into South African cuisine over time, and positively impact the microbiome.¹⁸
- Sprouting, soaking and fermenting of grains, lentils, beans and vegetables has been shown to reduce phytates, improve digestion and decrease flatulence and intestinal discomfort associated with the introduction of beans and legumes. Encourage these methods of preparation which are culturally acceptable and carry a modern appeal popularised in the media.
- Encourage the intake of fruits which offer a source of polyphenols to support gut health. Fruits such as pomegranates, figs, blackberries and baobab grow in rural areas, and evoke positive childhood memories. Recommend these fruits with modern application in smoothies, baking and dressings.¹⁹
- Encourage the intake of vegetables, particularly traditional leaves, of which South Africa has over 60 varieties. *Morogo* for example, is rich in nutrients and fibre. Use these in modernised recipes, like making pesto, salads and smoothies.
- Advocate for the intake of legumes and nuts as easily accessible plant proteins. In South Africa, meat consumption is high at the expense of vegetables, nuts, and legumes, partly driven by the high status afforded to meat, while plant proteins are considered poverty foods. Leverage the benefits and modern appeal of the flexitarian diet to help improve the value associated with nuts and legumes as protein sources.
- The 'sour' taste associated with fermented dairy foods is a South African taste preference, however due to the

high prevalence of lactose intolerance, many South Africans carry hesitation regarding dairy foods. Educate patients regarding fermented dairy foods, in which a portion of the lactose is digested by the intrinsic cultures in the fermented dairy products, improving tolerance in lactose intolerant individuals. Yoghurt offers a modern appeal to traditional fermented milk. Choosing a yoghurt containing a blend of strains, including a particular strain of bifidus bacteria, helps to promote digestive comfort and wellbeing when consumed daily.

The webinar recording, CPD opportunities and additional content from the speakers is available to view on the Danone website: <https://corporate.danone.co.za/one-planet-one-health/healthy-lifestyle/your-gut-s-instinct.html>

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*The One Health Summit is sponsored by Danone Southern Africa. After 3 consecutive years of hosting the Yoghurt Summit, this year the summit was renamed the **One Health Summit** in line with Danone's global One Planet. One Health vision. This vision is a call to action for all consumers and everyone who has a stake in health to join the food revolution: a movement aimed at nurturing the adoption of healthier, more sustainable eating and drinking habits.*

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