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In the post (post) COVID-19 pandemic, the world continues to search for ways to reduce the severity of the disease and improve outcomes for those who become infected. While much attention has been given to vaccines, therapeutics and preventive measures such as masks and social distancing, recent research has also shown that micronutrient deficiencies play a role in COVID-19 outcomes.

Specifically, deficiencies in zinc and calcium have been found to be negatively correlated with COVID-19 outcomes\(^1\). Research has shown that individuals with deficiencies in these micronutrients are more likely to experience severe outcomes, including hospitalisation, intensive care unit (ICU) admission and mortality. Results from a revisited meta-analysis, including 53 original studies of moderate to high quality, outlined that levels of vitamin D, vitamin B, zinc, selenium and ferritin differed between COVID-19 patients and healthy people. For example, zinc deficiencies increased COVID-19 infection risk by 1.53-fold, or by 53\%, and calcium deficiencies increased ICU admission by 4.09-fold which is more than 400\%.

While the exact mechanisms underlying these associations in COVID-19 are not yet fully understood, micronutrients that play a critical role in the immune response to viral infections are likely at play. For example, zinc may directly inhibit viral replication in tissues\(^2\) as well as boost the intrinsic immune system, and calcium has been shown to modulate immune function and may help to reduce the severity of inflammatory responses to viral infections\(^3\). Given the potential impact of these micronutrients in COVID-19 severity and mortality, it is important to ensure that individuals are getting adequate daily amounts as one way and to help reduce the severity of COVID-19; it’s another piece of the puzzle in the fight against the pandemic.

The Naturopathic Symposium in May 2023 in Melbourne is set to be an exciting event that will bring together naturopathic practitioners, students, researchers, educators and other healthcare professionals to learn, share and collaborate on the latest developments in naturopathy. As naturopathic practitioners, it is our duty to stay informed about the latest clinical insights and evidence-based practices in order to provide the best possible care to our patients. The symposium will feature a variety of informative sessions, keynote addresses, workshops and networking opportunities that will provide a wealth of naturopathic knowledge and clinical practice insights.

One of the highlights of the symposium will be the keynote address by Dr Joseph Pizzorno which will focus on the interface between tradition, science and practice, and is an important reflection of naturopathy in today’s healthcare landscape. Another important theme that is expected to emerge from the symposium is the need to address changing environment and sustainability issues. Along with expert clinical insights, and evidence-based naturopathic practice, speakers and attendees are expected to discuss approaches to generating evidence that is rigorous and reliable and incorporates naturopathy’s complex nature and preserves traditional knowledge. which are all essential in developing effective prevention and treatment strategies for our patients.

From a bumper number of abstracts submitted, presentations will include cutting-edge clinical approaches and innovative treatments, and attendees will be able to learn about the latest developments and explore new opportunities for collaboration. In addition to the educational and professional development opportunities, the Naturopathic Symposium 2023 will offer a chance to connect with others in the field and build lasting relationships. This issue presents the abstracts that will be presented at the Naturopathic Symposium, 27–28 May. Enjoy.

References

Join us in June for Congress 2023 to create a new future in women’s health!

Visit metagenics.com.au/congress-2023 for more information

Your Congress Speakers
Stay tuned for more speakers to be announced.

Dr Jana Pittman
Rhiannon Hardingham
Prof Sarah E. Hill
Prof Sun-Wei Guo
Prof Susan B. Roberts
Prof Toby Richards

Location

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1. Clinical insights

Keynote address

Practice Informing Science. A Tale from a Naturopathic Researcher

Sharon Erdrich

Abstract

The naturopathic approach to treating patients with complex chronic conditions in clinical practice considers multiple body systems. A comprehensive health assessment is aimed at garnering an overview of factors contributing to a person's state of health, their symptoms, and the biopsychosocial challenges they face. These inform the practitioner's approach of treating “the person as a whole”.

The modern-day naturopathic practice combines traditional principles and therapeutic prescriptions aimed at restoring good health by treating the cause. With increasing demands for validation of this approach, naturopathic philosophies and principles are at risk of being compromised by adopting mechanistic protocols, often informed by preclinical evidence obtained from laboratory or animal research, with little real-world evidence from humans.

In contrast to the medical reductionist paradigm, an ever-expanding body of research supports that a myriad of diseases in multiple body systems are linked to the gastrointestinal tract and the milieu that resides within, supporting the wisdom of several of our forebears who proposed the gut was the epicentre of health. Fibromyalgia is a condition for which a biomedical understanding of etiology is lacking. Without insights into the cause, clinical approaches (naturopathic and allopathic) are primarily aimed at alleviating symptoms. Emerging evidence is – to date – piecemeal and reductionist, without consideration of holism and the overlapping roles of multiple body systems.

When research questions are based on observations from practice, the insights gained through scientific inquiry can inform naturopathic care and guide future research.

Keynote address

A Women’s Mind: The Path from Puberty to Midlife

Jane Hutchens

Introduction: There is a long history of relegating maladies experienced by women to a version of hysteria, or of mental feebleness, and some of that regrettably persists to this day. How then do we best respond to cognitive and emotional symptoms associated with reproductive and hormonal life stages and illnesses, without risking slipping into the hysteria discourse?

Focus of Discussion: This presentation explores the nuances of hormones and life stages on a woman’s neurological function to arrive at the perimenopausal transition when the hormonal environment undergoes one last major shift. Physiological, psychological and sociological perspectives are discussed.

Implications: This presentation will provide the context for broader discussions on “women’s minds”, highlight key clinical issues to consider, and offer a range of suggestions for supporting women, in particular, during the perimenopausal transition.

Expert Panel

Naturopathy for supportive care of cancer patients

Greg Connoley, Janet Schloss and Tania Wells

Introduction: Sixty-five percent of cancer patients are using complementary medicine (CM) but are reluctant to discuss CM with their oncology hospital teams. This can impact adversely on patient satisfaction, autonomy, and safety. Cancer patients are not always under the care of qualified naturopaths who can advise on the safe and effective evidence-based use of herbal and nutritional medicine for integrative cancer care.

Focus of Discussion: Naturopaths have an important role to play in advising cancer patients for how best to integrate herbal and nutritional medicine with biomedical oncology treatment.

The expert panel will discuss how naturopathic treatments can be safely used in various stages of cancer care and how best to liaise with oncology teams.

Implications: Integrative naturopathic cancer care is not well covered in naturopathic undergraduate training. This panel of three leading Australian naturopathic experts in integrative oncology experts has many decades of experience. The panel of experts can provide you with tips and advice for naturopathic integrative oncology care for prevention, acute, adjuvant, and palliative stages of cancer care.
Workshop
The “ins and outs” of implementing group naturopathic consultations: an interactive clinical discussion
Sophie Gerontakis and Hannah Boyd

Background: Naturopathic service utilisation is high, particularly among those with chronic conditions. Despite this, there remain some barriers to accessing naturopathic services in the broader population. Group medical visits (GMVs) (also known as integrative group medical visits (IGMVs)) are an effective medical and integrative model of care developed to mitigate such barriers and are used by conventional medical providers in Australia and overseas. GMVs have been shown to be an effective approach to managing chronic disease & improving health outcomes through collective care and healing by incorporating connection and peer support with clinical care. There is increasing interest throughout the naturopathic profession in adopting the model to implement group naturopathic consultations. Naturopaths from various parts of Australia have started pilot testing the group consult model and are observing promising and inspiring results.

Workshop focus: This audience-interactive clinical discussion aims to showcase some of the programs and structure currently being used in clinical practices by various naturopaths and discuss the successes and challenges to implementing group consultations in naturopathic practice.

Learning objectives:
1. Understand the essential components to creating and implementing safe and effective group consultations, including confidentiality, ground rules, and structure.
2. Understand different formats and structures of group consultations (e.g. drop-in groups, program style etc) and the pros and cons of each type
3. Take home and understanding of the keys to success in planning, recruiting for, implementing and maintaining group consultations

Implications: The session will provide clinicians foundations in group consultations covering the “how to” of planning and running group consults, through to essential requirements to creating safe and effective group consults, overcoming common challenges, and keys to success.

Note: This workshop will be presented by 2-3 experts in group naturopathic consultations and would work well as a panel discussion with an additional facilitator/host.

Workshop
Peri-peri quite contrary. Navigating the hormonal chaos of the perimenopause
Rhiannon Hardingham and Sandra Villella

The perimenopause is a time of significant hormonal fluctuation, accompanied by a range of variable physical and emotional symptoms. It is often a time for worsening premenstrual syndrome (PMS) and often when premenstrual dysphoric disorder is diagnosed. Sleep disturbance, changes in cognitive function and changes to the menstrual cycle, as well as the beginning of vasomotor symptoms may be experienced. These unpredictable symptoms are only challenging and confusing for the patient, but also often poorly understood by both conventional and functional practitioners. This field is currently under significant investigation from a research perspective, and as such, our approach to managing this patient group is ever evolving as we develop new insight into understanding this transitional phase.

Naturopathic traditional medicines and understanding can play a significant role in, managing symptoms and optimising patient outcomes, holistically, while identifying and addressing the hormonal influences, as well as the other non-hormonal influencing factors contributing to the patient presentation.

In this workshop, two highly-experienced clinicians, will guide participants through what they have found to be the most effective traditional and contemporary interventions for the various perimenopause presentations. They will collaborate, compare and contrast their various treatment strategies, drawing on scientific research, traditional knowledge and practice based evidence. The presentation workshop will include considerations regarding supporting patient’s decisions around menopausal hormone therapy (MHT).

Participants will come away with a greater understanding of how to appropriately assess this patient group; confidence in discussing MHT options in a clinical setting, and effective strategies for symptom management.

Clinical impact of antimicrobials on the Microbiome: How clinicians can safely and effectively prescribe without causing further dysbiosis
Brad Leech

Discussion focus: Antimicrobials are frequently used in naturopathic practice; however, the impact they have on the colonic microbiome remains a continued area of research. The current use of antimicrobial herbs in clinical practice is indicated based on pathogen detection through culture, PCR or breath testing. Upon identifying a selected pathogen or overgrowth, clinicians generally prescribe antimicrobials with the aim of eradicating the identified pathogen. The use of advanced microbiome sequencing is required to understand the full impact antimicrobial herbs can have on the whole colonic microbiome. Research using whole-genome metagenomic sequencing has revealed that some antimicrobials alter species within the microbiome to a more dysbiotic state. Through limiting the use of antimicrobials in patients with particular microbiome profiles and supporting the gastrointestinal ecosystem, clinicians may better
Abstracts - commentary

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Black Pepper: An Under-Utilised Therapeutic Agent
Dr Jason Hawrelak

Introduction: Black pepper (Piper nigrum) has been part of the Western materia medica for centuries, but is seldom prescribed by contemporary Western herbalists. Despite its lack of clinical use, black pepper has retained its place at the dinner table of pretty much every home and restaurant in the Western world.

Focus of Discussion: In this session, we’ll briefly review the uses of black pepper in Ayurvedic and Traditional Chinese Medicine and examine how it was used traditionally by Western herbalists in the past. The main active constituents, major actions, indications and contraindications will all be reviewed. Black pepper is most well-known for its adjuvant capacity, where it improves the bioavailability of numerous compounds via a number of mechanisms. Other key actions that will be discussed in depth include as a digestive stimulant, antimicrobial, and neurotranscipient. Critical research examining the varied therapeutic effects of black pepper and its main active constituent piperine will be highlighted and discussed. And some case studies illustrating how it is utilised in the authors’ clinical practice will also be shared. It is important to note, however, that black pepper is at high risk of herb-drug interactions due to its capacity to impact key drug metabolism pathways, such as cytochrome P-450 3A and P-glycoprotein. Thus, it must be used with caution in patients taking pharmaceutical medications. This potential for herb-drug interaction will be examined in depth.

Implications: Black pepper has a number of unique attributes for which it should be utilised more often by Australian practitioners.

Changing the Tumour Microenvironment – New Phytomedicines Strategies
Julianne Grant

Introduction: Cancer is an epidemic; it is the leading cause of death worldwide, accounting for nearly 10 million deaths in 2020, or nearly one in six deaths according to the World Health Organisation. As a reflection of these growing statistics, researchers are fiercely working towards identifying cancer therapies, including investigating the beneficial activities of botanical medicines. Via this research, as well as epidemiology studies and case reports, we can see that certain phytomedicines modulate immune activity within the tumour microenvironment, making it inhospitable to tumour development and growth.

Focus of Discussion: This presentation focuses on the role phytomedicines play in modulating the tumour microenvironment. This discussion entails the specific type of immune environment that is required for a cancer, or tumour, to develop and thrive, how these cancerous cells communicate with our immune system to sway immune activity in their favour, and how this process is crucial to cancer’s survival. Research will be presented that identifies the specific immunomodulation that phytotherapy imparts upon the tumour microenvironment, ultimately slowing the development, growth and spread of cancer. The focus of this discussion will then move towards herbal medicines that have shown promising outcomes within the research and clinical settings.

Implications: As Naturopaths and Herbalists, we will be presented with patients that have been impacted by cancer in some way, either with a cancer diagnosis, a gene susceptibility, or precancerous pathology. Therefore, understanding the role the immune system plays in both cancer development and cancer inhibition (with the aid of phytotherapeutics), is crucial in enabling practitioners to implement efficacious, individualised treatment strategies.

Chronic Kidney Disease in Clinic – Phytomedicines to Address a Silent Epidemic
Kristin Gilmore

Introduction/Background: Chronic kidney disease (CKD) has been recognised as a leading public health problem worldwide and is known as a silent killer, in that many people do not realise they may be in the early stages of CKD as up to 90% of kidney function can be lost before symptoms are evident. CKD is a progressive and largely under-diagnosed condition. This highlights the need for practitioners to have a thorough understanding of the mechanisms involved in development of kidney disorders and a sound knowledge of effective interventions. Furthermore, due to its insidious nature, numerous risk factors, and the rise of other comorbid conditions such as cardiometabolic disease, CKD is likely present in many of our patients, regardless of our niche or clinic speciality. Additionally, medical management of CKD patients is limited, and subsequently herbal medicine practitioners have an exceptional opportunity to make a significant impact on the health of these patients by working to prevent the development and progression of the disease.

Focus of Discussion: This presentation will combine both technical and clinical information to outline the risk factors, development, and clinical assessment and management of CKD.
Naturopaths and Herbalists are extremely well placed to support our patients’ kidney function and this presentation will highlight the efficacy of phytomedicines in this arena, exploring traditional paradigms, relevant research, and clinical examples.

**Implications:** CKD is a common and serious health condition within our community and this presentation will equip practitioners with practical phytomedicine strategies to prevent and manage this increasingly prevalent and difficult to treat disorder.

### Clinical insights into the Herbal management of post-pill acne

**Norelle Hentschel**

Hormonal contraception (either oral contraceptive pills, implants or intrauterine devices) are commonly prescribed to women for contraception, to manage menstrual disorders and treat acne. Cessation (or removal) often leads to the development of rebound or post-pill acne, even in those women with no previous acne history. Post-pill acne can be stubborn and resistant to standard acne treatments.

Our clients are primarily concerned with the forward-facing or cosmetic implications; however, acne is the visible symptom of inflammation and metabolic and hormonal imbalance. Bringing the skin into balance has health benefits that go deeper than the dermis. This presentation will focus on practical clinical insights illustrated with case studies into the use of herbal medicine treatment of post-pill acne.

**Key learnings**
- Understanding why post-pill acne occurs
- Differential diagnosis - it’s not always acne
- Useful tests to help inform treatment priorities
- Constructing a personalised prescription which takes into account different hormonal ages (early adulthood to perimenopausal)
- Tried and tested herbal medicine approaches to restore balance to the skin and body using herbs orally and topically,
- Realistic treatment timeframes
- Holistic prescription considerations- nutritional and lifestyle.

### Conception Through A Queer Lense - Broadening nuclear family constructs, understanding the history or legislative barriers for single & same-sex couples assigned female at birth & how to clinically navigate LGBTQIA+ preconception & perinatal care

**Sage King**

The LGBTQIA+ community & single cis-gender women have been challenging & broadening nuclear family constructs for years, & have faced many legislative barriers around access to assisted reproductive technology (ART) & in-vitro fertilisation (IVF), especially in Victoria. While some practitioners feel confident in addressing preconception care, it is important for them to be aware of other variables within this group. For those undertaking ART & IVF in Australia, we know the majority are seeking support from complementary practitioners, therefore, having a comprehensive understanding in supporting LGBTQIA+ reproduction & how to do this safely is of high value to the naturopathic practitioner & LGBTQIA+ community alike.

It is important for practitioners to be aware of historical & current reproductive legislation to be able to holistically support this patient group. Understanding terminology, gamete variations for conception, impacts of gender affirming hormone therapy, home insemination methods & ART strategies alongside collaboration with fertility specialists allows for confident & most importantly, safe clinical practice & prescribing.

As many individuals within the LGBTQIA+ community have experienced medical trauma, seeking support from complementary health practitioners let alone ART services can be daunting.

Employing clinical assessment & case examples, this presentation will empower practitioners to confidently navigate LGBTQIA+ language to clinically assess & understand reproductive methods & variations while providing a safe environment that equally optimises LGBTQIA+ fertility outcomes as their cisgendered, heterosexual counterparts.

### Having the Conversation About ‘How’ - Patient Centred Prescriptions

**Rachel Arthur**

As integrative health professionals, we pride ourselves on our holistic & individualised approach. We listen deeply, think ‘outside the box’ to make connections in our patients’ health narrative, missed by others, move beyond biology to encompass all elements & influences & put a great deal of effort into the ‘why’ and the ‘what’: this is why you have this health issue and this is what we’re going to do to fix it. At the end of an information & insight heavy consultation, barely squeezed into the allocated time, formulating a prescription can feel like a finish-line of sorts: “Here is the solution – now off you go!” But when we (lovingly) push our patients out the door with a ‘to do list’ perhaps we’ve misunderstood our mission: to meet each patient where they are and facilitate true change. Ideally, we want to communicate to our patients that we’re here to help with the process of change not simply demand or expect it of them. To recognise the importance of the ‘individual in front of us’ beyond the work-up, through to the prescription itself. Patient- centred prescribing recognises and prioritises the patient’s own agency, autonomy and their unique capacity and context for change. By redrawing our attention to these elements of our patient interactions – we give our
patients a voice, a role in the co-creation of their treatment plan, an invitation to engage more deeply and ultimately, the opportunity for better outcomes. But how do we do have a conversation about the ‘how’ when we perceive it all to be about the ‘why’ and the ‘what’

**The Materia Medica of Eros; herbal medicine practice for sexual desire, arousal and pleasure**

**Daniel Robson**

Difficulties with sexual function; which may include low sexual desire or arousal; problems with erections, ejaculation, or orgasm; and sexual pain; will impact around 45% of couple relationships at any point in time. Given that sexual functioning is determined by a complex mix of biological, psychological, social and interpersonal factors, it is likely that as holistic health practitioners, Naturopaths and Herbalists will encounter clients seeking help for these problems.

If we look to our herbal medicine tradition, we can see that problems with sexual function were treated as important, particularly as they were historically seen to be intrinsically connected to difficulties with reproduction. Herbal medicine solutions therefore were highly sought after, and valued by health practitioners and by the general public. Most knowledge of the use of our herbs in this context is situated in traditional use, however a growing body of research helps to provide firmer ground for their use in modern herbal medicine practice.

In this presentation, the historical and contemporary application of herbal “aphrodisiac’s” and their place in herbal medicine practice will be explored. Current understandings of desire, arousal and sexual pleasure will also be discussed. This will provide practitioners with a greater understanding of how Naturopathic and herbal medicine can support sexual health, and contribute to a theoretical framework from which practitioners can work to support their clients experiencing sexual difficulties.

**I Can Only Eat Five Foods – Working with Mothers on Exclusion Diets**

**Dawn Whitten**

Maternal dietary exclusion practices seem to have gained new momentum, perhaps fuelled by the rise of social media support groups. Parents initiate dietary restrictions with the hope of controlling difficult manifestations in infants including, eczema, colic, reflux, night waking etc. Clinicians find themselves in tricky terrain as many of these families are distressed, disillusioned with the healthcare they have received and often strongly holding to the belief around food triggers and the lifeline they have found in the social media forum.

While there are clearly many occasions when some dietary exclusions are warranted, there is also the potential for harm including additional stress, impaired nutrition, and breastfeeding cessation. Parents can become vigilant looking for patterns of association. An additional concern is the potential loss of opportunity for the infant to develop tolerance to potential allergens as current evidence indicates exposure to potential dietary allergens during pregnancy and breastfeeding support the attainment of tolerance.

When working with these families, several areas of focus are of import, including ensuring good medical workup, assessing red flags, breastfeeding, psychological and practical support, and unpacking the story of the potential food sensitivity. Often there is an opportunity to encourage broadening of the diet by exploring the infant presentation in the context of the normal infant physiology and behaviour, as well as considering that some infants will have mild reactivity presentations on the way to becoming tolerant. Further, new insights into the time taken for food proteins to enter and leave breastmilk can help to discourage lengthy exclusions.

**Paternal preconception health and care: Naturopaths supporting males before they have children**

**Tristan Carter**

Preventive health is a cornerstone of Naturopathic practice. Paternal preconception care is a preventive paradigm prioritizing the health roles and responsibilities of males before having a child, optimising pregnancy, and offspring outcomes by addressing diet, lifestyle, and environment while limiting any modifiable risk factors. Indeed, such precautions sustain public health, preserving male health, the health of children and future generations.

A systematic review exploring paternal preconception modifiable risk factors for adverse pregnancy and offspring outcomes. Studies were included if observational, reporting associations of modifiable risk factors in the preconception period among males (e.g., identified as reproductive partners of pregnant women and/or fathers of offspring for the outcomes reported) with adverse pregnancy and offspring outcomes.

36 cohort and three case-control papers were identified, albeit the evidence from this review is limited and heterogeneous. Papers assessed as good quality showed that paternal smoking may increase the risk of birth defects and higher paternal BMI was associated with higher offspring birthweight. Nonetheless, further high-quality research is necessitated for men and couples to prepare for healthy pregnancies and children.

Naturopathic prudence acknowledges paternal preconception health and care in clinical practice, assisting to identify and address men’s preconception modifiable risk factors and/or health behaviours that influence adverse pregnancy outcomes. This research strives to promote and influence paternal preconception bi-directional translational
Pharmacovigilance and the safe use of modern Complementary Medicines in Australia

Antoinette Schulz

Focus of Discussion: Complementary medicines (CMs) have evolved into modern formulations that often contain highly concentrated herbal extracts and novel ingredient combinations, with seemingly endless niche options available for every modern malady. However the composition and physiological effects of highly concentrated herbal extracts remain largely unknown.

Implications: In Australia, the majority of CMs are regulated as low risk/listed medicines available for self-selection and self-administration and consumers perceive them to be safe. Individual ingredients can have certain regulatory restrictions to remain low risk, such as concentration limits and label warnings. However, there are currently no restrictions on ingredient combinations, and very few restrictions on herbal preparation type. As a result, listed medicines can contain herbal extracts and formulations that differ from traditional preparations and use, making it unclear how a prior history of safe use applies to these medicines. As practitioners, reporting adverse events can build our understanding of these Pharmacovigilance is the science and activity related to detecting, assessing, understanding and preventing adverse effects and other medicine-related problems. As the Australian medicines regulator, the Therapeutic Goods Administration’s pharmacovigilance activities include safety monitoring of CMs. Adverse event reporting is critical for pharmacovigilance. Together with other information, such as scientific literature, these data are used to detect and investigate emerging safety concerns. Regulatory actions, including communications for consumers and healthcare professionals, can then be taken to support the safe use of modern CMs.

Important clinical factors to consider when identifying and treating those with prediabetes

Emily Pickering

One third of those with diabetes are undiagnosed, leaving them untreated and at increased risk of complications. Several clinical signs and blood tests are used to screen and diagnose for diabetes; however misdiagnosis still occurs. Prediabetes in particular can be difficult to identify in clients if they do not show obvious symptoms. Blood tests used to screen and diagnose for diabetes can often miss those with prediabetes. Being able to identify those at risk of diabetes and being misdiagnosed is important to naturopaths and other health practitioners in order to reduce the risk of harm that arises from having unmanaged glucose dysregulation. This discussion will give a guide on what to look out for and how to navigate blood test results that may indicate that someone is prediabetic.

Topics discussed include

- Differences in blood sugar levels between normal levels, prediabetic and diabetic
- The difference in the conditions that are considered prediabetes
- Tests used to identify glucose dysregulation, and which are more suitable for picking up prediabetes
- An overview of treatment strategies that is helpful with managing prediabetes.

Implications: The number of people with diabetes continues to escalate every year and is something that all practitioners will likely come across in clinic. Knowing how to identify those at risk of diabetes is crucial to all practitioners.

The missing piece of the puzzle: why not prioritising patient rapport could be holding you back as a clinician

Laura Gale

Have you ever developed what you were sure was the perfect treatment plan, the ideal combination of herbs and nutrients and fabulous diet/lifestyle advice but not seen the outcomes you’d hoped? Building strong rapport, quickly is paramount to clinical success, and yet it is something that not nearly enough practitioners prioritise.

Skills developed as a social worker have been critical in informing my own practice as a naturopath. Working with vulnerable population groups demands a high level of interpersonal skills and the ability to garner trust and respect, quickly. I have found these skills to be highly transferable and advantageous in building clinical relationships with patients.

Although quality evidence is somewhat lacking, research does show that clinical outcomes improve when communication is clear and there is a strong foundational clinician-patient relationship. I will explore this further in my presentation.

The presentation features relevant research, psychological theory, and clinical examples from my own practice.

Implications: This presentation will discuss the importance of rapport and trust in improving clinical outcomes, as well as novel ideas to improve practitioner skills in this area.

Attendees will learn that being a practitioner is much more than having the best treatment plan. We must develop our skills beyond technical knowledge of naturopathic medicine and explore our traditional role as holistic healers.
Stealth viruses associated with chronic fatigue, pain and neurodegenerative symptoms

Amina Eastham-Hillier

Stealth viral infections are often underlying contributions to symptoms of many chronically ill patients especially those with ongoing fatigue, pain and neurodegenerative conditions.

Such obligate pathogens are regularly missed or undetected in general medical testing, leaving patients misdiagnosed, confused or worse still, being told there is nothing wrong with them.

As Amina specializes in chronic illness, she has had to delve deeper into why patients are suffering from debilitating symptoms such as arthritic pain and other autoimmune symptoms.

Upon many investigations and hundreds of cases, it is apparent that many of these patients are dealing with not just bacterial or parasitic infections, but often multiple chronic viral infections such as Epstein Barr, Covid, Cytomegalovirus, Coxsackie, Ross River virus and Herpes.

Implications: These viruses are greatly underestimated and yet are key players in many of these cases. Viral-bacterial interactions result in enhanced pathogenesis in chronically ill patients that will then exacerbate and flare up symptoms with deleterious effects.

In many cases bacterial infections are treated, inadvertently missing stealth viruses, allowing a perfect environment for latent viruses to flare up.

Amina will explain how and why direct interactions of viruses occur when a virus exploits a bacterial component to facilitate penetration into the host cell and the indirect interactions that bacteria use resulting in increased bacterial pathogenesis as a consequence of a viral infection.

Case studies will be shared with some common yet unrecognized viral infections and tips of how to test, diagnose and effectively treat chronic stealth viruses using herbal medicine.

The epigenetic effect of herbs and nutrients to support better patient outcomes for mental health

Carolyn Ledowski

Introduction: Mental health is a growing concern for all ages and many people find little or no effect from traditional medications like SSRI’s. However, understanding the genetic susceptibility of your patient can have significant implications in your treatment approach. Emerging research supports the use of herbs and nutrients to epigenetically affect genes that support neurotransmitters. Although we have traditional uses for herbal medicines, scientific research has particularly flourished in the wake of COVID-19 to open up a new prescribing based on an epigenetic approach.

Focus of Discussion: This presentation will show you how to identify which neurotransmitters may be at issue and what genes may impact this. Most antidepressants support serotonin synthesis, but many patients with long standing depression suffer from dopamine deficiency (affected by the COMT, catechol-o- methyltransferase activity) and therefore SSRI’s are ineffective at improving mood. Environmental factors like LPS, infection and inflammation also affect mood by depleting tryptophan levels and depleting serotonin. Nutrients and herbs can support the underlying biochemistry by upregulating or downregulating enzymes required to support the patient while you address the underlying cause.

Implications: With mental health becoming a growing concern for all ages, it’s important that we can identify strategies to support patients who may not be benefiting from traditional antidepressants or who may not want to use them.

2. Evidence-based naturopathy

Medicinal cannabis improves sleep in adults with insomnia: a randomized placebo-controlled cross-over study

Karin Ried, T Tamanna, S Matthews, A Sali

Insomnia or difficulty falling or staying asleep is experienced by up to 30% of the general population. Medicinal-cannabis has shown promise to improve sleep-quality, sleep-duration, and associated quality-of-life. In this randomized cross-over double-blind placebo-controlled 6-week trial we assessed the tolerability and effectiveness of the Entoura-10:15 medicinal-cannabis-oil on sleep in adults with insomnia.

Methods Between May-2020 and May-2021 a total of 29 participants with self-reported clinical-insomnia completed the cross-over trial. Participants were randomly allocated to receive placebo or active-oil containing 10mg/ml-THC and 15mg/ml-CBD over 2-weeks titrated from 0.2ml to a maximum of 1.5ml/day. The first intervention phase was followed by a 1-week wash-out period before a cross-over period of 2-weeks. Tolerability and titration were assessed by daily diary. Effectiveness was assessed by saliva midnight-melatonin-levels, questionnaires including the Insomnia-Severity-Index, and the Fitbit-activity-sleep-wrist-tracker.

Results Entoura-10:15 medicinal-cannabis-oil was generally well tolerated, and was effective in improving sleep, melatonin levels, and quality-of-life. Midnight-melatonin-levels significantly improved in the active group by 30% compared to the placebo group (-20%) (p=0.035). Medicinal-cannabis reduced the severity of insomnia...
significantly, whereby 60% of participants no longer classified as clinical insomniacs at the end of the 2-week intervention period. Light sleep increased by 21-minutes per-night (p=0.041), and quality-of-sleep improved overall by up to 80% in the active group (phase2: p=0.003), resulting in higher satisfaction and daily functioning in the active group (p=0.032). Observed effects were more pronounced in period-2 due to period-effect and loss-of-binding.

Conclusions Entoura-10:15 medicinal-cannabis-oil was well tolerated and effective in improving sleep in adults with insomnia.

Exploring current challenges and strategies in the management, diagnosis and care for Recurrent Vulvovaginal Candidiasis (RVVC)
Moira Bradfield-Strydom, R.L. Walpola, S. McMillan, R. Ware, S. Khan, E. Tiralongo.

Recurrent vulvovaginal candidiasis (RVVC) is experienced by up to 10% of pre-menopausal women globally, yet there is limited research exploring the management experience and perspectives of women living with this challenging condition. Current long-term pharmaceutical/maintenance treatments for RVVC are not particularly effective with post-treatment relapse rates as high as 57%. A recent narrative review by our team identified a wide variety of treatment strategies in Australasian RVVC prescribing resources and guidelines. Prior Australian practitioner surveys identified a multitude of RVVC management protocols in use.

Methods Semi-structured interviews with ten Australian women experiencing RVVC were conducted between April–July 2021 and qualitative interpretative phenomenological analysis (IPA) was conducted.

Results IPA revealed four key themes that highlighted an uncertain journey living with RVVC. The themes showed difficulties and delay in obtaining a diagnosis, healthcare professional knowledge limitations and their impact on management and support and the overall significant emotional and psycho-social repercussions of RVVC. The interviews included patients who received long-term maintenance therapy for RVVC and those who accessed complementary medicine and holistic support.

Conclusion RVVC management plans should consider awareness of RVVC as a chronic condition with timely diagnosis effective therapy options and support. Timely referral to mental health and well-being support services is also required. Findings from the research informed clinical trial design of an intravaginal preparation, as well as an interkingdom microbiome investigation of RVVC patients. Through this research, we aim to provide recommendations to help address gaps in management and explore new treatment interventions.

Evaluation of home-based naturopathic telehealth clinic: an innovative COVID-19 pandemic response
Tracelee Shew

Introduction/Background: The COVID-19 pandemic and ensuing public health orders restricting access to physical clinics, created an opportunity to pilot home-based student-led Telehealth clinic for Bachelor of Health Science (Naturopathy). This pilot study is valuable as it is the first to evaluate the learning and teaching experiences of students and educators.

Method: This small pilot study evaluated 21 participants consisting of 9 students and 12 educators. Students and educators participated in a virtual clinic from a home office location. Students consulted with general-public clients under supervision as per usual student-led clinical practice.

Participants completed a survey consisting of Likert responses to interaction with the Telehealth clinic. Thematic analysis of written qualitative responses identified feedback on the learning and teaching experience.

Discussion: The Telehealth learning experience, as rated by students was ‘very good’ (78%) or ‘good’ (22%). Educators rated the teaching experience as ‘very good’ (67%) or ‘good’ (33%). Thematic analysis of written responses identified the following learning and teaching advantages: increased client diversity, peer learning, collaboration and feedback. Improved digital skills were also reported. Both students and educators reported challenges with virtual physical exam and technology infrastructure.

Outcomes/Implications: The home-based Telehealth clinic is an example of health education evolving to keep up with the challenges of the COVID-19 pandemic. Students affected by the pandemic need to emerge as adaptive thinkers with sound technology literacy and new skills to suit a changed practice landscape. This research is important as it evaluates a unique clinical learning environment developed as a reasonable clinic adaptation during the COVID-19 pandemic.

Efficacy of Actaea racemosa for Relieving Climacteric Complaints a literature review
Sophie Friend, A Moore and I Breakspear

Up to 80% of women suffering from menopausal climacteric complaints use complementary and alternative medicine, and studies have suggested that black cohosh is a promising intervention. However, the applicability of the evidence needs to be assessed in relation to the quality of reporting of the clinical trials.
Methods: A literature search was conducted to find applicable randomised controlled trials (RCT’s) examining the efficacy of Actaea racemosa for menopausal women with climacteric complaints. Included studies were assessed for their quality based on adherence to the Consolidated Standards of Reporting Trials (CONSORT) extensions for herbal interventions, and for reporting adverse events (Harms).

Discussion: Checklists based on the CONSORT Extensions for Herbal Interventions and for Harms were utilised to develop an adherence score for each included paper. Percentage adherence scores were adjusted to ensure that checklist items which were not relevant for specific papers did not result in artificially low scores. Each paper was independently graded by two of the authors and results were then compared to ensure consistency.

Outcomes/Implications: The results of a number of RCT’s suggests that Actaea racemosa may have a beneficial effect on reducing climacteric complaints. Unfortunately, some of the published RCT’s did not have a high adherence score for the CONSORT extensions for Herbal Interventions and for Harms. A common theme observed was the inadequate reporting of herbal product information. This suggests that the quality of reporting of future RCT’s for Actaea racemosa needs to be improved to ensure a robust evidence base.

Plasma and interstitial levels of endocannabinoids and N-acylethanolamines in patients with chronic widespread pain and fibromyalgia

Inna Kurleyandchick

The endocannabinoid system (ECS) is an essential endogenous signaling system that may be involved in the pathophysiology of chronic widespread pain (CWP) and fibromyalgia syndrome (FMS). Further research is required to understand the role of ECS in the development and maintenance of CWP and FMS.

We provided the first systematic review and meta-analysis exploring the clinical relevance of ECS alterations in patients with CWP and FMS by comparing plasma and interstitial levels of endocannabinoids and N-acylethanolamines in patients and healthy controls. A systematic search was conducted to identify studies that measured plasma and/or interstitial levels of endocannabinoids and N-acylethanolamines in patients with CWP or FMS and healthy controls.

RESULTS: A total of 8 studies were included for qualitative review and 7 studies were included for meta-analysis. The findings identified increased plasma levels of oleoylethanolamide and stearoylethanolamide in FMS patients compared with controls (P = 0.005 and P = 0.001, respectively), and increased plasma levels of palmitoylethanolamide and interstitial levels of stearoylethanolamide in CWP patients compared with controls (P = 0.05 and P = 0.001, respectively). There were no significant differences in other ECS parameters.

DISCUSSION/CONCLUSION: Most studies did not account for variables that may influence ECS function, including cannabis use, concomitant medication, comorbidities, physical activity, stress levels, circadian rhythm, sleep quality, and dietary factors, suggesting that future studies should explore the correlation between these variables and endocannabinoid activity. We highlight the importance of investigating endocannabinoid activity in CWP and FMS because it will underpin future translational research in the area.

Exploring the use, safety and efficacy of complementary medicines (CMs) for the management of Eosinophilic Oesophagitis in adults – Findings from an international cross-sectional survey and focus groups of CM practitioners in Australia.

Nicole Hannan

Introduction/Background: Eosinophilic oesophagitis (EoE) is a rare antigen-driven gastrointestinal disorder with limited conventional management options. This may lead some people with EoE to seek other treatments, such as complementary medicine (CM). Studies examining the acceptability and effectiveness of CM for EoE are lacking.

Methods: To explore the biomedical and CM management of EoE in adults, and to investigate patient and CM practitioner beliefs and attitudes regarding these treatments, an international cross-sectional survey of adults diagnosed with EoE in Australia, New Zealand, the United States, Canada and the United Kingdom was conducted in 2022. Focus groups involving CM practitioners in Australia were conducted (July – August 2022).

Results: A total of 485 survey responses were received. The survey spanned five domains: socio-demographics; health service and treatment utilisation; perceived efficacy and safety of treatments; views and attitudes towards CM use; and preferences regarding future clinical trial interventions and designs. Six CM practitioners in Australia participated in focus groups. All participants prioritised the reduction of EoE-related oesophageal inflammation and pain, and expressed concerns over the lack of CM specific research, evidence and treatment guidelines for the clinical management of EoE. Data from the survey and focus groups are currently undergoing further analysis.

Discussion/Conclusions: CM is frequently used for the management of EoE among adults despite the paucity of clinical studies examining its effectiveness and safety in this population. CM practitioners in Australia require additional research to identify safe, effective and acceptable CM treatment options, and to inform CM specific treatment guidelines.
Women Taking a Folic Acid Supplement in Countries with Mandatory Food Fortification Programs May Be Exceeding the Upper Tolerable Limit of Folic Acid: A Systematic Review
Carolyn Ledowski

Introduction: In preconception and pregnancy, women are encouraged to take folic acid based supplements over and above food intake. The upper tolerable limit of folic acid is 1000 mcg per day; however, this level was determined to avoid masking a vitamin B12 deficiency and not based on folic acid bioavailability and metabolism. This review's aim is to assess the total all-source intake of folate in women of childbearing age and in pregnancy in high-income countries with folate food fortification programs

Methods: A systematic search was conducted in five databases to find studies published since 1998 that reported folate and folic acid intake in countries with a mandatory fortification policy

Results: Women of childbearing age do not receive sufficient folate intake from food sources alone even when consuming fortified food products; however, almost all women taking a folic acid-based supplement exceed the upper tolerable limit of folic acid intake.

Conclusion: Folic acid supplement recommendations and the upper tolerable limit of 1000 mcg set by policy makers warrant careful review in light of potential adverse effects of exceeding the upper tolerable limit on folic acid absorption and metabolism, and subsequent impacts on women’s health during their childbearing years.

Forest Bathing: A critical review grounded in science, tradition, and practice.
Greg Connolly and G Pavlovic

Background Naturopathy recognises the crucial role that the natural world plays in healing. However, living in an industrialised world reduces peoples time spent in natural environments. Previous studies indicate that this exacerbates stress and has higher risks to health. Covid-19 lockdowns have amplified these concerns. Yet not much is known regarding the level of evidence for the benefits of being immersed in nature.

Methods This critical review used keywords related to forest bathing, nature, and measures for physiological and psychological stress. Databases used to search for relevant literature included PubMed, EBSCOhost, and Scopus, and Google Scholar.

Results Nine RCT studies were selected, four of which lacked controls. The nine studies included a variety of physiological and psychological stress measures when participants were exposed to forest bathing. All studies reported statistically significant results.

Potential effect modifiers include forest immersion duration, environmental variations of forest types and seasons, intervention structure, and methodological differences including study type, presence or absence of control groups, allocation methods, and sample size.

Discussion The evidence for the benefits of forest bathing is positive but moderate due heterogeneity in study designs, outcome measures, and intervention characteristics. Comparing impacts of seasonal differences among forested locations, level of immersion among forest experiences, and optimal dosing of nature-exposure for specific health outcomes are recommended for future research. Forest bathing can be recommended as a logical, cost-effective approach to preventative healthcare consistent with naturopathic philosophy and with reasonably supportive evidence.

Healing collectively with naturopathic group consultations: results from the Naturopathic Medicine for Endometriosis (NatME) pilot program
Sophia Gerontakis

Background Group visits (also known as shared medical appointments [SMAs], group medical visits [GMVs] or integrative medicine group visits [IMGVs]), are patient-centred models of care whereby a group of patients consult with one or more healthcare providers in a concurrent session. Group visits are an effective medical and integrative model of care to mitigate barriers to accessing healthcare amongst varying populations and improve health outcomes through incorporating connection, peer support and education into medical consultations. Their use in the context of naturopathic consultations however, hasn’t been widely examined despite high service utilisation of naturopathy amongst people with chronic conditions. The group visit model may be suitable for naturopaths seeking to improve service accessibility and patient outcomes.

Methods A suite of research was undertaken to design a new naturopathic group visit program collaboratively with end-users. Initially, a focus group study was undertaken to design and develop a group naturopathic intervention for people with endometriosis collegially with patients and practitioners. The resulting program, entitled Naturopathic Medicine for Endometriosis (NatME): Encompassing Clinical Care, Education and Peer Support aims to meet unmet healthcare needs and address barriers to access commonly found with a 1:1 consultation model.

Results: The program consisting of six group visits across 12 weeks was pilot tested in a clinical trial in varying locations from April to August 2022. Four naturopaths and 27 patient participants were included in the trial. *Data analysis in progress*

Discussion: This session will showcase the results of this clinical trial including clinical outcomes, and feasibility
of the naturopathic group consultation program which shows potential to be adapted to other populations and health conditions. The session will also provide insights into program design practicalities and challenges and successes of delivering group-based naturopathy services.

Integrating Telehealth into Clinical Placements during the COVID-19 pandemic: A survey of student & educator experience

Catherine Smith

Introduction: The COVID-19 pandemic and ensuing public health “stay at home” orders, disrupted student-led clinic and led to the development of an innovative home-based student-led Telehealth pilot clinic in 2020. The pilot clinic was assessed via survey to evaluate student and educator learning and teaching experience. Following updates to the Telehealth digital platform, this second evaluation of Telehealth clinic will add to previous findings. The aim of this research is to evaluate student and educator perceived value of Telehealth in student-led clinical practice and evaluate workforce ready Telehealth skills.

Methods: A survey assessed Likert and qualitative written responses to student and educator interaction with the Trimester 3, 2021 Telehealth clinic delivered at multiple centres in Melbourne, Sydney and Brisbane. The survey evaluated various Traditional & Complementary Medicine modalities including Naturopathy, Western Herbal Medicine, Clinical Nutrition and Chinese Medicine.

Results: 84% of respondents rated Telehealth as a valuable clinical learning experience. 69% encountered barriers, such as technical difficulties and 73% encountered enablers to Telehealth such as increased diversity of clients. Regarding the evaluation of workforce-ready skills; students rated their ability to perform various consultation and treatment tasks with an overall positive rating for all parameters except physical examination. 69% of respondents supported the use of Telehealth in student clinic.

Discussion/Conclusion: Telehealth is a practice innovation that has evolved rapidly during the COVID-19 pandemic. Research on Telehealth in student-led clinic is important to determine the value of Telehealth as a permanent contemporary clinical practice skill, and to evaluate workforce ready Telehealth skills.

Kyolic Aged Garlic Extract improves arterial stiffness and aerobic fitness in middle-aged recreational endurance athletes

Karin Ried, Y Paye, A Sali

Arterial stiffness is a cardiovascular risk factor, which increases naturally with age. Kyolic garlic has been shown to reduce arterial stiffness, while normalising blood pressure, cholesterol, and blood stickiness. We hypothesised that increased flexibility of arteries will lead to slower blood flow, increased oxygen uptake, and aerobic fitness.


Methods Thirty-seven middle-aged recreational endurance athletes were randomly allocated to either aged-garlic-extract (1.2g AGE-powder/1.2mg S-allylcysteine) or placebo for 12 weeks.

Arterial stiffness was assessed by pulse-wave-velocity (PWV), and aerobic-fitness by Volume-maximal-Oxygen-Consumption (VO2_max), lactate-threshold, and muscle-fatigue, during high-intensity-exercise using a cycle-ergometer-test-station at 12 weeks compared to baseline.

Results The garlic group significantly improved their aerobic fitness, evident by increased oxygen-uptake (VO2_max, p=0.04), more power (p=0.04), and higher lactate-threshold-to-power-output (p=0.005) than the placebo-group.

Pulse-Wave-Velocity, a measure for arterial-flexibility, tended to improve more in the garlic-group compared to placebo. The proteomics analysis found that cardiovascular-damaging peptides decreased in the garlic-group, while they had increased in the placebo-group at 12 weeks compared to baseline.

Conclusion Our first-in-human study suggests Kyolic-aged-garlic-extract to improve aerobic-fitness, lactate-threshold, arterial-stiffness, and other cardiovascular factors in middle-aged endurance-athletes.

The next phase of the trial will investigate a dose-response of Kyolic-garlic on aerobic-fitness.

Naturopathic practitioners approach to people ith CVD risk factors

Joanna Harnett

Background: Naturopathic practitioners (NPs) in the United States (US) and Australia are consulted for the prevention and management of chronic conditions, including cardiovascular disease (CVD). How NPs approach the management of CVD risk factors and if these approaches are different between countries is not well understood. The aim of this study was to explore US and Australian NPs approach to the care of people with CVD risk factors.

Materials and methods: Australian and US NPs were recruited via professional representative organisations. A survey was developed containing four domains; naturopathic approaches to the clinical management of CVD risk factors, communication and sharing of information; professional-client relationship factors; and demographic information.
Preconception care knowledge and practice of naturopaths and other health professionals in Australia

Cherie Caut

Background: There are significant translation gaps between the growing evidence to support the need for preconception care and the knowledge and practice of health professionals.

Methods: Naturopaths and other health professionals in current clinical practice in Australia were recruited through NHAA, CMA, RACGP and ACM. Participants completed an online survey to share their awareness of modifiable preconception risks and health behaviours, their perspectives, and experiences regarding information-seeking for preconception health information, and their perceptions regarding the ideal delivery of preconception care services. Data analysed using descriptive and inferential statistics.

The survey was completed by 378 practitioners (GPs, 32.8%; midwives, 26.7%; naturopaths, 40.5%). 77.3% (n=299) of participants reported providing services for adult women and 55.0% (n=213) to adult men. Participants reported a range of preconception areas as being within their scope of practice with health behaviours (e.g., nutrition, physical activity, supplements) most common (65.6%) and history of trauma or violence least common (16.0%). Partner health was reported by 24.5%.

They reported prenatal supplementation as the most common area needing to be addressed (33.0%) ‘most of the time’. Participants reported a range of barriers and enablers to delivering preconception care, and their preconception health literacy was measured by a newly validated instrument.

Conclusion: The findings of this research provide a clearer picture of the knowledge, skills and capacity of those health professionals most likely to be accessed by couples planning a pregnancy.

Safety and efficacy of Withania compared with St John’s wort for the treatment of stress and anxiety; an integrative review of the literature

Robert Provino

INTRODUCTION/BACKGROUND: To compare the safety and efficacy of Withania somnifera (Withania) and Hypericum perforatum (St John’s wort, SJW) in the treatment of stress and anxiety in order to inform clinical practice. Human clinical trials have shown Withania to be safe and efficacious when treating stress and anxiety, and the over-the-counter availability of SJW raises safety concerns, especially in persons with psychopathological risks.

METHODS: Integrative review methodology was followed. Four databases (CINAHL, AMED, ProQuest and MEDLINE) were searched to obtain peer-reviewed journal articles examining Withania or SJW for the treatment of anxiety and/or stress.

Searches to identify herb-drug reactions (HDRs) and adverse drug reactions (ADRs) associated with the use of these herbs in the treatment of anxiety and stress were also performed. Human studies, written in English, published between 2010 and 2020 were included. In vitro, animal and paediatric studies were excluded. Studies were screened by title, abstract and full text and assessed against the aims of the review.

RESULTS: After duplicates were removed, 781 studies were screened by title and abstract, leaving 64 to be screened by full text. Sixteen studies met the inclusion criteria. Studies showed Withania to be a safe and effective treatment for anxiety and stress. No HDRs were identified for Withania, and reported ADRs were infrequent and mild. Key safety issues with SJW include an increased risk of psychosis in susceptible individuals, multiple known HDRs, and a higher incidence of ADRs.

DISCUSSION/CONCLUSION: Withania is a safe and effective treatment for stress and anxiety and has a superior safety profile to SJW. Given the high rates of self-prescription, and the possibilities of ADRs and HDRs identified with SJW, healthcare practitioners should enquire about SJW use with all patients.

The Efficacy of Vitex Agnus-Castus (VAC) Extract in the Treatment of Mild to Moderate PMS.

Amy Sartorel, G Connolly & A Moore

Research Question: In female patients experiencing mild to moderate PMS, does Vitex agnus-castus extract (VAC) reduce bothersome somatic and psychological symptoms when compared to placebo, and other nutraceutical/herbal therapies?

Introduction: PMS causes somatic and psychological symptoms in the luteal phase of the menstrual cycle, and...
 Tradition as a living system: A framework to bridge traditional knowledge with contemporary needs

Hope Foley

Traditional knowledge is integral to herbal and naturopathic medicine, providing valuable empirical evidence. However, current interpretations of evidence-based practice often focus narrowly on evidence from clinical trials, neglecting the inclusion of traditional knowledge. Traditional medicine systems also adapt over time to changing circumstances, affecting how traditional knowledge is used, developed and shared. These factors create a need for resources to support appropriate translation of traditional knowledge to contemporary health settings.

Methods This project developed a framework to support practitioners and other stakeholders when utilising traditional knowledge as evidence. Three study phases involved: 1) review of studies reporting contemporary use of traditional knowledge, 2) forum of stakeholders from contexts relevant to traditional and complementary medicine, exploring traditional knowledge implementation, 3) Delphi study of international experts to refine framework content.

Results The framework addresses three components integral to the implementation of traditional knowledge: guiding principles for contemporary use, criteria for critical appraisal of traditional sources, and criteria to guide application in contemporary contexts. Each section can be independently utilised and tailored to the needs of specific contexts (e.g., clinical practice, education, research, policy-development).

Discussion/Conclusion Developing the framework collaboratively with practitioners and other potential end-users produced a resource directly responsive to the evolving needs of traditional and complementary medicine stakeholders, including herbalists and naturopaths. The framework may connect traditional and evidence-based practice by supporting critical integration of traditional knowledge that is appropriate to contemporary needs, while preserving the integrity of traditional medicine systems and underlying philosophies.

The use of Trigonella foenum-graecum seed extract for glucose management in those with prediabetes: Results from a randomised placebo-controlled clinical trial.

Emily Pickering

Introduction: Trigonella foenum-graecum is a well-known herbal medicine for type 2 diabetes, however clinical trials evaluating its effectiveness in those with prediabetes have not previously been conducted. This is important as there may be differences in efficacy between those with type 2 diabetes and prediabetes. This clinical trial aimed to
evaluate the efficacy of a *T. foenum-graceum* extract in those with prediabetes.

**Methods:** In a double-blind randomised clinical trial 54 participants with prediabetes received either 500mg of *T. foenum-graceum* seed extract or placebo twice daily for 12 weeks. Fasting blood glucose (FBG), post-prandial glucose (PPBG), HbA1c, fasting insulin (FI), post-prandial insulin (PPI) and C-peptide were assessed at baseline, week 6 and week 12. Safety markers were also measured.

**Discussion:** After 12 weeks, those taking the *T. foenum-graceum* seed extract had significant reduction in most glucose measurements, but not all. There was no change in safety markers and the treatment was well tolerated.

**Outcomes/Implications:** The results of this study indicate that *T. foenum-graceum* may influence blood glucose metabolism and may be helpful as a tool in managing elevated glucose levels in those with prediabetes. This research has also identified that *T. foenum-graceum* may provide differing results in those with prediabetes to those with type 2 diabetes and should be made aware to practitioners.

### Whole-system naturopathy for improved pregnancy rates in women with diminished ovarian reserve: mixed methods using a Delphi study and a randomised controlled trial

**Alison Maunder, S Arentz, M Armour, M Costello, C Ee**

**Background** Diminished ovarian reserve (DOR), affects about 10% of women seeking medical treatment for infertility. Many women consult a naturopath which may offer benefits, however, evidence is mostly based on anecdotal reports. This trial assessed the feasibility of evaluating whole-system naturopathy in a randomised control trial.

**Method** Women with DOR trying to conceive were randomly assigned to naturopathy plus usual care or usual care alone for 16 weeks. Naturopathy was defined through a consensus by 12 practicing naturopaths. Primary outcomes were recruitment, completion and acceptability. Secondary clinical outcomes included pregnancy rates and lifestyle changes (mental health, QOL, diet, exercise, sleep, weight).

**Results** A total of 41 participants participated in the RCT between March and November 2022. Data analyses will commence in December 2022. Preliminary results suggest that evaluation of naturopathic practice through a RCT was acceptable to women with DOR because recruitment exceeded requirements. Analyses of clinical outcomes will commence in December 2022 and will be available for presentation at the NHAA symposium in May 2023.

**Implications** Outcomes from this study will guide clinical practice decisions and inform the sample size calculations needed for a fully powered RCT.

### Environment and sustainability

**Multiple human placebo-controlled trials and independent mechanism of action research confirms herbal medicine traditional use for bladder control and urinary disorders.**

**Tracey Seipel**

**Introduction** The emerging health category, urinary and bladder control, is the fifth-fastest growing US dietary supplement category. Current research is proving the effectiveness of Western herbal medicine, Traditional Chinese Medicine and Ayurveda to treat common urinary disorders.

**Methods** Three human randomised, double-blind, placebo-controlled trials in men, women and children, using Urox® combination of *Crataeva magna/nurvala, Equisetum arvense* and *Lindera strychnifolia/aggregata* assessed effectiveness in reducing urinary symptoms of urgency, incontinence, overactive bladder, bedwetting and nocturia. Participants took either Urox® or colour-matched placebo for 8 weeks with interviews at baseline, 2-weeks, 4-weeks, 8-weeks. Placebo-controlled mechanism-of-action research assessed mode-of-action of Urox® in rats with retinyl-acetate-induced overactive bladder.

**Results** Urox® showed 80-90% effectiveness in reducing adult overactive bladder, incontinence, urgency, nocturia and other urinary problems with 75% users reducing incontinence pad usage to nil or 1 per day as precautionary use. Urox® resulted in 62% children, 6-14 years, reducing bedwetting at 8 weeks. Quality-of-life improvements were significant. Mechanism-of-action research further shows resolution of all cystometric and biochemical parameters tested.

**Discussions/Conclusion** Urinary education, beyond renal disease, prostate and UTI, is lacking. Incontinence significantly impacts quality of life for the 50% of over 50 year-olds affected, and is a leading cause for elderly nursing care admittance. Current pharmaceuticals have intolerable side effects including permanent memory loss. Most manage with incontinence pads/padded underwear, the third highest non-biodegradable landfill issue with adult landfill at 4-10 times infant nappies.

Twenty years of research shows Urox® promotes environmental health and is effective for improved bladder control and quality-of-life, supported by third party MOA research.

**How ‘natural’ can naturopathy be in a globalised world impacted by climate change**

**Jamie Friend**

**Introduction:** Approximately 70-95% of people in developing countries rely on natural medicine as primary health care, and over 25% of prescribed medicines in developing countries are derived from plants. However,
due to excessive, unsustainable, and unskilled harvesting, coupled with climate change, some of these plants are facing extinction.

Discussion: Through case studies focused on specific medicinal plant species, the impact of global industrialism, climate change, and unsustainable agricultural and collection practices will be explored. The subsequent reduction in the quality of herbal materials is intimately connected with these issues of herbal sustainability, and directly impacts both efficacy and safety, with numerous examples of adulteration causing harm in the end user.

Outcomes/Oimplications: A vast majority of earth's population relies on medicinal plants for primary healthcare. The impacts of climate change on plant phenology and chemistry, coupled with unethical and unsustainable overharvesting has put the future of herbal medicine at risk. To address these issues, cultivation and conservation strategies need to be implemented locally, whilst globalised standards must be enforced to ensure transparent manufacturing and quality protocols are followed. Recommendations will be made for better regulation and standards of practice to ensure the longevity of plant species and quality herbal medicine worldwide.

Naturopathy and Herbalism in disaster management: A qualitative study of Naturopaths’ and Herbalists’ experience of the 2022 Northern New South Wales and Southeast Queensland flood events

Isabel Halse

Background: Natural disasters are expected to become more frequent and extreme due to climate change. These changes will have profound short-term and long-term health impacts.

Practitioners of Naturopathy and Western Herbal Medicine provide patient-centred holistic healthcare that may help mitigate the health impacts of disasters.

Methods: This descriptive qualitative study was conducted using semi-structured interviews to explore the experiences of thirteen Naturopaths/Herbalists following the 2022 Northern New South Wales and Southeast Queensland flood events.

Results: The community aspect of the flood response and recovery was a key motivator for participants to provide healthcare. Participants’ felt their holistic and biopsychosocial approach to health was suited to the healthcare needs that presented after the floods as it was able to address the social determinants of health. Despite diverse and varying levels of experience, participants were able to adapt their practice to meet the needs of affected communities. Participants reported difficulties and inefficiencies with requesting donations from product suppliers, and the public, and emphasised the need for the development of a disaster protocol to guide the safe and effective provision of disaster care.

Conclusion: The results highlight the potential role of Naturopaths and Herbalists in disaster care, and their unique and holistic contribution to the healthcare demands and needs of the community in disaster response and recovery. The development of a disaster protocol is an important next step in this work as it will help better prepare and equip the professions to respond to future disasters and could help to prevent overlap and confusion around donation requests.

Thriving in the face of forever chemicals

Wendy McLean

Per- and poly-fluoroalkyl substances, known as PFAS, are a class of man-made chemicals that encompasses more than 9,000 different compounds. At a molecular level, PFAS are composed of incredibly strong chains of bonded fluorine and carbon atoms, allowing them to repel oil and water. Those properties have made them an integral part of many industrial applications and consumer products in recent decades, such as stain and water repellents, Teflon non-stick pans, paints, cleaners, personal care products, and food packaging.

Decades of high-volume production of PFAS, coupled with the environmental persistence of these chemicals, have led to widespread PFAS contamination of soil, water and air and bioaccumulation across entire ecological food chains. Moreover, PFAS chemicals do not disintegrate in the environment or in the human body. Instead, they accumulate in our surroundings and in our blood, kidneys, and liver, leading to the nickname "forever chemicals". PFAS are endocrine disruptors and are associated with a plethora of health issues, including reduced immunity, autoimmunity, increased cholesterol and/or risk of obesity, developmental delays and effects in children, reproductive issues, early menopause, impaired kidney function, and increased cancer risk.

Patients presenting with a broad range of metabolic, immune or neurological disturbances will benefit from a clinical environmental chemical risk assessment. PFAS and other disrupting chemicals can significantly impact many aspects of health. There are currently no known treatments to accelerate the clearance of PFAS from the body, and minimising exposure is the best way to reduce adverse health risks. However, a thorough clinical environmental chemical risk assessment is the first step, followed by education about minimising exposure. Herbal and nutritional interventions to support detoxification are also beneficial, such as curcumin, epigallocatechin gallate (EGCG) and silymarin. Supporting the gut microbiome is also critical; therefore, high-fibre diets can support microbiome health and PFAS clearance.
4. Approaches to building evidence

Keynote
The Impact of Science on Herbal Medicine
Sue Evans and Joanna Harnett

The practice of medicine involves making clinical decisions in the face of uncertainty, which creates a need for scientific evidence to determine probability. However, traditional medicinal practices such as naturopathy are often criticized for their lack of scientific evidence. While efforts have been made to systematically evaluate traditional medicine practices, ongoing scientific inquiry is still necessary. Sole reliance on scientific evidence for traditional herbal medicines undermines historic knowledge and contributions to communities. As custodians of naturopathic practice, it is important to navigate the interface between science, tradition, and practice with wisdom and respect for evidence-based medicine and naturopathic philosophy.

The modernization of herbal medicine has resulted in an increased understanding of how herbs work and how they can be applied. Evidence-based medicine and phytochemistry have become essential in herbal education and clinical practice, but the emphasis on these areas has come at the expense of neglecting the social sciences, humanities, and ecology. History and philosophy are essential to address ethical questions raised by the use of medicinal plants, and to promote a holistic understanding of health for both individuals and the planet. While science is the basis of western medicine, moving beyond its disciplines will be necessary to realize the potential contributions of herbalists and naturopaths to healing.

Workshop
The Trials & Tribulations of Designing and Running Collaborative Clinical Trials
Ian Breakspear and Matthew Leach

Introduction/Background: Clinical trials form an important part of the evidence base of herbal and naturopathic medicine, along with other types of research and traditional evidence. However, setting up and running them can be challenging, and may be why many clinical trials of herbal interventions do not involve herbalists and naturopaths. However, the lack of involvement of practitioners can be problematic, impacting the validity and applicability of the trial results to clinical practice.

Workshop Topic: Using the ongoing ESOLED trial as a case study (which emerged from a collaboration between a researcher and practitioner), this workshop will take attendees through some of the steps of collaborative clinical trial design and management. The facilitators will describe some key obstacles and solutions, and engage the audience in an open discussion to share ideas and promote best practice.

Learning Objectives: Describe the relevance and value of clinical trials to the totality of evidence for herbal and naturopathic medicine.

Nurture open discussion amongst novice and experienced researchers to share common problems, and discuss solutions.

Facilitate the involvement of herbal and naturopathic practitioners in clinical trial design and administration.

Implications: Collaboration between researchers and clinicians, and the sharing of experiences, are instrumental in optimising the quality, relevance, translatability and implementation of research findings to herbal and naturopathic practice. Attendees of this workshop will take away key lessons from the experiences of the facilitators and other researchers, and apply these to their own situation in order to improve practitioner engagement in the design and management of clinical trials.

Workshop
AJHNM mentor program: opportunities for mutual learning, expansion of networks and other benefits for participants
Susan Arentz, Dawn Whitten, Joanna Harnett, Monique Evans and Ian Breakspear

Background Have you ever enthusiastically dispensed the latest supplements recommended at an industry-sponsored health conference, only to find the results were not quite as stunning as claimed? We’ve all been there. Our naturopathic medicines are arguably the most marketed in the world, glossy and over-sold by anybody and everyone. It’s not easy to find real clinical pearls, reliable remedies with predictable effectiveness, nearly every time. How do you find them?

Referring to published research is one of the most tried and tested, reliable approaches. Used in all types of evidence-based practice, research published in scientific journals is the bedrock of clinical practice guidelines. Articles written by practitioners are valuable as they report relevant clinical insights. However, writing academically can be a challenge, as the emphasis is on objectivity and transparency rather than ‘yes! It is effective.’ The MACA (mentor an author in exchange for co-authorship) provides support for authors to develop their manuscripts and clarify messages in an emotionally safe, professional interaction, before peer review and publication. Clinicians published articles inform the profession and can elevate standing when authors apply for scholarships and enrolment in higher degrees.

Topic This workshop will describe the mentorship program of the AJHNM. Attendees will be invited to share the barriers and motivators to publishing their own clinical pearls of wisdom.

Learning-objectives Practical solutions may support connections between naturopaths who would like to publish articles in scientific journals and MACA mentors.
Implications Increased publication of naturopathic research, substantiation of the evidence-base and support of evidence-based, naturopathic practice.

Developing a Naturopathic Medicine Clinical reasoning framework through qualitative exploration of naturopathic clinical practice and philosophy

Manisha Thakkar, M Leach, A Bugarcic, R Lauche

Introduction: Clinical reasoning (CR) processes can vary depending on disciplinary background and experience. Several discipline specific theories and models have been proposed to assist the development of CR skills in the fields of medicine and nursing. While the clinical decision-making process of Naturopathic Medicine (NM) practitioners has been explored, and frameworks guiding development of such thinking within naturopathic clinical practice and education have also been proposed, a framework that specifically guides development of CR underpinned by NM practice and philosophy has not been developed.

Method: A qualitative descriptive study was conducted to capture the cognitive, intuitive, and analytical aspects of the CR process of NM practitioners. Semi-structured interviews of 15 Novice and 16 expert NM practitioners were conducted to obtain a full recount of their CR processes within their clinical practice. Through content analysis the categories and core categories were identified, and relationships between these categories were translated to identify key facets of NM clinical reasoning.

Results: A novel NM-CR framework is designed based on the identified key facets of NM clinical reasoning. This framework will be presented at the conference to the Naturopathic practitioner community.

Discussion: The developed NM-CR framework is dynamic and inclusive of the whole clinical reasoning process of NM practitioners and NM philosophy. This framework will support novice Naturopathic Medicine practitioners in making timely and safe clinical decisions to facilitate improvements in patient outcomes. Potentially, NM-CR framework could influence the curriculum of naturopathy programs as well as future professional development opportunities.

Clinically relevant urinary tract infection biofilm models for testing herbal medicine efficacy

Cathrina Gelard

Introduction: Treatment of biofilm-associated UTI infections is difficult because biofilms are not easily accessible and resistant to host defences and conventional antimicrobials. In vitro biofilm models enable testing of novel antimicrobials, but biofilms formed in many in vitro systems often do not resemble those in humans, limiting clinical translation. As such, development of in vitro models suited for specific purpose is an important undertaking.

Here, we describe development of 2 in vitro models that will be used for screening novel antimicrobials.

Methods: 96-well plate-based and flow-cell biofilm systems have been utilised to grow single and mixed-species biofilms (3 uropathogens). The 96-well plate allows high throughput screening of antimicrobials with biofilms grown on abiotic (plastic) surfaces. We have also developed a clinically-relevant in vitro model using flow cell methodology.

Results: Single-species and mixed-species biofilm in a simple 96-well in vitro assay as well as single species biofilm in a flow-cell model have been successfully developed. Dual- species biofilm containing E. coli and E. faecalis were not successfully developed even after range of conditions were explored.

Discussion/conclusion: In vitro models have contributed considerably to understanding of biofilm biology as well as enabling high-throughput testing of novel antimicrobials in simple, cost-effective ways. However, they often rely on abiotic surfaces for growth which do not represent cell layers utilised by bacteria in vivo. As such, for this study we have developed biofilms for both high-throughput analysis (abiotic surface) and clinical relevance (biotic model utilising bladder cells) to evaluate UTI herbal medicines used in traditional medicine.

New frontier in the antimicrobial world? A review of whole plant extracts with anti-biofilm activity

Cathrina Gelard

Introduction: Biofilms are responsible for 65% of microbial infections in humans. Their results in resistance to host defences and antimicrobial agents – both phenotypes having quorum sensing (QS) as underlying molecular mechanisms. Due to the prominent points of biofilms implicated in infectious disease, and the spread of antimicrobial resistance, new antimicrobial agents that can regulate biofilm formation and development are needed. Medicinal plants are likely to hold at least part of the answer. In recent decades, antibiofilm and quorum sensing inhibition (QSI) approaches have been developed. Evidence suggests plant extracts can have stronger bioactivity than individual isolated phyto compounds, so the aim of this review is to summarise antibiofilm plant extracts, and their known mechanisms in biofilm formation and QS.

Methods: A narrative review was conducted by identifying keywords, searching scientific databases, reviewing abstracts and articles, and documenting the results.

Results: ~200 herbal medicine extracts showed antibiofilm and QSI activity. Investigations were predominately against biofilm formation prevention. Rarely were mature biofilms targeted. Target bacteria were frequently wound, oral and lung pathogens, and Candida albicans the only fungi. QSI studies were almost exclusively against Pseudomonas aeruginosa.
**Abstracts - research methods**

**Discussion/conclusion:** Plant extracts showed promising preclinical data for antibiofilm activity. Regulatory mechanisms included inhibition of biofilm formation via decreasing cell hydrophobicity, adhesins or matrix formation; via QSI reducing QS gene expression or inhibiting QS receptors. Plant extracts are promising candidates which could provide novel strategies for biofilm-associated infections. Future investigations should target a wider variety of pathogens, prioritise mature biofilms, and include mechanism of actions studies.

**Naturopathic management of clinical complexity**

*Kim Graham*

**Introduction:** Naturopathy is founded upon a traditional holistic philosophy, which predates the reductionist contemporary scientific paradigm. Reductionism is a pervasive scientific precept, and the whole systems approach of naturopathy falls outside of its scope. The recent emergence of complexity science provides a congruent framework from which to develop our knowledge of naturopathy using contemporary scientific research methods and terminology.

**Methods:** A mixed methods sequential explanatory design was utilised to explore naturopathic practice and its management of clinical complexity. A novel complexity science informed research design was developed, and this was implemented as a pilot and then large-scale study to analyse naturopathic case studies employing exploratory data analysis and computational network analysis. Focus group participants provided their understanding of the findings from these studies.

**Results:** Multiple network mappings were created from combining case schematics. Naturopathic practitioners utilised a systems approach to conceptualise and manage their cases. Case assessment included multiple elements and their inter-relationships across the integrated physiology and external context. Each patient was encountered as a whole unique entity. Contemporary bioscience knowledge was incorporated into a systems worldview, and a flexible approach to clinical reasoning was demonstrated. A distinct naturopathic clinical approach was observed.

**Conclusion:** Naturopathic practice contains distinct elements and processes, incorporating traditional elements and liminal science. This research demonstrates that complexity science principles and strategies provide a contemporary scientific framework which can be utilised to further the analysis and understanding of traditional whole systems of medicine such as naturopathy.

**Pre-clinical research – friend or foe of naturopathy?**

*Andrea Bugarcic*

Pre-clinical research or biomedical research uses cellular (mammalian and bacterial) models to drill down to very specific molecular events that can lead to disease or specific cellular phenotype manifestation or even interaction between something foreign (e.g. drug or bacteria) and specific molecule(s). Pre-clinical research has many tools in its trade – from structural to interaction to functional analyses – all with a major goal of understanding structure-function link at a molecular level. The approach taken by pre-clinical research can be viewed as reductionist – looking at events on one-to-one basis – which creates an opposition to the holistic naturopathic clinical practice and (multi)herbal preparations. So, does pre-clinical research have a place in naturopathic research? If so, how?

At National Centre for Naturopathic Medicine at Southern Cross University we have taken a more pragmatic approach to pre-clinical research in an attempt to bring it more in-line to traditional knowledge and contemporary clinical practice. This presentation will outline our approach to studying herbal medicine and nutraceuticals using complex pre-clinical models that align to clinical practice that can be used to study synergy, understand mode of action as well as use this knowledge to develop more targeted delivery approaches. We believe that adopting an approach of combining tradition and contemporary practice with multi-layered, complex pre-clinical models will deliver more focused and clinically-relevant research that will support future clinical studies and practice.

**Standardising patient data collection for a publishable case series**

*Vanessa Vigar*

Natural medicine practitioners often develop clinical protocols providing fantastic results in treating individuals for a specific condition or symptom. The same treatment may have been applied to a large group of patients over time, but can the practitioner assess how effective those results really are at a group level? Or compare them meaningfully to other treatment methods for that condition?

Our research has shown that the way practitioners collect patient data is not always systematic with inconsistent or mismatched data points between patient files. This does not allow for objective comparison of treatment response between patients treated in a similar way.

The purpose of this presentation is to demonstrate how standardising data collection in clinic can enable quantitative analysis of results across a group of patients treated in a similar way for the same condition. Being able to really assess the effect of treatments at this level is a form of reflective practice that has a two-fold outcome of benefit for the practitioner. Firstly, it aids development of a highly specialised treatment model built around unbiased evaluation of real-world clinical outcomes. Secondly, these methods can enhance practitioners research skills and may lead to publication of results in the form of a case series. This enables dissemination of quality real-world outcomes into the wider natural medicine practitioner community.

The importance of standardised data collection forms and validated assessment tools will be highlighted, with a worked example of case series data collection.
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Reviews of health journal articles

Dr Wendy McLean

These abstracts are brief summaries of articles in recent issues of medical journals. Articles selected are of a general nature for the information of practitioners of naturopathy and herbal medicine. A dominant theme is often present throughout the journals which will be reflected in the reviews.

Coenzyme Q10 as an adjunct treatment for painful diabetic neuropathy

Painful diabetic neuropathy (PDN) is one of the debilitating consequences of diabetes that affects one-third of diabetic patients. Mitochondrial dysfunction and subsequent oxidative and inflammatory responses are thought to play a role in its development and progression. Glycaemic control and other pharmacological agents are routinely used for the symptomatic management of PDN. However, symptomatic treatments of PDN are often partially effective and have poor tolerability. Therefore, research is targeting new therapies that can target the underlying mechanisms involved in PDN.

Coenzyme Q10 (CoQ10) is an essential component of the mitochondrial electron transport chain. It also has significant antioxidant and anti-inflammatory properties and may have beneficial effects on glucose control. In addition, CoQ10 has shown antinociceptive and analgesic effects in PDN in experimental studies. However, there are conflicting data on the efficacy of CoQ10 in treating PDN from human clinical trials.

This randomised, double-blind, placebo-controlled clinical recruited outpatients from a university diabetes clinic in Iran. Participants were 18–75 years with a confirmed diagnosis of PDN at least 6 months before the trial and taking stable doses of oral antidiabetic medications and/or insulin for at least 30 days. Exclusion criteria included the presence of foot ulcers, peripheral arterial disease, neuropathy of other origins, use of any medication for PDN treatment, or any nutritional supplements with antioxidant and anti-inflammatory properties within the last 3 months. In total, 112 patients were recruited into the study and randomly allocated to receive CoQ10 + pregabalin (57 patients) or placebo + pregabalin (55 patients). Besides pregabalin (150mg/day), the patients received CoQ10 at a dosage of 100mg every 8 hours or matched placebo for 8 weeks.

The primary outcome measure was the change in the pain intensity from baseline to endpoint measured on an 11-point NRS (numeric rating scale). Secondary outcome measures included the changes in the pain-associated sleep interference score (SIS) and the patients’ global improvement with treatment measured on the Clinicians’ and Patients’ Global Impression of Change (CGIC/PGIC). Outcome measures were assessed at baseline, weeks 4 and 8.

Of the 112 patients who were recruited, 51 participants in the intervention group and 50 participants in the control group completed the study. The average age of patients was 59.2 years, and the duration of diabetes and PDN was 13 years and 36 months, respectively. There were no differences in the baseline characteristics between groups. CoQ10 + pregabalin resulted in significantly greater pain relief (NRS score reduction) than the placebo + pregabalin at week 4 and week 8. At the end of week 8, the decrease in mean average SIS scores was greater in the CoQ10 + pregabalin group than in the placebo + pregabalin group. The proportion of the responder patients (those having ≥50% decline in the mean pain NRS score), as well as the proportion of patients rated “very much” or “much improved” on the CGIC/PGIC scales, were also significantly higher in the CoQ10 + pregabalin-treated patients than placebo + pregabalin-treated patients. There were no significant differences between the patients who received CoQ10 + pregabalin compared with placebo + pregabalin in the overall incidence of adverse events.

The study demonstrates that CoQ10 as an adjunct therapy to pregabalin might help improve pain intensity and pain-associated sleep interference in diabetic patients suffering from PDN in the short term. However, future studies are required to determine long-term effects, optimal dosage, and whether the beneficial effects of CoQ10 supplementation are maintained or lost after its discontinuation.

Kiwifruit consumption improves constipation

Functional gastrointestinal disorders (FGID), now termed disorders of gut-brain interaction, have significant economic effects on healthcare systems and adversely affect the quality of life. FGID include, among others, functional constipation (FC) and irritable bowel syndrome with predominant constipation (IBS-C). Patients with FGID may have multiple symptoms, including abdominal bloating and pain. Only around 20% of people with constipation seek medical care, and among those who do, there is a high rate of dissatisfaction with pharmaceutical treatments.
Evidence suggests that consuming specific foods like kiwifruit may improve laxation and GI symptoms. The fibre found in kiwifruit cell walls swells and holds water, which can soften stools and increase stool frequency. However, while several studies have demonstrated that kiwifruit (Actinidia chinensis var. delicosa “Hayward”) can improve GI symptoms, these studies have typically been single-centred, with relatively small cohorts.

The current study was a multicentre, crossover, randomised control trial undertaken in three countries (New Zealand, Australia and Japan). Eligible participants were adults aged between 18–65, with a body mass index (BMI) of 18–35kg/m². Exclusion criteria included other significant GI disorders or chronic diseases, pregnant and breastfeeding women, and kiwifruit allergy. Participants included healthy controls (n=63), patients with functional constipation (FC, n=60), and patients with constipation-predominant irritable bowel syndrome (IBS-C, n=61) randomly assigned to consume two green kiwifruits or psyllium (7.5g) per day for 4 weeks, followed by a 4-week washout, and then the other treatment for 4 weeks. Psyllium is considered a first-line treatment for both the constipation conditions with which participants were diagnosed. The fibre content of psyllium is similar to that of kiwifruit. The primary outcome was the number of complete spontaneous bowel movements (CSBM) per week. Secondary outcomes included GI comfort, measured using the GI symptom rating scale (GSRS).

Consumption of green kiwifruit was associated with a clinically relevant increase of ≥1.5 CSBM per week in the FC, IBS-C, and combined FC + IBS groups. With psyllium consumption, only the IBS-C group achieved an increase of ≥1.5 CSBM per week. The increase in CSBM was more significant with kiwifruit consumption than psyllium consumption in the combined FC and IBS-C group. Compared to baseline, daily consumption of two green kiwifruits significantly reduced overall GI symptoms in all groups. Consumption of psyllium was only associated with a significant reduction in GI symptoms in the IBS-C group. Compared with psyllium, kiwifruit consumption significantly reduced overall GI symptoms in the FC and FC + IBS-C groups. Kiwifruit consumption was associated with significantly better outcomes than psyllium for abdominal pain, stool consistency and straining. Only mild adverse events were reported.

The methodological strengths of the current study were the multicentre design across three countries and with culturally diverse populations. The limitation was the non-assessment of dietary components which may have confounded the outcomes. Regardless of this limitation, the results indicate that kiwifruit is as effective as psyllium for CSBM in people with IBS-C and superior for people with FC. Two green kiwifruits per day was a well-tolerated dietary treatment for the relief of constipation and associated improvement in GI comfort.

**Probiotic Lactobacillus paracasei in hypercholesterolemia**


Hypercholesterolemia is a key factor in the progression of atherosclerosis and cardiovascular disease (CVD). Several food supplements have emerged as potentially effective for improving hypercholesterolemia, lipidaemia, lowering low-density lipoprotein-cholesterol (LDL-C) levels, and preventing CVD. Among these, probiotics may affect hypercholesterolemia by influencing cholesterol biosynthesis. In addition, various strains of Lactobacillus paracasei have been shown to have a potential effect in reducing cholesterol levels and preventing atherosclerosis. However, these studies have not assessed cholesterol-lowering effects together with possible anti-atherosclerosis effects. The current study aimed to investigate the effects of L. paracasei TISTR 2593 on lipid profile, cholesterol metabolism and atherosclerosis in hypercholesterolemic subjects.

The randomised, double-blind, placebo-controlled clinical trial included 50 participants aged 30–65 years with mild to moderate hypercholesterolaemia. Exclusion criteria included a previous cardiovascular event, secondary dyslipidaemia, and use of cholesterol- and triglyceride-lowering medication. Participants were randomly and equally assigned to consume L. paracasei TISTR 2593 (1.05×10¹⁰CFU/g) or a placebo in maltodextrin capsules daily for 3 months. Blood was collected to determine a lipid profile consisting of serum levels of total cholesterol (TC), triglyceride (TG), LDL-C, high-density lipoprotein-cholesterol (HDL-C), and fasting blood glucose (FBG) at baseline and days 45 and 90. In addition, oxidative stress markers, inflammatory markers, and other biological indicators, including total bile acid (TBA), adiponectin, apolipoprotein E (APOE), and monocyte chemoattractant protein-1 (MCP-1) were evaluated at days 0, 45 and 90.

A total of 42 participants completed the study. There were no differences in baseline characteristics between groups. The results showed that daily consumption of L. paracasei significantly reduced LDL-C at days 45 and 90 compared to baseline. In addition, a significant reduction was found in the serum level of LDL-C compared to the placebo group. However, TC, TG and HDL-C showed no significant differences when compared within and between groups. The oxidate stress marker, malondialdehyde (MDA), was significantly reduced at days 45 and 90 in the L. paracasei compared to baseline. The inflammatory marker interleukin-6 was significantly lower than baseline in the L. paracasei group.

Additionally, a significant difference in the reduction in MDA and tumour necrosis factor (TNF)-α was found.
compared to the placebo group. Plasma apolipoprotein E (APOE) levels were significantly increased in participants with *L. paracasei* supplementation, but there was no significant change in the placebo group. This finding is important, as APOE plays a central role in the clearance of VLDL and LDL in plasma.

There are some limitations to the study. Changes in the gut microbiota community profiles in faeces, which is an essential indicator to confirm the colonisation of the probiotic *L. paracasei* TISTR 2593, were not analysed. Additionally, confounders such as diet, lifestyle and physical activity were not assessed. Nevertheless, the results suggest that *L. paracasei* TISTR 2593 could be an adjuvant probiotic supplement to help manage LDL-C levels and potentially delay the development of atherosclerosis. However, the underlying cholesterol-lowering mechanisms, such as the connection with the gut microbiome, need to be assessed in future studies.

**Vitamin D and depression – umbrella meta-analysis**


Depression is a complex and debilitating disease that affects more than 300 million people globally. In the wake of the COVID-19 pandemic, studies indicate a significant increase in the number of people reporting depressive symptoms. Although medications and psychological therapy can effectively treat depression, non-compliance with and/or side effects of antidepressants are common. Identifying alternative or adjunctive treatments to prevent or treat depression may help to overcome some limitations of current management strategies.

Nutritional components such as vitamin D may play an important role in mental health. Vitamin D has numerous functions in the brain, such as neuroprotection, neuroplasticity and brain development. It influences the production of serotonin and dopamine, important regulators of brain function, and has a neuroprotective role in the brain through its effects on inflammation. Low circulating vitamin D (25(OH)D) levels have been linked to depression in cross-sectional studies. Vitamin D may have beneficial effects for depressive disorders; however, meta-analyses of interventional and observational studies investigating the efficacy and the relationship between vitamin D and depression have provided inconsistent results. Therefore, the present umbrella meta-analysis was conducted to assess whether vitamin D supplementation or higher serum vitamin D levels had a protective role against depression.

A literature search was undertaken using Embase, Scopus, Web of Science, Cochrane Central Library, PubMed scientific databases, and Google Scholar for relevant papers published up to March 2022. Meta-analyses of randomised control trials (RCTs) and observational studies (cohort and cross-sectional) that investigated the effect of vitamin D supplementation on depression symptoms were eligible for inclusion. A random-effects model was carried out to calculate the pooled point estimates and their respective 95% confidence intervals (CI).

A total of 14 meta-analyses were eligible for inclusion. An umbrella meta-analysis of ten meta-analyses of RCTs (n=24,510) revealed a significant reduction in depression symptoms comparing participants on vitamin D supplements to those on placebo. Based on sub-group analyses, vitamin D supplementation in studies using a dosage of >5000 IU/day and intervention duration of ≤20 weeks exhibited stronger effects in lowering symptoms of depression. An umbrella meta-analysis of four meta-analyses of cohort studies (n=38,327) revealed that participants with lower levels of serum vitamin D were at increased odds of depression than those with higher levels of serum vitamin D. Subgroup analysis showed that the inverse association between lower serum vitamin D levels and depression was stronger among participants aged ≤50 years.

There are several study limitations, including a lack of baseline serum vitamin D data in some studies, the inclusion of populations with different types of depression, and a lack of consideration of environmental factors such as sunlight, altitude, or diet on serum 25(OH)D status. Despite these limitations, the study confirms the potential benefits of vitamin D supplementation in reducing symptoms of depression and an inverse relationship between higher serum levels of vitamin D and overall depression.

**Probiotic (Bacillus subtilis) for Staphylococcus aureus decolonisation**


*Staphylococcus aureus* is a common bacterium living on the skin or nose. *S. aureus* does not typically cause infection; however, if it is allowed to enter the internal tissues or bloodstream, these bacteria can cause several serious and fatal infections. Because *S. aureus* infections usually originate from asymptomatic colonisation, decolonisation strategies targeting the nose are used. However, these are met with limited success due to the recolonisation of *S. aureus* from the intestines. In addition, treatment is complicated by widespread antibiotic resistance, such as in methicillin-resistant *S. aureus* (MRSA).

Probiotics may be a way to complement or replace antibiotics. *Bacillus subtilis* is especially promising because it is administered orally as spores that germinate in the intestines. *B. subtilis* has been shown to inhibit intestinal colonisation of *S. aureus* in animal studies. The current
study aimed to assess the efficacy of *B. subtilis* (strain MB40) at reducing intestinal and nasal colonisation in healthy individuals colonised with *S. aureus*.

The single-centre, phase 2, double-blind, randomised, placebo-controlled trial included 115 adults colonised by *S. aureus*. Participants were colonised with *S. aureus* in the intestine (n=84), nose (n=50) or both (n=19). Eligible participants were adults (aged ≥18 years) without a history of intestinal disease, antibiotic treatment, or hospital admission within the previous 90 days. Exclusion criteria included pregnant and breastfeeding women, taking probiotics, or having diarrhoea. Participants were randomised to receive either *B. subtilis* (250mg capsule, 10×10^9 cfu) (n=55) or placebo (n=60) for 30 days. The primary outcome was colonisation by *S. aureus* in the intestine (by faecal counts) and nares (by nasal swabs) after the intervention. Secondary outcomes were intestinal and nasal colonisation by *B. subtilis* after intervention and characterisation of the intestinal microbiome.

Oral probiotic *B. subtilis* for 30 days significantly reduced *S. aureus* in the stool (96.8%) and nose (65.4%). The reduction of colonisation in the *B. subtilis* group was significant compared to the placebo group. In addition, there was a significant reduction of nasal and stool CFUs when separately analysing individuals who only had colonies in the nose or intestines. *B. subtilis* was detected in the stool samples of the treatment group at the end of the intervention and was absent in the placebo group. There were no differences in adverse effects or significant microbiome changes between the intervention and placebo groups.

The results suggest that oral *B. subtilis* administration can safely and effectively reduce the total number of *S. aureus* colonies in humans. Furthermore, *B. subtilis* did not affect the gut microbiome, which is an advantage over existing treatment strategies such as antibiotics. Using *B. subtilis* as a decolonisation strategy could be of great value in settings with frequent *S. aureus* infections, such as nursing homes, long-term care hospitals, or surgical wards. Future ethical research is required to confirm these findings and assess clinical applications.

**L-arginine plus vitamin C improves endothelial function and long COVID symptoms**


Long COVID (also known as post-acute COVID-19 syndrome) is a multisystemic condition comprising often severe symptoms that follow a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Long COVID encompasses a constellation of respiratory, cardiovascular, gastrointestinal and neurological signs and symptoms. In addition, it is associated with reduced physical function. Recent evidence suggests that oxidative stress and endothelial dysfunction play critical roles in the pathophysiology of COVID-19 and long COVID.

L-arginine is a semi-essential amino acid that has antiviral and immunomodulatory effects and improves the biosynthesis of nitric oxide (NO) in endothelial cells. Accumulating evidence indicates that L-arginine metabolism is altered in patients with COVID-19, and several studies have shown that L-arginine supplementation can improve symptoms in both acute infection and long COVID. To further explore the benefits of L-arginine outcomes for long COVID, the current study assessed the effects of L-arginine plus vitamin C on physical performance, muscle strength, endothelial function, fatigue persistence, and systemic L-arginine bioavailability in adults with long COVID.

The study was a single-centre, single-blind, placebo-controlled clinical trial that included adults aged between 20–60 years with persistent fatigue attending a post-acute COVID-19 outpatient clinic. Inclusion criteria included previous confirmed SARS-CoV-2 infection, a negative COVID-19 swab test at least 4 weeks before the start of the trial, a long COVID diagnosis based on World Health Organization guidelines, and persistent fatigue. Exclusion criteria included pregnant and breastfeeding women, chronic disease, and use of medications (antihypertensive drugs, steroids, non-steroidal anti-inflammatory drugs, immunosuppressants, nitrates). Participants were randomised to receive twice-daily orally either a combination of 1.66g L-arginine plus 500mg liposomal vitamin C or a placebo for 28 days. The primary outcome was the distance walked on the 6-minute walk test. Secondary outcomes were handgrip strength, flow-mediated dilation and fatigue persistence.

A total of 46 participants (median age 51; 65% women) completed the trial. At 28 days, serum L-arginine concentrations increased more in the participants who received L-arginine plus vitamin C supplementation and were comparable to those controls with no previous SARS-CoV-2 infection. At 28 days, L-arginine plus vitamin C increased the 6-minute walk distance and produced a greater improvement in handgrip strength compared to the placebo. At baseline, more than 60% of participants had low handgrip. At day 28, 57% of participants in the treatment group had handgrip strength values above the 25th percentile of age- and sex-specific reference values, compared with 30% in the placebo group. Flow-mediated dilation was greater in participants who received L-arginine plus vitamin C (14.3%) compared with the placebo (9.4%). At 28 days, fatigue was reported by two participants in the active group (8.7%) and 21 in the placebo group (80.1%). L-arginine plus vitamin C supplementation was safe and well tolerated, and no adverse events were reported.

Limitations of the study include the small sample size and the single-centre nature. The preliminary study
results, however, suggest that L-arginine plus vitamin C can improve endothelial function, relieve persistent symptoms and restore physical function in people with long COVID. Further trials with larger populations, conducted in multiple centres and using different study methodologies (e.g., longer intervention, crossover design) are warranted to confirm these preliminary findings.

**Antioxidants in depression and anxiety: a meta-analysis**


The brain is more vulnerable to oxidative stress (OS) because of its higher oxygen consumption, lipid content, and weaker antioxidative defence. Oxidative stress is a primary cause of neurodegeneration, and persistent oxidative stress may have a role in developing depression and other psychiatric illnesses. Therefore, targeting oxidative stress with suitable antioxidants could be an effective strategy for improving depression and anxiety symptoms. The current study assessed the effects of different antioxidant supplements on depression and anxiety.

The databases PubMed, Medline, Scopus and Web of Science were searched for eligible randomised control trials (RCTs) until February 2022. RCTs that compared antioxidant intervention against control and reported depression scores before and after the intervention were eligible for inclusion. The meta-analysis compared depression scores between groups that received antioxidant supplements and controls. Anxiety status was assessed as a secondary outcome.

The meta-analysis included 52 studies with 4049 participants. Interventions included zinc, magnesium, selenium, CoQ10, tea and coffee, crocin, resveratrol, carotenoids, anthocyanins and combination antioxidant supplements. Treatment durations ranged from 2 weeks to 2 years; the median was 11 weeks. All trials assessed the depressive status of the subjects, and 21 studies (40.4%) reported the anxiety status. Multiple depression scales were used. The evidence was considered moderate to high quality using the Jada scale.

Meta-analysis of RCTs of individual antioxidants showed that zinc, magnesium, selenium, CoQ10, tea and coffee, and crocin significantly improved depressive symptoms. In addition, a complex of antioxidants significantly improved depressive status. Meta-analysis of 21 studies showed a statistically significant improvement in anxiety after taking antioxidant supplements. Due to the wide variety of current rating scales for depression and anxiety, there was significant heterogeneity. However, the positive effect of antioxidant supplementation on depression remained significant after sensitivity analysis.

While the current study suggests that antioxidant and dietary supplements may improve depression and anxiety, further research is required. Additional data from large clinical trials are needed to confirm the efficacy and safety of antioxidant supplements in improving depressive status. In addition, studies are required to assess mechanisms of action, optimal dosage including duration and the best delivery method.

**References**


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Reviews of articles on medicinal herbs

Dr Wendy McLean

These abstracts are brief summaries of articles which have appeared in recent issues of herbal medicine journals, some of which may be held in the NHAA library.

**Phytochemicals for hypertriglyceridemia – systematic review**


Hypertriglyceridemia (HTG) is a significant factor contributing to metabolic syndrome and other cardiometabolic conditions. There are two primary sources for plasma triglycerides (TG), exogenous (i.e., dietary fats) and endogenous (secreted by the liver). Genetic causes of TG are classified as primary HTG, and diet, obesity and type 2 diabetes mellitus (TD2M) contribute to secondary HTG. Statins and TG-lowering medications are used for HTG but are associated with side effects. Research is now targeting natural compounds, known as phytochemicals, that have TG-lowering effects. The current systematic review aimed to evaluate the efficacy of phytochemicals on lipid parameters in patients with HTG.

A comprehensive search was performed in PubMed/Medline, Scopus, ISI Web of Science and Google Scholar from inception up to October 2021 to find randomised controlled trials (RCTs) assessing the effects of phytochemicals on lipid profiles in patients with HTG. Studies that used non-phytochemical supplements or included medications in the control group were excluded. A total of 48 RCTs, including 53 arms and 3,478 HTG patients aged 18-70 years, met the eligibility criteria. Studies included a range of populations, such as obese and overweight patients, non-alcoholic fatty liver (NAFLD) patients, post-menopausal women, people with diabetes, and patients with metabolic syndrome. A total of 15 of the 48 studies used curcumin.

Phytochemicals significantly lowered TG levels in 32 out of 53 arms. Phytochemicals also reduced total cholesterol in 22 out of 51, low-density lipoprotein cholesterol in 21 out of 48, very low-density lipoprotein cholesterol in 1 out of 5, apolipoprotein B in 2 out of 4, and lipoprotein(a) levels in 2 out of 4 arms. High-density lipoprotein cholesterol was increased by phytochemical supplementation in 15 out of 48 arms. In 14 of 48 studies, phytochemical supplementation had no adverse effects on patients. Some gastrointestinal effects were noted in studies using curcumin or berberine.

The current systematic review has some limitations, including clinical heterogeneity from diverse phytochemicals and small geographic scope and methodological heterogeneity such as inconsistent outcome reporting of lipid parameters. While the results are promising, more studies using phytochemicals, particularly high bioavailable forms, are needed to assess the effects in patients with HTG.

**Resveratrol plus myoinositol compared to metformin plus pioglitazone for polycystic ovary syndrome**


Polycystic ovarian syndrome (PCOS) is a complex endocrine (hormonal) and metabolic disorder. It is a leading cause of fertility problems and affects up to 20% of women. Women experience irregular periods, difficulty maintaining weight, insulin resistance, skin problems (acne or unwanted hair growth), and polycystic ovaries. Several different approaches have been proposed to alleviate PCOS symptoms. Supplementation with natural molecules such as inositol and resveratrol may contribute to overcoming PCOS features, including reduced bodyweight, menstrual regularity, ovarian volume, presence of immature oocytes, hyperandrogenism, oxidative stress and inflammation and improved insulin resistance.

The study was a double-blind, randomised, control trial performed on 110 obese, oligo-amenorrhoic women with PCOS aged 20–35 years. Exclusion criteria included hormone replacement therapy, diabetes or other chronic diseases. Participants were randomly assigned to one of two treatment arms. Participants in arm-1 (n=55) received a combination of metformin and pioglitazone (500mg and 15mg, respectively) twice daily, while those in arm-2 (n=55) received a combination of resveratrol and myoinositol (1000mg and 1000mg, respectively) twice daily for 12 weeks. Outcome measures included anthropometry, menstrual regularity, hirsutism (Ferrimen-Galleway score (FG)), ovarian volume, number of immature follicles, serum levels of testosterone, luteinising hormone (LH), follicle-stimulating hormone (FSH), adiponectin and insulin, and perceived stress scale (PSS) scores assessed at baseline and week 12.
Baseline characteristics were similar between groups. Women in both groups had elevated serum testosterone and insulin concentrations, low serum adiponectin and high perceived stress response scores. The combination of resveratrol and myoinositol significantly reduced the weight, BMI, waist-hip ratio, and systolic and diastolic blood pressure compared to the metformin and pioglitazone group. Over the 12 weeks, resveratrol plus myoinositol treatment reduced the endocrine indices of PCOS, compared to metformin plus pioglitazone, including a statistically significant reduction in serum testosterone level and a notably increased serum adiponectin level. There was a significant decrease in insulin levels in women taking metformin and pioglitazone, while no statistically significant difference over time was observed for resveratrol plus myoinositol. Hormone profiles, including LH and FSH levels were decreased for women taking resveratrol plus myoinositol compared to metformin plus pioglitazone, as was ovarian volume (p=0.001). The FG score evaluating hirsutism for the nine different areas of the body was significantly reduced for resveratrol plus myoinositol compared to metformin plus pioglitazone. The PSS scores of the arm-2 subjects also improved significantly. All participants in both arms had irregular menstrual cycles before the onset of treatment. After 12 weeks of intervention, 84.1% of women taking resveratrol plus myoinositol had regular cycles, and only 18.2% of participants taking metformin and pioglitazone had menstrual regularity.

The results demonstrate that resveratrol plus myoinositol compared to metformin plus pioglitazone is more effective for improved anthropometry, menstrual regularity, hirsutism, reproductive endocrine indices and stress burden in obese women with oligo-amenorrheic PCOS. This study contributes to the emerging evidence of the effectiveness of inositol, myoinositol and resveratrol compared to usual care pharmaceuticals in obese women with PCOS, who often prefer natural treatment options.

**Green tea extract and overweight and obese post-menopausal women**


Weight gain and increased abdominal fat are common during the menopausal transition. These shifts are associated with changes in sex hormones and other hormones, including adiponectin, which increases the risk of developing metabolic disorders.

Plant derivatives such as flavonoids and polyphenols may have therapeutic benefits for menopausal women in combination with low-calorie diets and exercise. For example, green tea, which is obtained from the fresh leaves of the tropical plant *Camellia sinensis*, is rich in polyphenols, especially catechin, epicatechin gallate, epigallocatechin 3-gallate and epigallocatechin that have hypolipidemic, thermogenic, antioxidant and anti-inflammatory activities. Research demonstrates that these polyphenols have therapeutic benefits for a range of metabolic disorders.

This double-blind, placebo, randomised control trial evaluated the effects of a 60-day dietary supplementation with green tea leaf extract on adipose tissue dysfunction in overweight or Class I obese post-menopausal, sedentary women. Women without a history of cardiovascular disease, liver, renal or thyroid disease who were not taking oral hypoglycaemic agents and statins were eligible for inclusion. A total of 28 women, with a mean age of 59 years, were randomised to receive either a green tea supplement with lecithin delivery (150mg) or a placebo twice daily. Primary endpoints were the respiratory quotient (RQ), the percentage of carbohydrates (%CHO), the percentage of fat oxidation (%FAT), and the resting energy expenditure (REE) measured by indirect calorimetry. Secondary endpoints included body composition by dual x-ray absorptiometry (DXA), glucose profile, lipid profile, inflammatory state, liver and kidney function, hormonal status regarding satiety, and status of catecholamines. Assessments were undertaken at baseline and on days 30 and 60.

The baseline characteristics were comparable between groups. The study results show that 60 days of supplementation with the green tea extract significantly improved RQ, % fat oxidation, insulin, Homeostasis Model Assessment (HOMA) index, waist circumference, REE and CRP. There was also a statistically significant increase in adiponectin and the adiponectin/leptin ratio of the green tea extract. The change in adiponectin is significant because this hormone is an adipocyte-derived hormone believed to sensitize insulin, improving the energy metabolism of tissues and protecting against excessive hepatic lipid accumulation.

The strength of this study is the use of a lecithin delivery formulated with a highly standardised caffeine-free green tea extract that enhances oral absorption of epigallocatechin-3-O-gallate (EGCG). The results demonstrate that a 60-day supplementation with a green tea extract ameliorates adipose tissue dysfunction in overweight and obese post-menopausal women. However, further studies with greater sample sizes and longer duration are required to further this understanding.

**Garlic supplementation and metabolic syndrome**


Metabolic syndrome (MetS) is becoming increasingly common and currently affects 20–25% of the global population. Individuals with MetS are at increased risk of cardiovascular disease and type 2 diabetes mellitus (T2DM). In recent years, it has been found that gut
microbiota dysbiosis is a risk factor for the development of MetS. The gut microbiota impacts normal intestinal function, energy homeostasis, gut motility, appetite, lipid and carbohydrate metabolism, and fat storage in the liver. Garlic (*Allium sativum* L.) supplementation can improve intestinal transit time and cardiovascular risks. Garlic has several bioactive components, such as allicin which can reduce atherosclerosis risk through its antiplatelet and fibrinolytic activities. Garlic has prebiotic effects, and beneficial effects on hypertension, insulin resistance, oxidative stress, lipid profile, and hepatic steatosis. Therefore, the current study aimed to assess the impact of garlic powder supplementation on intestinal transit time, lipid accumulation product (LAP), and cardiometabolic indices in subjects with MetS.

The double-blind, randomised-control trial included 90 participants with MetS. Exclusion criteria included metabolic disease, mental disorders, pregnancy, lactation, viral hepatitis, Type 2 DM, allergy to garlic and taking blood pressure, and lipid and glucose-lowering medications. Participants were randomised to garlic powder (1,600mg/d; providing 6mg/day allicin) or placebo. Dietary intake was recorded using a 3-day 24-hour recall questionnaire at baseline, weeks 6 and 12. Serum levels of blood lipids, anthropometric and intestinal transit times were assessed over the study period. The primary outcomes included intestinal transit time, LAP, cardiometabolic index (CMI), atherogenic index of plasma (AIP), Castelli risk index I (CRI-I) and Castelli risk index II (CRI-II).

A total of 84 participants completed the study, and there was no significant difference between groups for baseline characteristics. A significant improvement in intestinal transit time was found in the treatment group compared to the control group at weeks 6 and 12. Compared to placebo, garlic powder significantly reduced LAP after 12 weeks. 12 weeks of garlic supplementation also reduced the cardiometabolic indices, CRI-I and CRI-II. This study was the first RCT to assess garlic’s effect on intestinal transit time, LAP, and cardiometabolic indices in subjects with MetS. There were some limitations, such as the short intervention duration, and gut microbiota composition was not assessed before and after the intervention. While the findings are positive, further well-designed studies with longer intervention durations are required to confirm results and evaluate the effects of garlic on the gut microbiota.

**Curcumin for treatment of COVID-19 patients – a meta-analysis**


Coronavirus disease 2019 (COVID-19) is an ongoing cause of significant morbidity and mortality. Immune dysregulation, inflammation and oxidative stress underlie severe disease and ongoing symptoms, known as long COVID or post-COVID syndrome. Curcumin is a phytochemical derived from turmeric with anti-inflammatory, antioxidant and antiviral effects. Several randomised controlled trials (RCTs) have assessed the effect of curcumin on the clinical outcomes of COVID-19, such as hospitalisation and mortality. A previous meta-analysis was based on only three studies and assessed only mortality as an outcome. Therefore, the current systematic review and meta-analysis were undertaken to evaluate the overall effect of curcumin on clinical outcomes in COVID-19 patients.

The authors searched Cochrane Library, PubMed, Embase and ClinicalTrials.gov from inception until July 2022 for RCTs evaluating curcumin use in COVID-19 patients. RCTs comparing curcumin to placebo or standard care were eligible for inclusion. The primary outcome was all-cause mortality, and secondary outcomes were the incidence of mechanical ventilation, hospitalisation, positive COVID-19 RT-PCR test, and the rate of patients with no recovery. Risk of bias was assessed according to the Cochrane Risk of Bias Tool. The meta-analysis was conducted using random effects models.

The results of a meta-analysis of 13 RCTs suggested that curcumin likely decreases the mortality rate and the number of patients with no recovery. However, curcumin supplementation has no significant effect on other outcomes, including hospitalisation, the incidence of mechanical ventilation, and the number of hospitalised patients. Subgroup analysis between combined and curcumin-only regimen studies showed a greater benefit when curcumin was given as an adjuvant combination therapy. Subgroup analysis between early and late treatment studies showed a greater benefit when curcumin was given at an earlier time (within 5 days of symptom onset).

The study findings are limited because the included RCTs had small sample sizes and used various curcumin formulations. However, the results suggest that curcumin will likely benefit mild-to-moderate COVID-19 patients. Further large-scale RCTs are required to confirm the efficacy of curcumin as an antiviral treatment for COVID-19.

**Saffron and type 2 diabetes mellitus**


Diabetes mellitus (DM) is one of the most prevalent metabolic disorders, affecting more than 400 million people worldwide. Optimal control of blood glucose and lipid concentrations can decrease the incidence of DM-related complications; however, glycaemic control is a constant challenge for diabetic patients.

Medicinal herbs have gained attention from researchers and have been widely investigated for their anti-diabetic potential. Saffron (*Crocus sativus*), belonging to the
Iridaceae family, has emerged as a promising therapeutic for diabetes based on traditional use and contemporary clinical research. Therefore, the current study aimed to investigate the effect of saffron supplementation on glycaemic status, lipid profile, atherogenic indices, and oxidative status in patients with type 2 diabetes (T2DM).

The randomised, placebo-control study included adults aged 30–60 years with a diagnosis of T2DM for at least 6 months. Exclusion criteria included insulin treatment, hormone replacement therapy (HRT), chronic illness, pregnancy or lactation, and smoking or alcohol abuse. A total of 70 patients were randomly allocated into two groups (n=35, each) and received 100mg/day of saffron or placebo for 8 weeks. Dietary intake, weight, body mass index (BMI), waist and hip circumferences (WC and HC), waist-to-hip ratio (WHR), fasting blood sugar (FBS), haemoglobin Alc (HbA1c), insulin, and Homeostatic model assessment for insulin resistance (HOMA-IR), lipid profile, atherogenic indices, oxidative status, and liver enzymes were determined before and after the intervention.

Of the 70 subjects enrolled, 60 completed the trial. Baseline anthropometric measurements and glycaemic, lipid and atherogenic markers were similar between groups. At week 8, the saffron intervention significantly reduced FBS (7.57%), lipid profile (except high-density lipoprotein cholesterol (HDL-C)), atherogenic indices, and liver enzymes. Saffron improved oxidative status (nitric oxide (NO) and malondialdehyde (MDA)) reduced by 26.29% and 16.35%, respectively. Catalase (CAT) concentration remained unchanged.

Limitations of the study included the small sample size, short study duration, and fixed-dose design. However, the study results suggest that saffron has anti-diabetic and antioxidant effects that are beneficial for people with T2DM. Further studies are required to investigate the underlying mechanisms and to confirm the efficacy of saffron supplementation in T2DM.

**Polyphenol compounds and Helicobacter pylori eradication – systematic review with meta-analysis**


*Helicobacter pylori* (*H. pylori*) is the most common chronic infection worldwide, affecting more than half of the world’s population. It colonises the gastric mucosa and can lead to more severe clinical outcomes, such as gastritis, peptic ulcer, and gastric and colorectal cancer. Increased antibiotic resistance and susceptibility have encouraged the search for new alternative therapies to eradicate this pathogen.

Several plant species are essential sources of polyphenols, and these bioactive compounds have demonstrated health-promoting properties, including gut microbiota-stimulating, anti-inflammatory, antioxidant and antibacterial activity. Several studies indicate that these polyphenol compounds positively affect *H. pylori* eradication; however, the results of human trials are conflicting. Therefore, the current meta-analysis is the first to assess the efficacy and safety of polyphenol compounds (curcumin, cranberry, garlic, liquorice and broccoli) in eradicating *H. pylori*.

Literature searches were conducted on PubMed, Embase, The Cochrane Library, Web of Science, Medline, Chinese National Knowledge Infrastructure database, Chinese Scientific Journal Database and Wan Fang database from inception to January 2022. All randomised controlled trials (RCTs) comparing polyphenol compounds with the placebo or used as an adjunct treatment were included in this meta-analysis. Exclusion criteria included the use of oral antibiotics and/or proton pump inhibitors (PPIs) and/or H2-antagonists during the 2 weeks before intake of the study product.

A total of 12 RCTs with 1251 participants (624 from the polyphenol compounds group and 627 from the control group) were finally included in the meta-analysis. Three studies compared the effects of polyphenols with a placebo on the eradication rate of *H. pylori* infection; six studies compared the effects of polyphenols along with triple therapy; two studies compared the effects of polyphenol plus triple therapy with bismuth triple therapy, and one study compared the effects of polyphenols plus quadruple therapy with quadruple therapy plus placebo. The total eradication rate of *H. pylori* in the polyphenol compounds group (62.7%) was higher than in the group without polyphenol compounds (50.1%). In subgroup analysis, the three studies involving polyphenols showed a higher eradication rate (24.1%) than the placebo group (5.2%). The six studies with polyphenols plus triple therapy showed a higher eradication (85.3%) than the triple therapy group (75.9%). Sub-group analysis showed there was no significant difference in the eradication rates according to the polyphenol compound species. The most frequent adverse effects of polyphenol compounds included diarrhoea, headache and vomiting. However, there were no differences regarding side effects between groups.

The research results indicate that polyphenol compounds can significantly improve *H. pylori* eradication rates. In addition, the results suggest that polyphenol treatment combined with standard triple therapy is more effective than triple therapy alone. However, the quality of the studies was low, and large-scale, high-quality clinical trials are required to assess clinical efficacy.

**References**


CPD hours

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MedJourn and MedHerb CPD questions

March 2023

With reference to the study on Lactobacillus paracasei in hypercholesterolemia, which of the following is true:
• Daily consumption of L. paracasei significantly reduced LDL-C levels at day 90 but not at day 45.
• Compared to the placebo, L. paracasei significantly reduced triglyceride levels after 90 days.
• Compared to baseline, levels of the inflammatory marker interleukin-6 were significantly lower after 90 days in the L. paracasei group.
• Neither group experienced significant changes in plasma apolipoprotein E (APOE) levels.

With reference to the study on resveratrol plus myoinositol compared to metformin plus pioglitazone for polycystic ovary syndrome, which of the following statements is true:
• After 12 weeks of intervention, only 18.2% of women in the resveratrol plus myoinositol group had regular menstrual cycles.
• The combination of resveratrol plus myoinositol did not produce significant changes in systolic or diastolic blood pressure compared to metformin plus pioglitazone.
• The combination of resveratrol plus and myoinositol lowered LH and FSH levels and ovarian volume more than metformin plus pioglitazone.
• The combination of resveratrol plus and myoinositol did not change serum testosterone levels after 12 weeks.

With reference to the study on saffron and type 2 diabetes mellitus, which of the following statements is true:
• After 8 weeks, the saffron intervention significantly increased high-density lipoprotein cholesterol.
• There were no improvements in liver enzymes from baseline to week 8 with saffron supplementation.
• Saffron supplementation produced a small, but not statistically significant, decrease in fasting blood sugar.
• Saffron supplementation reduced biomarkers of oxidative stress (nitric oxide and malondialdehyde).

With reference to the umbrella meta-analysis on vitamin D and depression, which of the following is true:
• The greatest improvements in depressive symptoms were found in studies using a vitamin D dosage of >5000 IU/day.
• Studies of ≥20 weeks duration were the most effective at lowering depressive symptoms.
• Participants with lower serum vitamin D levels were not at greater risk of depression than participants with higher serum levels.
• The study considered confounding factors such as sunlight exposure and dietary vitamin D intake.

With reference to the meta-analysis on polyphenols for Helicobacter pylori eradication, which of the following statements is true:
• Polyphenol supplementation produced significantly more side effects than standard triple therapy.
• Of the polyphenols, curcumin had the highest H. pylori eradication rate.
• Polyphenol supplementation was not more effective than placebo for eradicating H. pylori.
• Polyphenol treatment combined with standard triple therapy is more effective than triple therapy alone.
• Which statement relating to green tea extract and obese post-menopausal women is true:
  
  • Over 60 days, the green tea extract group exhibited a statistically significant increase in adiponectin.
  • After 60 days, green tea extract significantly improved the lipid profile in overweight and obese post-menopausal women.
  • Green tea extract did not significantly improve insulin levels over 60 days.
  • The percentage of fat oxidation showed a small but statistically insignificant improvement in the green tea extract group.

Which statement relating to the meta-analysis on curcumin treatment for COVID-19 is true:

• Supplementation with curcumin had no benefit in reducing the mortality rate among COVID-19 patients.
• The incidence of mechanical supplementation was decreased with curcumin supplementation.
• Curcumin supplementation in combination with conventional treatment was more effective for COVID-19 than curcumin alone.
• Hospitalisation rates were lower among patients who took curcumin.

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Dr. Lise Alschuler ND, FABNO
World’s Leading Naturopathic Oncologist

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