HVN Science of Food Programme

National SCIENCE Challenges
HIGH-VALUE NUTRITION
Ko Ngā Kai Whai Painga

Riddet Institute
ADVANCING FRONTIERS IN FOOD SCIENCE

Scanning the Horizons

Clinical Trial Update

June 2020

A summary of the latest trials to be registered that are relevant for HVN

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2 Clinical trial review and update

Awareness of clinical trials currently in progress or recently completed provides a valuable insight into wider research activities aligned with HVN research pillars, emerging trends in research, and also indicates which research groups are active in the research area.

Clinical trial information is available through clinical trial registry databases, of which a significant number are aligned to the WHO Registry Network enabling clinical trial information to be listed in a standard form, in English, on the WHO International Clinical Trials Registry Platform (ICTRP). Since early 2020 WHO advised that the ICTRP Search Portal was unavailable (non-responsive) outside of the WHO due to heavy traffic generated in response to the COVID-19 outbreak.

Individual clinical trial registries were searched for relevant trials food / food ingredient-based intervention trials, or aligned symptoms, prospectively registered in the 12 months to June 2020. These are summarised and listed, as aligned with the HVN research pillars. Australia and New Zealand are heavily invested in food-based clinical trials for health effects compared to other countries, where registered trials are predominantly medical / medical device based.

2.1 Healthy Digestion

Identifying potential medical causes of fatigue, pain and urgency in inflammatory bowel disease and optimising medical management of these causes

Trial ID: ISRCTN15380317

Location: UK

Brief summary: Inflammatory Bowel Disease (IBD) affects 300,000 people in the UK causing unpredictable bouts of gut inflammation, with acute illness, diarrhoea, and pain. In remission, many people with IBD live with fatigue, chronic pain, and bowel urgency/incontinence. There is no current cure for IBD, which usually starts in childhood or as a young adult. Most previous IBD research has focused on controlling inflammation. However, many people report continuing IBD-related fatigue (41%), abdominal pain (62%) and difficulty with continence (up to 75%) even when IBD is in remission. These symptoms limit peoples' quality of life and ability to work and socialise. This study is stage three of IBD-BOOST, a National Institute of Health Research (NIHR) Programme Grant for Applied Research (PGfAR) funded programme. The overall aim of the Programme Grant is to improve the quality of life of people with IBD by reducing the burden of IBD-related fatigue, pain, and urgency/incontinence. This interventional study of a non-randomised (cohort) study is stage 3 of the IBD-BOOST programme and will test a checklist and clinical management algorithm (step by step guide for health professionals), which we have developed for identifying and managing the most common medical causes of these IBD-related symptoms. We will then address any medical issues detected. These symptoms of fatigue, pain and urgency/incontinence have a major impact on quality of life in people with IBD, but have been largely ignored by clinicians and researchers. Our programme, shaped by the concerns of our patient and clinician stakeholders, focuses on a supported online self-management intervention for these symptoms. This study will help identify participants who will be suitable for a self-management intervention and ensure that anyone displaying "red-flag" symptoms (indicating an urgent or serious medical issue) is identified for prompt treatment. It is currently unclear how useful it is to investigate these symptoms and whether symptoms will respond to correcting biomedical abnormalities. It is currently unclear how best to manage these common symptoms of fatigue, pain and urgency/incontinence in people with inflammatory bowel disease. Many patients do not report these symptoms at all, or if they do are offered little beyond investigation and treatment of active disease. We have found in previous work that many patients do not receive what are considered "standard care" investigations or management for these symptoms. Our previous systematic literature reviews have identified many potentially reversible causes for these symptoms. Many of these, particularly the psycho-social elements, will be addressed in our online self-management programme which follows on from the current proposal within our programme grant. However, there are also "medical" causes (such as anaemia as a cause of fatigue), which could be addressed before patients enter a self-management programme.

Identifying potential medical causes of fatigue, pain and urgency in inflammatory bowel disease and optimising medical management of these causes

Trial ID: ISRCTN18097249

Location: UK

Brief summary: A number of reports globally demonstrate the rates of obesity and type 2 diabetes continue to increase. It highlights the importance of the maintenance of an energy balance and glucose homeostasis. Chickpeas are high in resistant starches and protein, and these nutrients have been shown to stimulate gut hormone secretion that could regulate glucose homeostasis. Therefore, this study aims to investigate the impact of different chickpea tissue-structures on gut hormone secretion, thus explaining the chickpeas' influences on glucose control and satiety reported in previous studies. This project will improve understanding of the relationship among food structure ranging in processing, nutrient bioavailability and chickpea-induced release of gut hormone.

Has a large glass of milk or yoghurt passed through the stomach 4 hours after intake?

Trial ID: ISRCTN17698655

Location: Sweden

Brief summary: Preoperative fasting is routinely applied before any procedure with general anaesthesia, with the goal of avoiding the risk of aspiration of gastric contents into the trachea (breathing tube). However, the safe limits for ingestion are not well defined. Studies in children suggest that a limited quantity of semisolid food, e.g. milk products, may be eliminated from the stomach well within a fasting period of 4 hours, which is shorter than the currently prescribed 6 hours. The primary aim of this study is to investigate if a set amount of milk-based drink is eliminated from the stomach within 4 hours of ingestion. The secondary aims are to investigate if there is a difference in gastric content after drinking low- or high-fat yoghurt, and to validate ultrasound for determining the gastric content volume after 4 hours of fasting.

Does Fibre-fix provided to people with Irritable Bowel Syndrome who are consuming a low FODMAP diet improve their gut health, gut microbiome, sleep and mental health?

Trial ID: ACTRN12620000032954

Location: Western Australia

Brief summary: This study will examine the effect of Fibre-fix (dietary fibre supplement) on the human gut microbiome and faecal metabolites of people with Irritable Bowel Syndrome (IBS) who consume a diet low in fermentable oligosaccharide, disaccharides, monosaccharides and polyols (FODMAP). A low FODMAP diet reduces the intake of fermentable fibres, leading to insufficient fermentation by the gut microbiota. This can thereby reduce the production of short chain fatty acids (SCFA, e.g. butyrate) in the large intestine and influence on modulation of sleep and mental health.

A randomized double-blind placebo controlled study design is proposed to examine whether Fibre-fix supplement, added to an existing low FODMAP diet may help modulate gastrointestinal function, improve markers of sleep and mental health and promote increased quality of life in IBS patients. Participants will provide stool samples, and complete questionnaires about sleep and mental health before and after the 3-week intervention. Gut health biomarkers: faecal microbiome composition, faecal pH and butyrate levels, and alteration of sleep and mental conditions will be examined. A repeated measures ANOVA using the Statistical Package for the Social Sciences (SPSS) version 25.0 will be used to assess the differences between groups after adjustment for confounding variables.

We expect a shift in the diversity of the microbiota and associated increase in the butyrate levels and improvement in general mental health and sleep in those who receive Fibre -fix compared to those who receive control. In addition, the benefits of RS are likely to reduce IBS symptoms and improve gut health whilst on a low FODMAP diet, proposing a long-term dietary solution for those with IBS. The proposed mental health and sleep benefits may have a flow-on effect in terms of lowering the occurrence of other comorbidities, such as depression and work absenteeism which have economic costs, thereby lowering the burden on the healthcare system and reducing healthcare costs for those with IBS.

Double-Blind, Randomised, Placebo-Controlled Trial to Determine the Effects of a Vegetable Soup on the Gut Microbiome of Healthy Volunteers with Low Dietary Fibre Consumption

Trial ID: ACTRN12619001149156

Health condition: Low dietary fibre consumption

Location: Australian Capital Territory, New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Western Australia, Victoria

Brief summary: The microorganisms that live in and on us are called our microbiome and they are critical to our health and wellbeing. Dietary macronutrients (fat, protein, carbohydrates, fibre) influence the gut microbiome, which has been found to interact with several bodily systems including the digestive, immune, nervous, endocrine and cardiovascular. The purpose of this study is to determine whether the consumption of vegetable soups can lead to improvements in the gut microbiome as well as blood biomarkers for metabolic health.

The role of a low emulsifier diet in treating intestinal inflammation in patients with Crohn's disease

Trial ID: ACTRN12619001099112

Health condition: Crohn's disease

Location: Victoria

Brief summary: It is hypothesised that removal of dietary emulsifiers, which can help mix oil and water together, will treat gut inflammation seen in Crohn's disease. This proposal aims to address the main research question: Are dietary emulsifiers associated with breakdown of the intestinal barrier and inflammation? We have designed a low and high emulsifier diet and we plan to conduct a human dietary trial to examine the effects of a low emulsifier diet in patients with Crohn's disease. Crohn's disease patients will receive either a low emulsifier or controlled diet for 4 weeks. At the end of diet period, subjects will give blood, urine and faecal samples, which will be analysed for markers of inflammation.

Exploring the use of a high-fibre diet to alter short-chain fatty acids and immune markers in healthy humans: A pilot study

Trial ID: ACTRN12619000845134

Health condition: Gut disease, Asthma, Inflammatory Bowel Disease, Allergies

Location: Victoria

Brief summary: Acetate is a type of short-chain fatty acid that is normally present in the blood. In animal studies, increasing the level of acetate in the blood is associated with reduction of inflammatory processes in the body. The purpose this research project is twofold.

1. We wish to investigate how to increase acetate levels in the blood by comparing diets that have different levels of fibre. Fibre taken in the diet as dietary fibre is converted to small metabolites that include acetate by bacteria found in the lower part of the gut (colon) and this acetate finds its way into the blood stream.
2. We wish to determine if increasing the acetate levels in the blood does change immune cells and key enzyme activities in the blood that may reduce inflammation, just as it does in experimental animals.

This study will help us to understand if dietary fibre can be used to reduce inflammation in conditions such as asthma or allergy in the future.

In order to investigate this, we are asking for healthy volunteers to participate in a dietary intervention study that will involve consuming a diet with varying fibre level and having blood taken at the end of each diet (Morning of Day 5). This research has been initiated by Dr. Jane Muir, a dietitian and Head of Translational Research at the Department of Gastroenterology. The results of this project will be used by Mr. Paul Gill as part of his Bachelor of Biomedical science honours degree.

Defining the Australian Inflammatory Bowel Disease Microbiome Study - The AIM Study

Trial ID: ACTRN12619000911190

Health condition: Inflammatory Bowel Disease, ulcerative colitis, colitis, Crohn's disease

Location: Australian Capital Territories, New South Wales

Brief summary: BD is a global disease challenge and common cause of chronic ill-health among young people in Australia, for which there is currently no cure. It affects approximately 1 in 250 Australians aged 5 – 40 years, with almost 75,000 Australians having CD or UC, with this number projected to rise to 100,000 within the next 5 years. Being able to identify people at risk of disease onset, prior to symptomatology, or by preventing symptom progression would yield significant global social impact and economic benefit and plays to the heart of IBD healthcare, namely to improve patient health.

Two recently published studies have highlighted the strengths of utilising longitudinal assessment of the IBD gut microbiome. There is an existing knowledge gap in terms of defining microbiota changes in IBD in Australia. Different populations have differing genetic risk loci and disease prevalence rates in terms of IBD, they also harbour different gut microbes, in part due to varying environmental exposures and dietary habits.

We believe it is timely to initiate such a study to contribute information on the natural history of gut microbiota changes in IBD in Australia. We will adopt state-of-the-art clinical data and sample collection in a large case-controlled cohort to elucidate microbial changes associated with onset of IBD symptomatology, the identification of an 'at risk' microbial signature to allow targeted intervention and the generation of novel predictive models of direct translational utility.

The Role of Upper Gastrointestinal Microbiome in Digestive System Disease: A Prospective Cohort Study

Trial ID: ChiCTR1900024443

Location: China

Brief summary: In this study, we aim to characterize and compare the microbial communities across digestive compartments, including oral cavity, esophagus, stomach and stool in Chinese population, and to establish a nationwide multicentral biobank. This will be the foundation for future research in microbiome and disease.

Observational study on microbiota for onset of digestive disorders

Trial ID: UMIN000040382

Location: Japan

Brief summary: It has been often reported that digestive disorders are related with microbiota. Therefore, we examine the relationship between the presence of digestive disorders and microbiota in patients.

The Effect of Chinese Herb Solid Drink, a Traditional Chinese Medicine Diet Formula, on Functional Constipation and Gut Microbiota

Trial ID: ChiCTR1900031869

Location: China

Brief summary: Objectives: Study of the effect of CHINESE HERB SOLID DRINK, a traditional Chinese medicine diet formula, on functional constipation of intestinal dryness and fluid deficiency and gut microbiota.

The mechanism of bi–directional and translational nature of suboptimal health status and the regulation of Weikang Granule basing on changes in gut microbiota

Trial ID: ChiCTR2000028753

Location: China

Brief summary: To investigate the change characteristics of in suboptimal health status (SHS) clinically, and to confirm the regulation mechanism of gut microbiota in the treatment of SHS by Weikang Granule, intending to provide scientific evidence for clinical adoption.

A pilot randomized controlled trial assessing the gastrointestinal tolerability and health benefits of Soluble Tapioca Fibre in adults with healthy gastrointestinal systems: Phase One and Phase Two

Trial ID: ACTRN12620000143921p and ACTRN12620000142932p

Health condition: Gastrointestinal Tolerability

Location: Western Australia

Brief summary: Dietary fibre includes parts of food derived from plants which do not get fully broken down and absorbed during digestion. Increased dietary fibre is associated with several health benefits such as lower rates of cardiovascular disease, type 2 diabetes and colon cancer. Unfortunately, less than 20% of Australian adults meet the suggested dietary target (28g for women, 38g for men) to reduce the risk of chronic disease (based on 2011-2012 survey). Food manufacturers can increase fibre content in a range of foods to improve their nutrient value. Here, we seek to assess the tolerability and health benefits of a type of soluble, plant-based fibre derived from tapioca, known as fiberSMART®. Tolerability will be assessed in Phase One (reported in a separate clinical trial registration record) of the trial, where participants will be asked to consume various quantities of fiberSMART®, ranging from 0g to 40g over three successive days. Tolerability will be assessed using questions about changes in bowel movements or gastrointestinal distress (e.g. bloating). Phase Two will then ask participants to consume either 0g, 20g, or 40g of fiberSMART® per day for a 6-week period. Outcomes will include changes in blood chemicals (e.g. cholesterol), body-composition, diet, appetite and tolerability.

Effects of Herbagut® in adults with self-reported digestive complaints: a randomised, double-blind, placebo-controlled study

Trial ID: ACTRN12619001514190

Health condition: Gastrointestinal complaints

Location: Western Australia

Brief summary: In this randomised, double-blind, placebo-controlled study, 50 adults who are currently experiencing digestive complaints will be randomly assigned to receive capsules containing either a herbal combination or placebo for 8 weeks. We will assess change in digestive symptoms, intestinal bacteria, vitamin D and B12 concentrations, and overall quality of life.

Effects of intraduodenal Amarasate™ extract (bitter agonist), on upper gastrointestinal (GI) functions and energy intake in healthy, lean volunteers.

Trial ID: ACTRN12619000813189

Health condition: Type 2 Diabetes, Healthy human gastrointestinal physiology, Obesity

Location: South Australia

Brief summary: The purpose of this trial is to investigate the dose-related effects of small intestinal administration of the bitter agonist, Amarasate, on the motor and hormone functions of the upper gastrointestinal tract, appetite, and energy intake. We have found previously that specific dietary nutrients, when given into the small intestine in small amounts (and so not contributing significantly to overall energy intake) have the unique ability to substantially stimulate gastrointestinal functions leading to marked energy intake suppression. There has been a recent interest in the effects of bitter compounds,

some of which also occur in the diet, including thio-urea compounds in certain vegetables or fruit, or quinine in tonic water, with reported effects on gut functions and energy intake suppression. This study aims to characterise the dose-related effects of amarasate (a natural extract from a hop cultivar), when delivered to the small intestine, in an effort to identify an optimal dose for beneficial effect on the outcomes mentioned herein.

Effects of intragastric Amarasate™ extract (bitter agonist), on upper gastrointestinal (GI) functions and energy intake in healthy, lean volunteers.

Trial ID: ACTRN12620000503921

Health condition: Type 2 Diabetes, Healthy human gastrointestinal physiology, Obesity

Location: South Australia

Brief summary: The purpose of this trial is to investigate the effects of intragastric administration of the bitter agonist, Amarasate, on the motor and hormone functions of the upper gastrointestinal tract, appetite, and energy intake. We have found previously that specific dietary nutrients, when given into either stomach or small intestine in small amounts (and so not contributing significantly to overall energy intake) have the unique ability to substantially stimulate gastrointestinal functions leading to marked energy intake suppression. There has been a recent interest in the effects of bitter compounds, some of which also occur in the diet, including thio-urea compounds in certain vegetables or fruit, or quinine in tonic water, with reported effects on gut functions and energy intake suppression. This study aims to characterise the effects of Amarasate (a natural extract from a hop cultivar), at the administered dose, when delivered to the stomach, in an effort to identify the beneficial effects on the outcomes mentioned herein.

Effect of Live combined Bifidobacterium, Lactobacillus and Enterococcus on clinical symptoms and gut microbiota and metabolites in Chinese children with Functional Constipation

Trial ID: ChiCTR1900027956

Location: China

Brief summary: To investigate the effect of live combined Bifidobacterium, Lactobacillus and Enterococcus on children (4 – 14 years) with Functional constipation (FC) by comparing their clinical symptoms and intestinal microorganism changes.

Rapidly dietary fiber intervention for gut microbiota among young healthy people: a randomized controlled crossover trial

Trial ID: ChiCTR1900027845

Location: China

Brief summary: We assessed the effects of mixed diet fibers compared with whey albumen powder on gut microbiota in healthy young adults and obesity while with no caloric restriction.

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The Effect of Ginger (Zingiber Officinale) on the Gut Microbiota of Healthy Adults

Trial ID: ACTRN12620000302954

Health condition: Gastrointestinal dysfunction

Location: Queensland

Brief summary: Ginger has long been used in ancient medicine. Modern research has found ginger has many health benefits from relieving nausea and pain to lowering blood pressure. However, little is known about how and why. Studies on animals suggest that ginger may benefit health through its effect on the gut microbiota. Therefore, The GINGA GUT (GINGer and the GUT Microbiota) Study will be the first human trial to assess the effects of ginger supplementation on the gut microbiota and related health outcomes (bowel habits, depression, anxiety, stress, fatigue, quality of life and adverse events). Participants will be advised to follow a one-week run-in period to stabilise diet and lifestyle factors (e.g. sleep, exercise, diet), followed by a 14-day supplementation period of either four ginger root or placebo supplements per day (two in the morning and two at night). Participants will take one stool swab sample prior to supplementation and one on the 13th or 14th day of supplementation. In addition, participants will answer numerous online surveys. It is hypothesised that ginger supplementation will be associated with increased quantities and diversity of gut bacteria species and strains.

Effects of curcumin on digestive symptoms and intestinal bacteria in adults with self-reported digestive complaints: a randomised, double-blind, placebo-controlled study

Trial ID: ACTRN12619001236189

Health condition: Gastrointestinal complaints

Location: Western Australia

Brief summary: In this randomised, double-blind, placebo-controlled study, 80 adults who are currently experiencing digestive complaints will be randomly assigned to receive capsules containing either a curcumin extract (500mg a day) or

placebo for 60 days. We will assess change in digestive symptoms, intestinal bacteria, general mood, and overall quality of life.

Effect of kiwifruit consumption on gastric emptying - A randomised, repeated measures, human intervention study

Trial ID: ACTRN12620000401954

Location: New Zealand

Brief summary: One of the physiological processes that can have a significant impact on glycaemic response is gastric emptying, which can be affected by the properties of the food such as viscosity and acidity. Kiwifruit has both, viscous fibre and organic acids. Therefore this trial is to study the effect of kiwifruit on gastric emptying. This trial is a pilot study to set up the method to measure gastric emptying as well as to improve our understanding of the possible mechanism involved in glycaemic lowering effect of kiwifruit.

Investigation of the metabolic impact and gut response to regular (18% total fat) and premium (5% total fat) quality beef mince intake as part of the normal diet in healthy adults: A Pilot Study

Trial ID: ACTRN12619000896178p

Health condition: Metabolic Health, Gut microbiome community profiling

Location: Victoria

Brief summary: This study will investigate the effects of regular and premium grade beef mince consumption on indicators of metabolic and gut health in healthy human participants. The specific aims of this study will determine the effects of two, 1-week intervention periods on either regular or premium grade beef mince consumed at in low (65g /day) and high (130g/day) amounts. The specific aims of the study will seek to determine the metabolic and gut response to red meat as part of the habitual diet in free living healthy adults; and how the quantity (serving size) and quality (fat content) of red meat mediates these responses. By answering these questions the study will aim to generate clinically relevant results and knowledge.

Single-arm pre-post study of 12 weeks duration investigating the effect of the Broth & Co Bone Broth powder on gastrointestinal disturbances in adults

Trial ID: ACTRN12620000092998

Health condition: lower gastrointestinal tract disorders, inflammatory bowel disease

Location: Australia

Brief summary: Gastrointestinal problems in the lower gastrointestinal tract can manifest as irritable bowel symptoms. The Broth & Co Beef Bone Broth Powder contains a nutrient rich mix of amino acids, minerals, collagen, glucosamine and chondroitin, which have been shown to be beneficial for the gastrointestinal system. In this pilot single-arm pre-post study of 12 weeks duration we aim to investigate the effect of the Broth&Co Beef Bone Broth Powder on gastrointestinal disturbances in Australian adults.

Evaluation of the total protein and proline digestibility of bread made from enzyme treated flour in adults with an ileostomy

Trial ID: ACTRN12620000166976

Health condition: Gut health, inadequate nutrition

Location: South Australia

Brief summary: It is suggested that incomplete digestion of proline-rich proteins, including gluten, may be a cause of food intolerance and food allergies in some people, and lead to gut discomfort and distress. Foods containing these proline-rich proteins are widespread in our diet and are present in a broad range of foods. To improve the digestibility of the protein in these foods, Biohawk has developed a unique enzyme blend that can be added during food manufacturing. Anecdotal evidence suggests that bread made with gluten-rich flour treated with this enzyme blend is well tolerated by people who report having sensitivity to wheat-based products. However, independent testing is needed to confirm this, and to determine whether total protein and proline digestibility is improved.
The main aim of this project is to evaluate the protein digestibility of bread products made from gluten-rich flour treated with an enzyme blend in healthy ileostomy participants.

The impact of ultra-high temperature (UHT) treatment of milk compared to pasteurisation on the rate of digestion and nutrient appearance in healthy young women.

Trial ID: ACTRN12620000172909

Health condition: Dairy intolerance, Digestive disorders

Location: New Zealand

Brief summary: The structure of ruminant milks is an important factor influencing their health and nutritional properties. Although food processing techniques change the structure of milks, not much is known about how these changes affect digestion, and the resulting health effects.
This study aims to compare the digestive responses to two common heat treatments of milk, to better understand the influence of processing on digestion and nutrient delivery. To do this, acute responses to UHT milk will be compared to pasteurised (PAST) cow milk (500 mL each, separately) in women who habitually consume dairy. These will be compared in a randomised, cross-over, double blinded active control trial. Physiological measures will be used to non-invasively assess the digestive process, alongside biological responses, tracking nutrient appearance, and subjective measures of digestion.
Hypothesis: That the different food structure of ultra-high temperature treated milk will result in quicker gastric emptying than pasteurised milk, and that this will affect biological and physiological measures of digestion and nutrient delivery.

An in vitro study to investigate the fermentability, microbial composition and metabolite production of healthy adult human gut microbiota, according to human breath methane excretion, with different dietary carbohydrates

Trial ID: ACTRN12619001721190

Health condition: Healthy adults- gut microbiome composition

Location: New Zealand

Brief summary: The current project proposes to collect human faecal samples from healthy individuals, and use them to create an in vitro (ex-vivo) model of the colon. Participants will be asked to provide a breath sample to be analysed for methane concentration, and participants will be divided into 2 groups; methane excretors and non-methane excretors. Different dietary fibres will be added to the model, and the characteristics of fermentation will be monitored. The main hypothesis is that the fermentation of dietary fibre will differ according to methane breath excretion by the faecal donor. This can help elucidate some of the individual differences between people that affect beneficial dietary fibre fermentation in the human colon.

2.1.1 Clinical trials in Japan focussing on gut microbiota and health

In Japan a number of studies investigating the relationship between the gut microbiota and health, disease states and foods have been registered in the past year. As there is little detail recorded in the database key information of relevant trials is summarised in the table below.

Registration Number	Title
UMIN000040382	Observational study on microbiota for onset of digestive disorders
UMIN000040192	Association of gut microbiota with inflammation, cancer, or dysfunction in gastrointestinal diseases
UMIN000037325	Effect of continuous intake of onion outer skin powder on human microbiota
UMIN000040177	Studies on the effects of gut microbiota and bile acid composition on the pathology of liver diseases
UMIN000038480	Effect of Japanese powdered green tea "Matcha" on gut microbiota in patients with type 2 diabetes mellitus; single centre, open-label, single-Arm, pilot research
UMIN000039507	Effects of drinking Alkaline electrolyzed water on gut microbiota profile
UMIN000039151	Exploratory investigation of relationships between microbiota and healthy states
UMIN000038831	Pilot study on the effects of adlay and peanuts on the intestinal microbiota
UMIN000037869	Examination of the correlation between microbiota and disease in patients with atopic dermatitis and food allergy
UMIN000037318	Observational study on microbiota and constipation in diabetic patients
UMIN000036914	The analysis of the gut microbiota in chronic kidney disease
UMIN000036752	The relation between fecal lipopolysaccharide levels and the gut microbiota.
UMIN000036611	Exploratory investigation of relationships between microbiota and health states

2.2 Immune Health

The New Zealand-China Berry Lung Health (EDIBLE) study

Trial ID: ACTRN12619001736134p

Location: China

Brief summary: The World Health Organization estimates that 90% of the world's population is exposed to airborne particulate matter (PM), established drivers of systemic inflammation.

The purpose of this study is to investigate whether daily intake, as part of the habitual daily diet, for four weeks, of a New Zealand berry fruit product, made from natural boysenberries and apples, previously shown to benefit lung health in animal models of lung inflammation, can improve an aspect of lung health in adults living in an urban area in China (Nanjing, Jiangsu). Lung health will be assessed using spirometry, evaluated as the ratio of the volume of air that can be forced from the lungs in 1 second (Forced Expiratory Volume 1 or FEV1), divided by the total forced volume of the lungs (Forced Vital Capacity or FVC)

Study for components of fine particulate matter and its mechanism of inducing oxidative stress and inflammation in respiratory tract

Trial ID: ChiCTR1900023692

Location: China

Brief summary: Objectives: 1. To evaluate the effect of PM2.5 in the actual air environment on pulmonary function and inflammatory indicators in the elderly; 2. Differences of respiratory system injury effect of PM2.5 in COPD population and healthy population; 3. Study the pathological mechanism of respiratory system injury caused by PM2.5 and aggravating respiratory diseases.

Effect of metabolic syndrome on respiratory overlap syndrome: a prospective cohort study

Trial ID: ChiCTR1900022593

Location: China

Brief summary: Objectives: 1. Correlation between metabolic syndrome and respiratory overlap syndrome; 2. The mechanism of metabolic syndrome in respiratory overlap syndrome.

A specific probiotic intervention to improve quality of life (QoL) in allergic rhinitis (PIQAR-study): a randomised, double-blind, placebo-controlled trial

Trial ID: ACTRN 12619001319167

Location: Australian Capital Territory, New South Wales, Northern Territory, Queensland, South Australia, Tasmania, Victoria

Brief summary: The symptoms of Allergic rhinitis, such as nasal congestion and itching, are a burden for an estimated 3.2 million Australians and its prevalence is increasing. There is growing evidence to suggest that probiotic supplementation elicits beneficial health effects on the host through modulation of the immune system and thereby can improve symptoms associated with Allergic rhinitis. The aim of this research is to examine the effect of probiotic supplementation on symptoms and quality of life in individuals suffering from Allergic rhinitis.

Study on effect and mechanism of Lactobacillus (CCFM1040) on in patients with respiratory allergy

Trial ID: ChiCTR1900024200

Location: China

Brief summary: Objectives: 1. Effect of lactobacillus productions on clinical symptom in patients with respiratory allergy; 2. Effect of lactobacillus productions on intestinal microflora in patients with respiratory allergy; 3. Effect of lactobacillus productions on metabolism of inflammatory cytokines in patients with respiratory allergy.

Effect of an Olive Leaf Extract compared to a placebo on Cold and Flu Symptoms in an Adult Population – A double blind, randomised controlled trial

Trial ID: ACTRN12619001722189

Health condition: Common Cold, Influenza virus infection

Location: Queensland

Brief summary: This is a double blind, randomised, clinical study with a maximum 4-month participant duration with 2 groups (1 active ingredient group and 1 inactive placebo group). Isenolic® is a commercial product standardised for Elenolic acid (ELA). ELA is derived from oleuropein extracted from olive oil and olive leaves. The aim of this study is to assess the

effectiveness of an olive leaf extract (standardised for elenolic acid) on reducing cold and flu duration and severity in otherwise healthy adults aged over 18 years, compared to a placebo.

A sensory study to analyse the differences of taste perception and physical sensory between food allergic and non-allergic individuals

Trial ID: ACTRN12620000069954

Location: Queensland

Brief summary: The current proposal will assess the different taste perceptions between allergic individuals and non-allergic individuals which we hypothesize to be associated with single nuclear polymorphisms of taste receptor genes. A further study of the mechanisms underlying in taste receptors and immune cells will be carried out by evaluating the levels of taste receptor genes expressed in immune. Medically diagnosed food allergic and non-allergic cohorts will be recruited from the Allergy Medical Group, Queensland Allergy Services and the University of Queensland.

The effects of walnuts on general well-being, mood and blood biomarkers of stress in a sample of university students.

Trial ID: ACTRN12619000972123

Health condition: Stress, Mood, Gut health

Location: Australian Capital Territories, New South Wales

Brief summary: Recent research has revealed concerning rates of anxiety, depression, sleep disorders and other mental health issues among university students. For these students, successful engagement in student life and learning activities can be significantly disrupted by fluctuations in thinking, concentration and mood, leading to low academic performance and difficulties in building social connections with their peers. Furthermore, chronic stress can lead to the disturbances in immune, neuroendocrine and neurotrophin systems.

Walnuts contain several neuro-protective compounds like vitamin E, folate, melatonin, antioxidants and omega-3 fatty acids and some studies have shown their beneficial effects on mental health in humans.

Therefore, the purpose of this study is to investigate whether daily walnut consumption can lower stress related biomarkers and improve mental health and general well-being in university students.

We hypothesize that daily consumption of walnuts by university students may relieve stress-related mood disturbances and improve their general well-being during stressful periods of study. This will be the first study to investigate the effects of walnuts on mental health and biochemical markers in young adults attending university. If walnuts have a positive effect, they could be recommended as a nutritional healthy supplement to alleviate stress related mood disturbances and improve quality of life in young adults attending university.

Participants will be randomly divided into two groups. One group will be required to consume 56g of walnuts per day for 16 weeks and the other group will be asked to maintain a nut-free diet during the same period.

Changes in mood, sleeping habits, quality of life, and psychological well-being will be clinically assessed in each participant at baseline, during examination preparation and after examinations (overall, 3 assessments).

All participants will also be asked to provide small blood and saliva samples, which will be used to measure changes in stress biomarkers over the 16-week period.

A placebo-controlled, single-blind, crossover study to assess the effects of New Zealand pine bark extract (Enzogenol®) on glycaemic responses in healthy participants

Trial ID: ACTRN12619001571167

Health condition: Dysglycaemia, Glycaemic control, Diabetes

Recruitment countries: New Zealand

Brief summary: Obesity and diabetes are epidemic in New Zealand (and in other Western countries), and many individuals now have problems controlling their blood glucose levels within normal levels. More alarmingly, epidemiological studies have shown that approximately 40% of individuals with normal glucose tolerance (NGT) may still eventually develop type 2 diabetes. Research has also revealed that 20% of NGT individuals already have a certain degree of insulin resistance. Certain foods and extracts, including berries, teas and French pine bark extracts have been shown to reduce blood glucose levels. Data suggests that this may be due to the high levels of antioxidants that are present in these foods, though other substances may also be involved. The effects of New Zealand pine bark extract on blood glucose levels have not been studied, thus this study aimed to measure whether blood glucose levels could be reduced in healthy participants when taking a pine bark extract capsule at two different doses on two separate occasions with an oral glucose tolerance test (OGTT).

The bioavailability, antioxidant and anti-inflammatory properties of coloured rice consumption in healthy populations

Trial ID: ACTRN12619001442190

Health condition: Cardiovascular health (inflammation & oxidative stress biomarkers)

Location: New South Wales

Brief summary: The aim of this study is to evaluate the antioxidant and anti-inflammatory properties in healthy populations post-coloured rice consumption.

Participants will have blood samples taken before & at set time points after rice consumption. The blood samples will be analysed for antioxidant and inflammation-related biomarkers. A one week washout period will be implemented for each participant for each variety tested.

The intent of this study is to identify if coloured rice consumption has the ability to alleviate risk factors associated with the development of lifestyle diseases such as cardiovascular disease.

A randomised controlled trial in healthy adults evaluating the impact of high and low carotenoid dietary patterns on diet quality, weight status and metabolic markers and validate the Australian Eating Survey

Trial ID: ACTRN12619001415190

Health condition: Poor dietary intake

Location: Australia

Brief summary: Only 5% of Australian adults meet the recommended intake of fruit & vegetables. Energy from discretionary foods contributes to one third of total energy intake. Together these dietary patterns contribute to the prevalence of overweight and obesity in Australia. This 6 month study will trial two dietary patterns aimed to increase fruit and vegetable consumption and subsequently decrease consumption of discretionary foods. Participants will be randomised to one of two fruit and vegetable eating patterns. All participants will receive 2 weeks worth of fruit and vegetables. The type of fruit and vegetables they receive will depend on the group they have been randomised into. Participants will also be supported via personalised dietary consultations which will be delivered intensively in the first three months and then less intensively (maintenance phase) in the second three months.

Aim: Evaluate the effect of two dietary patterns on diet quality, body composition, skin & urinary carotenoids, blood lipids and glucose. 2. To validate the Australian Eating Survey (AES).

2.2.1 Green Shell Mussels

Investigating the effect of New Zealand green shell mussel powder consumption on recovery of musculo-skeletal performance and acute inflammation following exercise-induced muscle damage to the quadriceps in untrained healthy males

Trial ID: ACTRN12620000565943p

Health condition: Muscle damage

Location: New Zealand

Prolonged and unaccustomed eccentric muscular work (like downhill walking) produces micro-structural damage to muscles resulting in inflammation and delayed soreness. Muscle damage from this exercise is associated with impaired muscle function (i.e. loss of muscle strength and mobility) and localised swelling/oedema. Although the mechanisms behind eccentric muscle damage are not precisely known, it is believed that along with initial mechanically induced disruption,

secondary damage is caused by the inflammatory process and oxidative stress from inflammatory cells recruited to the site of injury.

New Zealand green shell mussel (GSM) is rich in omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) which have been demonstrated to have anti-inflammatory properties. Green shell mussel contains additional bioactive components including glycosaminoglycans and other novel peptides and lipids that modulate inflammatory processes. Previous dietary intervention studies have reported the efficacy of New Zealand GSM to modulate key inflammatory factors leading to reduced soreness following exercise and improved lung function through reduced bronchoconstriction. These findings highlight the potential for New Zealand GSM supplementation to modulate exercise-induced inflammation and support recovery of muscle function following muscle damage.

In this study, we seek to investigate the effect of long-term New Zealand GSM dietary supplementation in modulating inflammation and inflammatory pathways following exercise-induced muscle damage to the quadriceps. We will aim to examine whether any modulation in inflammation by GSM consumption leads to expedited recovery of musculo-skeletal performance following muscle damage.

The Effect of Green Shell Mussel powder Versus Control On Cartilage Biomarker Responses And Inflammation In Elderly Women

Trial ID: ACTRN12620000413921p

Health condition: Osteoarthritis

Location: New Zealand

Brief summary: Osteoarthritis (OA) is the most common type of joint disease, contributing to progressive pain and disability in the elderly. In New Zealand, OA is affecting 10.2% of the adult population and the incidence escalating with age, and obesity causing the large health-related quality of life loss in NZ. The prevalence of OA is generally higher in women compared to men, as the incidence tend to consistently increase, particularly following menopause, likely due to losing the protective effect of oestrogen on joint tissue.
There is no cure for OA and the conventional treatment only used for symptom management. Oil extract from the Greenshell mussel (GSM), a native New Zealand shellfish, has been effective to reduce OA symptoms. A recent animal study showed flash-dried powder from whole GSM meat has preventive effects against the early-stage of metabolic-associated OA. In this study adding GSM powder into the diet of rats actively developing diet-induced OA reduced the cartilage degradation marker. Results from this preliminary study support the potential for an intervention study feeding human subjects with the whole meat GSM powder in order to attenuate the development of OA in a high-risk population.
Therefore, this study aims to evaluate the effects of flash-dried whole meat GSM powder (3 g/day) or identical placebo for 12 weeks on cartilage and bone biomarkers, inflammation, body composition, health parameters, knee function and joint pain in healthy overweight/obese postmenopausal women. Data will be collected using questionnaires to assess the demographic detail, dietary intake, knee function, and pain. Blood (20 ml) and spot urine samples will be collected at the beginning, week 6 and week 12 to measure the biomarkers of cartilage, bone, and inflammation. Dual-energy X-ray absorptiometry (DXA) will be used at the beginning and week 12 for body composition (fat/lean ratio) measurement.

2.2.2 Fucoidan / Seaweed

A number of trials looking at the effects of fucoidan rich seaweeds have been undertaken in recent years as shown below. One current trials is listed in Japan (Table 0-1), with none registered in Australia and New Zealand, however internationally several drug trials have been registered in the year to June 2020 which are based on fucoidan derivatives.

Table 0-1 Fucoidan food-type trials

Registration Number	Registration Year	Title
UMIN000039117	2020	Effect of the habit of eating Okinawa Mozuku (*Cladosiphonokamuranus Tokida*) and *Helicobacter pylori* infection on the absorption of fucoidan
ACTRN12616000126415	2016	Investigation of the impact of a polyphenol-rich seaweed extract on postprandial glycaemic control in healthy adults.
ACTRN12615000673549	2016	A Pilot pharmacokinetic study of the interaction between two systemic Complementary and Alternative Medicines and standard therapy in patients with active breast cancer malignancy

Registration Number	Registration Year	Title
ACTRN12614000495628	2014	In an obese, non-diabetic population, does twice daily dosing of a commercially available fucoidan extract over three months, when compared to placebo, lead to changes in glucose control and other markers of cardiometabolic health?
ACTRN12605000021673	2005	A randomised phase II study to evaluate the effects of natural seaweed extract (GFS) in normal volunteers on mobilising stem cells and activating the immune system.
NCT02608983	2015	Hydrocolloids as Functional Food Ingredients for Gut Health
NCT01399216	2011	Effects of a Supplement Containing Fucoidan as a Major Component on Basal Body Temperature: a Placebo Controlled, Cross-over Study
NCT02875392	2016	Fucoidan Improves the Metabolic Profiles of Patients With Non-alcoholic Fatty Liver Disease (NAFLD)
UMIN000031171	2018	Effect of seaweed-derived fucoidan on the glucose metabolism in patients with type 2 diabetes
UMIN000024995	2016	A study for evaluating the immune response by ingestion of a fucoidan-containing food in adult males and females
UMIN000006394	2011	Investigation of edible seaweed Mekabu fucoidan intake on the preventive effect of influenza in the elderly

2.3 Metabolic Health

The effects of early versus late time-restricted feeding on metabolic disease risk factors in adults at increased risk of developing type 2 diabetes: Is there an optimal time to eat?

Trial ID: ISRCTN32122407

Location: UK

Brief summary: There is a rise in the number of people suffering from type 2 diabetes and a large proportion of the UK population are at increased risk of developing the condition. Some of the risk factors for type 2 diabetes include being overweight, having a family history of the condition, high blood pressure, abnormal blood cholesterol levels and ethnicity. This study seeks to investigate whether restricting dietary intake to a set number of hours in the day – either early in the day or late in the day – will make a difference to known risk factors for developing type 2 diabetes. By restricting dietary intake to a set number of hours in the day, this will increase the amount of time spent fasting (not eating) each day. This type of diet is known as time-restricted feeding. There is some evidence to suggest that time-restricted feeding may provide some health benefits in healthy individuals by helping to reduce the amount of energy consumed through food, lowering body weight and body fat, as well as improving markers of metabolic health. However, it is not yet known whether it is more beneficial to restrict our dietary intake to earlier or later in the day. Additionally, adherence to a change in diet is critical in predicting its success and long-term outcomes. However, when people find themselves in an environment with unlimited access to food during the day, it can be difficult to maintain successful behavioural changes. Therefore, the study will also look at how following this type of diet may impact on well-being, social life and the functioning of families (especially at mealtimes), to assess the suitability of the intervention for the general public, so that it does not negatively affect quality of life. Overall, this study will compare the effects of early versus late time-restricted feeding in adults at increased risk of developing type 2 diabetes.

Does eating artisanal bread affect metabolism, inflammation or gut microflora in people with metabolic syndrome?

Trial ID: ISRCTN10891611

Location: Spain

Brief summary: Studies from animals and using human stool samples suggests that eating bread made with yeast can improve levels of 'friendly' bacteria in the intestines, which might have effects on inflammation in that person. This study aims to investigate whether artisanal bread made using traditional methods can benefit the health of people with metabolic syndrome (a combination of early-stage diabetes, high blood pressure, and obesity) compared with standard bread produced using a high level of industrial processing.

The influence of whey protein on free-living glycaemic control in type 2 diabetes.

Trial ID: ISRCTN17563146

Location: UK

Brief summary: Type 2 diabetes mellitus (T2D) is a metabolic disease characterised by an inability to secrete insulin in response to carbohydrates. However, where carbohydrate-induced insulin secretion is lost, protein-stimulated insulin secretion remains normalised in T2D. As such, dietary interventions have shown that consuming large amounts of whey protein (WP) before meals reduces high-blood sugars within patients with T2D. However, research to date has included unrealistically large whey doses (250kcal) consumed often 30 minutes before test meals, which does not represent patient real-world situations nor normal eating habits. It is therefore not known if the reported benefits are retained in smaller amounts of WP consumed at more realistic times before conventional meals. Similarly, it is yet to be determined if WP consumption influences blood glucose control in patients' home settings, limiting the practicality of WP as a nutritional treatment for T2D.

We aim to assess if consuming a small WP drink before meals improves patients' blood glucose control within their home settings and to examine potential mechanisms.

A controlled study to investigate the effect of a food supplement (Femifert™) on polycystic ovarian syndrome and metabolic syndrome in women.

Trial ID: ISRCTN17563146

Location: Italy

Brief summary: Polycystic ovarian syndrome (PCOS) is a very common condition affecting women. PCOS is a set of symptoms due to elevated androgens (male hormones) in females. Signs and symptoms of PCOS include irregular or no menstrual periods, heavy periods, excess body and facial hair, acne, pelvic pain, difficulty getting pregnant, and patches of thick, darker, velvety skin.

Recent research suggests that PCOS should no longer be considered purely a disorder of the reproductive organs. Although the origin of the condition is unknown, recent evidence suggests that affected women seem to have mild insulin resistance. Increased insulin production stimulates excess androgen production by the ovaries. Associated with the prevalent insulin resistance, these subjects exhibit high cholesterol and a predisposition to non-insulin dependent diabetes and cardiovascular disease in later life. Thus, PCOS seems to have many of the hallmarks of metabolic syndrome (a combination of diabetes, high blood pressure and obesity).

Although drug treatment represents the first-line treatment for PCOS according to recent guidelines, other insulin sensitizing compounds from food sources may play a crucial role in the treatment of this condition. For example, D-chiro-inositol may improve both hormone and metabolic disturbances and reduce the risk of vascular disease. Femifert™ is a dietary supplement containing D-chiro-inositol, flaxseed dry extract, Ipomea Batatas, Lagerstroemia Speciosa (Banaba), zinc gluconate, vitamin B12, and folic acid. All these compounds may be useful to better control insulin metabolism and reduce symptoms associated with ovarian abnormalities.

The aim of this study is to analyse the improvement of metabolic profiles, hormonal parameters and ovarian parameters in women with PCOS and/or metabolic syndrome before and after 6 months of therapy with Femifert™, in combination with pharmacological treatment and compare these data with a group only pharmacologically treated.

Replacing some of the starch in the diet with fibre to manage blood glucose levels in those with type 2 diabetes.

Trial ID: ISRCTN14165221

Location: UK

Brief summary: In those with type 2 diabetes (T2D), insulin production is reduced or impaired, leading to higher blood sugar levels. Therefore, good control of blood sugar is vital to avoid long term complications, such as damage to the blood vessels. Controlling the amount of carbohydrate (reducing starch and sugar whilst increasing fibre intake) consumed can help manage T2D, by lowering post meal blood glucose levels. It is recommended that the daily diet consist of 50% carbohydrate, however there is little evidence to support recommendations of carbohydrate intake in those with T2D, despite starch making up a substantial part of the daily diet. Additionally, there is misinformation amongst the general public in respect of carbohydrates in terms of what the evidence-base actually shows in terms of the effects on blood glucose. General advice is to replace “white” carbohydrates such as bread and pasta, with “wholegrain” alternatives, however there is resistance in consuming these alternatives, and in reality they contain similar amounts of starch/fibre to “white” carbohydrates, labelling a food “wholegrain” can lead to perception that it is a high fibre product which is confusing. Our comparison of “white bread” versus “wholewheat” bread, demonstrated there was no difference in blood glucose response between the two because there was no difference in digestible starch. Therefore, when addressing dietary carbohydrate, the focus must be on the “starch” component of the diet. A health claim was recently approved by the European Food Safety Authority in 2011 due to the weight of evidence, in that replacing only 14% rapidly digestible starch with resistant starch (a type of fibre), can reduce post meal blood glucose levels, however this same effect has not been tested in those with T2D. The aim of this study is to observe the effect of replacing a proportion of starch (not the type of food) with resistant starch in the diet, on blood glucose levels in patients with T2D. Study objectives include: recruiting 20 patients with T2D from local population in Surrey, who meet our inclusion criteria, and primarily recruited through GP surgeries, via local primary care research network. Eligible participants will screened to determine suitability, and if they wish to take part, consent will be obtained. Participants will they undertake a dietary intervention study to examine the effects of 2 x 4-day diets that differ only in their composition of starch, in a randomised order. Non-invasive subcutaneous continuous glucose monitoring will be undertaken during each 4-day period.

Does the presence or absence of the gene for PNPLA3 affect response to a change in diet in people with non-alcoholic fatty liver disease (NAFLD)?

Trial ID: ISRCTN93410321

Location: UK

Brief summary: Non-alcoholic fatty liver disease (NAFLD) affects 1 in 3 people and ranges from simple fatty liver through to steatohepatitis (liver fat and inflammation) to cirrhosis (liver fat, inflammation and cell damage). NAFLD is more likely to develop in people who are overweight or have Type 2 diabetes. The number of people with NAFLD who have advanced liver disease is rising. NAFLD also increases the risk of heart attacks and strokes.
Research is underway to help understand how the disease changes in different people over time. People with NAFLD who carry a gene called PNPLA3 are more likely to develop advanced liver disease. Currently, there are no effective drugs available and the main treatment is to lose weight and eat a healthy diet. The Mediterranean diet is a model of healthy eating that is often recommended for people with NAFLD. More research is needed on how it works in the liver to bring about its benefits. We also need to understand how the PNPLA3 gene affects an individual's response to different types of diet treatments.
The researchers hope to perform a larger randomised study in the future that will investigate if the PNPLA3 gene influences response to a Mediterranean diet in people with NAFLD. This information could help to develop diet treatments that are more tailored to the individual. This study will develop and test different methods for the future larger study to make sure they work together and are suitable for potential participants.

The synergetic effect of Bergamot and Cynara Cardunculus extract on blood vessels in patients with type 2 diabetes and non-alcoholic fatty liver disease

Trial ID: ISRCTN93410321
Location: Italy
Brief summary: Non-alcoholic fatty liver disease (NAFLD) affects 1 in 3 people and ranges from simple fatty liver through to steatohepatitis (liver fat and represents a considerable risk factor for cardiovascular diseases. NAFLD is worsened by the simultaneous occurrence of type 2 diabetes mellitus (T2DM) causing an enhancement of inflammatory and fibrotic processes. Although insulin resistance appears the link between NAFLD and TD2M, with current pharmacological treatments of TD2M failed to produce relevant benefits in preventing TD2M-related liver dysfunction. The effect of Bergamot and Cynara Cardunculus extract may have a positive effect on symptoms.

The effect of Mediterranean Diet on the Microbiome and Immune Response in NAFLD Related Liver Disease

Trial ID: ACTRN12620000611921p
Health condition: Non alcoholic fatty liver disease, Hepatocellular carcinoma
Location: New South Wales
Brief summary: The purpose of this study is to see how the microbial community and immune system in people with liver disease responds to a Mediterranean diet.
Who is it for?
You may be eligible for this study if you or a member of your immediate (household) family have fatty liver disease, including liver cancer.
Study details
All participants in this study will be provided with 5 meals a day of the Mediterranean diet. This includes 3 main meals and two snacks. The Mediterranean diet is rich in polyunsaturated fats, fibres, polyphenols, vitamins and carotenoids. As part of this study, participants will provide stool, urine, blood and mouth swab samples and complete dietary and quality of life questionnaires. The results of those with liver disease and liver cancer will be compared to the results of their family members without these conditions.
It is hoped this study will show the change in diet drives a more diverse gut microbial community and this has a positive effect on the immune and anti-cancer profile of participants.

Effect of Almond-Based Low Carbohydrate Diet on Depression and Glucose Metabolism in Type 2 Diabetes Mellitus Through Gut Microbiota

Trial ID: ChiCTR2000031975
Location: China
Brief summary: Objectives: 1. To explore the effect of almond-based LCD on depression level in T2DM patients; 2. To explore the effect of almond-based LCD on cognitive function, diabetes distress, and global health in T2DM patients; 3. To explore the effect of almond-based LCD on gut microbiota composition and target microbiota in T2DM patients; 4. To explore the effect of almond-based LCD on fasting plasma glp-1 level in T2DM patients; 5. To explore the effect of almond-based LCD on glucose metabolism in T2DM patients.

A randomised controlled crossover trial investigating the short-term effects of different types of vegetables on vascular and metabolic function in middle-aged and older adults with mildly elevated blood pressure

Trial ID: ACTRN12619001294145

Health condition: Blood pressure, Glycemic control, Inflammation, Oxidative stress, Arterial stiffness

Location: Western Australia

Brief summary: The aim of this study is to determine whether regular consumption of cruciferous vegetables (e.g. broccoli, cabbage, cauliflower, kale) results in short-term improvement in measures related to cardiovascular disease risk, including blood pressure, arterial stiffness, glycaemic control, and circulating biomarkers of oxidative stress and inflammation. Twenty-eight participants (50-75 years) with mildly elevated blood pressure (systolic blood pressure 120-160 mmHg) will complete two 2-week interventions in a random order, separated by a 2-week washout period. During each intervention, participants will consume 4 servings/day (300 g) of vegetables as a soup (~500-600 mL/day). The 'active' soup will consist of cruciferous vegetables (broccoli, cabbage, cauliflower, kale) and the 'control' soup will consist of other commonly consumed vegetables (potato, sweet potato, carrot, pumpkin). Both soups will be approximately matched for energy, protein, fat, and carbohydrate content. All measurements will be performed at the beginning and end of each intervention period.

Effect of wholegrain structure on metabolism and composition of breath volatile organic compounds in adults with normal glucose tolerance or type 2 diabetes mellitus: a randomised crossover study

Trial ID: ACTRN12619000958189

Health condition: Type 2 Diabetes, Blood Glucose Control

Location: New Zealand

Brief summary: Wholegrains in the diet are known to reduce risks for cardiovascular disease and type 2 diabetes, however the impact of processing the wholegrains is not fully known. Breath gas analysis is non-invasive and highly repeatable and shows promise to provide insight into metabolism. Our study looks to measure breath and blood samples during the digestion and metabolism of two wholegrain breads of differing levels of processing and a glucose control over six hours, in participants with and without type 2 diabetes. We hypothesise that we will be able to distinguish differences in breath profiles during metabolism of the different bread products, and in those with and without type 2 diabetes.

Study on Compositional and Functional Difference of Gut Microbiota among Latent autoimmune diabetes in adults (LADA), Classic Type 1 Diabetes, Type 2 Diabetes, and Healthy Control Group

Trial ID: ChiCTR2000030049

Location: China

Brief summary: The purpose of this study was to find out the difference of intestinal microflora between LADA, the classic type 1 diabetes mellitus, type 2 diabetes mellitus and the healthy control group, and to explore the possible mechanism of intestinal microflora and the incidence of this disease.

The Association of Gut Microbiota With Nonalcoholic Steatohepatitis in Kashgar

Trial ID: ChiCTR1900025220

Location: China

Brief summary: 1. To understand the pathogenesis characteristics of NASH in kashgar by comparing NASH populations of han ethnic group and uygur ethnic group; 2. To explore the factors leading to NASH in kashgar; 3. The relationship between the changes in intestinal flora and NASH was analyzed through the detection of 16rRNA in feces.

Curcumin for Pediatric Nonalcoholic Fatty Liver Disease: A Pilot Randomized Trial

Trial ID: NCT04109742

Location: USA

Brief Summary: This is a single-center, randomized, double-blinded, placebo-controlled, parallel treatment groups phase 2a study of curcumin for pediatric nonalcoholic fatty liver disease (NAFLD).
Recruitment age 8 – 17 years of age.

Effects of Polyphenols-rich Tropical Fruits on Mental Health Protection - A Clinical Trial among Middle-aged Women

Trial ID: ACTRN12620000567921

Health condition: Cognitive Decline, Poor mental health
Location: Malaysia
Brief summary: Poor mental health has been identified as one of the main health problems among middle aged adults (National Mental Health Registry 2003). Polyphenols, which are a major antioxidants source, have been proven to be beneficial towards the prevention of various diseases including cancer and diabetes and more recently in mental health. The aim of this research is to determine the effectiveness of polyphenols-rich tropical fruit juice towards the improvement of mental health status.
Subjects aged 45 to 59 years who had given consent to this research will be divided into 2 groups; supplementation and placebo groups. Subjects will be interviewed about personal and social information, medical history, lifestyles factors, dietary history questionnaire and food frequency questionnaire (polyphenols). Besides that, mental health status will also be assessed with several questionnaire. Anthropometric measurements and blood pressure will also be conducted. Polyphenols-rich tropical juice or placebo were given to subjects for 3 times a week (1500ml/day) for a period of 10 weeks. Blood test will be conducted at baseline and after supplementation period. A total of 10 mL of blood will be drawn by a trained phlebotomist during each blood test. Metabolomics analysis using urine samples will be conducted during baseline, week 5 and by the end of supplementation period.

Assessing the glycemic lowering potential of kombucha when consumed with a high glycemic index meal by healthy volunteers with normoglycemia.
Trial ID: ACTRN12620000460909
Health condition: Glucose metabolism, Diabetes
Location: New South Wales
Brief summary: The primary goal of this study is to assess if a 330ml kombucha drink will reduce the glycemic response to a meal.

The effect of *Panax notoginseng* stems and leaves tea and *Panax notoginseng* flowers and oat nutrition meal on glycemic control of Type 2 diabetes mellitus.
Trial ID: ChiCTR1900026658
Health condition: Glucose metabolism, Diabetes
Location: China
Brief summary: Exploring the effects of Panax notoginseng stems and leaves' tea and Panax notoginseng flowers and oat nutrition meal on glycemic control, blood lipids and overall health of type 2 diabetes mellitus.

The effect of *L.casei* LC2W on the improvement of blood glucose in the high risk population of metabolic syndrome diabetes mellitus: a randomized controlled trial.
Trial ID: ChiCTR2000031833
Health condition: Glucose metabolism, Diabetes
Location: China
Brief summary: Primary Objective: To evaluate the effect of L.casei LC2W on Blood Glucose of High Risk Diabetic Adults Secondary Objectives: 1. To evaluate the effect of L.casei LC2W on Blood Fat of High Risk Diabetic Adults; 2. To evaluate the effect of L.casei LC2W on gut microflora of High Risk Diabetic Adults; 3. To evaluate the effect of L.casei LC2W on intestinal digestion and absorption of High Risk Diabetic Adults.

The effect of supplement containing Inulin intake on metabolic syndrome.
Trial ID: UMIN000033869
Location: Japan
Brief summary: To evaluate the efficacy of supplements containing fermented Inulin on improvement in symptom of metabolic syndrome

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Effects of combination of meat intake and resistance training on risks of sarcopenia and metabolic syndrome.
Trial ID: UMIN000038253
Location: Japan

Brief summary: The aim of this study is to investigate the effects of 12-week combination of meat intake and resistance training on risks of sarcopenia and metabolic syndrome in middle-aged and older woman

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Effect of betaine from sugar beet on metabolic syndrome.

Trial ID: UMIN000037404
Location: Japan
Brief summary: Preventing effects of lifestyle-related diseases

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Effects of meals with varying levels of anti-inflammatory compounds on circulating cytokines in overweight and obese adults: A randomised controlled postprandial pilot study

Trial ID: ACTRN12620000525987
Health condition: Postprandial inflammation
Location: Victoria
Brief summary: Reduction in subclinical inflammation is a potential target for chronic disease prevention, and pro-inflammatory effects of foods are observed following consumption of a single high fat meal. However, there is no consensus regarding inflammatory mediators that best characterise postprandial inflammatory responses. There are also few studies which account for the complex nutritional matrix that exists at mealtimes. Therefore, this study aims to identify whether plasma IL-6, IL-1ß, TNF-a and IL-10, the most commonly measured inflammatory mediators in postprandial research, are appropriate outcomes measures in postprandial protocols comparing acute inflammatory effects of mixed meals. In a randomised controlled, crossover design, 12 adults aged between 50 and 75 years, who are above a healthy weight, will consume three isocaloric (2.2 MJ) meals designed to have a low (-6.24), moderate (-2.76) or high (+9.36) Dietary Inflammatory Index (DII) score, after an overnight fast. Fasting and postprandial blood samples will be collected over five hours and analysed for plasma IL-6, IL-1ß, TNF-a and IL-10. Post-hoc power calculations will be used for future research, to identify appropriate outcome measures, that can be used to perform sample size calculations for larger fully-powered studies. To aid the interpretation of inflammatory responses, this study will also assess differences on postprandial glucose, insulin, lipids and subjective measures of appetite between the three test meals.

The effects of acute and chronic nitrate supplementation, of beetroot juice, on cognition, mood and cardiovascular responses in younger (18-30) versus older adults (50-80).

Trial ID: ACTRN12620000081910
Health condition: High Blood Pressure, Cognitive decline, Cardiovascular disease
Location: New Zealand
Brief summary: In today's society, rates of disease and age-related dysfunction continue to grow at a rapid speed. This has led to an increased interest in the use of food-based supplements such as beetroot juice. Beetroot juice contains nitrate and has been shown to reduce blood pressure, improve cardiovascular function and improve exercise performance. Furthermore, recent evidence has indicated that increased nitric oxide (the bio-active form of nitrate) may have effects on increased blood flow to the brain leading to improved cognition and mood in older adults. However, research in this area is limited and few studies have looked at the prolonged effects of nitrate-rich beetroot juice supplementation when comparing younger and older adults. The aims of this study are to examine the effects of acute and chronic nitrate supplementation, from beetroot juice, on cognition, mood and cardiovascular responses in younger (18-30) versus older adults (50-80). Secondly, to investigate the potential mechanisms behind these effects**.**

Dose-response relationship of dietary nitrate-rich beetroot juice on cardiovascular and cognition function in older adults.

Trial ID: ACTRN12620000005954
Health condition: High Blood Pressure, Cognitive decline
Location: New Zealand
Brief summary: In today's society, rates of disease and age-related dysfunction (e.g. cardiovascular disease and dementia) continue to grow rapidly. This has led to an interest in the use of food-based supplements and bioactive compounds to help improve or maintain one's health and body functions. Beetroot juice has gained recent attention due to its potential health benefits. Beetroot juice contains nitrate, which has been shown to reduce blood pressure and improve physiological responses in younger and older adults, including improved baseline cardiovascular function and exercise performance. Additionally, recent evidence has indicated that increased nitric oxide (the bioactive form of nitrate) may increase blood flow to the brain improving cognition and mood in older adults. Similarly, beetroot juice consumption has been proposed to slow the process of age-related cognitive degradation. However, variations in the dose of dietary nitrate, in the form of beetroot juice, has been shown to result in differing effects on cardiovascular response and cognition in

younger and older adults. Some studies have shown that the effects of nitrate supplementation on blood pressure in younger adults occur in a dose-dependent manner, with higher doses having greater effects. This is an import factor to consider when trying to provide the optimal concentration of dietary nitrate to elicit the greatest potential benefits. However, research in this area is limited and no study has investigated the dose-response relationship of dietary nitrate-rich beetroot juice in older adults or on cognitive function.
The aim of this study is to examine the dose-response effects of four different concentrations of dietary nitrate-rich beetroot juice on cardiovascular function, cognition, and mood in older adults (50 – 80 years).

The effect of Complex Milk Lipids on cognitive function in older adults with Subjective Memory Complaints

Trial ID: ACTRN12620000270910

Health condition: Cognitive function, Psychological wellness, Biochemical Health, Gut function, Physical Health, Mobility

Location: South Australia, Victoria

Brief summary: The aim of the present study is to investigate the effects of Complex Milk Lipids on cognitive function and other health-related outcomes—including physical health, psychological wellbeing and blood biomarkers—in ageing adults 55-to-75 years of age. Ingredients developed by the principal trial sponsor contain higher levels of milk phospholipids and gangliosides (complex lipids) and may have the potential to produce benefits on these outcomes. This will be a 16-week randomised, double-blind placebo-controlled trial where 300 participants will be recruited across the CSIRO and Swinburne University sites. The trial will consist of three intervention arms: 1) Low dose milk drink delivering ~10g of total CMLs; 2) High dose milk drink delivering 25g of total CMLs; and 3) Rice starch placebo control

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Validity of novel urinary biomarkers of flavan-3-ol intake in healthy participants: A randomised, 5-way cross-over trial

Trial ID: ACTRN12619001553167

Health condition: Dietary biomarkers

Location: Western Australia

Brief summary: Recommendations to increase intakes of foods rich in flavonoids have the potential to improve population health and reduce cardiovascular disease-related mortality. Flavan-3-ols are the most abundant subclass of flavonoids in the diet and are found in abundance in cocoa, apples, and tea. Currently, flavan-3-ol intake is estimated from food frequency questionnaires. There is a crucial need for quality biomarkers of intake as a means of overcoming food questionnaire and food database limitations. Recently, a microbiome-derived flavan-3-ol catabolite, gamma-valerolactone (gVL), has emerged as a promising candidate. The primary aim of the proposed project is to establish the suitability of gVLs as biomarkers of flavan-3-ol intake.

The effect of a 14-day intervention to reduce sugar cravings in adults

Trial ID: ACTRN12619001558112

Health condition: Sugar intake

Location: New Zealand

Brief summary: Gymnema sylvestre (gymnema) is a plant-derived sweetness inhibitor which impairs one's ability to taste sugar by temporarily blocking sweet receptors on the tongue. It is therefore a taste modulator which interferes with the ability of sucrose to activate the sweet receptors on the tongue leading to a decrease in sweetness perception without affecting the other basic tastes. This effect is reversible and lasts between 30-60 minutes. A mint containing gymnema has been developed by a commercial entity (based in US), and is part of a '14-day sugar reset dietary intervention' designed to reduce cravings for sugar-sweetened foods and beverages. The 14day intervention also includes daily consumption of a powder containing prebiotic fibre, vitamins and minerals, and adherence to a food guide ("eat, treat, delete"). The overall aim is to assess the effectiveness of a 14-day supplement and behaviour intervention to reduce sugar cravings in healthy adults. We wish to explore the perception of the intervention, as well adherence to the programme, and investigate whether (sugar-containing) product use and related food behaviours are maintained following the completion of the 14-day programme. We will also explore associations with dietary intake of sweet-tasting foods (food frequency questionnaire), body composition (BIA), and if there are any differences in responses between 'super-tasters' and normal tasters.

Effect of prior consumption of gymnema sylvestre on desire for sugar-sweetened products in adults

Trial ID: ACTRN12619001384145

Health condition: Sugar intake

Location: New Zealand

Brief summary Gymnema sylvestre (gymnema) is a plant-derived sweetness inhibitor which impairs one's ability to taste sugar by temporarily blocking sweet receptors on the tongue. It is therefore a taste modulator which interferes with the ability of sucrose to activate the sweet receptors on the tongue leading to a decrease in sweetness perception without

affecting the other basic tastes. This effect is reversible and lasts between 30-60 minutes. Gymnema is popular not only due to its anti-saccharine effect, but also because of its hypoglycemic effect and hence its use in diabetes management. To demonstrate its sucrose perception suppressing ability, tea is prepared from gymnema leaves and panellists asked to swish and amount in their mouths prior to tasting foods and sweet products (Noel et al. 2017; Hudson et al., 2018). Utilization of this plant is expanding from Ayurvedic medicine to applications in food product development (Perera and Pavitha, 2017). There is some uncertainty about observing this kind of effect (Shroeder and Flannery-Schroeder, 2005) when the leaves are processed as the case will be if the active ingredient is used in the formulation of a tablet. There is therefore the need to determine if the doses of the active ingredient used in the tablets reduces perception of sweetness. But, most importantly for this project, whether this decrease in sugar perception leads to an aversion to sugar-sweetened products. Therefore, the aim of the study is to determine whether prior consumption of gymnema is associated with a decrease in perceived hunger ratings, desire for sugar-sweetened products and pleasantness ratings of sugar-sweetened products.

2.4 Infants & Children

2.4.1 Infant formula

Numerous trials for infant formula are constantly in progress. The following summarises trials that have been registered prospectively since June 1st 2019, and are of interest due to the formula containing new ingredients or designed to address health outcomes related to neurological development, allergy reduction or immune function. Routine trials evaluating growth and tolerance are not included, as are trials of nutritional interventions for infants with specific or chronic health needs e.g. very low birthweight, preterm or disease states.

Infant nutrition with milk fat globule membrane for infant cognition in early life

Trial ID: ACTRN12620000552987
Health condition: Infant Nutrition, Infant Cognition
Location: South Australia
Brief summary: The primary objective of The Infant Feeding Study is to determine if cognitive development, as measured with the Bayley Scales of Infant Development, at 365 days (12 months) of age in term-born children is significantly improved in children fed infant formula supplemented with MFGM-rich ingredient, compared to those children fed a standard infant formula.

The Effect of Myelin-Relevant Nutrients in Infant Formula on Brain Myelination and Cognitive Development

Trial ID: ACTRN12620000552987
Health condition: Infant Development, Infant Cognition
Location: USA
Brief summary: This nutritional intervention study involves assessments in both the mother and her infant. The mother will be asked to complete self-report questionnaires and to undergo a brief cognitive assessment. If the mother is not breastfeeding, a study product will be provided and will be consumed by the infant daily up to 12 months of life. The study also involves magnetic resonance imaging (MRI) brain scans of the infant's brain while asleep as well as evaluation of cognitive outcomes, including general cognitive development, and social-emotional development.

A Follow-Up Study to Investigate the Effects of New Infant Formula on Growth & Body Composition (VenusFU)

Trial ID: NCT02594683
Health condition: Infant Development, Infant Cognition
Location: Singapore
Brief summary: This follow-up study is a randomised, controlled, study to investigate the effects of a new infant formula given in the first 12 months of life on growth and body composition up to 5 years of age. Participants from Venus study will be invited to participate in this follow-up study.
Hypothesis: Significant difference in body mass index (BMI) development for subjects who had received infant formula and follow on formula with scGOS/lcFOS/MGFM compared to the control product scGOS/lcFOS and standard formula. No significant difference in growth of subjects who had received infant formula and follow on formula with scGOS/lcFOS/MGFM compared to the breast-feeding reference group

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Effect of a New Infant Formula With Specific Ingredients on the Development of the Immune System and the Gastrointestinal Health of the Infant (EARLY-TOLERA)

Trial ID: NCT04306263
Location: Spain
Brief summary: Nowadays, almost all commercial infant formulas resemble the "gold standard" of breast milk in terms of composition of essential nutrients, but it is still a challenge to identify and incorporate certain bioactive components capable of replicating those stimuli typical of breast milk that can program growth, infant development and maturation of the immune system.

The purpose of this study is to test whether the addition of certain bioactive ingredients to a new infant formula (HMOs, osteopontin and probiotics) can have a favourable impact on the development of the infant's immune system in the first months of life.
In addition, considering that the quality of feeding at these early ages will program (Early programming) the health and physiology of the child and the future adult, the study wants to obtain evidence of the effects of this new infant formula on the immune system and the development of the child compared to breast milk during the first year of life, hoping that it promotes proper growth, adequate cognitive development and maturation of the immune system as similar as possible to children fed to the mother's breast.

Lactobacillus reuteri Versus Placebo in the Treatment and Prevention of Infantile Colic

Trial ID: NCT00893711

Location: Italy

Brief summary: The purpose of this study is:

- to study the intestinal microflora of colicky infants before and after L. reuteri or placebo administration, evaluating the effect of Lactobacillus reuteri on the growth of the main intestinal microbiota (coliforms, Clostridium butyricum, Lactobacilli, Bifidobacteria) with fluorescent in situ hybridization (FISH) technique or with Real-Time PCR Taqman; Further, the global intestinal microflora composition, using large-scale DNA sequencing of 16S rRNA genes (454-pyrosequencing technique.
- to evaluate the improvement of colicky symptoms by the oral administration of Lactobacillus reuteri (primary outcome: reduction of the daily average crying time from baseline to the end of the treatment period, to less than 3 hours a day, the cut-off proposed by Wessel; secondary outcome: number of responders versus non-responders in each group at the end of the treatment).
- to evaluate fecal calprotectin values at the beginning and at the end of the study. BÜHLMANN Quantum Blue® Calprotectin High Range (Schönenbuch, Switzerland). A quantitative immunoassay.
- to evaluate Th17/Treg balance at time 0 and t 30 (days) investigating mRNA FOXP3 and RORγ in peripheral blood using RT-PCR Real Time Taqman.
- the measurement of the expression level of CC-chemokine receptor 7 messenger RNA using the real-time TaqMan reverse transcription polymerase chain reaction method.

the measurement of expression of interleukin 10 (IL-10) messenger RNA using the real-time TaqMan reverse transcription polymerase chain reaction method.
Parental satisfaction at the end of the study period (30 day) with a numeric scale from 1 to 10.

The effect of probiotic supplements on infants with crying/fussing caused by digestive problems (colic)

Trial ID: ISRCTN92431452

Location: China

Brief summary: Infant with persistent crying/fussing is a behavioural problem in early infancy that involve long crying bouts and hard-to-soothe behaviour for no apparent cause. The parents and caretakers often seek many treatments for these babies including the use of several drugs with serious side effect, vegetable fibre, lactose, sucrose solution, hypoallergenic diet, and herbal tea. But there still is no single effective and safe intervention or drug for babies' colic. Recent studies have reported that gut microbiota in these infants is imbalanced by lower amounts of beneficial bacterial and higher amounts of harmful bacterial. Thus, several researchers have suggested that specific probiotics may be useful for improving imbalance gut bacterial and reducing babies' crying time. This study sought to explore the effectiveness of the two-combined probiotic strains in treating babies' crying and fussing.

A randomized controlled trial to investigate the efficacy of Lactobacillus paracasei N1115 as a probiotic to enhance health development in 6-24 months infants

Trial ID: ChiCTR1900026978

Location: China

Brief summary: Study objectives: 1) to evaluate the effect of Lactobacillus paracasei N1115 on the intestinal health of 6-24 months ceasarean-born infants, and to explore its effect on improving stool consistency, defecation frequency, gastrointestinal symptoms, etc.; 2) to evaluate the effect of Lactobacillus paracasei N1115 on the intestinal microecological composition of 6-24 months ceasarean-born infants, especially on the proliferation of Lactobacillus and Bifidobacterium and immunity.

Prebiotics in the adjuvant treatment of allergic rhinitis in infants and young children: a randomized controlled study

Trial ID: ChiCTR2000031175

Location: China

Brief summary: There is no effective and economical treatment for allergic diseases at home and abroad. In particular, asthma, repeated attacks, threatening the health and life of patients, and seriously affect their work and quality of life, and the majority of asthma was found to start around 1 year old. There is a hygiene hypothesis that [1]: in the process of the development and improvement of the collective immune system in the placenta and infants, the reduction of microbial exposure is related to the increased incidence of this disease. Other studies have shown that probiotics and prebiotics can prevent allergic diseases in infants. Therefore, it is of clinical significance to explore probiotics and prebiotics for the prevention of allergic diseases in infants.

Lipid Profile of Full-term Infants on Different Feeding Regimen: a Comparative Study

Trial ID: NCT04317638

Location: Egypt

Brief Summary: Lipid profile of full-term infants on different regimens. The aim of the study is to compare infant's lipid profiles on different feeding regimen during the first 6 months of life and its correlation with their mothers' lipid profiles (exclusive breastfeeding and mixed feeding) and to compare infants' lipid profiles on different feeding regimen with each other (including those on exclusive formula feeding).

2.4.2 Complementary feeding

Several new studies, including the HVN "The SUN" trial have been registered in the past 12 months. It is interesting to note the interest in baby led weaning both here in NZ and overseas, and a growing interest in early exposure to potential allergens.

Seeding throUgh FeediNg: nourishing the infant microbiome to support immune health 'The SUN' randomised controlled trial

Trial ID: ACTRN12620000026921p

Health condition: Immune health, Gut microbiome

Location: Auckland, NZ

Brief summary: The SUN Study is a double-blind, randomised, comparator controlled trial. Three hundred healthy infants < 4-months-of-age will be recruited and randomised into one of two experimental groups or a comparator control. Participants will receive a daily prebiotic food intervention with varying levels of resistant starch, introduced with their first complementary food for 6 months, as part of a whole diet. The aim of the SUN Study is to determine the associations, and possible causality between prebiotic feeding, growth of immune health-beneficial microbes in the infant gut, with reduced number of respiratory infections and improved vaccination responses.

Novel methods of infant feeding in New Zealand - an observational study of the impact of baby food pouches and baby-led weaning on iron status and body mass index

Trial ID: ACTRN12620000459921

Location: New Zealand

Brief summary: Researchers, health professionals, and policy makers know surprisingly little about how and what infants are fed during their remarkable journey from consuming a 100% milk diet at birth, to consuming the same foods as their family around their first birthday. In fact, we don't know what babies are eating in New Zealand even though there has been a revolution in infant feeding with domination of the market by baby food 'pouches', and massive uptake of BLW, a virtually unstudied approach to introducing solids in which babies feed themselves only finger foods from the start of complementary feeding.

The First Foods New Zealand study will determine the impact of pouches and BLW on iron deficiency, growth, choking, oral motor skills and dental health in an observational study of 625 Dunedin, Wellington and Auckland infants. The study will also investigate culturally important foods for Maori and Pacific Island people, as well as other ethnicities; investigate parent attitudes surrounding environmental sustainability aspects of infant feeding; and investigate the cost of infant feeding for baby food pouch users. The results will enable the Ministry of Health, health professionals, and Plunket to advise New Zealand parents on how to introduce solids safely.

Methods of Complementary Feeding Introduction in Children: A Randomized Clinical Trial.

Trial ID: REBEC RBR-229scm

Location: Brazil

Brief summary: To evaluate and to compare three different types of methods of introduction of complementary feeding in infants: traditional method, BLISS method, and mixed method through two specific questionnaires specially developed for this study, applied at the ages of 9 months and 12 months. Group 1 (Traditional Group) - 48 mothers of this group will receive the first intervention when their sons / daughters are between 4 and 6 months of age. The mothers will be divided into groups of 6 to 8 mothers who will receive the intervention together. This consists of a workshop with the objective of training them to introduce their children's food according to the traditional method. Group 2 (BLISS) - 48 mothers in this group will receive the first intervention when their sons / daughters are between the ages of 4 and 6 months. The mothers will be divided into groups of 6 to 8 mothers who will receive the intervention together. It consists of a workshop with the objective of training them to introduce their children's food according to the BLISS (Baby-led Introduction to solids) method. Group 3 (Mixed) - 48 mothers in this group will receive the first intervention when their sons / daughters are between 4 and 6 months of age.

Community-based Clinical Trial With Microbiota-directed Complementary Foods (MDCFs) Made of Locally Available Food Ingredients for the Management of Children With Post-severe Acute Malnutrition Moderate Acute Malnutrition (Post-SAM MAM)

Trial ID: NCT04015986

Location: Bangladesh

Brief summary: Burden: A total of 52 million children under 5 are suffering from acute malnutrition globally, of whom 33 million suffer from moderate acute malnutrition (MAM). In Bangladesh, around 2 million children suffer from MAM. In absolute numbers, according to Bangladesh Demographic Health Survey 2014, 26%, 25% and 17% of children aged less than two years are stunted, underweight and wasted respectively.

Knowledge gap: We have already demonstrated that children with acute malnutrition have immature gut microbiota that is partially corrected with treatment. Children with MAM have an increased risk of mortality, infections and impaired physical and cognitive development compared to well-nourished children. Although the global caseload of MAM is much greater than that of SAM, the condition has not received the same level of attention or priority. Through our previous and ongoing research we now know about the members of the gut microbiota that can promote growth in children and also about certain food ingredients that promote the proliferation of such beneficial microbiota. However, this knowledge needs to be applied on a large scale community-based clinical trial.

Relevance: The rationale for this study is to assess whether long-term administration of complementary food made of locally available food ingredients that can stimulate the proliferation of growth promoting gut microbiota (MDCF-2), as identified in our Pre-POC trial, is able to produce predictable changes in the microbiota of Bangladeshi children with Post-SAM MAM as well as in their nutritional status. We would now like to do a community-based clinical trial of this potential MDCF-2 in the management of children with Post-SAM MAM.

Hypothesis (if any): Complementary foods made of locally available food ingredients that stimulate the proliferation of growth promoting gut microbiota (MDCF-2) will improve clinical outcomes.

Objectives: To investigate the efficacy of complementary food made of locally available food ingredients that can stimulate the proliferation of growth promoting gut microbiota (Microbiota Directed Complementary Food: MDCF-2) in (i) promoting repair of microbiota immaturity (ii) promoting proliferation of beneficial bacteria (iii) improving both linear and ponderal growth in children with Post-SAM MAM (iv) improving the metabolomic profile of children with Post-SAM MAM

Hypothesis to be tested: Complementary food made of locally available food ingredients that can stimulate the proliferation of growth promoting gut microbiota (MDCF-2) will improve nutritional outcomes.

Specific Objectives To investigate the efficacy of complementary food made of locally available food ingredients that can stimulate the proliferation of growth promoting gut microbiota (Microbiota Directed Complementary Food: MDCF-2) in (i) promoting repair of microbiota immaturity (ii) promoting proliferation of beneficial bacteria (iii) improving both linear and ponderal growth in children with Post-SAM MAM (iv) improving the metabolomic profile of children with Post-SAM MAM.

Community-based Clinical Trial With Microbiota-directed Complementary Foods (MDCFs) Made of Locally Available Food Ingredients for the Management of Children With Primary Moderate Acute Malnutrition

Trial ID: NCT04015999

Location: Bangladesh

Brief summary: Burden: A total of 52 million children under 5 are suffering from acute malnutrition globally, of whom 33 million have moderate acute malnutrition (MAM). In Bangladesh, more than 2 million children suffer from MAM. According to Bangladesh

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Demographic Health Survey 2014 26%, 25% and 17% of children aged less than two years are stunted, underweight and wasted respectively.

Knowledge gap: It has been already demonstrated that children with SAM have immature gut microbiota that is partially corrected with treatment. Children with MAM have an increased risk of mortality, infections and impaired physical and cognitive development compared to well-nourished children. Although the global caseload of MAM is much greater than that of SAM, the condition has not received the same level of attention or priority. Through our previous and ongoing research we now know about the members of the gut microbiota that can promote growth in children and also about certain food ingredients that promote the proliferation of such beneficial microbiota. However, this knowledge needs to be applied on a sufficiently powered community-based clinical trial.

Relevance: The rationale for this study is to assess whether long-term administration of complementary food made of locally available food ingredients can stimulate the proliferation of growth promoting members of the gut microbiota and have a positive impact on child growth. Such a food (the microbiota directed complementary food; MDCF-2) has been identified through our recently concluded Pre-proof of concept trial done on children with primary MAM. We would now like to do a clinical community-based trial of this potential MDCF-2 in the management of children with primary MAM.

Hypothesis: Complementary foods made of locally available food ingredients that stimulate the proliferation of growth promoting gut microbiota (MDCF-2) will improve clinical outcomes.

In a hypothesis testing research proposal, briefly mention the hypothesis to be tested and provide the scientific basis of the hypothesis, critically examining the observations leading to the formulation of the hypothesis.

Complementary foods made of locally available food ingredients that stimulate the proliferation of growth promoting gut microbiota (MDCF) will provide a new way to improve clinical outcomes, for example by improving growth of children with MAM.

Specific Objectives: To investigate the efficacy of complementary food made of locally available food ingredients that can stimulate the proliferation of growth promoting gut microbiota (Microbiota-Directed Complementary Food; MDCF-2) in (i) promoting repair of microbiota immaturity (ii) promoting proliferation of beneficial bacteria (iii) improving both ponderal and linear growth in children (iv) improving the metabolomic profile with MAM

Is early introduction of tree nuts in infants at high risk of food allergy feasible? The TreEAT Pilot Study: a randomised controlled trial.

Trial ID: ACTRN12619000897167p

Location: Victoria

Brief summary: Early and regular ingestion of the common allergens, peanut and egg has been shown to be an effective allergy prevention strategy. Little is known about tree nut allergy. Current allergy testing methods are indicative of IgE sensitisation only and are not diagnostic of food allergy. Current practice at RCH allergy clinic in children who are egg and/or peanut allergic is to advise families to introduce each individual tree nut into their child's diet via a cautious home introduction protocol without prior allergy testing (screening). The safety and effectiveness of this strategy has not been formally evaluated. This pilot study is a 2-armed, open-label, randomised, controlled trial (RCT) to assess the safety and feasibility of a supervised hospital based multi-tree nut oral food challenge (OFC) versus standard care (home introduction of individual tree nuts) in infants with egg and/or peanut allergy to reduce the risk of developing tree nut allergy.

A randomised trial of an SMS and smartphone based application to promote introduction of peanut in infants by 12 months of age.

Trial ID: ACTRN12620000025932

Location: Western Australia

Brief summary: SmartStartAllergy (SSA) is a novel SMS and smartphone-based application currently integrated with general practices to promote and monitor the introduction of allergenic foods. We hypothesise that parents of infants who receive SMS when their child is 6 and 9 months of age, from their general practice that is using SSA, are more likely to feed their child peanut paste before they turn 1 compared with those who do not receive the messages. Parents are randomised to receive automated SMSs from their general practice when their child is 6, 9 and 12 months old, or to only receive SMSs at 12 months (control group). A questionnaire, accessed via link from SMS, collects additional information about infant feeding and food allergy. Proportions of infants who have introduced peanut by 12 months of age, based on responses from parents to an SMS question, will be compared between the two groups.

Labelled Carbon Sucrose Breath Test (13C-SBT) as a Marker of Environmental Enteropathy

Trial ID: NCT04109352

Location: Bangladesh, India, Jamaica, Kenya, Peru and Zambia

Brief summary: Linear growth failure, a manifestation of chronic undernutrition in early childhood, is a recalcitrant problem in resource constrained settings. The underlying causes of growth failure are multifactorial, but persistent and recurrent infection and inflammation of the gastrointestinal tract and immune activation, a condition commonly referred to as environmental enteropathy, is an important contributor. A highly enriched 13C-Sucrose Breath Test, a measure of sucrase-isomaltase activity, will be evaluated as a non-invasive biomarker of environmental enteropathy, and more specifically of intestinal brush border enzyme activity in 6 resource poor countries (Bangladesh, India, Jamaica, Kenya, Peru and Zambia) in 100 volunteers aged 12-15 months (total n=600) and evaluated relative to the lactose rhamnose test and linear and ponderal growth over a 3-6 month period following biomarker assessment.
Field usability will also be assessed.

Effects of Complementary Feeding of Eggs on Infant Development and Growth in Guatemala: The Saqmolo Study (Saqmolo)

Trial ID: NCT04346221
Location: Guatemala
Brief summary: The specific aims of this study are:
In a randomized controlled trial, the investigators will evaluate the impact of daily egg consumption during the complementary feeding period in addition to the local standard of nutrition care (i.e., intervention group), compared to the local standard of nutrition care alone (i.e., control group) on the following outcomes, in infants that are ~6-month old at baseline:
Child development, as measured by global development scores (primary outcome)
Growth, as measured by anthropometrics (secondary outcome)
Diet quality, as measured by the World Health Organization infant and young child feeding indicators (secondary outcome)
Hypothesis: The investigators hypothesize that daily consumption of eggs during the complementary feeding period, in addition to the local standard of nutrition care, will improve child development, growth, and diet quality compared to the local standard of care alone.

Children

The majority of studies in children focus on medically driven research on health and disease states. Several trial of interest which fit the HVN research pillars were identified.

Evaluating the Alimentary and Respiratory Tracts in Health and Disease (EARTH) Research Program.

Trial ID: NCT04071314
Location: New South Wales
Brief summary: The investigators have established the "Evaluating the Alimentary and Respiratory Tracts in Health and disease" (EARTH) research program. It provides a structured approach to analysing gastrointestinal and respiratory microbiomes, along with diet and symptomatology, in children with a gastrointestinal and/or respiratory condition with recognised long-term morbidity (e.g. cystic fibrosis, obstructive sleep apnoea, or Hirschsprung's disease).

The EARTH program consists of a series of prospective, longitudinal, controlled, observational studies, with each individual study comparing children with a chronic gastrointestinal and/or respiratory condition to healthy controls (HC). It will be conducted in an Australian tertiary paediatric hospital (although the methodology is applicable to other settings). Children with a chronic gastrointestinal and/or respiratory condition will be compared to age and gender matched HC across a 12-month period. The following will be collected at baseline, 6 and 12 months: (i) a stool sample, (ii) an oropharyngeal swab or sputum sample, (iii) a semi-

quantitative food frequency questionnaire, (iv) details of disease symptomatology, (v) health-related quality of life, and (vi) psychosocial factors. Data on the intestinal and respiratory microbiomes and diet will be compared between children with a condition and HC. Correlations between dietary intake (energy, macro- and micro-nutrients), intestinal and respiratory microbiomes within each group will be explored. Data on disease symptomatology, quality of life and psychosocial factors will also be compared between children with a condition and HC.
The investigators hypothesise that:
(i) Children with chronic gastrointestinal and/or respiratory conditions will have altered intestinal and respiratory microbiomes compared to healthy children, and (ii) Diet plays a key role in influencing the intestinal and respiratory microbiomes and this may impact on clinical outcomes, biomarkers of disease, and health-related quality of life.

The investigation study for the prevention effect of ingestion of lactoferrin-containing yogurt on infectious diseases (infectious gastroenteritis, influenza) in nursery school children.

Trial ID: UMIN000039115
Location: Japan
Brief summary: To investigate the effects of ingestion of lactoferrin-containing yogurt on the prevention of infectious gastroenteritis and the prevention of respiratory tract infections caused by influenza infection in nursery school children (age 3 to 5 years)who are at high risk of developing and transmitting infectious diseases.

Study for influence of long-term intake of pineapple on improvement in intestinal environment for children.

Trial ID: UMIN000037061
Location: Japan
Brief summary: To verify effect of long-term intake intervention of pineapple for children on intestinal environment (bacterial flora pre and post- 4-week intervention)

2.4.2.1 Eating practices in young children & children:

In this age group, understanding basic feeding practises and habits is the primary target of recent and ongoing clinical studies, more so than nutritional interventions that confer specific health benefits.

In Australia, the low vegetable consumption habits of children (less than 4% of children aged 4 to 5 years consume the recommended intake) is being addressed through several interventional studies aimed at understanding strategies that can be used to successfully increase vegetable intake as a part of a healthy eating lifestyle. Related to this is the general nutritional value of school lunchboxes and meal programmes.

2.4.2.1.1 School/care lunch programmes

Effect of a pilot menu box delivery service direct to long day care settings on children's vegetable intake
Trial ID: ACTRN12620000296932
Location: South Australia
Brief summary: In Australia, less than 4% of children aged four to five years old consume the recommended amount of vegetables. Liking and acceptance of vegetables are learnt in early childhood and habits track into adulthood, thus efforts to increase vegetable intake need to start in the early years of life. About half of Australian children aged 2-5 years attend formal early care and education. These settings, such as Long Day Care, can provide 40-60% of children's daily food intake. Early care settings can play a pivotal role in shaping children's dietary habits and care-based nutrition promotion has been successful in improving children's food intake. In centres where food is provided onsite, the responsibility for menu planning and food preparation falls with the cooks.
The purpose of this cluster randomised control trial is to support childcare cooks to provide healthy meals, with a focus on vegetable intake, through piloting the delivery of menu boxes direct to long day care centres. This study will evaluate the effects of menu box delivery on the provision and consumption of vegetables in long day care centres and evaluate the feasibility and acceptability of menu box delivery. Menu boxes will include recipes and ingredients tailored to the number of serves required by the centre, which meet long day care menu planning guidelines. This will be compared to an online cook's training module supported by an online menu planning tool to increase vegetable provision in meals and snacks.

South Australian Long Day Care Centres will be randomly allocated to either receive a menu box delivery (n=4-5 Centres) to provide recipes and ingredients for their menu cycle, or receive access to an online cooks training and menu planning tool (n=4-5 Centres). The intervention (menu box vs menu planning) will be conducted over 12-14 weeks (menu boxes will be delivered for 8-weeks). Evaluation data for dietary intake, menu food provision, acceptability and feasibility of the intervention will be collected at baseline and at the end of the intervention period. This project is being conducted as part of VegKIT (https://www.vegkit.com.au/), funded by Hort Innovation.

Effectiveness of a teacher led school based vegetable education program to change vegetable related behaviours in Australian primary school children

Trial ID: ACTRN12620000392965

Location: New South Wales, South Australia

Brief summary: Children's vegetable intake is below recommendations in Australia, with low acceptance of vegetables' sensory properties being a main reason. Vegetable liking can be learned, and childhood is a critical time in the development of these preferences. Increasing acceptance and willingness to try vegetables has important benefits on students' health and wellbeing in the short and long term, since preferences and dietary behaviours track from childhood into adulthood. The school environment provides good opportunities to promote healthy eating among children, and thereby contribute to setting lifelong healthy eating habits. A teacher-led vegetable education program (VERTICAL- Vegetable Education Resource To Increase Children's Acceptance and Liking) was developed by CSIRO scientists and educators which aimed to meet three main objectives: 1) to be effective in achieving change amongst children in factors known to be associated positively with vegetable consumption; 2) fulfilling curriculum objectives, and 3) facilitate ease of use by teachers in the classroom. The theoretical framework of the program is based on sensory education and scientific insights on children's development of vegetable acceptance, with a large emphasis on experiential learning and vegetable tastings. A previous pilot study indicated that the program positively predisposed children towards vegetable consumption. This study aimed to evaluate: 1) the effectiveness of the program on a larger scale and, 2) two forms of teacher training on the effectiveness of the program. The main research questions were:

• Does the vegetable educational program lead to a change in student outcomes positively associated with vegetable consumption?

• Does the type of teacher training preceding implementation of the program effect the student outcomes?

A cluster randomised controlled trial of a web-based intervention to increase child intake of fruit and vegetables within childcare centres

Trial ID: ACTRN12619001158156

Location: New South Wales

Brief summary: Early childhood education and care (ECEC) is a promising setting for interventions targeting children's nutrition behaviours. Web-based modalities may be a promising way of delivering childcare-based interventions whilst overcoming some of the challenges of previous approaches. As such, the primary aim of this study is to examine the impact of a web-based intervention together with health promotion officer support targeting childcare centre healthy eating practices on improving child dietary intake of fruit and vegetable serves in childcare. The intervention will target staff within childcare centres and support their implementation of healthy eating practices.

Does the 'Flavour School' sensory food education programme increase 4-7 year old primary school children's confidence and curiosity in tasting vegetables and fruit?

Trial ID: ISRCTN40249947

Location: UK

Brief summary: Flavour School (https://www.flavourschool.org.uk/about-us) is a programme of sensory food education activities that has been developed for primary school children (aged 4-7). Children take part in fun sensory experiments and activities with healthy foods, learn to analyse flavours with their senses, and learn vocabulary and verbal skills to describe and share their eating experiences and opinions. It aims to build children's confidence and curiosity in exploring food (especially vegetables and fruit), and expand their food horizons, to support the development of healthy, happy relationships with food and eating. This study aims to assess the extent to which Flavour School causes children to become more curious and confident in exploring food.

If Flavour School sensory food education does significantly boost children's confidence and curiosity in exploring healthy food, then schools, teachers and policy makers can have confidence in a relatively cheap, accessible tool, which they can use to support children to develop of healthy, happy eating habits. Flavour School could equip children to be more open to developing a healthier and more varied diet, where this is provided to them. For example, children who are more familiar with vegetables and fruit, and more open to trying and tasting new foods may be more amenable to new, healthier school

lunch menus - or to a healthy dinner cooked at home. Eating more fresh produce, especially vegetables, is a simple and effective way for people and populations to improve health outcomes and eat a more ecologically sustainable diet.

A cluster randomised trial to evaluate the efficacy of booster messages in maintaining improvements in the nutritional quality of lunchboxes.

Trial ID: ACTRN12619001363178

Location: New South Wales

Brief summary: The aim of this randomised control trial is to determine if improvements in the nutrition quality of lunchboxes following an app based intervention can be maintained with or without additional support. Schools who have received the app based intervention will be randomised to either receive two additional booster messages via the school communication app, over a one month period or to the control group.

Integrating the Power of Peanuts Into School Feeding Programs in Ghana

Trial ID: NCT04349007

Location: Ghana

Brief Summary: Peanuts will be introduced into school feeding programs as a nutritional enhancement. This will be a two-phase protocol. Phase 1 will include the development of the peanut-based school food, and a small formative research study on the acceptability and consumption of the school food study intervention. This will occur at 1 of the 5 schools in the Mion district, 60 school aged children between 6-9 years old will be recruited to participate in a 3 week consumption and acceptability study. An integral part of the food development process is acceptability testing. A child must like and want to eat a new food if it is to be consumed as prescribed and effective in potential improving linear growth and cognitive performance. This study will confirm that food developed for the school feeding clinical trial will be consumed as dosed and what additional snack food offerings may be useful in encouraging consumption. Phase 2 will be a randomized, investigator blinded, controlled clinical effectiveness trial of a peanut-based school meal with and without milk powder compared to a control meal on linear growth and cognitive performance. Up to 1,000, 6 to 9 years old, healthy, enrolled in P1 or KG2 level classes at 5 selected schools in the Mion district will be randomized to receive one of three school foods, a peanut-based food with milk, the same peanut-based food without milk and a control group composed of commonly available tuber/cereal. The sample size accounts for 25% attrition for a final sample size of 750 with a total 250 eligible children enrolled in each group. Enrolled children will receive the meal daily during the school lunch period for an entire school year. At enrolment, anthropometric measurements and body composition data will be collected and a tablet- based and language independent cognitive test will be administered. Participants will receive a token of appreciation at after their enrolment testing and at the completion of the study. The primary outcomes will be change in height-for-age z score and change in cognitive performance on tests using the Cambridge Neuropsychological Test Automated battery. The secondary outcomes will be change in body mass index, change in anthropometric measurements, and change in other body compositions measurements measured by bioelectrical impedance.

2.4.2.1.2 Gastrointestinal function in children

Frequency of Functional Gastrointestinal Disorders in Children

Trial ID: NCT04320550

Location: Egypt

Brief Summary: Cross sectional study to detect frequency of functional gastrointestinal disorders among school aged children complaining of recurrent abdominal pain. School aged children from age of 5 to age of 15 who are complaining of recurrent abdominal pain will be included in the study, detailed history, examination and investigations will be done

A multicentre pragmatic clinical investigation to assess the efficacy of TransiCap MRI marker devices in magnetic resonance imaging when used to determine whole gut transit time, and inform treatment selection in paediatric constipation

Trial ID: ISRCTN42273449

Location: UK

Brief Summary: One in ten children worldwide has constipation and it becomes chronic in 30% of these children, affecting their and their families' well-being. Managing these children is difficult, partly because it can be difficult to define the nature and cause of the problem. If the doctors could send the children for a quick test that indicates the time that food takes to travel through the gut (the "gut transit time"), they could use this information to help choose the best therapy, for example to decide if a patient needs surgery. The test could also be used to follow up the effects of different treatments. Gut transit time is often not tested due to the unsuitable radiation dose involved in the current methods such as X-ray. Doctors' decisions

have to rely mostly on symptoms, leading to repeated appointments, causing inconvenience for parents and children and loss of time from school and work, frustration with lack of effective treatments and consequently wasting valuable NHS resources. Researchers have devised a new way to measure gut transit time using TransiCap capsules. These capsules are swallowed by the patient, and the capsules journey through the gut is captured using Magnetic Resonance Imaging (MRI). These images can be used to measure gut transit time by counting how many capsules appear in each image. The aim of this study is to use gut transit time measurements to inform a patient's treatment, and measure whether informed treatment selection leads to treatment success at 12 months

2.4.3 Adolescents

Recognising the importance of consumer understanding of health claims and their meaning is a critical aspect of the health value proposition of foods. Whilst there has been a number of market studies in adult populations, this trial aims to understand the impact of such information in teenagers.

Assessing the effects of an educational intervention to improve high school students' ability to understand and critically appraise health claims: a pilot cluster randomised trial

Trial ID: ACTRN12620000231943

Location: New South Wales, Queensland, Victoria

Brief summary: Health information is easily accessible through the media and internet, and therefore people are more actively involved in the management of their own health. However, much of the available health information is of variable quality, and basing health decisions on unreliable information can be harmful to the person and a waste of healthcare services.

In this cluster randomised controlled trial, we aim to recruit approximately 12 schools. We will assess a brief educational intervention (approximately 4 hours in duration), specifically designed for this study, to teach Australian high school students in grades 7-9 (ages approximately 12-15 years) to be able to identify and evaluate claims about health interventions. This intervention aims to enhance students "critical thinking" skills about health information, which requires specific education.

The effect of this intervention on knowledge/understanding and skills will be assessed in a randomised comparison against no exposure to the intervention. It is anticipated that the intervention group students' ability to identify and analyse health claims will improve.

The Influence of Non-Caloric Artificial Sweeteners on the Metabolome, Body Composition, and Glycemic Control in Youth With Type 1 Diabetes

Trial ID: NCT03889522

Location: USA

Brief summary: The investigators aim to further the understanding of environmental factors that may underlie variations in body composition seen in youth with Type 1 diabetes (T1D). Non-caloric artificial sweeteners, broadly consumed in many individuals with T1D, are a modifiable dietary factor that may be associated with negative health outcomes, particularly those relevant to the future risk of diabetes-related complications.

Investigators will measure body composition (the amount of fat and muscle in the body and where the fat is stored) using a bioelectrical impedance analysis machine and DEXA scanner. Blood will be drawn for the following labs: HbA1c, lipid panel, comprehensive metabolic panel and leptin. Participants will also answer questions about their diets and consumption of artificial sweeteners.