

DIETITIANS as change makers to manage GUT HEALTH



One-third of the general population complains of some gut-related symptoms, such as flatulence, bloating, heartburn, nausea, vomiting, constipation, diarrhea, food intolerance, incontinence and abdominal pain. Oftentimes these symptoms occur when there is no gastrointestinal (GI) disease present.

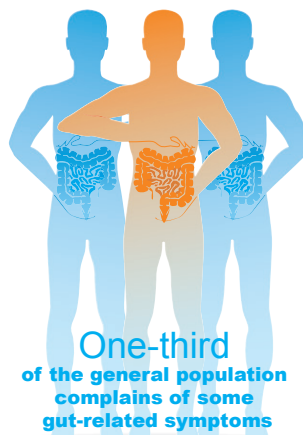
A paradigm shift in health and science is showing that **the gut plays a significant role in your overall health**, including physical and mental health. Beyond effective digestion and absorption of nutrients from food, the gut interplays with several territories: gut barrier, gut sensing, gut-liver metabolism. Recent research has established the involvement of the gut microbiota in these interactions. Furthermore, diet has the potential to influence gut microbiota balance.

What can dietitians do to support gut health? It turns out, they can do quite a lot!

That's why gut health was on the agenda at the 2018 European Federation of the Association of Dietitians Conference in Rotterdam on 28 - 29 September 2018. **Christina Katsagoni of the European Specialist Dietetic Network (ESDN) on gastroenterology**, which aims to support dietitians in implementing evidence-based practice in relation to gastrointestinal health and disease, hosted a scientific session on gut health highlighting how dietitians, as experts in food and nutrition, can play an important role by serving as gut health ambassadors. This report brings the main highlights from this session.



Christina Katsagoni PhD, is a clinical dietitian and the Lead of the European Specialist Dietetic Network (ESDN) on gastroenterology of EFAD. Christina has a great experience in clinical practice and research. She currently works at Agia Sofia Children's Hospital (Greece) and she is a research associate in the Department of Nutrition & Dietetics, School of Health Sciences and Education, Harokopio University (Greece).



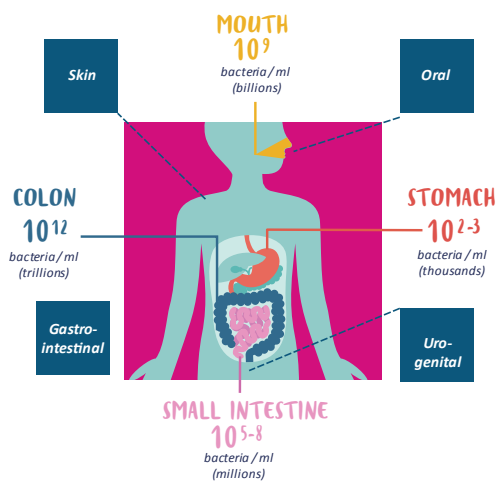
One-third of the general population complains of some gut-related symptoms

"Dietitians as change makers to manage gut health"



Maria Gustafsson
with a background from both food manufacturers and health care she has a broad expertise from food innovations and communications to consumers insights and behavior. Today she works as a consultant specializing in food, nutrition and health communications. Maria is a Registered Dietitian in both USA and Sweden.

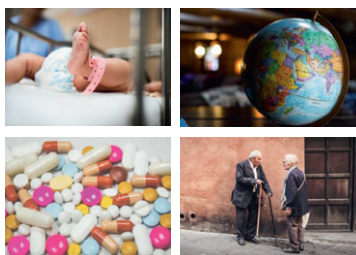
90-95% of microbes live in our gut



External factors can impact our gut and microbiota

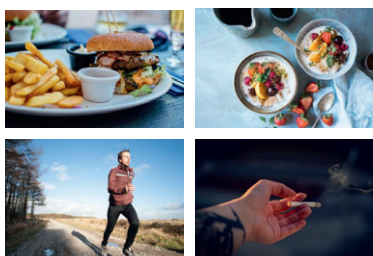
Some less controllable:

Delivery methods, geography, ageing, illness and antibiotic use



Others we can act on:

Diet and Lifestyle



THE GUT: More than a tube, an ecosystem dedicated TO HEALTH



The microbiota can, in total, weigh up to 2 kg.

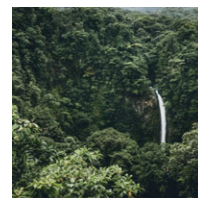
The gut is a window to the outer world, a continuous, open tube that starts with the mouth and ends with the anus. It allows effective digestion and absorption of nutrients from food while protecting from outside invaders. It is home to the gut microbiota: more than 100,000 trillion microorganisms that live and interact with the body, working either in symbiosis with the host, or sometimes against it. Among the trillions of gut bacteria are more than 1,000 different species.

Everyone's gut microbiota is specific, although one third on average is common to most individuals. Despite this variability in terms of species, the overall functions of the microbiota are the same.

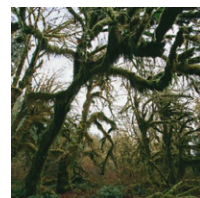
Dysbiosis: the gut microbiota out of balance

Dysbiosis occurs when there is a disruption in the mutually beneficial relationship between the body and its microbiota. To be qualified as balanced, the gut microbiota should be both rich and diverse. Gut microbiota richness and diversity is generally considered to be a marker of health. A balanced microbiota reflects symbiosis with the human host, also called eubiosis. An imbalance in the gut microbiota, called dysbiosis (for dys-symbiosis) can significantly contribute to impaired health.

BALANCED GUT MICROBIOTA
Richness and diversity
A flourishing forest



DISBALANCED GUT MICROBIOTA
Lack of richness and diversity
A forest lacking diversity



Factors that can impair both the gut barrier and the gut microbiota and consequences for health

Ageing, Western, modern or unhealthy lifestyles and behaviors, such as an unbalanced diet or bad dietary habits, C-section delivery, and antibiotic abuse, are documented factors impacting negatively on gut microbiota. Other external factors, like psychological stress, reduced physical activity, excessive hygiene, ambient temperature, and jet-lag are thought to contribute to imbalances in the gut and its microbiota, thereby impacting health. While certain microbiota-perturbing factors are less controllable, such as C-section, antibiotics, stress and hygiene, acting on diet and lifestyle is possible.

A healthy and balanced microbiota ecosystem can adapt to changes and be resilient to stresses. However, the gut microbiota is fragile. In specific situations, the gut microbiota loses its symbiotic trait and become less beneficial. A dysbiosis is associated with non-communicable and chronic diseases such as diabetes, obesity, allergies or functional bowel disorders, and inflammatory bowel syndrome.

"Dietitians as change makers to manage gut health"

A diverse diet, that includes food with probiotics, and/or prebiotics helps the gut and its microbiota to work properly

A diverse diet is the first medicine, a frontline approach influencing the gut and its microbiota. Recent studies have shown that modern lifestyles and diets result in a less rich and diverse gut microbiota compared to the past. Dietary habits strongly influence the gut microbiota, shaping its composition and activity. Both short- and long-term dietary changes can influence gut microbial profiles. Food is a natural, traditional and soft way to feed our body by providing nutrients and energy to keep the gut working optimally, and to prevent health issues. In specific situations, nutrition can be an "adjuvant" to medical treatment.

Foods with prebiotics, probiotics, fermented foods with live bacteria are solutions to help maintain the gut microbiota balance and its resilience says Maria Gustafsson during her talk: Food first – Nutrition is our "front line approach" to manage gut health.

The current consensus is that probiotics are most effective in conditions related to the digestive tract and the immune system. Building on the quality of evidence, several medical and scientific organizations recommend the use of probiotics in their evidence-based guidelines.



Prebiotics are substrates that are selectively utilized by host microorganisms conferring a health benefit (mostly dietary fibers present in plants)
(ISAPP definition, 2017)

Probiotics are live microorganisms that, when administered in adequate amounts, confer a health benefit on the host
(Ref: FAO/WHO (2001) and updated by ISAPP in 2014)

Fermented food is a matrix transformed through the fermentation process by microorganisms: bacteria, yeasts and molds

Guidelines

- **World Gastroenterology Organisation (WGO)**
 - Diet and Gut (April 2018)
<http://www.worldgastroenterology.org/guidelines/global-guidelines/diet-and-the-gut/diet-and-the-gut-english>
- **European Society for Primary Care Gastroenterology (ESPCG)**
 - Systematic review: probiotics in the management of lower gastrointestinal symptoms – an updated evidence-based international consensus (Huangin AP3 et al. *Alimentary Pharmacology & Therapeutics*, 2018)
<https://onlinelibrary.wiley.com/doi/abs/10.1111/apt.14539>
 - Practical Reference Guide: Probiotics in the management of lower GI symptoms in clinical practice *(will be updated later this year)*
<http://espcg.eu/publications/guidelines/>
- **British Dietetic Association**
 - British Dietetic Association systematic review and evidencebased practice guidelines for the dietary management of irritable bowel syndrome in adults *(2016 update)* [McKenzie YA et al *Journal of Human Nutrition and Dietetics*, 2016]
<https://onlinelibrary.wiley.com/doi/abs/10.1111/jhn.12385>
 - British Dietetic Association systematic review of systematic reviews and evidence-based practice guidelines for the use of probiotics in the management of irritable bowel syndrome in adults *(2016 update)* [McKenzie YA et al *Journal of Human Nutrition and Dietetics*, 2016]
<https://onlinelibrary.wiley.com/doi/abs/10.1111/jhn.12386>

Dietitians are key in translating science to daily practice and become gut health ambassadors

The good news is that dietitians have the expertise to take scientific evidence and translate it into practical everyday guidance to improve Patients' diet and lifestyle. In particular, patients' barriers to change should be addressed through dialogue, to engage them and create personal investment in nutrition changes. Developing general healthy habits in their daily routine beside the intervention might also be helpful.

Dietitians – The gut health ambassadors

- Talk to all your clients about gut health.
- Give small tips that are easy to incorporate.
- Stay updated on the science.
- Emerging science how gut health and gut microbiota play a role in obesity, allergies, Alzheimer's as well as athletes performance to name a few.

Not all PROBIOTICS are the same !

They do not all act in the same way and do not deliver the same benefits, which are mostly strain-specific, even though they may have common features. When choosing a probiotic, it is important to select one that is clinically documented.

Prof Kevin Whelan, Head of Department of Nutritional Sciences, King's College London explained this further during his presentation : **Gut Microbiota in Irritable Bowel Syndrome (IBS) and its modification by diet: probiotics, prebiotics and low FODMAP diet.**

IBS: a public health concern

5-10% of the UK population has IBS, a disease that significantly affects quality of life and is a major cause of referral into medical centers. IBS is a functional bowel disorder characterized by abdominal pain with disordered defecation. However, the pathophysiology of IBS is very complex and not entirely understood.

A different microbiome

Evidence suggests a dysbiosis of the luminal and mucosal colonic microbiota in IBS, frequently characterized by a reduction in species of Bifidobacteria which has been associated with worse symptom profile. Lower levels of *Lactobacillus* and of *Faecalibacterium prausnitzii* – key modulators of the gut immune system are also observed.

The more severe the IBS, the lower microbial richness and diversity is in the microbiome

But not everyone with IBS has a disordered microbiome or dysbiosis. The microbiome also depends on the severity of IBS. The gut microbiome is very important in IBS, even if it is not the only cause of symptoms.

For decades, the only way to diagnose IBS was by excluding other conditions (Crohn's disease, ulcerative colitis, celiac disease). Researchers are now trying to identify a microbial signature in the stool that can be used to diagnose IBS.

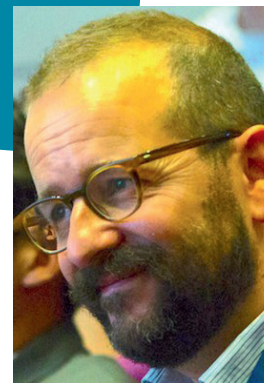
"In five - or ten-years' time, one might be able to take stool samples from patients, sequencing them, do a quick test and be able to say: 'Based upon your microbiome, I am confident you have a diagnosis of irritable bowel syndrome'. An interesting space to watch." says Prof. Whelan.

How dietary strategies may help manage symptoms impact on the microbial community ?

Probiotic supplementation trials suggest intentional modulation of the GI microbiota may be effective in treating IBS.

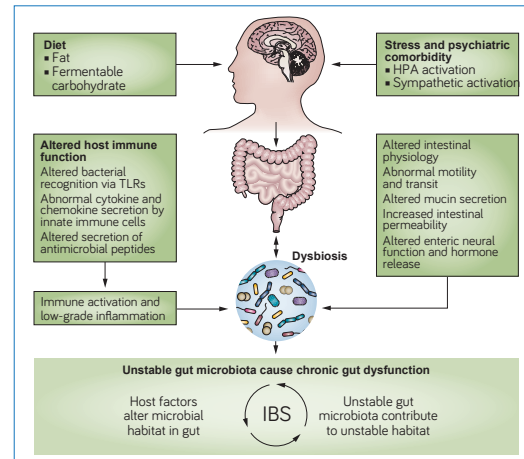
A smaller number of **prebiotic** supplementation studies have also demonstrated some effectiveness in IBS whilst increasing Bifidobacteria.

Low FODMAP diet: a clinical effectiveness of the low FODMAP diet in patients with IBS is observed.



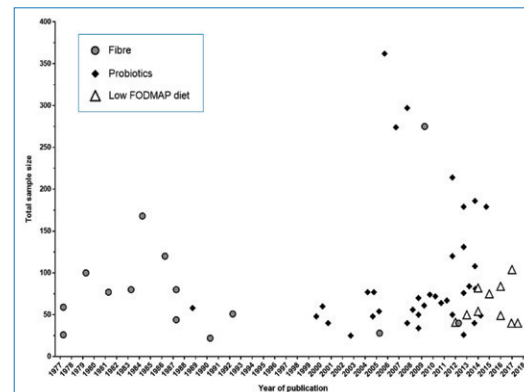
Professor Kevin Whelan is a dietitian and the Professor of Dietetics and Head of the Department of Nutritional Sciences at King's College London, UK. Kevin has published over 120 papers in peer-reviewed journals on topics including fibre, probiotics, prebiotics and FODMAPs and is a Fellow of the British Dietetic Association.

IBS : complex, inter-related pathophysiology



Source : Collins *et al*, Nature Gastro Hepatol, 2014 ; 11 : 497-505

Trends in dietary intervention trials in irritable bowel syndrome



Source : Dimidi *et al*, Curr Opin Clin Nutr 2017 ; 20 : 456-463

Fermentable

Oligosaccharides

(fructans and α galacto-oligosaccharides)

Disaccharides

(lactose)

Monosaccharides

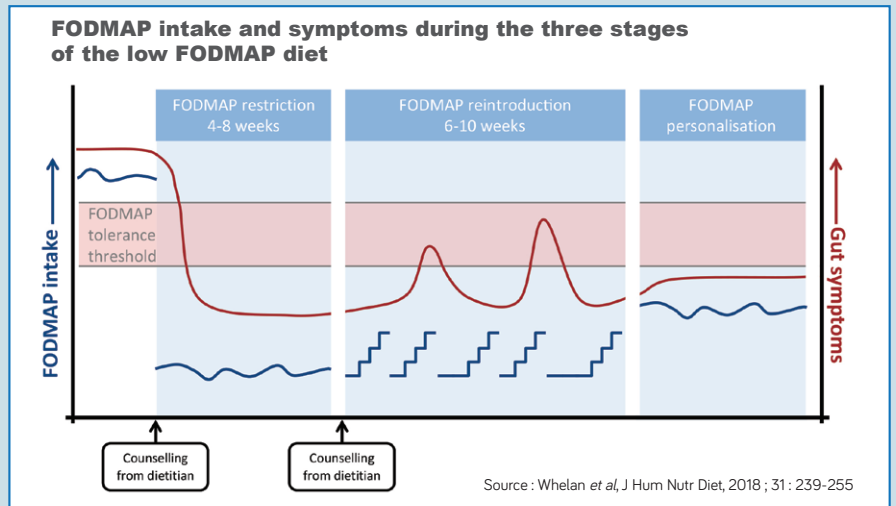
(fructose)

And

Polyols

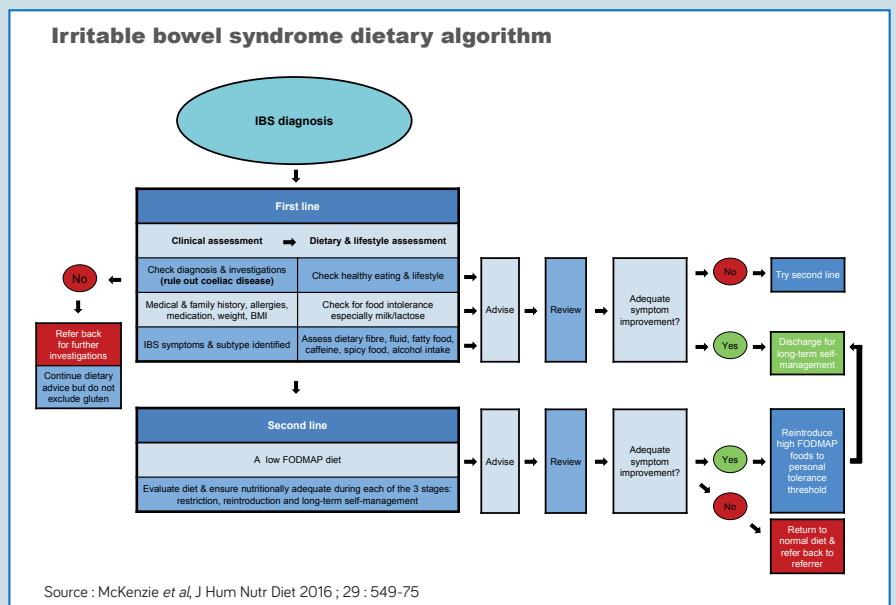
(sorbitol, mannitol, xylitol etc)

A low FODMAP diet should only be followed for four to eight weeks, before reintroducing FODMAPs into the diet. **"The food should be reintroduced in a stepwise process. As an example, start introducing fructans, e.g. starting with half a slice of bread one day, a whole slice of bread the next and so on. The staged reintroduction process should be done by dietetic expertise,"** emphasis Prof Whelan. Through the staged reintroduction we can identify which carbohydrates need to be permanently removed from the diet and which did not cause symptoms, and can be reintroduced to the diet.



However, this dietary intervention has an impact on the microbiota. This leads to an interesting paradox; namely, increasing luminal Bifidobacteria through probiotic supplementation is associated with a reduction in IBS symptoms while in direct conflict to this, the low FODMAP diet has clinical efficacy but markedly reduces luminal Bifidobacteria concentration, presumably due to the reduced prebiotic (fructans, GOS, ...) intake.

Given the multifactorial aetiology of IBS, the heterogeneity of symptoms and the complex and diverse nature of the microbiome, it is probable that both interventions are effective in patients subgroups. However **combination treatment has never been explored and as such, presents an exciting opportunity for optimising clinical management, whilst preventing potentially deleterious effects on the GI microbiota.**



According to the BDA, TWO ADVICES

1st line: Assess dietary fibre, fluid food, fatty food, caffeine, spicy food, alcohol intake

2nd line: Low FODMAP diet

McKenzie et al, J Hum Nutr Diet 2016; 29: 549-75



In a nutshell
HEALTH
THROUGH GUT
is for everyone!

The scientific evidence concurs on the proposition that dietary patterns have a fundamental influence on the balance of the gut microbiota, which in turn contributes to overall health and well-being. Along with the support of healthcare professionals, regular dialogue and discussion among experts, will help to underline the importance of a good diet to maintain the correct balance of our gut.

Public interest continues to grow around gut health and the microbiota. As food and nutrition experts, dietitians are well equipped to guide consumers on dietary interventions. Furthermore, dietitians play an integral role in connecting the public to credible nutrition information. But more education and training is needed to provide dietitians with evidence-based practices for their patients. Getting people invested in gut health can shape outcomes in both wellness and disease.

What will your role be in gut health?



- The gut plays a significant role in your overall health.
- Food first – Feed your body and your gut microbiota.
- The gut microbiome is specific and fragile; its richness and diversity make it healthy and balanced.
- The gut microbiome is altered in some people with IBS and may play a role in its pathogenesis.
- Some probiotics strains have an impact on some symptoms in some IBS patients.
- Not all probiotics are the same; chose a probiotic with documented effects.
- IBS management should include dietary changes with food first (probiotics, fibre, ...) and a low FODMAP diet as a second line.
- Combination treatment has never been explored and presents an opportunity for optimising clinical management whilst preventing potentially deleterious effects on the GI microbiota.



#GMFH_EFAD18 /
Gut Health on social networks



8 small tips for gut health



Eat your veggies!

Vegetables add fiber and several provide prebiotics.

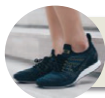


Eat something living every day!

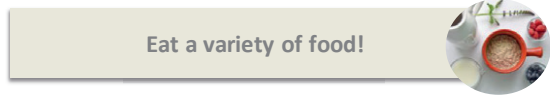
Include fermented foods and probiotics every day



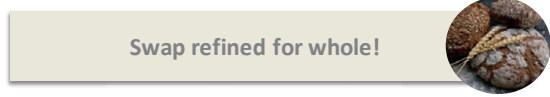
Don't skip meals!



Be active!



Eat a variety of food!

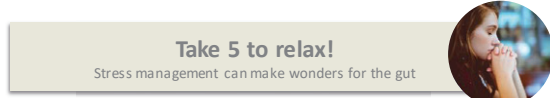


Swap refined for whole!



Hydrate with water!

Adequate hydration is essential with high fiber intake.



Take 5 to relax!

Stress management can make wonders for the gut