

June 2018



Dietitians NZ

Ngā Pukenga Kai Ora o Aotearoa



SING Newsletter

Welcome to the June edition of the SING Newsletter

Thanks to **Niki Russell** and **Chris Cook** for their contributions to this month's newsletter. If you have any interesting news, information you wish to share, please email us so that this can be included in future newsletters. Sandra.vanLill@middlemore.co.nz

Greetings fellow SING members!

1. Calling for nominations for committee members and new convener

If you are interested in serving on the SIG committee please let us know as a number of the current committee members are stepping down.

2. Evidence based Nutrition for Positive ageing – a one-day symposium.

11 April 2018 Hosted at Massey University, Albany, Auckland.

Reviewer: Niki Russell niki.russell@nutritioncare.co.nz

Topics ranged from reducing cancer risk by dietary means to micronutrient intake in long term aged care. Presentations came from academics and health professionals including dietitians, speech language therapists and nurses.

Professor Hilary Powers from the University of Sheffield covered influencing cancer by dietary means. She is on the expert panel who produced the latest third report on Food, Nutrition, Physical Activity and Prevention of Cancer. NZ falls into the highest global burden of disease category along with many other Western countries. There is strong evidence that 1/3 cancer can be prevented by appropriate diet. She indicated there was strong evidence link to certain types of cancer for specific foods like 'cantonese styled salted fish' and some 'smoked fish'. The report recommendation for red meat consumption to decrease the risk of cancer is 350-500grams/week.

Professor Jim Mann's presentation was an entertaining 30 minutes looking back at the history of diabetes and nutrition research and treatment. Recent research is looking at what is the right type of type of carbohydrate food. With over 40g fibre/day recommended for good diabetes control what type of fibre will be most effective?

Two sessions covering nutrition and bone health from NZ experts in the field. Associate Professor Pamela von Hurst advocated for vitamin D blood test to be used as standard indicator. Professor Marlena Kruger discussed the best calcium source is from food but if an individual can't achieve RDI - use a supplement to

upper limit 2000mg/d. Calcium absorption from salts is faster than absorption from milk but the absorption from milk is more effective.

Professor David Cameron-Smith talked about the new concept of 'osteosarcopaenicobesity' in aging baby boomers – the combination of sarcopaenia, obesity and osteo decline. He leads the OptiMuM study looked at protein intake for maintaining muscle strength and mass in elderly males - the current RDA of 0.8g/kg/day may be insufficient and twice that is advocated.

Sessions in the afternoon included CBT for dementia prevention and engaging clients with long term conditions in self-management. Associate Professor Carol Wham presented evidence from the ENRICH study and advocates the use of nutrition screening tools to identify those living in the community or residential settings at risk of or with malnutrition. Sue MacDonnell presented results from the study into elderly living in residential settings and their micronutrient intake. Anaemia was found in 25 - 60% of aged care residents studied. The study highlighted zinc deficiency rather than iron deficiency as highly prevalent and may be more responsible for anaemia in this population.

Lastly Dr Anna Miles gave an overview of the IDDSI (International Dysphagia Diet Standardisation Initiative) food texture and fluid modification standards with 2018 being the implementation year and we all have a part to play in that.

3. **Tibor's Kitchen** – quality aged care meals

Tibor is enthusiastic about producing puree food with eye appeal – this article is off his Facebook page 26 June at 20:08 · Pureed Cucumber Ribbon Sandwiches and Carrot Bites for that in between snack for our Dysphagia effected residents.

Worldwide approximately 1 in 25 people will develop dysphagia (swallowing difficulty) at some point in their adult lives. The prevalence gets higher as we age and our elderly in aged care are particularly vulnerable. The only way to manage it is with varying degrees of modified diets but pureed blobs on a plate don't look particularly appetising. Knowing what's on the plate front of us is also such a basic assumption that we don't even think of it until we lose it and food as enjoyment loses its meaning.

But by forming pureed ingredients back into familiar forms we can make eating food the same as it always have been. A joyful activity where each bite reveals a new reminder that life was meant to be enjoyed to the fullest.



Tibor's Pureed Cucumber Ribbon Sandwiches and Carrot Bites

<https://www.facebook.com/tiborskitchen/photos/a.748621675252851.1073741828.747609985354020/1724272377687771/?type=3&theater>

4. DNZ 75th Jubilee conference

We have not planned a SING event before or after the DNZ 75th Jubilee conference in Auckland late August. Hopefully many SING group members will be attending the Jubilee conference, and we can have an informal get-together.

5. NZ Association Gerontology conference 6-8 September 2018 at Ellerslie Event Centre Auckland.

Is anyone planning on attending NZAG conference below? Nutrition and ageing is one of the key topics listed on this website.

<http://www.cvent.com/events/2018-nzag-conference/event-summary-b0b2f364b9774df7b007b8145ab4f7da.aspx>

6. Nutrition and prevention of disease.

Psychology today may not be at the forefront of publishing scientific research but this article makes links between insulin resistance and the development of Alzheimer's disease

<https://www.psychologytoday.com/us/blog/diagnosis-diet/201609/preventing-alzheimer-s-disease-may-be-easier-you-think>

7. The Gut Microbiome – Through the looking Glass

Melbourne 26th March 2018

Chris Cook attended this seminar in Melbourne in March and shares her learning.

This seminar was sponsored by Nestle, attended by approximately 400 people and was packed full of information. The presentations were as follows:

- The gut microbiome, prebiotics and probiotics: 101 - Prof Kevin Wheeler
- Faecal matter transplantation: it is ready, and are we? -Prof Jane Andrews
- Products of the microbiome: the good, the bad and the ugly -Prof Peter Gibson
- Eating your way to a healthy gut microbiota -Dr Jane Muir
- Functional GI disorders: Dietary intervention and the interaction with the microbiome – Dr Heidi Staudacher
- The next 10 years in diet for the management of gut health & disease - K Wheeler.

The only speaker to acknowledge the sponsorship by Nestle was Jane Andrews who stated that she did lack bias as she did not receive any external funding. My take home thoughts were what a complex area it is, how widely accepted the FODMAP diet is (however for ~ 6 weeks only because of its adverse effect on bowel bacteria) and how much more there is to be discovered.

The following are key points from three of the sessions:

The gut microbiome, prebiotics and probiotics: 101 - Prof Kevin Wheeler Professor Dietetics and HoD Nutritional Sciences, King's College London

There are >38 trillion microbial cells in the microbiome. The composition is described in vastly different ways e.g. reporting at the phyla, genera, species and strain level OR via microbial community types called enterotypes.

Alpha diversity refers to diversity within an individual and measures richness & evenness. Richness is the number of different species in a sample e.g. a fruit salad with seven fruit in similar proportions (Chai 1 measure of richness) and evenness is the relative abundance of different species (EF).

Beta diversity refers to diversity between separate samples: same person over time or different people. If there is high dissimilarity/don't share many there is high beta diversity. Each individual might have >160 species; metagenomics sequencing revealed that there are 18 species in 100% population, 57 species in >90%, 75 in >50%. Species will vary however 3 distinct enterotypes: bacteroides, prevotella, rumnicoccus.

The microbiome is stable for most of life from ~2 years old unless challenged by anti-biotics (ABs), illness or change of diet. An aging gut is more unstable. Long term diet determines microbiota however short term diet also has an effect as well as drugs and disease. An extreme plant based diet (50g fibre) didn't change alpha or beta diversity in one study but diet with animal food changes species. Mechanisms of the microbiota are:

1. Production of own ABs to fight bacteria
2. reduce Ph
3. compete for nutrients
4. competitive exclusion [through formation of the mucous layer], enhanced barrier function (less leaky gut)
5. produce growth substrates
6. supply of nutrients, cancer prevention/inhibition of pathogens.

Probiotics: live micro-organism that when administered in adequate amounts, confer a health benefit on the host (FAO/WHO 2002). Only 0.1- 5% survive hence 6.5 billion means at 0.1% only 6.5million will survive. Different effect in different individuals and probiotic exits gut when dosage stopped. There have

been at least 39 RCT and then BDA reviewed meta analyses: McKenzie J Hum Nutr Diet 2016 29 576-592: In IBS there is a *small effect*; *ssymptom outcomes for dose-specific probiotics were heterogeneous. Specific probiotic recommendations for IBS management in adults were not possible at this time. More data from high-quality RCTs treating specific symptom profiles are needed to support probiotic therapy in the management of IBS.*

Probiotics generally have no effect for inducing remission in Crohn's or preventing relapse except for S Boulardiri. Constipation, irritable bowel syndrome, inflammatory bowel disease and enteral nutrition are all associated with altered microbiome, with potentially clinically important changes. In IBD, there are higher levels of feacali bacterium prausnitzii even when symptom free however is this cause or consequence? Prebiotics impact gut microbiome in healthy people, though evidence for effectiveness in clinical populations is limited.

Summary

- The gut microbiome is complex – but not so complex that health professionals cannot utilise microbiome-related research
- Diet is a major determinant of the gut microbiome, but so are drugs and disease
- Constipation, irritable bowel syndrome, inflammatory bowel disease and enteral nutrition are all associated with altered microbiome, with potentially clinically important changes
- Probiotics, despite not convincingly shown to modify the gut microbiome, some strains have a clinical impact in some disorders (especially IBS and enteral nutrition) *NB: this conflicts with the BDA review*
- Prebiotics impact gut microbiome in healthy people, though evidence for effectiveness in clinical populations is limited.

Product of the Microbiome: The good, the bad and the ugly

Prof Peter Gibson, Professor & Director Gastro Alfred & Monash.

Peter stated that we need to look at the gut microbiota as an organ not a stamp collection; what you feed the biota will affect its function. Gut microbiota produce a vast array of products from gases to acids to neurotransmitters to carcinogens which span the very good to the very bad. There is a need to look at it as a whole and understand that all products can be both good & bad. Multiple products are bio-active or potentially so (Gibson GR et al GUT 1990): carbohydrate (CHO) & protein fermentation: H₂S, acetate, methane. Gases responsible for volume CO₂, H₂ methane, nitrogen. Microbial fermentation mainly CHO.

- swallowed air with eating: good, bad & ugly.
- intestinal bloating & pain, gas transmitter actions: methane slows transit time
- through gut and also causes constipation
- environmental effect: many plays about farting e.g. Elizabeth 1st, Moulin rouge

Fructans, polyols, lactose, oligosaccharides and fructose are slowly absorbed and bring water and produce CO₂, and methane. If there is visceral hypersensitivity there is increased pain & bloating. With a high FODMAP diet there can be increased wind & H₂ in breath whereas a low FODMAP diet improves symptoms. The biota produces most of the sort chain fatty acids (SCFA: butyrate, propionate & acetate) generated from cellular metabolism and the quantity depends on food sources. Whilst SCFA are usually viewed as all good due to, for example, their key roles in the maintenance of colonic epithelial health and barrier function, their local anti-inflammatory effects and their positive influence on systemic immune system, they are however not all good. If there is too much butyrate, it causes apoptosis (kills cells) with 5mmols/molar. Controversial because butyrate is both good and bad and currently can't be measured.

In colitis, there is high H₂S (Roediger). H₂S is good as it protects GIT, accelerates repair and reduces inflammation. H₂S & NO may be pathogenic in ulcerative colitis & IBS (changing visceral hyper sensitivity). So products of the microbiota offer a window into its function; gases can be good, bad & ugly as can SCFA. We need to take in to account all aspects of physiology e.g. resistant starch will not benefit distal colon as it is absorbed before this. Smart pills/gas sensing capsules are being developed and these will be able to measure where gas is produced/fermentation is taking place and hence increase understanding of the biome.

Faecal matter transplantation: It is ready, and are we? Prof Jane Andrews Uni of Adelaide

Key points FMT:

- “more work to do” – need to be cynical & look at where \$ are going, need to run on data and not sentiment. If there are benefits there are also side effects
- Age old therapy- had to get rid of faecal fat test because of distaste – now everyone crazy about poo
- diet is potent- high fat diet reduces gut bacteria in animals
- >50% new potential donors fail screening as product not reliable

FMT & ulcerative colitis

- biological plausibility in ulcerative colitis: disease is at interface between bugs & host; most of genes implicated in IBD relate to host/microbial interactions
- an inflamed gut has a different microbiota and stool transit time is an important influence
- most ulcerative colitis (UC) patients willing to consider FMT because “natural” – quasi religious beliefs
- However only phase 2 data; one meta-analysis: 4 studies, 3 positive, 1 early end –not ready for Phase 3, need to bear in mind that UC is not an 8 week illness.

What influences Microbiome?

- Diet & dietary restriction
- chemical additives e.g. preservatives & emulsifiers
- exercise & whole gut transit time
- weight – through diet & exercise
- Smoking
- anti-biotics, smoking
- other drugs e.g. metformin, PPIs may decrease bacteria

Claims for FMT:

285 papers on FMT on Pub Med last year:

- Depression – 7 papers all speculative
- Gastroparesis – 2061 papers -zero effect
- Obesity – 32 papers – no RCT – no real data
- Auto –immune- speculative
- Autism – 8 papers –opinion only
- Alzheimer’s- 1 speculative paper
- Metabolic syndrome:16 papers -not on humans
- Diarrhoea – 88 paper, mostly C-Diff, no RCT

What do we need for FMT to be ready for prime time?

- Clear indicator – only effective in recurrent C diff colitis
- defined dose & range
- therapeutic range
- defined dosing schedule
- known preparation
- efficacy, safety, availability
- registration FDA EMA TGA (not a drug)
- funding reimbursement

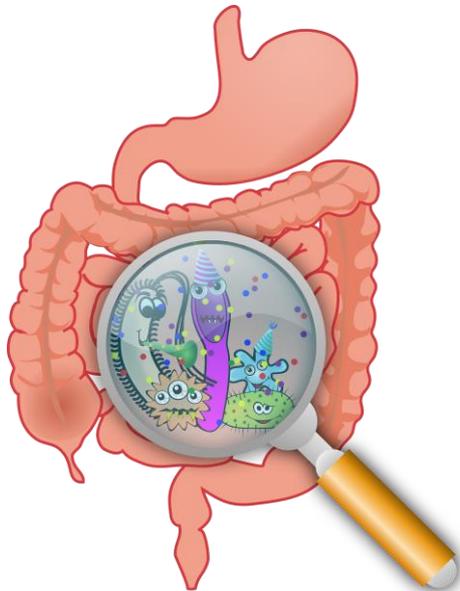
Future directions:

- What is it in donor stool which gives benefit?
- Isolate this & put in pill e.g. spore forming bacteria helpful
- Have gone for blended donations as increased diversity and don't know "who is good"
- Have looked at creating super donors on vegetarian diets but not there yet
- Anaerobic processing as aerobic decreases microbes
- Frozen aliquots are ok for C diff

8. 'Ridiculously healthy' elderly have the same gut microbiome as healthy 30 year-olds

Researchers at Western University, Lawson Health Research Institute and Tianyi Health Science Institute in Zhenjiang, Jiangsu, China have shown a potential link between healthy aging and a healthy gut.

<https://medicalxpress.com/news/2017-10-ridiculously-healthy-elderly-gut-microbiome.html>



9. Feedback

We welcome your feedback and contributions to the next newsletter.