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Accredited member
Associate member
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ATMS strongly supports sustainable practices to preserve the health of our planet. Consequently, we encourage members to take up the online option for this journal.

President's *Report*

Christine Pope | ATMS President

Welcome to the December edition of the ATMS journal for 2024 and my final report as president. At the AGM in November I stepped down after serving three terms on the board. I'm pleased to advise that the new board will be well supported by the recent addition of Geraldine Headley and Sandra Grace, as well as the re-election of Brad McEwan and Chantel Ryan. Brad McEwen has already made significant contributions to the board as chair of the Academic and Research Committee, as has Chantel Ryan as chair of the Regulatory committee.

At the AGM in November I presented an overview of our progress as measured against our current strategic plan, which I'd also like to share with you in this report. Our current strategic plan for 2021 to 2024 was developed after a comprehensive member survey providing detailed feedback on the organisation's performance, areas of focus and advocacy.

Our strategic plan is underpinned by a focus on both CPE and Research as well as on the following three areas:

1) Member Support and Success
2) Growth Strategy
3) Advocacy with Key Stakeholders

The recent member survey, undertaken in 2024, confirms that members agree that these are the appropriate areas for future attention. A review of the member survey is contained later in this edition, where you can see the critical data.

CPE has been an area of critical importance for ATMS and our resources offer members a wide selection of both face-to-face and online training. In 2023/2024 over 60 events were offered and 12,730 bookings were made. Upgrading skills as a practitioner is critical to our work of supporting clients, as well as being a requirement of health funds and the various Codes of Conduct. This year the team has put together a full 12-month calendar, making it easier to plan your CPE.

In 2025 ATMS will be offering two Symposiums for members, utilising the same format we have run historically for the ingestive Symposiums. In March 2025, the Lipoedema symposium will be run in Sydney. While this is designed primarily for bodyworkers the information will be relevant to all practitioners, as this condition is poorly understood. In late August we will be running the Healthy Brain Symposium. Both events will offer a streaming option to enable members to access it easily. I would still encourage members to attend in person if possible as it is one of the few networking opportunities we get each year.

ATMS continues to support members to build research skills, with webinars on relevant topics, funding two research grants annually and providing funding for a part time PhD student. The journal also provides members with access to research with 4 or 5 peer reviewed articles in each edition.

This year has seen some significant changes in the office team supporting members, and overall the results have been very positive, with a significant improvement in the net promoter score for ATMS in the member survey. The team is headed up by the CEO, Annie Gibbins, and she is supported by Natalie Hume (Education and Partnerships Manager) and Vinitha Verma (Operations Manager).

Importantly, to support members to run successful practices, the CEO announced a new program, known as the ATMS Biz Club. This will run in 2025 and will give members the opportunity to join a group program focussed on building and running successful practices. Members can join the program on a quarterly basis, and it will cover Practice Building, Marketing, Client/Lead Generation and Sales and Systems, Service and Scaling. This is planned as a natural follow-on from Transition to Practice, and will be guided by experts in each area.

Reflecting the ATMS growth strategy over the past few years we have seen a steady increase in student numbers, and this group is supported by individual newsletters, programs like Transition to Practice, as well as having access to the journal and well- priced CPE offers. It's important for associations to foster the next generation of practitioners and ensure that they understand the value of being part of an association.

ATMS has also been working on developing partnerships with key industry stakeholders with a new prospectus that provides opportunities to support events, and the resources of the

President's *Report (cont.)*

journal. The team has already signed up five partners as part of this program and this will make it easier operationally for the partners to interact with ATMS. It will also provide the support we need to ensure events are affordable for members and viable for the association.

The other area that will enable future growth of the association is adding new modalities and accredited colleges. In 2024 Counselling has been returned as a modality, which is particularly important as there is both a critical need for this modality and a significant number of graduates. A recent addition to the list of Education Providers is RMDY, who are offering an equivalent Homeopathy Advanced Diploma.

One of my particular areas of focus on the Board has been Advocacy, from the perspectives both of promoting our industry with annual campaigns like Natural Medicine Week and of focusing on government advocacy.

Natural Medicine Week is now in its 9th year, and this year had a reach of 4.2 million consumers. There were 79 events, 8,690 participants, and 90 new blogs and recipes added to the site. In 2024 we added a natural medicine "Top Ten Tips" download, which has assisted in building our email list, which we will use in 2025 to promote our updated "Friends of Natural Medicine" newsletter and podcast. There will be a callout for members who would like to be included.

In the last 12 months ATMS has successfully advocated for members on a range of issues including:

1) Working with MMA to ensure that massage therapists were able to access Home Care Packages for their clients.

2) Successfully defending the Accredited Nutritionists trademark. The Dietitians have formally withdrawn their application, which means that we won't have to continue to fight it through an appeal process.

3) Continuing to advocate for Chinese Medicine practitioners to be included as Allied Health practitioners on the same basis as other registered professionals.

4) Submissions to the TGA on rescheduling herbs, homeopathics and nutrients. Recent submissions included B6, Atropa Belladonna and Comfrey.

5) Continuing advocacy for finalising NTREAP and the return of natural therapies to their rightful place in private health insurance.

ATMS is a member of the Council of Small Business Organisations of Australia (COSBOA), which is one of the four peak business organisations in the country despite having small business as its focus. This year COSBOA set up a Health Expert Panel, which recognises that healthcare is the largest section of the economy, and more importantly that one in seven small businesses is in the healthcare sector. Going forward, ATMS will be represented, as I am chairing the Health Expert Group. The focus will be on ensuring that small businesses have access to government programs such as the NDIS, DVA and Home Care. We aim to emphasise that accreditation should be managed through associations like ATMS, rather than requiring additional costly processes for small businesses.

Thank you for the opportunity to represent natural medicine and ATMS. particularly those who voted for me for the past three terms. I would encourage you to stay involved with your association and particularly take advantage of the opportunities involved with Natural Medicine Week to support your practice in the future. Contribute a blog or a recipe, apply to be an ambassador or run an event. Get involved and take the opportunity to build your networks and your industry!

Christine Pope
President

CEO's *Report*

Annie Gibbins | ATMS CEO

Greetings members of ATMS,

As we near the close of another incredible year, I am inspired by the remarkable dedication, resilience, and innovation demonstrated by our members. It has been a privilege to lead ATMS through this period of growth and transformation, and I am proud to share the strides we've made together.

One of our recent highlights was the Powering a Growth Mindset Seminar & AGM in Brisbane, which brought together a vibrant community of practitioners and thought leaders. The energy in the room was electrifying, and the feedback has been overwhelmingly positive. Events like these remind me why our profession is so special - it's about connection, learning, and collective progress.

Enhancing Member Resources

ATMS continues to prioritise offering high-value resources to support your practice. Our member portal continues to improve and free access eMIMS and EBSCO has shown to be popular. These additions are designed to make your practice more efficient and compliant, empowering you to focus on your clients.

Advocacy in Action

Advocacy remains a cornerstone of our mission, and I'm pleased to report that we're actively engaging in critical conversations at the highest levels. We eagerly await the findings of the Natural Therapies Review, where our goal is to secure the reinstatement of natural therapies in private health insurance. We are also advancing discussions around recent NDIS changes, aiming to position our members as trusted providers in these essential services.

Celebrating Member Achievements

This year, we've seen an extraordinary number of members achieving recognition for their contributions to natural medicine through our Simon Schot and Natural Medicine awards. Your successes reflect the quality and professionalism that ATMS stands for.

At the AGM we were thrilled to announce the recipients of the 2024 ATMS Research Grant, which allocates up to AU$20,000 to support natural medicine research aligned with the ATMS Strategic Plan. This year, two $10,000 grants were awarded to:

Dr Deep Jyoti Bhuyan – NICM Health Research Institute at Western Sydney University, for his research: *Can probiotic gut bacteria enhance the bioavailability and bioactivity of Kakadu plum antioxidants?*

Dr Isabella Leung – Western Sydney University, for her research: *Transforming the acupuncture practice scope to encompass the paramedical context: a scoping review with implications for extending practices for natural medicine professions.*

Congratulations to both grant recipients for their outstanding contributions to the field of natural medicine.

New Initiatives and Services

As announced at the AGM, ATMS Biz Club is set to launch 30 January 2025, providing a dynamic program to help members grow their businesses. This initiative reflects our commitment to your success, offering structured support across areas like marketing, lead generation, and scaling your practice.

We're also excited to launch the Friends of Natural Medicine program, which will help connect our members with a broader audience while driving awareness and support for the profession. This initiative is all about amplifying your impact and raising the profile of natural medicine in our communities.

Strengthening Our Team

The strength of ATMS lies in its people, and I'm delighted to watch the ATMS team embrace new service offerings and quality improvements. Together, we're working to enhance the service and support we provide to members, ensuring ATMS remains your trusted partner in practice.

Looking Ahead

As we prepare for 2025, I'm excited about the opportunities that lie ahead. From our robust CPE program to new initiatives that support emerging practitioners, we are committed to helping you thrive in your professional journey.

On a personal note, I want to thank you all for the warm welcome I've received since stepping into this role. Meeting so many of you – whether at events, on Zoom, or over a coffee – has been a true highlight. Your feedback and insights guide our path forward, and I'm deeply grateful for your trust and support.

Together, we'll continue to elevate the profession, advocate for positive change, and build a healthier future for our communities. I look forward to working alongside you as we embrace the challenges and opportunities of the year ahead.

To your continued success,

Annie Gibbins
CEO

The Intersection of **Autoimmunity** *and the* **Menopause Transition**

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Abstract

Perimenopause involves complex physiological changes driven by fluctuating reproductive hormones, often complicating health outcomes in women with autoimmune diseases. This paper examines the intersection of the menopausal transition (MT) and autoimmunity, highlighting how hormonal fluctuations during this period can aggravate autoimmune symptoms and trigger flares.[1] The MT itself is marked by increased systemic inflammation, with declining oestrogen and progesterone levels disrupting immune regulation, promoting pro-inflammatory cytokine production, and altering immune cell activity.[2]

Autoimmune conditions such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and Hashimoto's Thyroiditis (HT) show heightened prevalence and symptom severity during midlife, presenting challenges in symptom differentiation and management.[3] Additionally, external factors, such as modern lifestyle patterns and exposure to environmental xenoestrogens, further amplify inflammatory states during the MT.[4]

This article explores the interplay of oestrogen, the immune system and inflammation, and some of the autoimmune conditions that intersect with the MT. Key nutritional elements, including vitamin D, omega-3 fatty acids, and lignans are reviewed for their potential to modulate inflammation, support immune function, and alleviate MT and autoimmune-related symptoms.

Introduction

Perimenopause, the transitional phase preceding the cessation of menstruation, represents a complex period of physiological transformation driven by fluctuating and gradually declining reproductive hormone levels. The menopausal transition (MT) describes the whole journey of this period and includes menopause, which is clinically defined as being one year without menstruation. Symptoms throughout the MT vary in expression and severity and can last an average of 7-10 years, though many people can continue to experience symptoms into their 80s.[5] Researchers have emphasised that early intervention must be considered a priority for the prevention of the consequences associated with the numerous physiological changes in the MT. One researcher went as far to say that MT marks 'the decay of women's health', which is rather alarming as this transition should not be seen as a barrier to the experience of healthy aging.[6] What can complicate the MT, however, are concomitant health challenges that may mask, be masked by, or aggravate an already turbulent physiological setting. This is especially true for autoimmune diseases. Autoimmune diseases affect women at twice the rate seen in men.[7]

The hormonal changes experienced during the MT potentiate the prevalence and flares of autoimmune disorders in women during midlife. Given the chronic nature of autoimmune diseases, long-term management is essential, and their higher prevalence in women highlights the need for gender-specific treatment strategies, especially for middle-aged and older populations.

Although all women will experience the MT, it is essential to recognise that individuals of diverse gender identities may also undergo this transitional period in their lives. Acknowledging that not all individuals who experience menopause identify as women, this article will use the term "women" to refer to those assigned female at birth.[8]

The role of oestrogen in immunity and inflammation

Many women enter the MT already managing chronic conditions, including autoimmune diseases which in some conditions reach peak onset during this midlife period. The MT and ultimate decline in reproductive hormones lead to shifts in immune function that make the MT a particularly vulnerable time for individuals with autoimmune conditions. In fact, hormonal changes associated with the MT and their impact on inflammation may heighten the risk for more severe autoimmune disease symptoms, as well as adding increased susceptibility to additional chronic conditions like cardiovascular disease, insulin resistance, and metabolic syndrome.[5]

With the influence of fluctuating oestrogen and declining progesterone, the inflammatory environment sees increased production of pro-inflammatory cytokines and a suppression of anti-inflammatory factors. Autoimmune conditions such as rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and Hashimoto's Thyroiditis occur more frequently in women, and symptoms are known to worsen during major hormonal changes.[7] While a precise understanding of the interplay between the sex hormones and immune responses is still being identified, studies acknowledge that women in midlife face a heightened risk of autoimmune diseases, with some, like SLE, more prone to flare-ups around menopause.[7] This demonstrates the complex influence of oestrogen and progesterone on immune function.

The early stage of MT is associated with a rise in chronic low-grade inflammation as the immunomodulatory action of oestrogen waxes and wanes. Oestrogen modulates humoral immunity, whereas androgens and progesterone act as natural immunosuppressants. Thus, it is noted that post-menopausal women tend to exhibit higher chronic levels of pro-inflammatory cytokines such as monocyte chemotactic protein 1 (MCP-1), interleukin-1 (IL-1), interleukin-6 (IL-6), and tumour necrosis factor-alpha (TNFα) along with reduced cytotoxic activity of natural killer (NK) cells, which decreases the ability to respond to pathogens or other immune stimuli. Additionally, decreased CD4 T and B lymphocyte counts support the shift to a more pro-inflammatory profile.[9]

In the physiologically stressed state of the MT, increased activation of inflammasomes has been noted. The inflammasome is a key element of

The hormonal changes experienced during the MT potentiate the prevalence and flares of autoimmune disorders in women during midlife. Given the chronic nature of autoimmune diseases, long-term management is essential ...

the innate immune response. It is a multiprotein complex that acts as a sensor and response mechanism to pathogens primed by nuclear factor kappa B (NF-κB), one of the main regulators of inflammation. A key component of the inflammasome is the effector protein caspase-1. Usually inactive, caspase-1 becomes activated upon the assembly of the inflammasome and gets to work cleaving pro-inflammatory cytokines into their active forms.[2] Levels of these inflammatory factors have been shown to be much higher in menopausal women.[10] Part of the reason for this is the interaction of oestrogen receptors and NF-κB signalling pathways, which usually reduces the activation of NF-κB. This cross-talk between estrogen receptors and NF-κB modulates NF-κB's ability to initiate inflammasome activation.[1] However, the reduced levels of oestrogen in menopausal women and subsequent increase in the NF-κB-inflammasome axis activity worsens existing autoimmune conditions, especially Multiple Sclerosis (MS), and may instigate others, such as Rheumatoid Arthritis.[11]

Other exogenous factors add to the inflammatory state seen at the intersection of autoimmunity and the MT. It has been postulated that the modern western lifestyle is a major contributor.[4] Changing reproductive patterns such as delays in first pregnancy, fewer pregnancies, fewer immune challenges due to improved sanitation and public health measures, and a positive energy balance have contributed to a longer lifetime exposure to ovarian hormones and the associated cycle of immune modulation. Additionally, by-products of industrialisation and environmental xenoestrogens, such as Bisphenol A (BPA), influence oestrogen receptor signalling and activate the NF-κB-inflammasome axis. Researchers suggest that exposure to these exogenous chemicals impairs ovarian function and can instigate early menopause in addition to oxidative stress and further inflammation.[4]

Adding to this inflammatory state is the impact of BPA on increasing levels of leptin.[12] Aside from regulating appetite, leptin can negatively affect the proliferation of T-Regulatory (Treg) cells which will affect immune tolerance. Leptin levels are twice as high in women as in men, predisposing women to leptin resistance and increasing adiposity. Oestrogen deficiency in the MT further reduces the sensitivity of leptin receptors, increasing appetite and enhancing the impact on immune response.[4]

Key symptoms and overlapping challenges

While there are some women who have few symptoms, the oestrogen fluctuations of the MT may be accompanied by what some researchers refer to as the climacteric syndrome.[6] This can include, but is not limited to, symptoms such as brain fog and dizziness, headaches, mood changes and cognitive disturbances, vasomotor symptoms such as hot flushes and night sweats, sleep disturbances, joint pains and epithelial tissue changes that result in dryness and itchiness.[5] Women with autoimmune disorders can experience similar symptoms, making menopause-associated autoimmune dysregulation difficult to differentiate from the autoimmune process itself. Autoimmune disorders that intersect with menopause include Rheumatoid Arthritis (RA), Sjogren's syndrome, Multiple Sclerosis (MS), Systemic Lupus Erythematosus (SLE), and Hashimoto's thyroiditis. Though there are other autoimmune disorders that predispose women to early menopause and disease flares during the MT, these conditions will be briefly reviewed in the context of the MT.

Fatigue, bone loss, joint pain, sleep disturbances and gastrointestinal issues are common in both the MT and RA, a disorder characterised by chronic synovial inflammation leading to progressive and permanent joint damage. Bone loss is accelerated in the early stages of RA, and in the MT the loss of oestrogen further aggravates the increased risk of osteoporosis, especially if glucocorticoid medications are being used to manage the inflammation and pain of RA.[13] Oestrogen is believed to act as a protective mechanism against rheumatoid arthritis and Sjogren's syndrome. However, as oestrogen levels decline throughout the MT, protective, regulatory cytokines such as interleukin-10 (IL-10) and transforming growth factor-β (TGFB) also diminish.[3]

The onset of Sjögren's Syndrome (SS) is ten times more likely to present in women than men, and its onset is typically later in life, frequently in the post-menopausal years. Primary SS is characterised by lymphocytic infiltration of exocrine glands contributing to dryness of the eyes and mouth and has systemic effects that cause fatigue, vaginal dryness and dyspareunia.[13] There is a particular aspect of the hormonal changes in the MT that may make SS worse during this phase of life. Normally, dehydroepiandrosterone-sulphate (DHEAS) is produced in the adrenal glands of women who lack oestrogen. DHEAS is converted into dehydroepiandrosterone (DHEA) in exocrine glands and other peripheral tissues and can be converted to androgens and oestrogens. DHEA also suppresses TNF-α and IL-6, which are elevated in SS. Thus, the potential role of DHEA in smoothing the MT falters in sufferers of SS due to the pathology in these glands.[13]

MS is an immune-mediated disorder of the central nervous system characterised by demyelination and progressive neurodegeneration. Oestrogen binds to oestrogen receptors (ERα and ERβ) in the central nervous system, promoting transcription of anti-inflammatory genes and suppressing pro-inflammatory pathways.[11] Low concentrations of oestrogen can enhance neuroinflammatory signals and has been associated with neurodegeneration via decreased brain-derived neurotrophic factor (BDNF) and conversion of microglia to a more inflammatory phenotype. This suggests that women with MS may experience

a more rapid deterioration in their fifth and sixth decade of life with their disease-course transitioning from a relapsing-remitting (RR) phenotype to a progressive phenotype. In one study, 54% of women with MS reported a worsening of symptoms during the MT.[11] The clinical evaluation of both disorders is challenging due to overlapping symptoms, which include mood disorders, altered cognition, sleep disturbances, vasomotor symptoms and changes in bladder and sexual function.[14]

Systemic lupus erythematosus (SLE) is a disease characterised by immune complex deposition in tissues and multi-organ inflammation. It is nine times more common in women than men as it is associated with higher lifetime oestrogen exposure. The usual onset for SLE is well into the reproductive years and flares are common in the early stages of perimenopause. Fatigue, brain fog, joint pain, stiffness, headaches, hair loss, dry skin and mucus membranes are just a few of the crossover symptoms in the MT and SLE.[15] Low bone density is also associated with SLE disease activity and menopause further adds to the risk of more severe bone disease, fragility and fractures. While the experience of the MT is unique for every woman, so too is the clinical course of SLE. In more severe cases of SLE a cytotoxic agent such as cyclophosphamide may be used, which can bring about early menopause due to the associated ovarian damage further aggravating symptoms in both conditions.[15]

Hashimoto's thyroiditis (HT) is 4-10 times more common in women that in men and can be associated with other autoimmune disorders in about 20% of women. The prevalence of hypothyroidism reaches its peak for women in midlife. Oestrogen increases serum concentrations of thyroxine binding globulin (TBG), which in turn binds thyroid hormone, reducing its availability to tissues.[6] The oscillating oestrogen levels of the MT contribute to variable thyroid function and the symptoms reflect their close relationship, and include increased fat mass, poor sleep, fatigue, dry skin, hair loss, and cognitive difficulties.[14]

Building a nutritional foundation

By 2030, it is projected that approximately 1.2 billion women globally will be experiencing the MT. Over 85% of these women are expected to experience significant symptoms associated with this transition.[3] As women make up around 80% of those affected by autoimmune conditions, a multifaceted therapeutic approach is needed to ensure that women are empowered to address their health challenges with their concomitant journey of the MT.[3]

Menopause hormonal therapy (MHT)

for women with autoimmune disease offers mixed results and is not always an appropriate option. Small trials have demonstrated a reduction in inflammatory cytokine production and neurological lesions with MHT in MS. However, MHT in women with SLE should be cautioned. Improvements in SLE after menopause have been noted with less severe flares, reduced renal damage and lowered auto-antibody markers. Even though progesterone seems to counteract some of the immunological effects of oestrogen, women with SLE have lower levels of progesterone. Little is known about the safety of exogenous progesterone and SLE.[15]

There is solid evidence of the role that vitamin D plays in both autoimmunity and supporting women's health in the post-menopause years. While the primary physiological function of vitamin D is in bone metabolism, the vitamin D receptor (VDR)and 1α-hydroxylase (CYP27B1) are widely expressed in immune cells. Vitamin D and VDR signalling have an inhibitory role in autoimmune reactions with anti-inflammatory effects.[16] Vitamin D promotes dendritic and Treg cell differentiation, and reduces inflammatory cytokine secretion. In post-menopausal women with RA and metabolic syndrome, vitamin D levels are lower, and disease activity is higher. If outdoor exposure to sunlight during times of lower UV index (<3) is not frequent or possible, vitamin D supplementation should be considered, particularly as cutaneous synthesis of the nutrient diminishes in the post-menopausal years.[16] One study demonstrated that a combination of supplemental Vitamin D and omega-3 Fatty Acids can lead to a decrease in autoimmune disease via their synergistic anti-inflammatory action. This is not the case for omega 3 on its own, however; over time it has been noted that omega 3 fatty acids reduce inflammatory cytokines that may help reduce overall disease morbidity.[16] Studies have also demonstrated the role of omega 3s in supporting sleep quality, improving low mood and to a lesser extent in minimising vasomotor symptoms.[17]

Sufficient evidence exists for the anti-inflammatory Mediterranean diet (MD) that also supports body composition, cognition and mood. Key components include:

- Daily consumption of 5 or more vegetables varieties, raw or cooked
- Twice weekly fish consumption such as wild salmon, mackerel, trout and sardines
- Daily consumption 30g of walnuts and/or seeds (ground flaxseeds, chia seeds, sesame seeds)
- Daily serve of pre and probiotic foods such as yoghurt, tempeh, sauerkraut
- Daily consumption of antioxidant fruits such as berries and pomegranate
- Daily addition of spices such as ginger, saffron, cinnamon, and garlic[18]

Dietary lignans and their metabolites derived from gut bacteria can control inflammatory responses via suppression of pro-inflammatory cytokines. For example, undigested flax or sesame seeds contain a lignan class called secoisolariciresionol (Seco) diglucoside (SDG) conjugate. When deconjugated, Seco is liberated and then demethylated to produce lignan metabolites that are readily absorbed.[15] It is important to note that women whose menopause is compounded by autoimmune disease can experience gastrointestinal complaints often associated with dysbiosis aggravated by the chronic physiological stress of inflammation. Typically, oestrogen and gut bacteria (the estrabolome) work synergistically to liberate endogenous oestrogen metabolites and phytoestrogens for recirculation. The function of the estrabolome is significantly reduced with dysbiosis and this can also reduce the proper digestion and absorption of lignans. This is also the case for lectins. While many plant foods contain lectins, particularly legumes which form part of a complete MD, until gut health and the microbiome are restored, they should be avoided.[19]

Conclusion

The menopausal transition (MT) represents a critical period of physiological change that uniquely affects women with autoimmune conditions, aggravating symptoms and increasing vulnerability to other inflammation-related health challenges. The interplay between declining reproductive hormones, immune dysregulation, and systemic inflammation underscores the importance of early, targeted interventions to mitigate these effects. Evidence supports the role of solid nutritional foundations, in managing both MT and autoimmune symptoms. Providers of holistic healthcare are in a unique position to empower individuals to navigate the MT with a sense of purpose toward improved quality of life and healthy aging.

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The Microbiome *and Autoimmune Disease:* An Introduction

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Abstract

Autoimmune diseases are a multifactorial complex group of conditions caused by the immune system's inappropriate and abnormal attack on the body's own tissues and organs. The human body hosts a vast and varied array of microorganisms, collectively called the microbiome. An imbalance in the composition and function of the microbiome characterises microbiota dysbiosis. Probiotics play a significant role in immune health, development of the immune system, and modulation of the immune system. This article briefly overviews autoimmune disease, the microbiome, and the clinical applications of probiotics.

Introduction

Autoimmune diseases are a multifactorial complex group of conditions caused by the immune system's inappropriate and abnormal attack on the body's own tissues and organs.[1] Essentially, immune cells cannot distinguish self-antigens from foreign ones.[2] The incidence of autoimmune diseases is increasing worldwide.[1] Women are more susceptible to autoimmune diseases than men.[1] Autoimmune diseases are a leading cause of death in young women.[1] The chronic nature of autoimmune diseases places a significant burden on the utilisation of medical care, increases direct and indirect economic costs, and diminishes quality of life.[3] The exact mechanisms underlying autoimmune diseases are not fully understood, but it is believed to involve genetic factors,[1] environmental factors,[1] and overall immune dysregulation.[1]

Current therapeutic approaches primarily focus on modulating the immune response, mitigating tissue damage, and slowing the progression of autoimmune diseases.[1] However, these methods do not address the underlying causes of the autoimmune response.[1] Furthermore, a significant number of patients experience drug resistance or are unable to endure the adverse effects associated with these treatments.[1] Therefore, it is imperative to investigate novel therapeutic strategies to reduce the autoimmune response.[1] Optimum nutrition is the foundation for optimum health.[4,5] The human body hosts a diverse array of commensal and symbiotic microorganisms.[6] These microbes inhabit various environments, including the gastrointestinal tract, skin, vaginal area, and oral cavity.[6] The human body hosts a vast and varied array of microorganisms, collectively called the microbiome.[7] The composition and quantity of these microorganisms can vary not only across different organs but also among individuals.[6] The microbiota is crucial in the initiation, development, and functioning of the immune system.[7] The presence of the microbiome and microbial products regulates the development and function of the immune system.[6] Research shows that

there is an alteration in the intestinal flora in people with autoimmune disease.[6] Probiotics are described as live micro-organisms, and when taken in specific amounts, lead to health benefits.[8,9] Probiotics play a significant role in immune health.[9-13]

The focus of any management plan is on treating the whole person.[4,14] Due to the complexity of autoimmune disease, this article aims to briefly overview autoimmune disease, the microbiome, and the clinical applications of probiotics.

Autoimmune disease

Autoimmune diseases are a multifactorial complex group of conditions caused by the immune system's inappropriate and abnormal attack on the body's own tissues and organs.[1,3] Autoimmune diseases are initiated by the loss of immunological tolerance to self-antigens.[3] Immune cells cannot distinguish self-antigens from foreign ones.[2] Autoimmune diseases are characterised by abundant autoantibodies and abnormal dendritic cells, T-cells and B-cells.[2] Pathogenic autoantibodies, along with autoantigen-reactive T-helper-1 (Th1) and Th17 cells, react to established host or "self" antigens.[15] While autoimmunity is typically regarded as a disorder of adaptive immunity, several critical processes are essential for T-cell activation. These include the interaction between dendritic cells and the presentation of self-antigens by T-cells, the formation of an immunological synapse, and the recognition of antigen complexes by T-cells.[15]

Common autoimmune diseases seen in clinical practice include alopecia areata,[3] ankylosing spondylitis,[16,17] anti-phospholipid syndrome,[6] coeliac disease,[3] Crohn's disease,[3,6] dermatomyositis,[2] Grave's disease thyroiditis,[3,18] Hashimoto's thyroiditis,[3] multiple sclerosis (MS),[3,6,19-21] myasthenia gravis,[18] pernicious anaemia,[3] psoriasis,[3] rheumatoid arthritis (RA),[2,3,6,18,21,22] Sjögren's syndrome,[2,3,6,18,23] systemic lupus erythematosus (SLE),[2,3,6,18,24] systemic sclerosis,[3,6,18,25,26] type 1 diabetes,[3,6,18,21] ulcerative colitis,[3,6] vitiligo,[3] and autoimmune liver diseases.[27] Autoimmune disease affects approximately 3% of the population,[28] and depending on the disease, the prevalence ranges from 5 to 500 people per 100,00018 with a higher prevalence in females.[18]

Autoimmune diseases do not initiate at the point of clinical manifestation; instead, they commence several years before the observable onset.[3,15] The most common biomarkers of autoimmunity are antinuclear antibodies, which are observed in people with autoimmune diseases. Antinuclear antibodies are also seen in the general population where they have been associated with demographic factors such as older age, female sex, genetic factors, and various environmental exposures, including chemicals, infections, and medications.[29] The presence of antinuclear antibodies has increased over the last 30 years.[29]

Furthermore, research shows that autoantibodies can be present in the blood from 3 months to 19 years before the development of different autoimmune diseases.[15] This implies that autoimmune diseases are chronic diseases.[15]

The clinical presentations and manifestations of autoimmune diseases exhibit considerable diversity and atypical characteristics, which render laboratory tests less sensitive and nonspecific.[1] This often results in delays in obtaining an accurate diagnosis or the occurrence of misdiagnosis.[1] The exact mechanisms underlying autoimmune diseases are not fully understood, but they are believed to involve genetic factors,[1] environmental factors,[1,15] microbiome, and overall immune dysregulation.[1]

Genetic factors are involved in autoimmune diseases. A fundamental feature of complex diseases is their tendency to cluster within families, a phenomenon known as familial aggregation. This clustering of a particular phenotype is evident when the incidence of a disease is significantly higher among the relatives of an affected individual than in the broader population.[3]

Epigenetic modifications refer to the molecular processes influencing gene expression while leaving the DNA sequence unchanged. Examples of these epigenetic modifications include DNA methylation, histone modification, and the involvement of non-coding RNA.[1] Epigenetic modifications can indicate the cellular condition, functionality, and the effects of environmental influences.[1]

Evidence supports the role of the environment in the development of autoimmune diseases.[30] Environmental factors exert a more significant influence on the pathophysiology of autoimmune disorders than do genetics.[15] Recently, there has been an increasing focus on various environmental factors, particularly synthetic chemicals, and their contributions to developing autoimmune diseases.[15] An individual's cumulative exposure to external and internal factors throughout their lifetime plays a role in the pathophysiology of autoimmune diseases.[15] Prominent environmental factors include toxic chemicals, dietary components, and infectious agents. Toxic chemicals are pervasive, found in our food, beverages, everyday products, the atmosphere, and even the soil we walk on.[15] These substances can inflict direct damage on self-tissues, leading to the release of autoantigens, or they may interact with human tissue antigens to create neoantigens, thereby triggering an autoimmune response that results in autoimmunity.[15] Toxic chemicals (e.g., solvents, pesticides, herbicides, metals, heavy metals, smoke) can induce various autoimmune responses through diverse cellular and biochemical mechanisms,[15] such as via altering cellular proliferation, Th1, Th2, Th3, Th17, apoptosis, tissue-specific function, increasing reactive oxygen species production and the induction of DNA fragmentation, inflammation, and modification of DNA methylation, inducing changes in gene expression.[15]

The daily diet often contains colourants, preservatives, and chemicals from packaging, which may render the food antigenic for individuals with specific susceptibilities.[15] The attachment of food colourants to human tissue proteins plays a significant role in the pathophysiological mechanisms underlying autoimmunity.[15] The most common mechanism for food-related autoimmunity is molecular mimicry, in which the food's molecular structure is similar to the structure of one or more self-tissues.[15] The principal determinant governing immune responses related to food is the mechanism of oral tolerance. Exposure to various environmental factors, including toxic substances, can compromise this mechanism. When oral tolerance is impaired, it may lead to or trigger immune reactions against dietary antigens, potentially initiating or worsening autoimmune diseases due to the molecular mimicry between food antigens and human tissue antigens.[15] Research has identified multiple gluten peptides that can activate intestinal T-helper cells in individuals diagnosed with coeliac disease.[15] Cow's milk proteins (e.g., α-casein, β-casein, κ-casein, and β-lactoglobulin) are the most common food allergens affecting young infants, children, and adults.[15]

Various infectious agents, including viruses, bacteria, parasites, and fungi, may trigger autoimmunity.[31] Following the emergence of coronavirus disease 2019 (COVID-19), evidence indicates that SARS-CoV-2 infection plays a role in immune dysregulation and the development of autoimmunity.[31] Typically, the onset of autoimmune conditions is not attributed to a singular infection; instead, it is often the cumulative effect of multiple childhood infections that contribute to autoimmunity.[31] Infectious agents can induce autoimmune diseases through molecular mimicry, epitope spreading, viral persistence, bystander activation, polyclonal activation, autoinflammatory activation of innate immunity, and dysregulation of immune homeostasis.[31] While infections may not always be the primary cause of autoimmunity, they can occasionally localise at the sites of autoimmune inflammation, thereby influencing the autoimmune condition in three distinct manners: they may worsen the existing disease, resulting

THE DAILY DIET OFTEN CONTAINS COLOURANTS, PRESERVATIVES, AND CHEMICALS FROM PACKAGING, WHICH MAY RENDER THE FOOD ANTIGENIC FOR INDIVIDUALS WITH SPECIFIC SUSCEPTIBILITIES.[15]

in increased severity and prolonged duration; they can trigger a relapse; or they may contribute to the development of chronic progressive disease.[31]

In individuals diagnosed with autoimmune disorders, there exists a negative correlation between DNA methylation levels and both disease activity and severity, indicating its potential role as a biomarker for disease status.[2] DNA demethylation and hydroxymethylation represent biological mechanisms that reactivate or restore the activity of previously silenced genes, and these processes have been associated with the development of autoimmune diseases.[2]

Autoimmune diseases are increasingly recognised as a significant health issue among individuals who were exposed to the September 11 2001 attacks on the World Trade Centre. The particulate matter released during the collapse of the World Trade Centre has been linked to the onset of systemic autoimmune disorders.[32]

The microbiome

The human body hosts a vast and varied array of microorganisms, collectively called the microbiome.[7] The microflora of the gastrointestinal tract represents a highly complex ecosystem. Microflora are believed to be composed of over 500 different species.[33] The adult human gastrointestinal tract is estimated to contain 100 trillion viable microorganisms. The number of microflora equals 10 times the number of eukaryotic cells in the human body.[11,33-36] There are approximately 1,000 species and over 7,000 strains.[34] Microbiota can be seen as symbionts, which are mutual health promoters.[6,37] The gut microbiota within the human body serves as a protective barrier against the invasion of pathogenic bacteria. It plays a crucial role in the synthesis of essential nutrients, including proteins and vitamins.[38] Alterations in the composition of the intestinal microbiota can compromise the functionality of the intestinal mucosal barrier.[38]

The microbiota is crucial in the initiation, development and functioning of the immune system.[7] The microbiota maintains the homeostasis of the immune system[38] and plays a crucial role in modulating the immune system by synthesising essential nutrients and regulating immune responses to various antigens.[21] An imbalance in the gut microbiome, known as dysbiosis, is strongly linked to tissue damage and inflammatory processes in predisposed individuals.[21] In the context of autoimmune diseases, alterations in the microbiome are significant in influencing inflammation and facilitating the breakdown of immune tolerance.[21]

An imbalance in the composition and function of the microbiome characterises microbiota dysbiosis.[7] Dysbiosis can be classified into three distinct categories: the depletion of beneficial microorganisms, the overgrowth of potentially pathogenic organisms, and the reduction of overall microbial diversity. Furthermore, these categories are not mutually exclusive and may manifest concurrently.[6] Microbiota dysbiosis significantly influences the initiation, progression, and advancement of many systemic diseases, including immunological disorders, cardiovascular diseases, type 2 diabetes, and respiratory diseases.[7]

The dysregulation of the microbiome plays a crucial role in triggering and promoting autoimmune diseases via several mechanisms, including microbial translocation, molecular mimicry, autoantigen overproduction, and amplification of autoimmune responses by cytokines.[7] Research indicates that T helper (Th) cells serve as essential regulators or modulators of inflammation in autoimmune diseases influenced by various pathogens.[21] The modulation of cytokines facilitates the differentiation of Th cells into several lineages, each characterised by unique effector subsets, such as Th1, Th2, Th17, and regulatory T (Treg) cells. Furthermore, the overall collective functional capacity and diversity of the microbiota are crucial in supporting optimal metabolic regulation, which is vital for developing Th1, Th2, Th17, and Treg cells within the immune system.[21]

The oral cavity contains the second largest and most diverse microbiota after the gastrointestinal tract, with a rich diversity of over 700 bacterial species,[7] which inhabit distinct microbiome niches located on mucosal surfaces, the hard tissues of teeth, and within saliva.[7] The homeostasis and equilibrium between the oral microbiota and the immune system is crucial for sustaining the health and overall wellbeing of the human host.[7] Oral pathogens can access the gastrointestinal tract, disrupting the microbiota balance, enhancing intestinal permeability, and triggering localised inflammation. This cascade of events produces autoantigens, which contribute to systemic inflammation, various autoimmune responses, and the development of systemic autoimmunity.[31]

Probiotics

Probiotics are described as live micro-organisms that lead to health benefits for the host when taken in specific amounts.[8,9] The term "pro bios" translates to "for life".[12,39,40] Probiotics are identified by their specific strain, which includes the genus, the species, and the subspecies (if applicable), e.g., Bifidobacterium animalis subsp. lactis. The use of probiotics can be traced as far back as the Greek and Roman times, when the consumption of cheese and fermented foods was promoted.[9] The management of a person with autoimmune is holistic in nature. The focus is on treating the whole person

(mind, body, spirit).[4,14] Identifying and treating the underlying causes, background activity, and triggers[4,14] are very important in the management of autoimmune diseases.

Probiotics play a significant role in immune health and the immune system,[9,10] such as immune system development,[11] immunomodulation,[11-13] increasing production of immunoglobulins, enhancing activity of macrophages and lymphocytes),[12] maturation of the immune system by stimulating the innate immune system in the early stage of life,[41] enhancing the intestinal immune system,[42] production of antimicrobial substances,[12,13] and inhibition of bacterial toxin production.[12] Probiotics play a role in structure, such as intestinal wall integrity,[11,13] constitution of the intestinal barrier,[41] stimulation of intestinal epithelial cell regeneration,[41] competition with pathogens for adhesion to the epithelium,[12,13,42] production of mucus and nourishment mucosa through producing short-chain fatty acids.[41]

Probiotics are involved in the modulation of microbiota within the microbiota-gut-brain axis.[43] The gut-brain axis intimately connects the intestinal system and the brain.[11,44] The gastrointestinal system can communicate with the central nervous system via multiple mechanisms, including the metabolic activities of commensal bacteria, which produce substances such as short-chain fatty acids (SCFAs), 5-hydroxytryptamine (5-HTP), and gamma-aminobutyric acid (GABA).[6] The gut-brain axis involves bidirectional communication via neural,[11,44] endocrine and immune pathways.[11,45] The vagus nerve is the main pathway between the gastrointestinal tract and the brain.[36] The vagus nerve interacts with the intestinal microbiota.[36]

Probiotics have numerous uses and clinical applications. The applications of probiotics are briefly outlined in Table 1 to provide a glance into the wide range of applications that can be utilised in supporting a person with autoimmune disease.

Conclusion

Autoimmune diseases represent a complex and multifactorial category of disorders arising from the immune system's erroneous and abnormal attack on the body's own tissues and organs. The human organism is home to a diverse and extensive collection of microorganisms, collectively known as the microbiome. Dysbiosis of the microbiota is defined as an imbalance in both the composition and functionality of this microbiome. Probiotics are utilised in various clinical applications and are crucial for maintaining immune health, facilitating the development of the immune system, and modulating immune responses.

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For a full list of references, please email the Editor: **editor@atms.com.au**

Table 1. Probiotics and their applications

Bifidobacterium animalis subsp. lactis	Immune health,[46] *Helicobacter pylori* infection,[42] irritable bowel syndrome,[42,47] antibiotic-associated diarrhoea,[42] functional abdominal pain,[42] functional constipation,[42] and non-alcoholic fatty liver disease.[42]
Bifidobacterium bifidum	*Clostridium difficile* infection,[13,42] antibiotic-associated diarrhoea,[42] irritable bowel syndrome,[42] non-alcoholic fatty liver disease,[47] depression,[36] aggression,[45] and cognitive function.[36]
Bifidobacterium breve	*Helicobacter pylori* infection,[42] antibiotic-associated diarrhoea,[42] traveller's diarrhoea,[42] functional abdominal pain,[42] irritable bowel syndrome,[42] Crohn's disease,[42] non-alcoholic fatty liver disease,[42] depression,[48] and anxiety.[48]
Bifidobacterium infantis	Immune health,[36] antibiotic-associated diarrhoea,[42] functional abdominal pain,[42] irritable bowel syndrome,[47] stress,[36] overall mental health,[34] and anxiety.[48]
Bifidobacterium longum	*Helicobacter pylori* infection,[42,47] gastrointestinal discomfort produced by stress,[49] antibiotic-associated diarrhoea,[42,47] functional abdominal pain,[42,47] functional constipation,[42,47] irritable bowel syndrome,[42,47] non-alcoholic fatty liver disease,[42,47] depression,[13,50,51] anxiety,[13,36] stress,[13] memory,[52] anger,[13,49] and hostility.[49]
Lactobacillus acidophilus	*Helicobacter pylori* infection,[42] *Clostridium difficile* infection,[13,42] vaginosis,[47] vaginitis,[47] antibiotic-associated diarrhoea,[42] traveller's diarrhoea,[42] functional abdominal pain,[42] Crohn's disease,[42] irritable bowel syndrome,[42] depression,[36,49] aggression,[45] overall mental health,[34] and cognitive function.[36]
Lactobacillus casei	Immune modulation,[53] *Helicobacter pylori* infection,[42] antibiotic-associated diarrhoea,[42,47] functional constipation,[42] functional abdominal pain,[42] Crohn's disease,[42] irritable bowel syndrome,[42] depression,[36,49] anxiety symptoms,[54] mood,[49] aggression,[45] cognition,[36,49] and a significant rise in both Lactobacillus and Bifidobacteria.[54]
Lactobacillus delbrueckii:	*Helicobacter pylori* infection,[42] antibiotic-associated diarrhoea,[42,47] traveller's diarrhoea,[42] functional constipation,[42] functional abdominal pain,[42] Crohn's disease,[42] irritable bowel syndrome,[42] and non-alcoholic fatty liver disease.[47]
Lactobacillus gasseri	*Helicobacter pylori* infection,[42] irritable bowel syndrome,[55] abdominal pain,[55] anxiety,[36] and body weight (body mass index).[42]
Lactobacillus helveticus	Stress,[13] depression,[13,36,50] anxiety,[13] anger,[36,49] hostility,[36,49] cognition,[49] and gastrointestinal discomfort produced by stress.[49]
Lactobacillus paracasei	*Helicobacter pylori* infection,[42] antibiotic-associated diarrhoea,[42] functional abdominal pain,[42] Crohn's disease,[42] and irritable bowel syndrome.,[42]
Lactobacillus plantarum	Antibiotic-associated diarrhoea,[42] functional abdominal pain,[42] Crohn's disease,[42] ulcerative colitis,[42] Helicobacter pylori infection,[42] irritable bowel syndrome,[42,47] non-alcoholic fatty liver disease,[42,47] anxiety,[49] depression,[49] stress,[49] and behaviour in autism.[49]
Lactobacillus reuteri	Crying time in infants,[56] infectious childhood diarrhoea,[47] diarrhoea,[53] acute infectious diarrhoea,[42] antibiotic-associated diarrhoea,[42] traveller's diarrhoea,[42] functional abdominal pain,[42] Crohn's disease,[42] irritable bowel syndrome,[42] and non-alcoholic fatty liver disease.[42]
Lactobacillus rhamnosus GG	Antibiotic-associated diarrhoea,[49,57] infectious childhood diarrhoea,[47] *Clostridium difficile*-associated diarrhoea,[47] Crohn's disease,[47] non-alcoholic fatty liver disease,[47] vaginosis,[47] vaginitis,[47] atopic eczema and eczema,[42] post-partum depression,[58] post-partum anxiety,[58] stress,[34] reduced risk of neuropsychiatric disorder development later in childhood,[49] attention deficit hyperactivity disorder.[49] Lactobacillus rhamnosus also alters the behavioural activity of the other bacteria in the intestines.[59]
Saccharomyces boulardii	Antibiotic-associated diarrhoea,[42,47,60] *Clostridium difficile*-associated diarrhoea,[42,47,60] infectious childhood diarrhoea,[47] Crohn's disease,[42,47,60] ulcerative colitis,[60] diarrhoea,[60] acute infectious diarrhoea,[42] and traveller's diarrhoea.[60]

Magnesium: *The Immune System's Super Mineral*

Sandy Sanderson | CEO, Elektra Magnesium (BA UNSW)

Introduction

An inverse relationship between magnesium deficiency and the development of degenerative diseases and immune system disorders has been known for many years, but it wasn't until the last decade that significant advances have been made to better understand magnesium's role in immunity.

Magnesium (Mg2+) is required for homeostasis and regulation of the immune system. Chronic magnesium deficiency leads to enhanced baseline inflammation associated with oxidative stress, which can lead to temporary and long-term immune dysfunction. The lower the magnesium status, the more hypersensitive and primed for inflammation the immune system becomes, and the more inflammation and consequential oxidative stress, the more the body excretes magnesium, therefore tending to become even more deficient. Furthermore, we become primed for inflammation from chronic stress (psychological or physical), which leads to excessive urinary magnesium loss, and becomes a vicious circle.[1]

Magnesium is the fourth most abundant cation in the human body and the second most abundant cation inside cells. This master mineral electrolyte is absolutely essential for the regulation of cell redox (electron transfer and pH balancing), protection of mitochondria, cell respiration, and the ability to produce ATP (adenosine triphosphate).

"Magnesium is involved in the regulation of all metabolic pathways and in redox balance, its deficiency generates a metabolic and energetic stress and is associated with the accumulation of free radicals." [2]

The fire of inflammation is fanned by magnesium deficiency

Magnesium influences regulation of both cell proliferation and apoptosis (cell death). Its deficiency impairs the response of the adaptive and regulatory immune cells (T and B), while activating the innate immune system – thus promoting and amplifying inflammation.

This state coincides with heightened levels of tumour necrosis factor (TNF-α) and other proinflammatory cytokines in the bloodstream, as well as decreased concentrations of anti-inflammatory cytokines. The proinflammatory effects of magnesium deficiency are mainly influenced by the N-methyl-d-aspartate (NMDA) receptor, a glutamate receptor which is the brain's primary excitatory neurotransmitter, and by nuclear factor kappa-light-chain-enhancer of activated B cells (NF-κB), which controls transcription of DNA, cytokine production and cell survival.

Several studies demonstrate that a moderate or subclinical magnesium deficiency induces a low grade, chronic inflammation, which is the common denominator of many common pathological conditions such as, "cardiovascular diseases, diabetes, asthma, preeclampsia, osteoporosis, inflammatory bowel diseases, mental health disorders and neurodegenerative diseases [2]*. Biomarker of chronic inflammation is a modest 2–4 fold increase of inflammatory mediators." [2]

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Immune regulation, cell signalling and magnesium sensing

CD8+ T-cells are a key component of the adaptive immune system, playing a critical role in recognising and eliminating infected or malignantly transformed cells. Magnesium is a critical catalyser of the CD8+ T-cell and its potency. It does this by interfacing with the cell surface Lymphocyte function-associated antigen (LFA-1), which is a protein that plays a critical role in T-cell activation and signal transduction. It is a type of transmembrane receptor responsible for communication between the cell and the extracellular matrix (ECM).

LFA-1 is involved in T-cell activation, immune synapse formation, leukocyte trafficking, and the movement of T-cells from blood vessels into the surrounding tissue (extravasation). In the process of T-cell activation, LFA-1 acts as a docking site for target cells.

"In the inactive state this docking site is in a bent conformation and cannot efficiently bind to infected or abnormal cells. This is where magnesium comes into play. If magnesium is present in sufficient quantities in the vicinity of the T-cells, it binds to LFA-1 and ensures that it remains in an extended and active conformation." [2]

The MAGT1 transporter protein moves charged ions of magnesium into T and B cells, which is essential to prevent cytotoxicity and to support mitochondrial metabolism. "In T-cells and B cells, MAGT1 deficiency lowered cytosolic free magnesium and hindered magnesium absorption." [3]

As magnesium is essential for production of enzymes, a magnesium deficiency can lead to a deficiency in the MAGT1 magnesium transporter, which can then further restrict magnesium access to mitochondria, resulting in a negative feedback loop.

Chronic inflammation from magnesium deficiency is linked to the production and release of "interleukin-1 (IL-1), tumour necrosis factor (TNF), as well as the activation of phagocytosis, calcium channel opening, NMDA receptor activation, NF-B signalling, and stimulation of nitric oxide with inflammatory markers."[3] Further, "Studies have shown that Mg deficiency can promote platelet agglomeration, which can affect micro-vascular functions, and limit the growth and migration of endothelial cells. Additionally, research suggests that the stimulation of the IL-33/ST2 axis, a key pathway in inflammation, can lead to decreased Mg levels in severely inflamed tissues." [3]

Oxidative stress and mitochondria

If magnesium levels drop too low in cells, redox balance is compromised and mitochondrial function is inhibited in order to protect them from oxidative stress, the ravages of Reactive Oxygen Species (ROS) and lowering of pH to the acidic range. When magnesium is deficient and pH is too low, the entry of glucose and insulin via the cell membrane is restricted to some extent in order to lessen mitochondrial respiration, so that fewer ROS waste products are produced in order to mitigate excessive oxidative stress.

Normally, ROS must be rapidly neutralised and cleared away so that free radicals don't get a chance to steal electrons from cell organelles and mitochondria, causing injury. Seen in this light, insulin resistance becomes cell protective, but of course has other trade-off side effects.

Magnesium supplementation improves mitochondrial function through various mechanisms, such as mitochondrial ROS inhibition, modulation of membrane permeability, transition channel opening and calcium antagonism. Magnesium is protective of mitochondria, as confirmed in this study by Fujita et al.: "Our results suggest that Mg2+ that has dissociated from ATP is not merely a byproduct, but functions as a cytoprotective mechanism against oxidative stress and that Mg2+ supplementation is effective in protection against oxidative stress." [4]

Magnesium deficiency is associated with lipid peroxidation, cytotoxicity, lowering of hepatic glutathione and vitamin E levels, as well as superoxide dismutase (a vital mitochondrial antioxidant), which further leads to an increase in oxidative stress. Magnesium not only works synergistically with other antioxidants, but by itself also donates electrons, thereby working as an antioxidant to scavenge free oxygen radicals.

Problems with neutralisation and clearance of ROS metabolic wastes leads to oxidative stress and age-associated mitochondrial dysfunction, expressed as systemic inflammation. Autoimmune conditions can develop in the presence of "self-garbage (mtDNA, cardiolipin, or formyl peptides) that may be detected by macrophages. Mg insufficiency disrupts the electron transport chain and facilitates the generation of reactive oxygen species (ROS). The reduced protein expression of manganese superoxide dismutase, including catalase, is indeed driven by magnesium deprivation, affecting the antioxidant defensive reaction. Mg deprivation reduces ATP biosynthesis via down-regulating ATP synthase (F0F1). Intracellular Mg insufficiency prohibits Mg from accessing mitochondria via the mitochondrial RNA splicing 2 (MRS2) protein and triggers Mg efflux." [3]

When excessive magnesium is lost from cells, it causes membrane channel dysfunction and subsequent loss of potassium and hydration from cells, which lowers pH and slows cell respiration.

Endothelial dysfunction in auto-immune disorders: Crohn's disease, colitis, psoriasis, respiratory disorders, and slow healing leg ulcers

Endothelial dysfunction associated with the development of an inflammatory syndrome is accompanied by the activation of leukocytes and macrophages. Levels of proinflammatory

cytokines, acute-phase proteins, and free radicals also increase. Magnesium deficiency appears to affect the function of mast cells and their ability to secrete histamine. Several studies have also shown a significant relationship between low magnesium and severe COVID-19 symptoms, influenza, asthma and other respiratory issues.

Magnesium supplementation has been shown to improve bronchodilation, including lung function in asthma patients, via calcium antagonism and relaxation of the smooth muscles of the endothelial linings, helping to mitigate an exaggerated inflammatory response. Magnesium is an important cofactor for the synthesis of immunoglobulin (Ig), C3 convertase, adhesion of immune cells, antibody-based cytolysis, IgM lymphocyte binding, macrophage response to lymphokines, and T helper–B cell adherence.

Numerous enzymes rely on magnesium as a necessary cofactor. It is essential in the synthesis of all proteins, including enzymes, hormones, collagen and elastin. Magnesium deficiency is associated with premature ageing and frailty of skin, hair, nails, bones and teeth - that is, the whole integumentary system.

When redox is out of balance free radicals from metabolic wastes accumulate, causing pH to drop and attracting pathogens to that environment, which can further increase the acidic load and compromise redox. If the liver is under too much stress and detoxification is sub-optimal, toxins can escape into the lymphatic system, promoting skin conditions like eczema, psoriasis, dermatitis, and itchy rashes.

Magnesium deficiency is associated with depressive symptoms in fibromyalgia and the impaired memory function related to neuropathic pain. "High Mg also decreases BBB [blood brain barrier] permeability and promotes BBB clearance of Aβ from the brain ... Neuroinflammation has a relevant pathogenic role in neurodegeneration, seizures, migraine chronification, traumatic brain injuries and ischemic stroke." [3] A personalised magnesium supplementation program helps to reduce the Ca:Mg ratio, which lowers inflammation and significantly boosts cognitive function.

Care should be taken with detoxification therapies so as not to overload the system, and to ensure adequate antioxidant support is available – especially sufficient magnesium! Apropos antioxidants, magnesium has a synergistic effect with ascorbic acid by increasing its potency. This is an important consideration because those with impaired endothelial innings may not tolerate high doses of vitamin C. In addition, the liposomal version of vitamin C is better tolerated, as lipids are membrane protective.

Magnesium regulates levels of intracellular free calcium and pH balance

When magnesium is low, ion channels loosen and become compromised, allowing too many calcium ions to enter the cell from the extracellular spaces. This coincides with loss of cell water and potassium, and the resulting excessive contraction of muscle fibres can cause muscle and heart rhythm disturbances, as well as electrical conductance issues. Magnesium however is antagonistic to calcium and also brings hydration back to the cell, with improved membrane charge and function keeping valuable potassium in.

Calcium leaching out of bones and settling in soft tissue is a responsive reaction to a redox imbalance, because it is an alkalising mineral. If oxidative stress becomes excessive and ROS is not effectively neutralised, and if there are not enough antioxidant supports to donate electrons to quell free radicals, then free calcium is systemically released from bones, as this cation is attracted to electron deficient molecules – such as those of inflamed endothelial linings.

If calcium deposition becomes chronic, eventually the endothelial linings of the vascular system, as well as other tubular systems in organs like kidneys and bladder, become more rigid and lose integrity and flexibility. If kidney tubules stiffen, they lose efficiency to recycle magnesium and other alkaline minerals, thereby losing alkalising capacity, which contributes to acidosis and worsening health conditions.

Vitamin D

Vitamin D3 (cholecalciferol) is a fat-soluble hormone that is essential for bones, the immune system, cardiovascular function and brain health. Most endogenous vitamin D is produced in the skin via exposure to direct sunlight in the presence of cholesterol sulphate and magnesium ions. We can absorb vitamin D from certain foods like butter, eggs and seafood, but dietary amounts are usually not enough to supply all that we need, except in certain cultures with a high oily fish diet. In most cases, we rely on the sun for the majority of our vitamin D supply.

Magnesium is a cofactor for vitamin D synthesis, and its deficiency can lead to a decrease in vitamin D formation from its precursors. This leaves the immune system's T-cells, B-cells and antigen-presenting cells short of supply and sub-optimal, as all have vitamin D receptors. This weakens the immune system.

Researchers Cheung et al.[5] discovered enhanced efficacy of treatment of obese individuals suffering inflammatory conditions when magnesium and vitamin D were supplemented together. They found that "the MagD group experienced the greatest increase in serum 25OHD concentrations (6.3 ± 8.36 ng/mL; $P < 0.05$). There was a decrease in systolic blood pressure (7.5 ± 8.26 mmHg; $P < 0.05$) for individuals who had a baseline systolic blood pressure of >132 mmHg in the MagD group." [5]

Caution should be exercised with vitamin D supplementation alone when magnesium status is low, because vitamin D mobilises free calcium, and calcium is a magnesium antagonist. This high

vitamin D and low magnesium ratio can promote hypercalcemia, which reduces magnesium's potency.

As it's easier to get enough calcium than enough magnesium from diet, and magnesium is excessively excreted under stressful conditions, there is a propensity for calcium to become dominant and deposit into soft tissue such as endothelial linings of blood vessels. This can be particularly exaggerated in a high carbohydrate diet due to anaerobic metabolism and corresponding insulin resistance.

In treating vitamin D deficiency, its supplementation should go hand in hand with magnesium supplementation, as well as avoidance of calcium supplementation (except in rare circumstances of genuine calcium deficiency). It is often the case that lifting magnesium status can eliminate symptoms of calcium deficiency where the problem isn't a shortage of calcium, but rather how it is being regulated and used in the body.

Magnesium sufficiency is cancer-preventative

Magnesium also plays a critical role in preserving the active structure of macromolecules such as DNA, RNA, and ATP, damage to which is linked to cancer. Magnesium is involved in regulating second messengers derived from lipids and phosphoinositides, compensating for charge imbalances.

Oxidative stress and magnesium deficiency activate inflammatory pathways, which can lead to transformation of normal cells to tumour cells, their proliferation, chemoresistance, radio-resistance, invasion, angiogenesis, and stem cell survival, as T- and B-cell immune regulation becomes compromised and normal apoptosis of corrupted cells is suppressed.[6]

"A recent meta-analysis showed that a linear relationship exists between higher dietary magnesium intake and reduced cancer mortality, with a 5% decrease in cancer mortality observed for every 100 mg/d increase in magnesium intake. Interestingly, lower dietary Mg intake may be associated with increased production of N-nitroso compounds, which are carcinogens." [3]

In studies on mouse models of cancer, researchers have demonstrated strengthening of the immune response of T-cells against tumour cells by an increase in local magnesium concentrations in the tumours.[6]

Magnesium supplementation

Subclinical magnesium deficiency is common, especially in the ageing population, because of insufficient magnesium intake, excessive and chronic stress, medications, chronic diseases, and digestion and absorption issues. A magnesium-rich diet is recommended, but caution should be exercised with foods high in oxalates and other phyto-chemicals which block magnesium. Sufficient soaking and cooking techniques can help to release the bound magnesium – but make sure the cooking water is not discarded! Soups, such as those recommended in the Gut and Psychology Syndrome (GAPS) protocol, are easier to digest and can support a magnesium-rich diet.

The consumption of drinking water with magnesium chloride (MgCl2) can also serve as a significant means of obtaining magnesium via diet.[3] Dissolved magnesium chloride is already in the right form for solubility and cell absorption without further digestion. High concentrations of magnesium in any form attract water and have a laxative effect, which means most of the magnesium doesn't make it across the gut wall to the interior.[7]

The optimal magnesium uptake via gut wall is in concentrations found in

natural spring waters in the range 30 to 130mg elemental magnesium per litre, and is in the form of MgCl2. Therefore, regular drinking of magnesium mineral water provides optimal dietary intake without necessitating stomach digestion. Magnesium in drinking water also increases hydration capacity of the water, which supports mitochondrial metabolism and excretion of cell wastes.

However, high end magnesium needs can be catered for with additional daily transdermal magnesium supplementation, because magnesium chloride topical cream, lotion and spray, as well as magnesium bathing, have the potential of delivering much higher amounts of magnesium via epidermal absorption. Magnesium bathing can also enhance detox via skin.

The skin can store extra magnesium, particularly in the presence of lipids, which are skin-protective. There is no risk of overdose using this method, as the body is self-regulating via skin absorption of magnesium. Not only is the use of transdermal magnesium soothing and relaxing, helping to relieve stress, but regular daily use helps to restore cellular stores of magnesium over time.

More research is now being conducted to investigate the use of MgCl2 as an adjunct cancer treatment. "Santos et al. found that MgCl2 causes apoptosis and significantly slows migration in cancer cells with varying metastatic potentials. MgCl2 inhibits invasion and metastasis by lowering V-H plus ATPase with myosin II expression, suppressing vimentin expression, and increasing E-cadherin expression, implying function for MgCl2 in EMT reversing. In addition, MgCl2 inhibits NF-k expression while promoting chromatin condensation." [3]

It should be noted that subclinical magnesium insufficiency can exist in tissue cells, but not necessarily be revealed by blood tests, as blood only contains about one per cent of the body's magnesium, which is kept within a narrow range to support cardiovascular health. Tissue cells often sacrifice their stored magnesium in order to maintain magnesium balance in the blood. "Metabolic unit depletion/repletion experiments show that serum magnesium concentrations decrease only after a prolonged depletion." [8]

As people get older, their immune systems lose their natural ability to fight infections, increasing their risk of infection, neoplasms, and autoimmune diseases, as well as their ability to heal skin wounds. Metabolic disorders, inflammation, respiratory illnesses, endothelial dysfunction, thrombosis, heart rhythm abnormalities, osteoporosis, depression and mental illnesses are all fundamentally magnesium-deficiency symptoms.

"Illness load is linked to deterioration of immune system competence rather than chronological age." [3] The common denominator in degenerative diseases and ageing is magnesium deficiency, which is why magnesium has been commonly referred to by researchers as 'the anti-ageing mineral'.

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The ATMS Research Grant allocates up to AU$10,000 to support natural medicine research that aligns with the goals of the ATMS Strategic Plan.

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NICM Health Research Institute at Western Sydney University

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DR ISABELLA LEUNG

Western Sydney University

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FIND OUT MORE

Omega-3 SDA *- a sustainable omega solution in addressing autoimmunity?*

Camilla Brinkworth | Co-founder of PhytoLove

Financial disclosure: PhytoLove holds exclusive distribution rights for refined Buglossoides arvensis seed oil for use in human and canine supplements in Australia and New Zealand.

Abstract

Around 90% of Australians intake insufficient or imbalanced omegas — with notable systemic health implications, including driving autoimmunity. Plant-derived options are considered ineffective in meeting omega-3 needs, due to poor conversion to long-chain polyunsaturated fatty acids (LCPUFA) as detected in the blood. Additionally, with mounting concerns of environmental toxicity and harmful environmental consequences, many seek a solution outside of traditional marine-derived omega sources. Furthermore, it is now recognised that, due to no meaningful retro-conversion, focusing solely on marine and algal supplementation negates the consideration of important omega-3 metabolites and omega-6 GLA. Omega-3 Stearidonic Acid (SDA), demonstrates rising therapeutic recognition and presents a new possibility for plant sources to meet LCPUFA intake needs efficiently, by-passing the rate-limiting delta-6-desaturase enzyme step to meet EPA and DHA needs. Refined Buglossoides arvensis seed oil, the highest known natural plant source of omega-3 SDA, effectively provides the most diverse array of oxylipin precursors and anti-inflammatory substrates from complementary omega 3/6 pathways and presents a sustainable option for meeting essential fatty acid requirements and mitigating auto-immune clinical presentations.

Polyunsaturated Fatty Acids Omega 3s and 6s

Omega-3s and omega-6s polyunsaturated fatty acids play important roles systemically and are pivotal in maintaining cell membrane integrity throughout the body. They hold particular importance to immunity, inflammation management, cardiovascular, neurological, integumentary, hormonal and musculoskeletal health. While omega intake and balance have well-accepted impacts on human health, 80-90% of Australians are considered to ingest inadequate omega-3 but excess omega-6, likely leading to pro-inflammatory effects and driving auto-immune presentations.(1, 2)

Omega Choices – Short-chain v Long-chain Options

Short-chain polyunsaturated fatty acids Omega-3 ALA and omega-6 LA are the only biologically essential fatty acids, meaning that the human body cannot produce them from other precursors, and they must be ingested from our diets.(3) However, due to EPA's and DHA's well-studied pro-resolving mediators and ALA's widely accepted poor conversion to these longer-chain omega metabolites in most people, dietary supplementation in clinical practice predominantly focuses on these omegas.

Identifying new sustainable and efficient sources of omegas beyond marine source is of paramount importance. Chris Gearhear of The Global Organization of Omega 3s EPA and DHA (GOED), told us in 2022 that "The stakes are high. The oceans can't provide even the most conservative daily dose of EPA and DHA for each human being." Marine oils pose significant environmental challenges, with research attesting to the severe depletion of fish stocks, and some researchers suggesting we could see virtually empty oceans within the next few decades.(4)

Ocean toxicity is of growing concern, with a study of 12,000 food and feed samples by the European Food Safety Authority determining fish and fish oil to be the highest in PCB contamination. (5) Heavy metals, microplastics, and dioxins are additional concerns in many marine-derived products.(6) It has been suggested that persistent organic pollutants are implicated with metabolic disease risk, which may elucidate the mixed literature on clinical outcomes associated with fish and fish oil consumption.(7)

As a more sustainable and less contaminated source of LCPUFAs, algal oils have been rapidly rising in popularity. However, most currently available are vastly dominant in DHA rather than EPA, and research using compound-specific isotope ratio analysis demonstrates that so-called 'retroconversion' to EPA and other precursors does not occur at any meaningful level, and that instead rises in EPA levels following DHA supplementation are a consequence of a slowed conversion/pooling of EPA.(8) Further, recent research shows that we downregulate our body's natural omega-3 metabolism pathway from plant-based precursors ALA and SDA when we supplement with preformed DHA.(9)

Flax, chia, hemp and dark green leafy vegetables are plant-based omega-rich sources that provide the essential omega-3 ALA. Omega-3 ALA's conversion through to the LCPUFAs is considered inefficient in many people, although it is known that vegans and vegetarians have increased conversion through to EPA in the blood, and that, compared to their omnivorous counterparts, their DHA precursor: product ratios are greatly upregulated. (10) Other factors influencing the efficiency of this conversion pathway and ALA's ability to meet LCPUFA needs include diet, age, gender and genetic variabilities, such as SNPs.

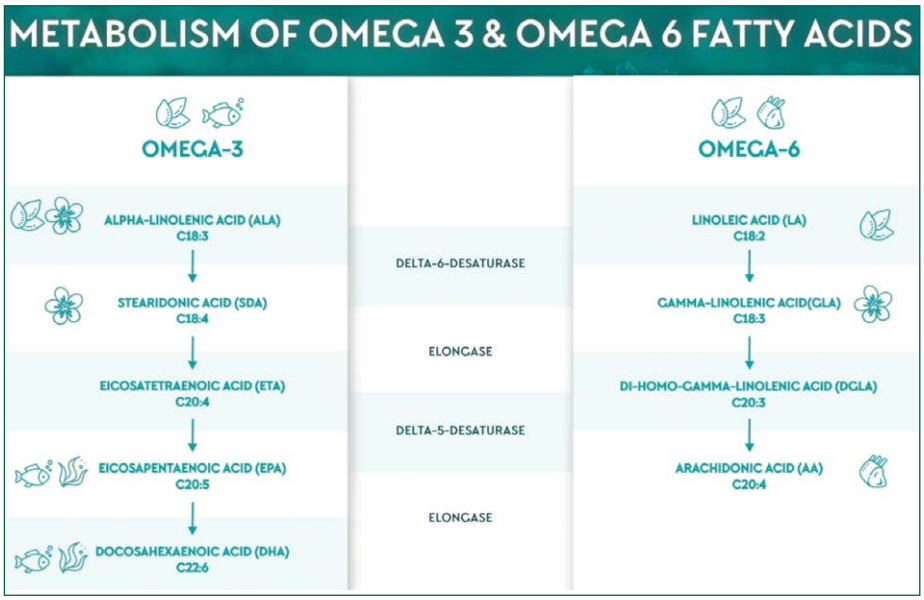

Figure 1.

The shared rate-limiting step determining conversion of omega-3 ALA and omega-6 LA through to their more advanced omega metabolites is called the delta-6-desaturase (D6D) enzyme.(11) The astounding imbalance between omega-6 and omega-3 found in the typical Western diet – driven by ubiquitous industrial commodity oils like palm, corn and soya – contributes to the rate of inadequacy of this natural metabolism pathway. Furthermore, high consumption of animal products and processed plant foods provides far higher omega 6: omega 3 ratios than is considered biologically optimum. Competition between omega-3 and omega-6 at the D6D step hinders omega-3 ALA conversion and may lead to inadequate EPA and DHA provision.

The metabolism of Omega 3 and Omega 6 fatty acids is summarised in Figure 1.

Omega-3 SDA - The efficient plant-derived EPA precursor

Omega-3 SDA proceeds ALA and the rate-limiting D6D step in the omega-3 metabolism pathway, raising EPA levels in the blood efficiently- showing a greatly enhanced conversion rate of approximately 30-40%.(12-14) Due to SDA bypassing this competitive enzyme, it is able to convert through to the entire spectrum of omega-3s, even when background omega-6 LA intake is high, as seen in most patients following a Western diet.(12)

Currently the best-known plant source of omega-3 SDA is hemp, providing around 2% SDA. However, refined *Buglossoides arvensis* seed oil is the richest known source of polyunsaturated fatty acids, and the highest known natural plant source of omega-3, including SDA.(15, 16) Its ~20% SDA content would allow us to meet current global omega-3 requirements on only 480,000 hectares per year- just 1.3% of the number of soybean hectares recorded in the US in 2017, and overwhelmingly designated to animal feed.

Compound-specific isotope ratio analysis challenges beliefs we've long held, derived from blood measurements, that short-chain omega-3s ALA and SDA cannot contribute to DHA requirements.(17) Though these short-chain omegas don't meaningfully raise DHA in circulating RBCs or plasma, research suggests they do biosynthesise to new tissue DHA in the brain and liver efficiently. Researchers at the University of Toronto recently showed whole body (including liver and adipose) DHA accrual rates from dietary ALA to be up to 47 times higher than in circulating cells.(18) The highest known natural source of omega-3 SDA, refined *Buglossoides arvensis* seed oil, when trialled against flax and a pure marine DHA source, demonstrated comparable tissue DHA turnover rates compared to a pure marine DHA source. Previous work established that, based on ALA->DHA synthesis rates in rodents and humans, that despite being conducted in rodents, this work is confidently transferrable to humans.(19) Pioneers of the omega-3-index test, OmegaQuant, acknowledged recently that this research "means that the Omega-3 Index, which tests EPA and DHA levels by percentages in red blood cells, may not be the most appropriate test for (refined *Buglossoides arvensis* seed oil's) contribution to overall omega health and wellness benefits."(20)

Preformed DHA controversy in clinical outcomes

While clinicians typically appraise omega status through the elevation of DHA in red blood cells, due to ease of measurement, the University of Toronto's groundbreaking research raises the question of why plant-based omegas readily raise EPA but not DHA in the blood, despite appearing to be far more adequate in maintaining tissue DHA in a healthy developed brain than previously believed.(17) Could there be advantages to enriching DHA directly into key tissues, as opposed to raising blood levels, particularly as relate to cardiovascular outcomes? Several clinical trials and meta-analyses suggest that direct DHA ingestion, in contrast to EPA, can raise LDL cholesterol, even undermine plasma EPA's protective effects against major adverse cardiovascular event risk, and potentially increase the risk of atrial fibrillation.(21-27) The most recent NHANES data likewise showed only higher serum EPA (not DHA) to correlate to lower cardiovascular death risk.(28)

A three-month double-blind, randomised, placebo-controlled, crossover trial in middle-aged men and women found 0.7g DHA/day to increase LDL cholesterol by 7%.(21) Furthermore, LDL cholesterol:ApoB ratio was 3.1% higher with DHA treatment than placebo, suggesting an increase in LDL size. The authors hypothesised that DHA downregulates the expression of the LDL receptor. A meta-analysis of 21 studies likewise found fish oil supplementation, though associated with a significant reduction in triglycerides, to be associated with an average 6mg/dL increase in LDL-C levels.(22)

Recent research also suggests that DHA may reduce the cardioprotective effects of EPA. A meta-analysis of eight eligible studies including 57,754 participants revealed DHA to increase LDL cholesterol, while EPA decreased LDL cholesterol.(23) EPA and statins were shown to improve endothelial dysfunction and protect against HDL oxidation, but DHA did not. An article entitled "Higher docosahexaenoic acid levels lower the protective impact of eicosapentaenoic acid on long-term major cardiovascular events" studied 987 randomly selected subjects from the INSPIRE biobank registry who underwent coronary angiography.(24) Rapid throughput liquid chromatography-mass spectrometry quantified EPA and DHA plasma levels, assessing unadjusted impact, impacts adjusted for one another, and fully adjusted for comorbidities, EPA+DHA, and the EPA/DHA ratio on 10-year Major Adverse Cardiovascular Events (MACE). Higher EPA but not DHA were associated with a lower risk of MACE, and when combined with EPA, higher DHA appeared to blunt the benefit of EPA. Of most concern, DHA was associated with a higher risk of MACE in the presence of low EPA. These findings may further elucidate conflicting outcomes from LCPUFA supplementation.

Surprisingly, some studies also show DHA supplementation to be deleterious for cognition when compared to a placebo in healthy developed human brains.(29, 30) Research estimates that only 2.4-3.8 mg/day is required to maintain a healthy, developed human brain, while supplementation typically occurs at far higher amounts.(19) It is often believed that a higher intake of any given natural substance must be beneficial, though common sense, and research, challenges this - even lower dose refined *Buglossoides arvensis* seed oil outperformed higher dose *Buglossoides arvensis*, and yet performed just as well as the same dose of fish oil in a rheumatoid arthritis animal-model clinical trial.(31) Studies in non-fish eating populations have suggested a negative feedback inhibition mechanism from preformed DHA intake, which has now been confirmed by research, and may be one factor in the varied outcomes from preformed DHA intakes.(9, 10) Additionally, though controversially, the triacylglycerol (TAG)-DHA found in most supplemental forms may be unable to cross the blood-brain barrier, in contrast to lysophosphatidylcholine (LPC)-DHA which is the form biosynthesised in the liver from ALA - this suggests that the rise we see in blood levels following supplementation with TAG-DHA could conversely be an indicator that the body is not utilising this DHA in the tissues in which it is best situated.(32)

Omega 3 ALA & SDA - the omegas of emerging consequence

Choosing an omega-3 source that provides ample ALA and SDA may readily elevate plasma EPA levels and meet tissue DHA requirements, while respecting the body's natural metabolism pathway. ALA is known to hold cardio-protective benefits and in the NHANES study only serum ALA correlated to lower cancer death risk (not LA, EPA, or DHA).(28, 33, 34)

Furthermore, omega-3 SDA demonstrates its own potent anti-inflammatory, cardioprotective, pro-collagen and neuroprotective benefits.(35-37) One study remarkably found circulating ALA, SDA and ETE levels to predict fluid intelligence and frontal neocortex brain integrity in healthy seniors, rather than EPA and DHA levels.(38) SDA has also been shown to demonstrate comparable anti-inflammatory action to DHA in macrophages; furthermore, SDA reliably and consistently upregulates anti-inflammatory interleukin-10 in clinical trials.(39, 40)

Increasing attention is placed on EPA, DPA and DHA-derived oxyipins, some of which are known as specialised pro-resolving mediators or SPM precursors.(41) While their effects are less well studied, over half of recognised tissue oxylipins are in fact derived from ALA and LA. Interestingly, the omega-3 succeeding SDA, ETA, also has its own newly discovered anti-inflammatory oxlipin which "could possibly possess anti-inflammatory or pro-resolving activities analogous to the well-described EPA, DPA and DHA-derived resolvins, protectins and maresins."(42) While omega-6 is typically associated with pro-inflammatory outcomes, DGLA (the omega-6 metabolite formed preferentially from GLA) also produces anti-inflammatory oxylipins, demonstrates inhibitory effects on platelet aggregation and inflammation and can compete with AA in the synthesis of pro-inflammatory AA eicosanoids.(41, 43) Due to the unilateral omega-3 and omega-6 metabolism pathways, these non EPA, DPA or DHA-derived oxylipins are neither procured from fish nor algal sources, and can only be produced in any meaningful quantity from plant sources.

Respecting the body's autonomy to benefit from our natural omega metabolism pathways

Refined *Buglossoides arvensis* seed oil demonstrates up to four times better conversion to EPA than flaxseed oil, comparable tissue DHA turnover to marine DHA, and downregulation of highly pro-inflammatory AA, in addition to gut microbiome-enhancing, anti-inflammatory, hepatoprotective, cognitive-enhancing, and insulin-sensitising effects.(12, 17, 31, 40, 44-47) While retaining a 4:1 omega 3:6 ratio, it also provides a comparable percentage of omega-6 GLA to evening primrose (5-8% versus 6-10%), and efficiently and reliably upregulates anti-inflammatory DGLA preferentially over pro-inflammatory AA.(12, 40)

Refined *Buglossoides arvensis* seed oil appears to efficiently increase plasma EPA and cause a distinct shift in the entire oxylipin pattern, while maintaining tissue DHA turnover comparably to dietary DHA.(12, 17) Animal models thus far have found its anti-inflammatory actions to be either equal or superior to those observed with fish oil.(31, 47) A recent peer-reviewed publication on sustainable omega sources noted that in a total parenteral nutrition (TPN) animal study, "Remarkably, the effects of the (refined *Buglossoides avensis* seed) oil containing lipid emulsion were greater than those of the fish oil emulsion. Liver and muscle interleukin-10 and the ratio of interleukin-10 to interleukin-6 were higher with (refined *Buglossoides arvensis* seed) oil than with either soybean oil or fish oil."(48) Refined *Buglossoides arvensis* seed oil has also recently been shown to exhibit prebiotic-like effects, and "foster the remarkable and previously understudied capability of gut microbiota to bio-transform dietary fatty acids into bioactive endocannabinoid-like mediators."(45) Researchers noted a "more targeted and selective influence of Buglossoides oil" in the gut microbiome than fish oil.

Questions about whether to supplement EPA and DHA and in what quantity or ratio, could be largely answered by allowing the body to determine how much of each to provide, using the enzyme-regulated metabolism pathway it has been biologically equipped with. A meta-regression of randomised clinical trials showed a higher EPA to DHA ratio to lower C-reactive protein, though conversely to be associated with higher systolic blood pressure.(49) This apparent conflict indicates that there may be differing ideal amounts according to changing physiological requirements. If the body has tightly regulated enzymatic control over its omega-3 and omega-6 metabolism pathways, and if the essential omega-3 fatty acid in humans is ALA, rather than EPA, and if intermediary metabolites exist with unique oxylipins, surely this indicates that the body would prefer to dictate what it requires at any given time? An ALA and SDA-rich combined source, such as *Buglossoides arvensis* seed oil, allows the body to reap the well-established benefits associated with ALA, while overcoming the D6D limitations implicit in our western diets, through the ability of SDA to expedite the conversion through to EPA and the biosynthesis of DHA in key tissues.(12-14, 17, 28, 33, 34)

With growing pressure on marine ecosystems to meet our global omega-3 requirements and the accompanying serious deleterious environmental consequences, a regeneratively farmed alternative to fish oil is available to us, should we be ready to embrace it. Mounting research supports the efficacy of a sustainable, neutral-tasting omega-3 SDA-rich plant source to meet our circulating EPA and tissue DHA needs, while respecting the body's natural omega-3 metabolism pathway, and offering the widest array of anti-inflammatory oxylipin precursors. In the words of Josh Geiger, "For every extractive, degenerative technology and infrastructure we have on the planet there is a regenerative solution" – we just have to choose it. Regenerating our planet and regenerating the human body, away from auto-immune presentations and towards wellness, need not be mutually exclusive pursuits.

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Recent research in Homeopathy

Robert Medhurst | BNat ND DNutr DRM DBM DHom

There is an abundance of well-conducted scientific research into homeopathy that has been published in peer-reviewed journals for over 80 years. It is useful to be aware of the existence of this material and to be aware of what it has found, because for those of us who use this modality to assist our clients with the restoration of their health, it is easy to become distracted by the long history of claims in the media and elsewhere that there's no evidence that homeopathy has any effect. What follows are some notable recent examples of research that has been conducted in this area.

Human Research

1. Fixsen A. Homeopathy in the Age of Antimicrobial Resistance: is it a Viable Treatment for Upper Respiratory Tract Infections? Homeopathy. 2018;107(2):99-114. This was a literature review of post-1994 clinical studies featuring the homeopathic treatment of acute upper respiratory tract infections (URTIs) and their complications, looking at whether homeopathy offers a viable therapeutic solution for acute URTIs and their complications, and secondly, how such homeopathic intervention might take place. A total of 9 randomised controlled trials (RCTs) and 8 observational/cohort studies were analysed, 7 of which were paediatric studies. Seven RCTs used combination remedies with multiple constituents. The results for homeopathic treatment were positive overall, with faster resolution, reduced use of antibiotics and possible prophylactic and longer-term benefits, all associated with the use of these medicines.

2. Mahesh S, et al, Case Series of Vitiligo and Homeopathy, Am J Case Rep. 2017;18:1276-83. This work analysed the results of the constitutional homeopathic treatment of 14 people suffering from vitiligo, over a period of 58 months. The mean time between the onset of the appearance of vitiligo and the first consultation at the treating clinic was 96 months. A significant reduction in symptoms was seen in all 14 cases and the authors noted that the best results were achieved in the patients who were treated in the early stages of the disease.

3. Magi T, et al. Use of Complementary and Alternative Medicine in Children with Cancer: A Study at a Swiss University Hospital. PLoS One. 2015;10. doi: 10.1371/journal.pone.0145787. This study examined the characteristics and effectiveness of complementary and alternative medicine (CAM) for childhood cancer patients treated at the University Children's Hospital Bern between 2002 and 2011. Parents were asked if medical staff provided information on CAM to patients, if parents reported use of CAM to physicians, and what attitude they thought physicians had toward CAM. Data was collected from 133 patients (response rate: 52%). Of those, 53% had used CAM (mostly constitutional homeopathy) and 25% of patients received information about CAM from medical staff. Those diagnosed more recently were more likely to be informed about CAM options. The most frequent reason for choosing CAM was that parents thought it would improve the patient's general condition. The most frequent reason for not using CAM was lack of information. Of those who used CAM, 87% perceived positive effects.

4. Gaertner K, et al. Additive homeopathy in cancer patients: Retrospective survival data from a homeopathic outpatient unit at the Medical University of Vienna. Complement Ther Med. 2014;22(2):320-32. In this work, data from cancer patients who had undergone homeopathic treatment complementary to conventional anti-cancer treatment at the Outpatient Unit for Homeopathy in Malignant Diseases, Medical University Vienna, Department of Medicine, Vienna, Austria, were collected, described and a retrospective subgroup-analysis with regard to survival time was performed. Patient inclusion criteria were at least three homeopathic consultations, fatal prognosis of disease, quantitative and qualitative description of patient characteristics, and survival time. Data was collected from 538 patients. From the 53.7% (n=287) who had undergone at least three homeopathic consultations within four years, 18.7% (n=54) fulfilled inclusion criteria for survival analysis. Median overall survival was compared to expert expectations of survival outcomes by specific cancer type and the use of homeopathy as associated with prolonged survival time across observed cancer entities.

In-Vitro Research

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Rheumatoid Arthritis, stress, anxiety *and conception with Ayurveda, Meditation, Aromatic Medicine, and Bowen Therapy*

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Introduction

Ayurveda, as most of you might know, is a time-tested ancient science. Ayush (meaning life) and veda (meaning science), is the science of life or a lifestyle. My illustrious late Ayurveda Professor Dr P. H. Kulkarni always said that every country has its own Ayurveda, its own indigenous medicine and lifestyles.

In Ayurveda we look at the whole body and mind holistically, as is done in most complementary holistic therapies. Autoimmune diseases are considered disorders of the body's immune system, as they attack the body's own tissues. From an Ayurvedic perspective, the causes of autoimmune conditions are primarily linked to imbalances in the body's Doshas (Vata, Pitta, and Kapha), improper digestion (Agni), and the accumulation of toxins (Aama) through dehydration, stress and anxiety, so the mind too plays an important role in autoimmune disorders according to Ayurveda.

Dosha imbalance

Vata Imbalance: Vata is the champion of disease. Vata governs movement and when out of balance it can cause irregularities in the nervous system and immune responses. This leads to erratic immune disorders as it is the hallmark of autoimmune disorders. Since the onset of COVID-19 people's lifestyles have changed drastically leading to fear of the unknown and widespread stress. Moreover, people are increasingly attached to technology like mobile phones, iPads and computers with their associated exposure to electromagnetic radiation, and many are living constantly in a heightened sympathetic state (flight or fight response of the autonomic nervous system) thereby leading to high cortisol levels, which eventually damages the immune system. In some cases autoimmune diseases can surface in the body's attempt to fight diseases. Vaccines, in some instances, might also have contributed to previously dormant autoimmune disorders surfacing. As a practitioner I am seeing this more and more in my clinic.

Pitta Imbalance: Pitta is fire and water and has hot and wet attributes. Pitta governs metabolism and an imbalance here can result in excessive heat and inflammation in the body, sometimes dry heat with vata drying out the tissues, triggering the immune system to attack its own tissues.

Kapha Imbalance: Kapha is water and earth: water is cold and moist and earth is solid and heavy, leading to good kapha giving us stability and protection, and an excess can lead to stagnation and accumulation of Aama (toxins), accumulation of phlegm contributing to autoimmune issues.

Improper Digestion (Agni): According to Ayurveda, strong digestion (Agni) is essential for health. When digestion is weak, toxins (Aama) are formed from undigested food. These toxins can circulate through the body and accumulate in tissues, leading to inflammation and immune dysfunction.

Accumulation of Aama (Toxins): Aama is considered a sticky, toxic substance that results from improper digestion and unhealthy lifestyle habits. It can clog and block the body's channels and tissues, disrupting the immune system and leading to autoimmune conditions.

Unhealthy Lifestyle and Diet: Poor dietary choices, lack of sleep, high stress,

and not following natural rhythms (like daily and seasonal routines) are seen as major contributors to the imbalance of Doshas and the weakening of the immune system in Ayurveda.

Combining Ayurveda, Aromatic Medicine and Bowen Therapy

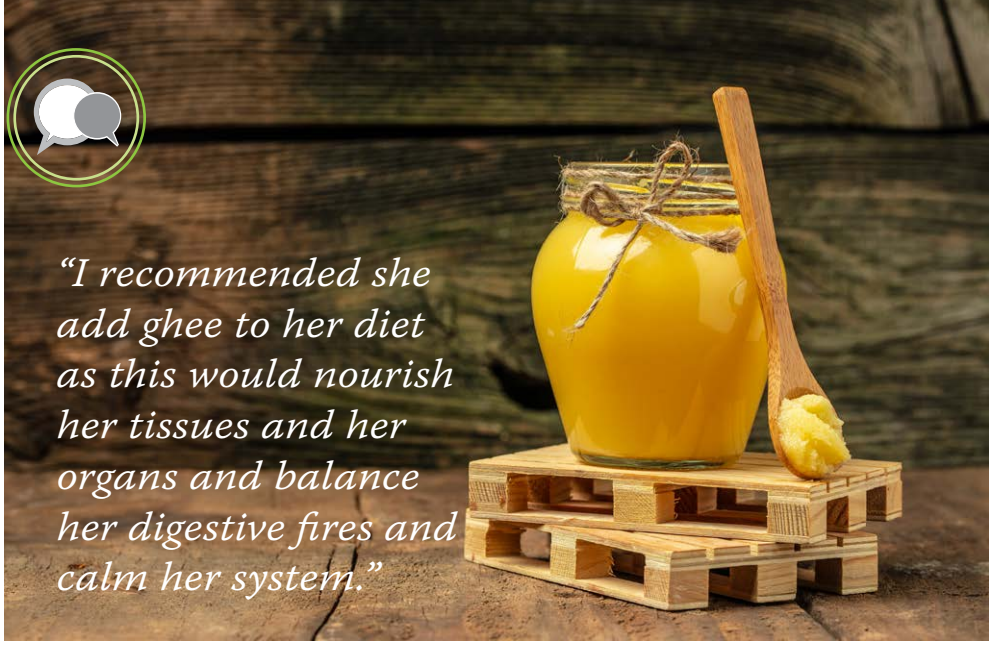
Combining the time-tested ancient practice of Ayurveda with aromatic medicine and Bowen therapy, which is a very Australian soft tissue therapy, has given wonderful results in my experience for stress, anxiety, hormonal balance, regulation of the menstrual cycle, in autoimmune disorders and conception. It addresses the elements, the chakras and the nadis through very gentle movements on the fascia and very close to the marmas, which are specific anatomical locations in the body through which the energy of the five elements -Akash (ether), Vayu (air), Agni (fire), Jala (water) and Prithvi (earth) - flow.

It also appears to enhance immunity and rectify adrenal fatigue. I have observed that Bowen also helps greatly in regulating periods, rectifying PCOS, endometriosis disorders, amenorrhea (absence of periods), dysmenorrhea (painful periods) and conception. We have at times seen brilliant results just by using Bowen alone, even in detoxification. We have had women in our clinic who have had several IVF failures for whom Bowen has helped to sustain the IVF procedure.

In our clinic we complement conventional medicine. If clients are taking prescribed medications, as they improve we ask them to have their doctors monitor their dosages as they may not need to continue with the same dose. We see positive results as they adjust the dosages, especially of metformin, that are prescribed for their PCOS, and of anti-depressants.

Through years of observing and treating women, I have seen how many either experience work pressure or have unhealthy lifestyles, do not exercise enough, or have stagnating systems due to long hours of sitting at the computer, unhealthy diets or binging habits that lead to lack of sleep.

Treating such patients with essential oils that are rich in essential fatty acids (EFAs) has invariably helped to bring about a balance. Essential oils enter the body through the olfactory system, which has more than 6 million stem cells. Some of the chemical constituents travel through the olfactory system with effects on the limbic region of the brain - the thalamus, the hypothalamus, the hippocampus and the amygdala - which is involved in the behavioural and emotional patterns that we need for survival, including our autonomous nervous system. Memories are released together with emotions through the



application of blends with cooling essential oils of Mogra (Jasminum sambac), Gulheena (Lawsonia alba), a rare variety of vetiver called Rhukhus (Vetivera zizanoid), Rose (Rosa damascena), Sandalwood (Santalum album) and Jatamansi (Nardeostachys jatamansi) in cooling-base oils rich in EFAs, such as Brahmi and Amla, which has helped greatly with stress). Use of Brahmi (Bacopa monnieri) and Jatamansi as herbs also helps the mind and nervous system, thereby enhancing our immune system as well.

Irregular periods are very common, often associated with PCOS and endometriosis. In times past women were advised to rest to restore balance. These days, due to the pressures of work and the fact that women often change roles, they are often not taking sufficient care of themselves, so changing their diet and giving them a daily routine is of utmost importance. Yoga also helps greatly, as do meditation and Pranayama.

Bowen therapy can be extremely effective, as it is truly a Marma chikitsa as it balances the Marmas, the Nadis, the chakras, and the Panch Mahabhootas (the five basic or great elements, air, water, ether, fire, earth) and the Doshas. (Chikitsa in Ayurveda is used to refer to any type of treatment or therapy intended to correct an imbalance or manage a specific illness).

Case study

Many young women are under pressure to have a child, and they can be made to feel inadequate and unfulfilled by either their partners or their families if they don't. One such case comes to mind.

Patient background

She was in her late twenties when she was referred to me by another client who was herself having a lot of stagnation, congestion and PCOS and had not had her periods for over six months at a time. (Finally, through our treatment protocols her menstrual cycle regularised and she did conceive).

This lady referred by her had developed rheumatoid arthritis and could barely move without pain. She was on medications before she came to me and had stopped taking them, as, according to her, they were not helping. She was also given some Ayurveda herbs and medications in India which she took for a while, but because she was prescribed too many and had no definite results she stopped. There was a lot of anxiety through family pressures for her to conceive. She was also working full time.

Treatment approach

We discussed that first she needed to get her body and her mind into balance and to strengthen and restore herself, preparing her womb to be strong enough to conceive and carry a child. I also told her we do not make claims to cures, and she should be in touch with her GP for her blood tests etc. She was willing to take on the journey and we first treated her for her anxiety.

During consultation I noticed that her acidity levels were very high. She had a high Pitta disorder, and was very acidic and predominantly vatic in her constitution. She had a lot of dry heat. We addressed her anxiety first and then we started addressing her menstrual cycle together with her arthritic condition.

I prepared a dinacharya or a daily routine.

Diet

Her diet was not the best. I asked her to avoid wheat, strong spices, tomatoes, daals except mung, chicken and meats, and to have only deep sea fish as protein. She was to have no acidic foods at all, such as pickles and vinegar, as this could also contribute to her rheumatoid arthritic condition.

I recommended she add ghee to her diet as this would nourish her tissues and her organs and balance her digestive fires and calm her system. She was to take warm water morning and night.

I recommended that she eat alkaline foods, with juice every morning of beetroot, celery, carrot, lots of coriander leaves. After two months on this regimen she became fitter and generally healthier. I also recommended including essential greens of barley grass, spirulina and wheat grass, chlorella and to add chlorophyll to her water and drinks.

I also recommended magnesium and vitamins C and D, and that she soak dhanya (coriander) seeds overnight and drink the water the next morning, as that could help reduce inflammation and cleanse the kidneys; and a warm decoction of ginger, cumin, coriander seeds, tulasi leaves, cinnamon, cardamom and turmeric every day two to three times at least with fresh lime and honey to strengthen her immunity.

I treated her with application of herbal oil decoctions (no massage, only gentle application as she was having Bowen therapy, which can be negated with massage). To apply Ayurveda herbal oil decoctions, I used Mahnarayan oil, which is a herbal oil decoction, together with Chandanbala lakshadi to bring about a synergy as the two combined would give her the appropriate warmth to balance the Doshas and the musculoskeletal strength she needed,

as ashwagandha and shatavari (the main components in Mahnarayan) would, together with the florals and the sandalwood in the Chandan Bala lakshadi, pacify her excess heat. This was ideal for her pain management as well. It would also hydrate her skin and her internal tissues, as she was very dry. I recommended she leave the oil application on for 15-30 minutes and sit in the early morning sun doing simple pranayamas. These included Nadi Shodan, the pranayama of breathing in for 6 seconds, holding the breath for 6 seconds and breathing out for 6 seconds, and performing the AA O MMM sound resonation technique.

A simple meditation technique and affirmations were given, such as:

Thy perfect light is omnipresent in all my body parts. Wherever that healing light is manifest, there is perfection. I am well, for perfection is in me.
(From Paramahansa Yogananda's "Metaphysical Meditations")

Affirmations like Yoganandaji's can be very powerful when repeated three times aloud, three times softly, three times in a whisper and then three times mentally, three times for the subconscious and three times for the super conscious. The affirmations are said to become embedded into our DNA as the trillions of cells that we are made of have memory chips, and each cell gets reprogrammed with positive affirmations.

I recommended that she take a shower half an hour after applying the decoctions as, according to Ayurveda, this helps to get the aama (toxins) to the surface, and opens up the pores with the steam: the oils and their EFAs and the herbs are absorbed into the blood stream and the aama emerges.

I also recommended an application of therapeutic aromatic blends based on Ayurveda principles. I gave her a muscle-ease blend and a Bowtech blend to use, to be alternately applied after her shower. The muscle-ease blend has powerful anti-inflammatory, immune-stimulant and anti-microbial essential oils such as Kunzea (Kunzea ambigua), Tulasi Ocimum sanctum), Cinnamon leaf (Cinnamomum zeylanicum), Black pepper (Piper nigrum), Clove (Eugenia caryophyllus), Eucalyptus (Eucalyptus globulus) along with some other essential oils in base vegetable oils rich in EFAs (black seed sesame (sesamum indicum) and ashwagandha (Withania somnifera)), which can be very fortifying and strengthening for the musculoskeletal and nervous systems. This helped her greatly.

For applying at night, I prescribed a calming blend of Bliss, which

contains Mogra, Kewda (Pandanus odoratissimus), Jatamansi and some other essential oils in base oils of Brahmi, Amla (Emblica officinalis), and black seed sesame. I asked her to again apply muscle-ease on all her joints, her feet and her navel.

In Ayurveda we have a dictum: take special care of the head, feet and ears, and applying oils to the feet at night keeps disease away from the body, just as snakes stay away from eagles.

I recommended Anu taila, a generic Ayurveda herbal oil decoction administered through the nose, two drops morning and night. It is thought to go through the blood brain barrier, balancing the vata disturbance in the brain, and balancing the autonomous nervous system. In Ayurveda we say this is like an intravenous drip - far more potent than taking medication through the mouth.

I was mindful that my client was working full-time and I didn't want to impose too much on her. A formula of herbs by prof Dr P. H. Kulkarni containing Brahmi, Jatamansi, Ashwagandha, Bringaraj (Eclipta alba), Shankapushpi (Convolvulus pluricaulis), Guduchi (Tinospora cordifolia) was also to be taken morning and night.

Other prescriptions were: an Arthaayush formula of Late Prof Dr P H Kulkarni which contains Ashwagandha, Nirgundi (Vitex negundo), Shunti (Zingiber officinale) and a few other herbs to help with her arthritic condition; Triphala (a generic Ayurveda formula of three berries: Amalaki (Emblica officinalis), Bibhitaki (Terminalia bellirica) and Haritaki (Terminalia chebula), which was given to detoxify the patient's liver and help with regular bowel movement, along with ghee, as she was very dry.

Shatavari kalpa was also prescribed. Shatavari is the very gentle herb Asparagus racemose, combined with saffron, cardamom and raw sugar. This helps with hyper-acidity, is a great tonic, hormone balancer, tissue nourisher, and is great for anxiety and depression. I also prescribed Rasaprash, which is a generic Ayurveda tonic commonly known as Chyvanprash: - just half a teaspoon morning and evening together with Shatavari kalpa in milk, which would cool down the warmth of the Rasaprash, creating a synergy.

Bowen therapy was carried out once a week regularly. In Ayurveda we would have performed Marma massage and Shirodhara (pouring of oil on forehead) but Bowen had a similar impact on the patient, and included gentle rolling movements that are said to work on a cellular level. We leave the body after every rolling move for a minimum 2 minutes, to give it time to assimilate.

This was a 2-month protocol. We changed the aromatic blend during that period with the inclusion of Mogra and Saffron (Crocus sativus), as saffron is great for strengthening the womb, and Kewda, Sandalwood and Davana (Artemisia pallens) to strengthen the reproductive system.

Patient outcomes

A remarkable change was noticed in this frail lady who looked her age now, was vibrant, more confident and calm, and looked hydrated, with no symptoms of her rheumatoid arthritis.

Her periods regularised with a combination of the herbs, oils and Bowen therapy which has special protocols for the pelvic region by addressing a few marmas in that region, and also works on the coccyx. We have noticed over the years the Bowen coccyx procedure apparently balances the Aparna vayu amazingly well, as well as the digestive and the reproductive systems. Professor Kulkarni calls Bowen therapy marma chikitsa as it truly works through the marmas, while also balancing the chakras, Nadis, the Panch Mahabhootas and the Doshas.

The patient's motions became regular and normal, and her pulse showed strength and balance.

We performed the Bowen conception protocol just once while continuing the above Ayurveda formulas and oil applications and the patient conceived soon after, while I was away in India, and on my return she came with a box of sweets to give me the good news. She reported that her rheumatoid arthritic condition was no more and even after a few months of the birth of her little boy she looked healthy and radiant as she followed the daily regime.

She continued with the Shatavari Kalpa as it is an excellent galactagogue, and very beneficial, as mentioned earlier, for post-natal anxiety, hyperacidity and hormonal balance.

Conclusion

Many patients have been treated in our clinic for autoimmune disorders and we have had a lot of success with conception, as described in the case above, even with those who have had several IVF failures and those who have anxiety and depression.

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Review of the ATMS Member Survey 2024

Christine Pope and Brad McEwen

The Australian Traditional Medicine Society (ATMS) Member Survey 2024 took place over a 19-day period from 20 June to 8 July 2024. The purpose of the survey was to provide valuable information for the development of the ATMS Strategic Plan for 2024-2027.

The overall response rate to the ATMS Member survey was 7.7% (562) of members with a representational sample across the major modalities. The top five modalities, listed by major modality in descending order were Remedial Massage (60.5%), Naturopathy (29.9%), Nutrition (22.8%), Western Herbal Medicine (16.7%) and Acupuncture (10.1%).

ATMS Member Services

The top member services utilised closely reflect the key benefits of membership, which is positive and shows that we are largely focussed on the major issues that attract and retain members. Member services as rated in descending order, highest to lowest, were:

1. Offer Varied CPE options	(84.7%)
2. PI Insurance via GSA	(71.0%)
3. ATMS Journal	(68.1%)
4. ATMS Website	(66.9%)
5. Health Fund accreditation	(55.3%)
6. Find a Practitioner	(25.6%)
7. Natural Medicine Week	(20.8%)
8. EBSCO	(20.5%)
9. ATMS Social Media	(19.6%)
10. ATMS member accredited practitioner collateral	(19.6%)
11. ATMS marketing resources	(17.8%)
12. Grants for research and study	(15.1%)
13. ATMS Closed Facebook group	(9.3%)
14. Natural medicine awards	(5.7%)

CPE

Regarding continuing professional education (CPE), a majority of members (84%) agreed that CPE keeps them up to date in clinical practice, with 79% of members agreeing that it was important to maintain professional standards with ongoing education. A total of 76% of members agreed that it was necessary for health fund accreditation. Only 49% felt it was easy to meet the 20 CPE points, with 21% disagreeing.

A total of 87% of members appreciate the access of CPE through webinars, with only 57% wanting the opportunity to attend in-person events; 64% believe it is important to have business education as part of the CPE program.

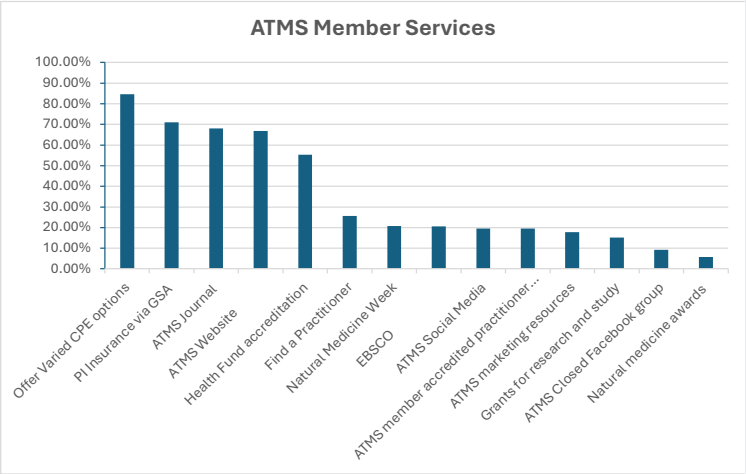
ATMS Journal

In terms of the ATMS journal (JATMS), 68% of members still want to receive a hard copy of the journal. A total of 82% of members agreed that it was important to receive clinically up to date information to support their decision making.

Natural Medicine Week

A total of 46% of members believe that Natural Medicine Week website has improved the recognition of natural medicine by the public, with 40% considering it has improved recognition by government. Only 15% acknowledge a contribution to their business, however 87% of members did not participate directly in Natural Medicine Week. It appears that it is meeting the objective of achieving recognition of natural medicine, although the use of the week to promote member's businesses is still limited.

The survey found that 21.7% of members were interested in participating in Natural Medicine Week, although they were unaware of how to do so.



Research

Research is considered a priority by many members with 83.5% regularly using evidence-based research in their clinical decision making. A total of 82% of members highlighted the need for the journal to continue to provide clinically up to date information. Further 22% of members regularly use EBSCO to support clinical decision making.

Over 50% of members are aware of the annual research grants round, which currently is two $10,000 grants awarded annually.

Marketing and Communications

Just over two-thirds (67%) of members find ATMS communications such as Wise-n-Well and other ATMS communications useful in their clinical practice.

Members find the following ways to source clients:

1.Referrals from other practitioners	(67.4%)
2. Website	(56%)
3. Facebook	(53%)
4. Emails	(36%)
5. Instagram	(32%)

The top three social media platforms members use to connect with ATMS are:

1. Facebook	(75.8%)
2. Instagram	(39.3%)
3. LinkedIn	(17.5%)

Member Priorities

The priorities members consider we should focus on include:

1. Providing a varied CPE program	(76.5%)
2. Lobbying the Australian government with regard to CM	(66.4%)
3. Promoting CM to the public	(52.5%)
4. Advocate for broader coverage of CM by health funds	(46.3%)
5. Building an evidence base for CM	(42.5%)

Health Fund Accreditation

In terms of health fund accreditation 55.3% of members regard this as a priority. A total of 85% believe that ATMS should advocate for broader coverage by health funds. In this survey data was also sought on other government programs which give access to healthcare services. While not all modalities have access, it appears a further 51% would like coverage from NDIS, 46% for Home Care packages and 49.7% from the DVA.

A total of 41% of members still report adverse impacts of the removal of health fund rebates. This has continued to be a priority for the Board seeking the return of rebates for affected modalities. The final report was expected to be with the Health Minister in September 2024.

Education and Registration

The highest level of education held by 36.2% of members is a Diploma either from a VET accredited provider or private college, 27.7% of members hold an Advanced Diploma, followed by 24.7% holding a bachelor degree. A total of 5.0% hold a post graduate qualification.

In terms of minimum education standards for ingestive qualifications, 40% consider an Advanced Diploma to be the minimum standard, 31% consider a VET diploma or equivalent and only 28% consider a bachelor degree should be the minimum requirement.

Overall, members are evenly split on the topic of statutory registration, with the number of those recommending ATMS advocate for statutory registration equal to those who disagree with the advocacy or have no interest in this position.

Recommendation of ATMS to a colleague

There was a positive response to how likely a member was to recommend ATMS to a colleague: over a third (37.4%) selected 10 out of 10 on how likely they were to recommend ATMS to a colleague. A total of 85.4% gave a 7 or greater out of 10 on how likely they were to recommend ATMS to a colleague.

Limitations of Survey

The 2024 survey did not allow for open fields for responses, which could have limited the opportunity to receive more feedback. However, this did allow for a rapid analysis of the data, which was important given the proposed time frame.

ATMS Natural Medicine Educator's Forum 2024

ATMS Academic & Research Committee | (Peter Berryman, Kathleen Daniel, Cassandra Duffill, Donna Eddy, Airdre Grant, Bradley McEwen, and Louise Rubic) and Natalie Hume

The annual ATMS Natural Medicine Educator's Forum is a platform designed to bring educators and practitioners together to talk, share ideas, look at innovations, explore challenging issues, and, in so doing, enrich professional development in natural medicine education.

The Forum this year took place online on 6 September. Over 40 natural medicine educators and practitioners gathered together to look at the theme of enacting kindness in teaching, studying, and clinical practice.

The theme of enacting kindness was created in response to changing times, the rapid increase in technology, and the pressures that educators and students feel as they work and study. The world is a challenging place and in this year's forum we asked: What strategies do you employ to help you maintain your passion for complementary medicine and generate enthusiasm and kindness in your teaching/clinic/studies?

Simply put, kindness matters. In teaching or clinic, it's about really 'seeing' and acknowledging the other person. We looked at how kindness is more than 'fairy dust' or making everybody 'feel good'. It is strong and is about always acting in the best interests of the student while maintaining the integrity of all aspects of curricula, from design and assessment strategies to effective communications and feedback.

The first session commenced with an introductory presentation by Louise Rubic from Torrens University who explored the pedagogy of kindness (PoK) and examined its application in modern educational settings. Teaching is a pragmatic business and Louise acknowledged that maintaining kindness in academic environments can be challenging, especially with pressures like tight schedules, institutional demands, and heavy marking burdens leading to potential burnout. This added strain can make it difficult to sustain kindness. Patience can be tested. Shortcomings in curriculum design and the ever-present transactional nature of education can shift the focus away from student-centred learning.

Louise drew on highlights from the recently published book, Enacting a Pedagogy of Kindness (Grant & Pittaway, 2024).

This narrative-based text offered stories from all aspects of the teaching paradigm. For example, in one chapter contributors sought to address the need for kindness and connection by reimagining kindness at both an organisational and individual level, advocating the need to incorporate kindness into course design and embedding institutional values into every step. This approach emphasised moving away from traditional lecture formats and toward active learning, which accommodates different learning styles and encourages student engagement.

Another example of this was presented in a case study by Kelly Galvin, who showcased how subject development, when approached through deliberate design rooted in kindness, resulted in greater satisfaction and engagement with course writers and ultimately increased student participation in the bespoke learning activities created.

PoK requires a commitment to honest, open conversations, believing in students' experiences, and empowering them to manage their learning. A paper was highlighted that introduced the Kindness-Oriented Teaching Environment (KOTE) model, drawing parallels to authoritative parenting, where warmth, high expectations, and open communication as beneficial qualities in practice.

Teaching can be a tough gig and educators were strongly encouraged to be kind to themselves and to employ good self-care strategies such as journaling, being transparent about their capacity (you don't always have to say yes!), fostering collegial relationships and good support networks - ones that operate alongside your immediate family circle. Kindness begins with looking after yourself!

The presentation concluded by highlighting that kindness in education is transformative, building trust and making learning meaningful for both students and educators.

Following the presentation, a student panel was facilitated by Airdre Grant. Panellists were invited to share their experiences on the topic by speaking to the following questions:

1. **How would you apply the notion of trust to your learning experience?**

2. **Describe an instance when there was a struggle or lapse in study motivation, and the teacher did something that supported or helped you through.**

3. **Describe any obstacles or challenges that you experienced and felt less supported in your studies, and what might have helped you navigate through that time.**

The conversations which followed were lively. It was obvious that ours is a profession with many committed and passionate colleagues who care deeply about their practices and their students. Here are some of the insights from your friends and colleagues when they discussed the practical reality of enacting kindness into their practice.

First, we asked the simple and potent question: **How do you maintain your love of teaching?** People responded with these suggestions:

- Build connections among the student group to help create a collegiate classroom. This enhances the potential for a peer support network.
- One way to build connections is to encourage sharing and learning about each other, so the group dynamic is about people as well as students.
- Be adaptable and change your teaching style or approach depending on the nature of the group. Some classes are more talkative, some quiet, and so on. Be able to change tack according to the mood and other factors, even the weather!
- Always be kind to yourself by having fun and remember to take holidays.
- Reflect on feedback from students and learn from your own responses to challenging moments. It can be tricky at times, but it's where we get a great chance to learn and grow.

Then we thought about content delivery and ways to animate subjects to create a warm, safe learning environment. We asked: **How do you enliven dull units and open the desire to embrace them?** Here are some of the responses:

- A lecturer's personality can transform a potentially dull unit into a dynamic discussion.
- Welcoming all questions and injecting humour can make content more relatable and enjoyable for students.
- Being upfront about the subject's challenges - "This might be dry, but we'll make it fun!" This can set a positive tone.
- Incorporating real-world examples and practical activities helps ground the material in everyday contexts and makes them relevant.
- Illustrating its underlying importance and the rationale behind the unit.
- Tailoring examples to align with students' career goals further personalises the experience.
- For online learning, simple actions like a "show us your pets" moment can build rapport, encouraging students to participate and keep their screens on.

A third question was built around the holy grail of creating connection with students. We asked: **How do you inspire challenging students?**

- In managing classroom challenges, it's crucial to foster open communication and mutual respect.
- Addressing student distractions, like lateness, can be approached with empathy for the student and by giving the class a break to reset the focus.
- Finding out what students need through conversations helps clarify expectations and leads to a more engaged learning experience.
- Collaborate with the student group on setting class policies, including anti-bullying discussions.
- Seek support from colleagues/managers and utilise institutional resources to address challenging situations, including when a student displays bullying behaviour.
- Recognise different learning styles and create a safe space for both students and lecturers.
- Meet challenges with kindness, empathy, and care.

We all agreed that kindness, such a simple human thing, makes our lives, work and our world rewarding. This was a conversation among peers which we needed to have, to strengthen our communal and collegial bonds. A pedagogy of kindness speaks to the philosophy of complementary medicine which is about the holism of mind/body/spirit in all aspects of our work.

Changes to industrial relations law *across Australia*

Ingrid Pagura | BA, LIB

Over the course of 2024 many changes have taken place to the laws relating to employees. Most of these are due to the Fair Work Legislation Amendment (Closing Loopholes) Act 2023 (Cth), which has come into force over different dates across this year. I wanted to summarise some of the changes that may affect you the most, especially if you are taking on new staff.

1. National Employment Standards

These is a list of minimum entitlements for Australian workers who fall under the Commonwealth Fair Work Act, which is most Australian workers. This varies in some states and territories so if you'd like to find out if you are included under this legislation, please go to Fair Work Australia (**https://www.fairwork.gov.au/about-us/legislation/the-fair-work-system#act**). While the National Employment Standards (NES) set out minimum requirements, any employer can provide their employees more benefits if they wish.

The NES include minimum standards for working hours, parental leave, annual leave, redundancy and now superannuation as well, from 1 January 2024. Employers have had an obligation to pay superannuation (super) contributions for eligible employees under superannuation guarantee laws since 1992. As a result of this change, superannuation is now an entitlement under the National Employment Standards as well.

Fair Work has also updated the Fair Work Information Statement. This is a document that must be given to every new worker before or soon after they start work with you. There is now a second one for casual workers. It covers all the NES and other essential information for workers. Download a copy and make sure you are up to date with the latest.

https://www.fairwork.gov.au/sites/default/files/migration/724/Fair-Work-Information-Statement.pdf

https://www.fairwork.gov.au/sites/default/files/migration/724/casual-employment-information-statement.pdf

2. Right to Disconnect

The right to disconnect refers to the ability of a worker to ignore a contact (emails, texts or calls) from an employer outside work hours in certain situations. This includes right to disconnect from third parties, for example, clients. This change came into force on 26 August 2024 but will not apply to small businesses (15 workers or fewer) until 26 August 2025.

The biggest misconception is that it doesn't mean that an employer can never contact a worker out of work hours. For example, contact made in relation to covering a shift or an emergency is permissible as long as it is reasonable within the worker's circumstances. To determine whether it is in fact reasonable you will need to consider each worker's circumstances, for example, whether they care for young children or elderly parents.

To do:

- Review your current contact methods and make sure they are still seen as reasonable
- Educate managers and supervisors about reasonable contact
- Have a policy in place that covers contact outside work hours and make sure you implement it

3. Casual employees

The definition of a casual worker is also changing. The new definition now refers to a casual status as being one where the relationship is characterised by an absence of a 'firm advance commitment to continuing and indefinite work', and where the employee is entitled to a casual loading or a specific rate of pay for casual employees.

To determine this, you must consider the following points:

- Whether there is a mutual understanding or expectation between the boss and the worker
- Whether the worker can choose to accept or reject work (and whether this happens in practice)
- The future availability of continuing work
- Whether there are other workers performing the same work who are full-time or part-time workers
- Whether there is a regular pattern of work for the worker.

None of these points should be considered in isolation and you need to look at both the contract and the practical reality of the relationship. You need to ask, 'What was the mutual understanding or reasonable expectation between the worker and the boss?'.

Do you need to do anything?

Nothing for any casual already employed on 26 August 2024, but any casual you employ after that date meets the new definition of a casual. Also take note, this must be correct from commencement, or you can be penalised.

Casual Employment Information Statement

When a causal worker starts with your business you need to provide them with a Casual Employee Information Statement available from Fair Work. See the link above in the section on NES.

One thing that has changed though, is the timing of when you must give the casual employee a copy of this Statement:

- Small Business (15 or fewer workers): on commencement and on completion of 12 months of employment
- Non-Small Business (15 plus workers): on commencement, after 6 months of employment and thereafter every 12 months

To do:

- Review all your current casual employee contracts and any terms that may indicate a firm advance commitment to continuing and indefinite work. Make sure that any new casual hired after 26 August fits the new definition and has a contract reflecting that.
- Check your induction process to make sure casuals are receiving the Casual Employee Information Statement when they should be.

4. New definition of employer and employee

There has been much debate about when a person has been hired as an employee or as an independent contractor and equally as many approaches to what should be used to decide this. From 26 August 2024 the Fair Work Act includes new definitions of an employer and an employee, which in turn should clarify the definition of an independent contractor.

The terms 'employer' and 'employee' will be determined 'by assessing the real substance, practical reality and true nature of the working relationship, by considering the "totality" of the relationship' according to the Fair Work Act 2009. This means that a fairer test will again apply by looking at the practical reality of the working relationship, as well as any terms of a contract that may exist.

So, what do you need to look at in deciding if someone is an employee or an independent contractor? You must ascertain the real substance, practical reality and true nature of the working relationship by assessing all the following:

- The totality of the relationship
- The terms of the contract governing the relationship
- Other factors showing how the contract is performed. For example, does the worker wear a uniform provided by the employer? Do they drive a vehicle provided by the employer? Do they need to request leave? Are they able to work for other employers? Do they get paid the same amount each month? Do they invoice the employer to be paid? Do they need to supply an ABN? Are they responsible for their own tax and superannuation? Does the employer provide the tools of trade?

These are just some points to consider, and each employment relationship is determined on a case-by-case basis. If you are unsure, please seek legal advice.

To do:

- Review all your current contractors against the new employee definition. There are tools available to assist you at Fair Work (**https://www.fairwork.gov.au/find-help-for/independent-contractors**).
- Review all your employment contracts before hiring any new contractors after 26 August 2024.

There are more changes made but these are the main ones that I think will affect you. If you are uncertain about whether you have hired an employee or an independent contractor, or if you have really hired a casual not a full timer, always seek clarification the from the Fair Work Ombudsman (**https://www.fairwork.gov.au/**) or a solicitor.

Regulation Report

Chantel Ryan | Chair, Regulatory Committee

ATMS makes submission regarding proposed amendments to the Poisons Standard (Vitamin B6, Belladonna and Comfrey)

ATMS lodged a submission in October 2024 regarding several proposed amendments to the Poisons Standard. Specifically, ATMS:

- Strongly opposed the proposed amendment for pyridoxine, pyridoxal, and pyridoxamine (different forms of Vitamin B6). Under the proposal, human therapeutic preparations containing between 5 mg and 200 mg of pyridoxine, pyridoxal or pyridoxamine would be included in a new Pharmacist Only Medicine (Schedule 3) entry. These preparations are currently exempted from Schedule 4 and are not scheduled otherwise.
- Strongly opposed the proposed amendment making all preparations of Atropa belladonna a Prescription Only medicine (Schedule 4).
- Supported the proposed scheduling amendments of Comfrey (Symphytum officinale) to allow dermal preparations for therapeutic or cosmetic use to be unscheduled when containing concentrations of 20% or less of comfrey.

You can read more at **bit.ly/3B5LWka** regarding the public consultation.

ATMS Board Approves New Guideline on Use of Titles and Qualifications

The ATMS Board has approved a new guideline to clarify the correct use of titles and qualifications for our members. This guideline covers the appropriate use of modality titles, qualifications, abbreviations, ATMS titles, and the title 'Dr' or 'Doctor'. The aim is to ensure members accurately present their credentials, preventing any potential misrepresentation of their education and expertise. This new guideline will help maintain transparency and uphold the integrity of the profession, allowing the public to make informed decisions about natural medicine services. Members are encouraged to review the full guideline on the ATMS member portal.

Erratum

In the article 'The Mitochondrial Maestro: How Ubiquinol Supports the Health of Mitochondria and Impacts all Body Systems' by Stephanie Berglin, the Journal of the Australian Traditional Medicine Society, 2024, 30(3):162-166, there was an error in Table 1.

The third and fourth rows should have been combined and the extraneous text "Socio-economic status, social support, relationship conflicts, loneliness, neighbourhood conditions, and exposure to violence or discrimination" deleted. The correct Table 1 is printed here:

Table 1. Forms of coenzyme Q10: Ubiquinol vs Ubiquinone

Ubiquinol	Ubiquinone
Reduced (active) form of CoQ10	Oxidised form of CoQ10
Accounts for 96% of the total CoQ10 pool in human plasma[12,13,14]	Accounts for the remaining 4% of the total CoQ10 pool in human plasma
Synthesised and directly used by the body[15] No conversion required	Needs to be converted into ubiquinol in the small intestine and liver to exert activity,[16] via a complex, 17-step process[2,17]
Higher bioavailability[18-21]	Poorer availability
8 times more absorbable[12,15,16,22-24]	Lower absorption
Best supplemental form for those over 30 years of age, with reduced ability to convert ubiquinone to ubiquinol within the body[7,25-28]	Effective in those under 30 years of age
Best supplemental form for those with increased exposure to oxidative stress, experiencing disease states, such as type 2 diabetes, impaired immunity, and cardiovascular, neurological and liver diseases, or taking cholesterol lowering medications[29-31]	Effective in those not exposed to increased levels of oxidative stress or with increased metabolic demands

Rosa Ghidella

Which modalities do you practise?

I currently practise remedial massage, prenatal massage, aromatherapy, Chinese Acupressure massage and reflexology. I have also studied a little about herbs.

How long have you been in practice?

It is hard to believe but I have just celebrated 25 years in practice.

What have been the major influences on your career?

I was always fascinated by natural remedies and therapies. When I was a teenager, I loved making my own hair and skin potions, using things I could afford or things from the kitchen pantry or garden. My Italian-born parents and grandparents used to grow their own herbs, fruit and vegetables, and make a lot of their own foods from scratch, using the wisdom of generations before them. As they grew older, I watched my parents get caught in the cycle of relying on multiple medications, facing more and more complications as they aged. This experience fuelled my determination to use my work to raise awareness and educate others about the power of natural therapies. Nature offers us an abundance of therapeutic gifts that have stood the test of time.

Prior to the work I do now, I was a counsellor and worked as a community development officer with a local council. I have always valued the importance of community, believing that the support one receives from being part of a community is a vital component of an individual's health and well-being.

What do you like about being a natural medicine practitioner?

I take great satisfaction in knowing that the work I do has the power to transform not only the health and quality of life of my clients but also positively impact their families and communities. What may seem like something simple, such as easing someone's pain to help them move more freely and sleep better, can be deeply transformational for that individual.

I also love watching our community grow. I am now seeing clients come into the clinic who used to come in as children accompanying their parents. It's rewarding to see these young adults, some of whom now have children of their own, continue to embrace natural therapies.

What advice would you give to a new practitioner starting out?

Make self-care a priority. You can't give your best if you're burnt out. I love what I do, and over the years, I've worked hard to support my clients and manage a small business through some challenging times. But that dedication also left me feeling depleted and burned out. Now, I make it a point to prioritize my own well-being—whether it's getting a massage or acupuncture or going for a walk —ensuring I take time for myself each week to recharge and care for my health.

What are your future ambitions?

I love writing and have had a few book ideas and courses fermenting in my head for the last few years. I'd love to share what I have learned with a wider audience, so this might be the next chapter in my career.

What are your reflections on the present state of the natural medicine profession and their direction for the future?

Our world is currently experiencing significant upheaval, and I believe the natural medicine profession is crucial to both individual health and the well-being of our planet. COVID has played a key role in shifting our collective awareness, with more people seeking authentic, holistic, and sustainable healthcare approaches that don't rely on pharmaceuticals. While I'm disappointed that our government has not given more support to the natural medicine industry, I firmly believe we have a vital and increasingly important role to play in the future of modern healthcare.

Acupuncture and TCM

Liu F, Wang Y, Lyu K, Du X, Zhou M, Shi J, Na R, Guo Y, Wang G, Xu W, Zheng T. **Acupuncture and its ability to restore and maintain immune homeostasis, QJM: An International Journal of Medicine.** 2024; 117(3):167–176. https://doi.org/10.1093/qjmed/hcad134

Summary: Immune homeostasis is a steady immune state that not only protects the host from pathogens but also prevents the emergence of pathological self-reactive immune cells. The disruption of immune homeostasis leads to the development of various diseases, such as cancer and autoimmune diseases. An emerging paradigm for the treatment of these diseases with dysfunctional immune systems is the restoration and maintenance of immune homeostasis. However, currently available drugs exert a unidirectional influence on immunity whereby they either augment or inhibit it. This strategy is associated with the drawback of potential adverse effects arising from uncontrolled activation or suppression of the immune system. Fortunately, evidence suggests that acupuncture can bidirectionally regulate the immune system to maintain immune homeostasis. In cases of immunosuppressive diseases (e.g. cancer), acupuncture has an enhancing effect on immunity. Conversely, in autoimmune diseases (e.g. rheumatoid arthritis), acupuncture has been observed to have an immunosuppressive effect, which helps restore normal immune tolerance. However, there is no publication systematically summarizing the bidirectional regulatory effects of acupuncture on the immune system in the literature. Here, our review provides a comprehensive overview of the various mechanisms through which acupuncture modulates the immune system in a bidirectional manner. These mechanisms include the augmentation of NK and CD8+ T cell function, as well as the restoration of Th1/Th2, Th17/Treg and M1/M2 balance. Thus, we propose the concept that acupuncture has the potential to alleviate illnesses through the facilitation of immune normalization. Moreover, we further highlight the therapeutic potential of acupuncture.

Wang J, Zhu F, Huang W, Chen Z, Zhao P, Lei Y, Liu Y, Liu X, Sun B, Li H. **Therapeutic effect and mechanism of acupuncture in autoimmune diseases.** The American Journal of Chinese Medicine. 2022; 50(3). https://doi.org/10.1142/S0192415X22500252

Autoimmune diseases (AIDs) are conditions arising from abnormal immune reactions to autoantigens, which can be defined as the loss of immune tolerance to autoantigens, causing the production of autoantibodies and subsequent inflammation and tissue injury. The etiology of AIDs remains elusive, which may involve both genetic and environmental factors, such as diet, drugs, and infections. Despite rapid progress in the treatment of autoimmune diseases over the past few decades, there is still no approach that can cure AIDs. As an alternative approach, traditional Chinese medicine (TCM) such as acupuncture has been used in an attempt to treat AIDs including multiple sclerosis (MS), rheumatoid arthritis (RA), and inflammatory bowel disease (IBD), and the results have proven to be quite promising, despite the fact that its mechanism is still not fully understood. In this review, the present knowledge regarding mechanisms of acupuncture in the treatment of AIDs has been summarized, and deeper insights will be provided in order to better understand how acupuncture may regulate immune responses during AIDs.

Novikov YO, Akopyan AP. **The value of traditional medicine should not be underestimated—Traditional Chinese Medicine in treatment of autoimmune diseases.** Chinese Medicine and Culture. 2024; 7(2):p 167-173. DOI: 10.1097/MC9.0000000000000102

Autoimmune diseases of the nervous system (ADNS) are characterized by the formation of a pronounced neurologic deficit and often lead to disability. The attention of doctors and researchers is increasingly attracted by complementary medicine as adjuvant or preventive therapy for various diseases, including autoimmune diseases. Traditional Chinese medicine (TCM) is a combination of treatment methods that include acupuncture, herbal medicine, dietetics, physical exercises, and other methods that are often used in conjunction with recognized approaches of official medical science. The article describes the application of TCM techniques in autoimmune diseases of the nervous system, and demonstrates clinical experience in the use of acupuncture, herbal medicine, diets and physical exercises. Traditional and complementary medicine is an important and often underestimated healthcare resource, especially in the prevention and treatment of autoimmune diseases of the nervous system.

Cao R, Zhao W, Shen J, Xi C. **Research progress of Chinese medicine regulating intestinal flora in the treatment of autoimmune diseases.** International Journal of Frontiers in Medicine. 2024; 6(7): 64-71. DOI: 10.25236/IJFM.2024.060711

Autoimmune diseases (AIDs) are chronic systemic diseases of unknown etiology that predispose to widespread damage to multiple organs and systems. However, their exact pathogenesis is unclear and clinical treatment is difficult. In recent years, intestinal flora and immune regulatory mechanisms have become a research hotspot. Current studies have shown that intestinal flora plays a significant role in maintaining the immune and metabolic homeostasis of the body. With the increasing maturity of metabolomics and immunomics technologies, studies on the effects of traditional Chinese medicine (TCM) on intestinal flora have shown that TCM can play a positive role in the treatment of autoimmune diseases through the regulation of intestinal flora. This article reviewed the research progress of Chinese medicine regulating intestinal flora in the treatment of autoimmune diseases, and explored the mechanism of intestinal

flora involved in immunomodulation in the treatment of diseases, and categorized and summarized the mechanism of immunomodulation between diseases and prescription medicines, which provided a new perspective for the exploration of the mechanism of Chinese medicine in the treatment of autoimmune diseases, with a view to providing a new direction and a new way of thinking for the treatment of autoimmune diseases

Woon TH, Tan MJH, Kwan YH, Fong W. **Evidence of the interactions between immunosuppressive drugs used in autoimmune rheumatic diseases and Chinese herbal medicine: A scoping review.** Complementary Therapies in Medicine. 2024; 80, 103017. https://doi.org/10.1016/j.ctim.2024.103017.

Objectives: Chinese herbal medicine (CHM) has been shown to be effective in autoimmune rheumatic diseases, but harmful herb-drug interactions might be inherent. We aim to review the evidence regarding herb-drug interactions between immunosuppressive drugs used in autoimmune rheumatic diseases and CHM.

Methods: We searched PubMed, EMBASE and CINAHL from inception till 30 April 2023 using keywords that encompassed 'herb-drug interactions', 'herbs' and 'immunosuppressants'. Articles were included if they contained reports about interactions between immunosuppressive drugs used in the treatment of rheumatic diseases with CHM. Level of evidence for each pair of interaction was graded using the algorithm developed by Colalto.

Results: A total of 65 articles and 44 unique pairs of interactions were identified. HDIs were reported for cyclophosphamide, cyclosporine, tacrolimus, methotrexate, mycophenolic acid, glucocorticoids, sulfasalazine, tofacitinib and biologic disease-modifying antirheumatic drugs. Among these, cyclosporine (n = 27, 41.5%) and tacrolimus (n = 19, 29.2%) had the highest number of documented interactions. Hypericum perforatum had the highest level of evidence of interaction with cyclosporine and tacrolimus. Consumption reduced the bioavailability and therapeutic effects of the drugs. Schisandra sphenanthera had the highest level of evidence of interaction with tacrolimus and increased the bioavailability of the drug. Majority of the articles were animal studies.

Conclusion: Overall level of evidence for the included studies were low, though interactions between cyclosporine, tacrolimus, Hypericum perforatum and Schisandra sphenanthera were the most and well-documented. Healthcare professionals should actively enquire about the concurrent use of CHM in patients, especially when drugs with a narrow therapeutic index are consumed.

Aromatherapy

Stojanović NM, Ranđelović PJ, Simonović M, Radić M, Todorović S, Corrigan M, Harkin A, Boylan F. **Essential oil constituents as anti-inflammatory and neuroprotective agents: An insight through microglia modulation.** Int J Mol Sci. 2024; 25(10):5168. doi: 10.3390/ijms25105168

Microglia are key players in the brain's innate immune response, contributing to homeostatic and reparative functions but also to inflammatory and underlying mechanisms of neurodegeneration. Targeting microglia and modulating their function may have therapeutic potential for mitigating neuroinflammation and neurodegeneration. The anti-inflammatory properties of essential oils suggest that some of their components may be useful in regulating microglial function and microglial-associated neuroinflammation. This study, starting from the ethnopharmacological premises of the therapeutic benefits of aromatic plants, assessed the evidence for the essential oil modulation of microglia, investigating their potential pharmacological mechanisms. Current knowledge of the phytoconstituents, safety of essential oil components, and anti-inflammatory and potential neuroprotective effects were reviewed. This review encompasses essential oils of Thymus spp., Artemisia spp., Ziziphora clinopodioides, Valeriana jatamansi, Acorus spp., and others as well as some of their components including 1,8-cineole, β-caryophyllene, β-patchoulene, carvacrol, β-ionone, eugenol, geraniol, menthol, linalool, thymol, α-asarone, and α-thujone. Essential oils that target PPAR/PI3K-Akt/MAPK signalling pathways could supplement other approaches to modulate microglial-associated inflammation to treat neurodegenerative diseases, particularly in cases where reactive microglia play a part in the pathophysiological mechanisms underlying neurodegeneration.

Complementary and alternative medicine

Hübner S, Sarhan M, Schauer F. **Use of complementary and alternative medicine in patients with autoimmune bullous dermatoses: A cohort study analysis of a rare disease group.** Complement Med Res. 2023; 30(3): 221–229. https://doi.org/10.1159/000529142

Introduction: Autoimmune bullous diseases (AIBD) are a heterogeneous group of rare autoantibody-mediated blistering dermatoses of the skin and/or mucous membranes. Their incidence is around 20 new cases per million inhabitants per year in Germany. Patients with chronic, oncological, or rare diseases often urge for a holistic therapeutic approach that includes complementary and alternative medicine (CAM). So far, only few contradictory reports on CAM in pemphigoid or pemphigus disease exist. The purpose of this study was to determine the frequency, motives, and satisfaction with the use of alternative treatments in patients with AIBD and to provide a basis for further investigation.

Methods: We used a structured online questionnaire, consisting of 20 questions to survey patients with AIBD and their relatives. The German pemphigus and pemphigoid self-help groups were

responsible for distributing anonymized questionnaires. In total, we recovered 97 questionnaires, 63 of which met full inclusion criteria (24 males and 39 females).

Results: Of the included participants, more than half had a currently active disease. Of all patients, 58.7% stated that they had used CAM at least once. Women were more likely to use CAM, whereas age and education showed no association to CAM use. The main motives for using CAM were "doing something for oneself" and "opportunity to contribute to treatment" (38.1% each). The internet (23.8%) was the most common source of information, and vitamins were the most frequently used therapy (49.2%).

Conclusion: Our results provide new insights into the demand for CAM within this rare disease patient group. Physicians should be aware of these methods to meet patient needs but also be able to identify potential barriers such as risks and interactions.

Penberthy JK, Chhabra D, Avitabile N, Penberthy JM, Le N, Xu YR, Mainor S, Schiavone N, Katzenstein P, Lewis JE, Hubbard L. **Mindfulness based therapies for autoimmune diseases and related symptoms.** OBM Integrative and Complementary Medicine. 2018;3(4):039; doi:10.21926/obm.icm.1804039.

Over the past few decades, there have been minimal advances in effective new behavioral or psychotherapeutic interventions for people living with autoimmune diseases such as systematic lupus erythematosus. This is problematic due to the severe, debilitating and potentially life-threatening nature of these diseases. Mindfulness based interventions, such as Mindfulness Based Stress Reduction, have demonstrated effectiveness in a wide range of patient populations and we hypothesize such treatment would also benefit patients with autoimmune disorders and related symptoms. We further hypothesize that these therapies will work by impacting physiological mechanisms, such as inflammatory markers, associated with such disease symptoms. We present our findings below.

Shetty GB, Shetty P, Shetty B. **Effect of integrated naturopathy interventions on systemic inflammatory markers and quality of life in patients with active rheumatoid arthritis: A randomized controlled trial.** Cureus. 2024; 16(4):e57764. doi: 10.7759/cureus.57764

Background: Rheumatoid arthritis (RA) is a chronic, systemic, polyarticular autoimmune inflammatory disease that destroys the capsule and synovial lining of joints. Antirheumatic treatment reduces disease activity and inflammation, but not all patients respond to treatment. Naturopathy, a research-based complementary and alternative medicine, may be useful in these patients, but there is little data on the effect of Naturopathy interventions on inflammation and disease activity in RA.

Objective: To explore the effect of 12 weeks of integrated naturopathy interventions on disease-specific inflammatory markers and quality of life in RA patients.

Methods: A total of 100 RA patients were randomized into two groups: the naturopathy group (integrated naturopathy interventions with routine medical therapy) and the control group (only with routine medical therapy). Blood samples were collected pre- and post-intervention for primary outcome measurements of systemic inflammatory markers (ESR, CRP, and IL-6). Disease activity score (DAS-28) and quality of life were used to assess disease activity and functional status using SF-36, respectively, at pre- and post-intervention time points.

Results: The results of the present study show a notable decrease in disease activity after 12 weeks of naturopathy intervention. As such, a significant decrease was found in levels of systemic inflammatory markers such as ESR ($p = 0.003$) and IL-6 ($p < 0.001$), RA disease activity score (DAS-28) ($p = 0.02$), and most of the components of health-related quality of life (SF 36 scores) ($p < 0.05$) except in vitality ($p = 0.06$).

Conclusions: The findings of the present study suggest that integrated naturopathy treatments may have the ability to control persistent inflammation, maintain immune homeostasis, and lower disease activity.

Couillard F, Parreau S, Dumonteil S, Ratti N, Palat S, Bezanahary H, Liozon E, Ly KH, Fauchais AL, Gondran G. **Use of complementary and alternative medicine by patients treated for systemic lupus erythematosus, primary Sjögren's syndrome, or systemic sclerosis in a French rural region.** Complementary Medicine Research. 2024; 31(3): 234-240.doi: 10.1159/000536580

Background: Complementary and alternative medicine (CAM) is composed of a wide range of interventions and frequently used in parallel with conventional medicine. The aim of this study was to assess the prevalence, modalities, and association factors of CAM utilization in patients treated for systemic lupus erythematosus, primary Sjögren's syndrome, or systemic sclerosis.

Patients and Methods: This was a prospective single-center observational study conducted in a French university hospital center. Inclusion criteria were patients followed for systemic lupus erythematosus, primary Sjögren's syndrome, or systemic sclerosis. Data were collected with a survey which assessed sociodemographic, disease characteristics, CAM use details, life quality, and anxiety score.

Results: A total of 121 patients were included, mostly women (87%), with an average age of 56 years. Proportion of patients seeking CAM was 55%. A total of 186 CAM interventions were recorded: most common were osteopathy, homeopathy, and acupuncture. Patients were looking for well-being (22%), reducing their fatigue (18%) and pain (33%). Concerning physical and mental feeling after CAM use, a subjective

improvement was reported in 89% of cases. In multivariate analysis, CAM use by patient was associated with these 3 variables: coming from a Western culture, being professionally active, and having a poor quality of life and anxiety scores.

Conclusion and Outlook: This is the first study to focus on CAM use in patients followed for three AID in a French rural region. The current challenge is to enrich conventional medicine with CAM that is effective and safe through supervised programs to move toward an integrative medicine.

Herbal medicine

Bax CE, Chakka S, Concha JSS, Zeidi M, Werth VP. **The effects of immunostimulatory herbal supplements on autoimmune skin diseases.** Journal of the American Academy of Dermatology. 2021; 84(4): 1051-1058. https://doi.org/10.1016/j.jaad.2020.06.037.

The use of herbal supplements that promise to improve immune health has gained popularity among dermatology patients. However, there is little to no evidence that herbal supplements improve dermatologic conditions. Several in vitro and in vivo studies have shown that Spirulina platensis, Aphanizomenon flos-aqua, Chlorella, Echinacea, and alfalfa activate immune cells via certain cytokines and chemokines. Case reports suggest the association of ingesting immunostimulatory herbs and the clinical onset or flares of diseases characterized by an exaggerated immune response such as lupus erythematosus, dermatomyositis, and autoimmune blistering disorders. Therefore, it is imperative to investigate the prevalence of herbal supplement use in this patient population. In addition, in vitro studies should examine the underlying mechanisms by which herbs stimulate immune pathways that are already overactive in autoimmune patients.

Wang Y, Chen S, Du K, Liang C, Wang S, Boadi EO, Li J, Pang X, He J, Chang Y-X. **Traditional herbal medicine: Therapeutic potential in rheumatoid arthritis.** Journal of Ethnopharmacology. 2021: 279, 114368. https://doi.org/10.1016/j.jep.2021.114368.

Ethnopharmacological relevance: Rheumatoid arthritis (RA) is a chronic inflammatory autoimmune disease influenced by diverse endogenous and exogenous factors. It is characterized by cartilage and bone destruction. The current conventional allopathic therapy is expensive and carries adverse side effects. Recently, there were some ethnopharmacological studies on RA including anti-RA effects and therapeutic targets of distinct dosage forms of traditional herbal medicines (THMs).

Aim of the review: This review provides a brief overview of the current understanding of the potential pharmacological mechanisms of THMs (active constituents, extracts and prescriptions) in RA. This study is intended to provide comprehensive information and reference for exploring new therapeutic strategies of THMs in the RA treatment.

Materials and methods: This review captured scientific literatures in vivo and vitro experiments on effects of anti-RA THMs published between 2016 and 2021 from journals and electronic databases (e.g. PubMed, Elsevier, Science Direct, Web of Science and Google Scholar). Relevant literatures were searched and analyzed by using keywords such as 'rheumatoid arthritis AND traditional herbal medicines', 'rheumatoid arthritis AND immune cells', 'rheumatoid arthritis AND inflammation', 'rheumatoid arthritis AND miRNA', 'rheumatoid arthritis AND Angiogenesis', 'rheumatoid arthritis AND oxidative stress', 'rheumatoid arthritis AND osteoclasts', 'rheumatoid arthritis AND CIA model', 'rheumatoid arthritis AND AA model' AND 'rheumatoid arthritis herbal prescription'.

Results: Experiments in vitro and in vivo jointly demonstrated the potential of THMs in the RA treatment. There are plentiful therapeutic targets in RA. THMs and active ingredients could alleviate RA symptoms through different therapeutic targets, such as immunoregulation, inflammation, fibroblast-like synoviocytes (FLSs), microRNAs (miRNAs), angiogenesis, oxidative stress, osteoclasts and multiple targets interaction. Anti-RA THMs, active ingredients and prescriptions through corresponding therapeutic targets were summarized and classified.

Conclusions: Flavonoids, phenolic acids, alkaloids and triterpenes of THMs are identified as the main components to ameliorate RA. Regulation of different and multiple related therapeutic targets by THMs and their active ingredients were associated with greater therapeutic benefits, among which inflammation is the main therapeutic target. Nonetheless, further studies are required to unravel the complexities and in-depth mechanisms of THMs in alleviating RA.

Homeopathy

Freire de Carvalho J, Lerner A, Benzvi C. **Homeopathy for Rheumatological Diseases: A Systematic Review.** Eur J Rheumatol. 2024;11(3):378-384. doi: 10.5152/eurjrheum.2024.23123.

Homeopathy has mainly been used to treat several diseases. On the other hand, it has been used in a few rheumatic disorders. The aim of this article is to review the use of homeopathy in rheumatic diseases (RDs). PubMed and Embase databases were examined for literature on homeopathy and RDs between 1966 and April 2023. There are 15 articles found with 811 patients. The diseases treated were osteoarthritis (n = 3), followed by rheumatoid arthritis (n = 3), ankylosing spondylitis (n = 1), hyperuricemia (n = 1), and tendinopathy (n = 1). Age varied from 31 to 87 years old, and male gender ranged from 56.7% to 100%. Homeopathy changed from a fixed medicine to an individualized homeopathy. Most studies (9/15) demonstrated improvements after homeopathy. Side effects were not seen or minimal and were comparable to placebo

groups. In conclusion, this review shows homeopathy is a promising and safe therapy for RD treatment. However, the data needs to be reproduced in future more extensive studies, including other rheumatic conditions.

Massage, myotherapy and other bodywork

Afrasiabifar A, Sadeghi M, Doulatabad SN. **The effect of sole reflexology massage vs.** stretching exercises on fatigue dimensions in patients with rheumatoid arthritis. Evidence Based Care Journal. 2024; 14(2): 7-15. 10.22038/ebcj.2024.77231.2959

Background: Fatigue is the most common complaint among patients with rheumatoid arthritis, leading to decreased productivity and reduced quality of life.

Aim: The present study was conducted with aim to compare the effect of sole reflexology and stretching exercises on fatigue of rheumatoid arthritis patients.

Method: This clinical trial study was conducted on patients with rheumatoid arthritis in Yasuj city of Iran during 2017-2018. Participants were selected through convenience sampling method but randomly allocated to one of the three groups using randomized block allocation. Multidimensional fatigue questionnaire was used to collect data at two times of pre and post interventions. The interventions were performed during 30 minutes per session for three sessions per week over one month.

Results: Mean scores of global fatigue before the interventions in the sole reflexology group was 80.72±8.61, in stretching exercise group 81±7.30, and in control group (76.43±8.17), however, these values for post intervention were reported to be 68.72±8.59, 50.95±5.73, and 76.82±7.43, respectively. Intergroup comparison showed significant differences between the sole reflexology and stretching exercise groups with the control group ($p<0.001$); also the two intervention groups significantly differed ($p<0.001$).

Implications for Practice: Both sole reflexology and stretching exercises could improve fatigue of patients with rheumatoid arthritis, but this improvement was higher by stretching exercises than sole reflexology.

Naderi A, Rezvani MH, Aminian-Far A, Hamood-Ahvazi S. **Can a six-week Swedish massage reduce mood disorders and enhance the quality of life in individuals with Multiple Sclerosis? A randomized control clinical trial.** Explore. 2024; 20(5): 103032. https://doi.org/10.1016/j.explore.2024.103032.

Introduction: There is a limited amount of research specifically focusing on the effects of Swedish massage on mood disorders and the quality of life (QOL) among individuals with MS, emphasizing the need for further investigation. Therefore, this study aimed to assess the effects of a 6-week Swedish massage on the quality of life, stress, anxiety, depression, pain, fatigue, spasticity, and sleep quality in MS patients.

Methods: This randomized controlled trial involved 70 MS patients who were divided into two groups. The massage group underwent two 50-minute sessions of whole-body Swedish massage per week for six weeks, while the usual treatment group maintained their regular medical care routine. Outcomes were Short Form-36 (SF-36) and the Depression, Anxiety, and Stress Scale (DASS), Visual Analog Scale (VAS), Fatigue Severity Scale (FSS), Pittsburgh Sleep Quality Index (PSQI-P), and Modified Ashworth Scale (MAS). These measurements were taken before and after the massage intervention.

Results: The massage group demonstrated significant improvements in QOL and its components compared to the usual treatment group (Hedge's $g = 0.53$ for QOL, ranging from 0.31 to 0.58 for QOL components; $p < 0.001$). Participants in the massage group also reported significantly lower levels of stress (Hedge's $g = 0.80$), anxiety (Hedge's $g = 0.47$), and depression (Hedge's $g = 0.70$) than those in the usual treatment group ($p < 0.001$). Additionally, the massage group had lower levels of pain, fatigue, and spasticity, and better sleep quality compared to the usual treatment group ($p < 0.05$).

Conclusion: Swedish massage can be considered a valuable complementary and alternative treatment alongside conventional medicine for individuals with MS.

Salarvand S, Heidari ME, Farahi K, Teymuri E, Almasian M, Bitaraf S. **Effectiveness of massage therapy on fatigue and pain in patients with multiple sclerosis: A systematic review and meta-analysis.** Multiple Sclerosis Journal - Experimental, Translational and Clinical. 2021;7(2). doi:10.1177/20552173211022779

Background: Fatigue and pain are prevalent symptoms of multiple sclerosis (MS) and frequent complaint in MS patients, which reduce their quality of life. This study aimed to assess the effect of massage therapy on pain and fatigue in MS Patients.

Method: The original and Persian databases were searched included PubMed, Web of Science, Embase, Ovid, Scopus, and the Cochrane Library, SID, and Iranedex from inception to November 2020. Studies that reported the effect of massage on fatigue and pain were included. Two investigators extracted all relevant data, independently. For deriving analysis, mean difference (MD) and standardized mean difference (SMD) were used.

Result: Ten studies were eligible acoording criteria. The effect of massage on fatigue showed significant improvement (−1.62; 95% CL −2.40, −0.83; $p < .00001$), also results of the systematic review showed a significant reduction in pain severity.

Conclusion: Massage as a

complementary and non-pharmacological therapy might have been associated with alleviating fatigue and pain in M.S. patients. Based on the current study, massage intervention for MS patients could have possible clinical value for palliating pain and fatigue and improving quality of life; however, this matter needs further and more significant trial studies.

Nutrition

***Chen H, Liu L, Wang Y.* et al.** Managing cardiovascular risk in patients with autoimmune diseases: Insights from a nutritional perspective. Curr Nutr Rep. 2024; 13: 718–728. https://doi.org/10.1007/s13668-024-00563-7

Purpose of Review: Autoimmune diseases manifest as an immune system response directed against endogenous antigens, exerting a significant influence on a substantial portion of the population. Notably, a leading contributor to morbidity and mortality in this context is cardiovascular disease (CVD). Intriguingly, individuals with autoimmune disorders exhibit a heightened prevalence of CVD compared to the general population. The meticulous management of CV risk factors assumes paramount importance, given the current absence of a standardized solution to this perplexity. This review endeavors to address this challenge from a nutritional perspective.

Recent Findings: Emerging evidence suggests that inflammation, a common thread in autoimmune diseases, also plays a pivotal role in the pathogenesis of CVD. Nutritional interventions aimed at reducing inflammation have shown promise in mitigating cardiovascular risk.

Summary: The integration of nutritional strategies into the management plans for patients with autoimmune diseases offers a holistic approach to reducing cardiovascular risk. While conventional pharmacological treatments remain foundational, the addition of targeted dietary interventions can provide a complementary pathway to improve cardiovascular outcomes.

***Larsen OFA.* Nurturing by nutrition: On the future of gut microbiota management strategies for autoimmune disease.** Front. Nutr. 2023; 9. https://doi.org/10.3389/fnut.2022.1107016

The incidence of autoimmune disease continues to rise, which urges for new prevention and treatment modalities. The composition of the gut microbiota is associated with both susceptibility and progression of disease. Nutrition significantly shapes the gut microbial composition, and poses as such a modality for both prevention and treatment/adjuvant therapy. At very young age, nutritional intervention targeting the gut microbiota is still possible within a one-size-fits all regime, accompanied by a relatively high effect size. As ageing results in higher interindividual variation induced by cumulative exposome factors, a more personalized approach is needed, having a higher effect size than that of current nutritional intervention. As such, supplementation of microbial consortia consisting of keystone taxa and microbial guilds that are involved in the pathophysiology seem a promising direction to lower the burden of autoimmune disease.

***Ribeiro AA, Carvalho LM, da Mota JCNL, Nonino CB, Gualano B, Nunes JAV, Martinez JA, Nicoletti CF.* Diet, DNA methylation, and systemic lupus erythematosus: Evidence and perspectives focused on personalized nutrition.** Nutrition and Dietetics. 2024; 17(1): 31–40. https://doi.org/10.1159/000537917

Background: The pathoetiology of systemic lupus erythematosus (SLE) involves a multifactorial interaction consisting of various genetic, epigenetic, and environmental factors. Considering epigenetic characteristics, notable alterations in DNA methylation, particularly hypomethylation in immune-related pathways, such as T-cell receptor, have been observed. In turn, these alterations are associated with the overexpression of genes related to autoimmunity and a loss of immunological self-tolerance. Furthermore, DNA hypomethylation levels in SLE may contribute to disease progression and also impact disease activity and clinical manifestations.

Summary: It is well established that nutritional epigenetics elucidates the role of nutrition and dietary factors on the interactions of metabolic systems with the molecules that bind to DNA, regulating gene expression. Specific nutritional interventions may reverse initial epigenetic patterns, thereby significantly impacting the chronic disease's treatment and prognosis. In fact, dietary nutrients and bioactive food compounds may influence DNA methylation patterns by inhibiting enzymes related to DNA methylation reactions or by altering the availability of different substrates involved in DNA methylation process (e.g., methyl donor nutrients).

Key Message: The knowledge of how diet plays a role in changing DNA methylation patterns in SLE is in the early stages. While a few studies in the literature have assessed the effects of nutrient intake, supplementation, or treatment on DNA methylation levels and have demonstrated their relevance, further research is imperative to deepen our comprehension of the interactions between epigenetics and nutrients, which is vital for the development of novel precision nutrition approaches.

PROVIDER TERMS AND CONDITIONS ARE LOCATED ON THE ATMS WEBSITE UNDER THE HEALTH FUNDS TAB.

The Four Pillars to remain current with Health Fund Registration

1. Maintain ATMS Membership

2. Maintain current First Aid

3. Maintain current Professional Indemnity Insurance (Chinese Medicine practitioners require a minimum of $5 million and Remedial Massage practitioners require a minimum of $2 million)

4. CPE (continuing professional education) (ATMS accepts completed CPE that enhances clinical practice however Health Funds require CPE to be modality specific)

Acupuncture and Chinese Herbal Medicine practitioners must hold current AHPRA registration

Working With Children

Practitioners working with under 18's MUST hold a current WWC (Working With Children Check) in their practising state. Please send ATMS a copy to **info@atms.com.au**

Additionally to holding a current WWC, ATMS require that the parent of the child or guardian MUST be present during the consultation.

Current renewal certification is essential

Please forward all renewals ASAP to prevent disruption of your health fund provider registration: renewals of your insurance, first aid, AHPRA registration and WWC to **info@atms.com.au** as ATMS must hold a current copy at all times for health fund compliance.

*Lapsed membership, insurance or first aid, or non-compliance with CPE, will result in a member being removed from the health funds list. As health funds change their provider eligibility requirements at any given time, upgrading qualifications may be necessary to be re-instated with some health funds.

Clinical Records

Please note that whilst there is no law or regulation requiring patient clinical notes to be taken in English, many of the major health funds do require patient clinical notes to be taken in English. **Failure to do this will be a breach of the Health Funds Terms and Conditions and may result in the practitioner being removed as a provider for that health fund.**

Receipting Information

- Medibank/AHM do not accept handwritten receipts (As of April 2021), they must be electronic.
- Sample receipt can be found on our website in the Health Fund tab
- Receipts must be numbered.
- Only one modality per day can be claimed by a client.

Treating Family, Partners and Business Partners of the Clinic

Health Funds do not permit the payment of benefits if the treated member is a partner, dependent, parent, sibling, or business partner of the servicing provider.

By definition, a provider can only perform one initial consultation with a member. Initial consultations attract a higher benefit than a subsequent consult. Only one 'initial consult' is allowed for any patient per condition.

Health Fund Clinic address requirements

It is **MANDATORY** that you provide the full clinic address with the street number, street name, suburb, state, and post code, phone number and email address. No PO Boxes acceptable. All updates are forwarded to the health funds by ATMS.

***Note Medibank have a limit of 3 clinic addresses for Remedial Massage practitioners and Bupa have a limit of 4 clinic addresses regardless of the modality.**

Sharing provider numbers is fraud and against the law

An Accredited member must never allow anyone to use their provider details, as this constitutes health fund fraud. Health fund fraud is a criminal offence which may involve a police investigation and expulsion from the ATMS Register of Members.

No health funds rebate on mobile services

Mobile Services are services at Hotels, Markets, Retreats or Corporate.

Home visits

Health Funds that do accept home visit services for rebates are: Aust Unity, CBHS, GU Health and NIB. Home Visit must be Stamped or pre-printed on the receipt.

Gift vouchers

Most Health Funds do not accept Gift Vouchers as the person receiving the treatment did not pay for the service. It is up to the Health Fund should they recognise it.

Being a provider implies acceptance of the terms and conditions for the health funds

It is of note that the health funds require practitioners to be in private practice. Some health funds will not recognise claims where accommodation, facilities or services are provided or subsidised by another party such as a public hospital or publicly funded facility. Rebates are only claimable for the face-to-face consultation (not the medicines or remedies); however, this does not extend to mobile work including markets, corporate or hotels.

Online or phone consultations are not recognised for health fund rebates

Please be aware that whilst a health fund may indicate that they provide a rebate for specific modalities, this rebate may only be claimable if the client has the appropriate level of health cover with that fund and has not exceeded any limits on how much they are eligible to claim back over a certain period of time.

Acupuncture & Chinese Herbal Medicine overseas qualification (health funds do not accept any other modality completed overseas)

Health Funds do accept overseas Acupuncture and Chinese Herbal Medicine qualifications. The below documents are required:

- VETASSES letter stating the qualification is equivalent/comparable to the Australian BA Health Science TCM/Acupuncture
- IELTS Overall Band Level 7 in English Competency (Bupa only)

Specific requirements for individual health funds

Australian Health Management (AHM)

Names and details of eligible ATMS members will be sent to AHM. Provider numbers will be populated in the ATMS member portal.

Hypnotherapy - HBF, RT Health, Nurses and Midwives

Names and details of eligible ATMS members will be sent for this modality each month.

Australian Unity

Names and details of eligible ATMS members will be sent to Australian Unity. ATMS members will need to contact Australian Unity initially on 1800 035 360 to register as a provider and to receive provider numbers.

BUPA

Names and details of eligible ATMS members will be sent to BUPA. Provider numbers will be populated in the ATMS member portal.

CBHS Health Fund Limited

Names and details of eligible ATMS members will be sent to CBHS. Use your ATMS member number as your provider number e.g ATMS23345.

For Acupuncture and Chinese Herbal Medicine services, please use your AHPRA number minus the 0's for e.g. if your AHPRA number is CMR0001731686 you would use CMR1731686 as your provider number.

Doctors Health Fund

Names and details of eligible ATMS members will be sent to Doctors Health Fund. Use your ATMS member number as your provider number for e.g., ATMS23345. Please note that Doctors Health Fund only covers Remedial Massage.

HCF

Names and details of eligible ATMS members will be sent to HCF. Use your ATMS member number as your provider number e.g., ATMS23345.

Medibank Private

Names and details of eligible ATMS members will be sent to Medibank Private. Provider numbers will be populated in the member portal as well as emailed directly to the practitioner as an attached letter. This letter is required for HICAPS Registration.

NIB including APIA, AAMI Health Insurance, Qantas Health Insurance & GU Health

Names and details of eligible ATMS members will be sent to NIB. Use your ATMS member number as your provider number e.g ATMS23345 except for GU Health. Members are required to contact GU Health directly on 1800 249 966 to register as a provider and to receive a provider number.

Australian Regional Health Group (ARHG) Refer to Health Funds Table for the individual funds listed under ARHG.

Details of eligible members are sent to ARHG.

The ARHG provider number is based on your ATMS number with additional lettering. To work out your ARHG provider number please follow these steps:

1 Add the letters AT to the front of your ATMS member number

2 If your ATMS number has five digits go to step 3. If it has two, three or four digits, you need to add enough zeros to the front to make it a five-digit number (e.g., 123 becomes 00123).

3 Add the letter that corresponds to your accredited modality at the end of the provider number;

A Acupuncture
C Chinese Herbal Medicine
U Nutrition
Y Myotherapy
R Remedial Massage
M Massage Therapy

For e.g., If your ATMS member number is 123 and accredited for Acupuncture, the ARHG provider number will be AT00123A.

▼ Special condition applies for Remedial Massage for the below funds under ARHG:

- Defence Health▼
- GMHBA ▼ (Including Frank Health Fund)
- HBF (Including GMF Health) ▼
- AIA Health ▼

ARHG -Chinese Massage

ARHG do not recognise Chinese Massage. They categorise it as Remedial Massage. For members that hold a Govt Accredited HLT Diploma of Chinese Remedial Massage HLT50102, HLT50107 or HLT50112 are required to use the 'R' status.

Most Funds recognise the 'R' status however there is a couple that prefer the M status, refer to the health funds table.

HICAPS

ATMS members who wish to activate these facilities need to register directly with HICAPS. HICAPS do not cover all health funds and modalities. Please go to **www.hicaps.com.au** or call 1800 805 780 for further information.

HEALTH FUND UPDATE

Health Fund	Acupuncture	Chinese Herbal Medicine	Counselling	Hypnotherapy	Myotherapy	Nutrition	Remedial Massage (Certificate IV)	Remedial Massage (HLT Diploma or higher level qualification)	Remedial Therapies (No longer ATMS Accredited)	Traditional Chinese Remedial Massage (HLT Diploma or higher level qualification)
Australian Health Management	✓	✓				✓		✓		
Australian Regional Health Group										
ACA Health Benefits Fund	✓	✓			✓			✓	◆	●
Defence Health	✓				✓			✓	◆	●
GMHBA *(Geelong Medical)*	✓	✓			✓			✓	◆	●
Frank Health Fund & Health.com.au	✓	✓			✓			✓	◆	●
Health Care Insurance Limited	✓	✓			✓			✓	◆	●
HBF	✓	✓		✓	✓	✓		✓	◆	
Health Partners		✓			✓	✓		✓		
HIF *(Health Insurance Fund of WA)*	✓	✓			✓			✓	◆	●
Hunter Health *(previously known as Cessnolck DHBF)*	✓	✓			✓			✓	◆	●
Latrobe Health Services	✓				✓			✓	◆	●
MDHF (Mildura District Hospital Fund)	✓				✓	✓		✓		
AIA Health *(previously known as MyOwn Health)*	✓				✓			✓	◆	
Navy Health Fund	✓	✓			✓			✓	◆	●
Nurses & Midwives Health	✓	✓		✓	✓			✓		●
Onemedifund	✓	✓			✓			✓	◆	●
Peoplecare Health Insurance	✓	✓			✓			✓	◆	●
Phoenix Health Fund	✓				✓	✓		✓	◆	●
Police Health Fund (including Emergency Services)	✓	✓			✓			✓	◆	●
Queensland Country Health	✓	✓			✓	✓		✓		●
Reserve Bank Health Society	✓	✓			✓			✓	◆	●
RT Health				✓						
See-u by HBF (previously CUA)					✓					
St Lukes	✓	✓			✓			✓	◆	●
Teachers Health	✓	✓		✓	✓			✓	◆	●
Teachers Union Health	✓	✓			✓			✓	◆	●
Transport Health	✓	✓			✓			✓	◆	●
Westfund	✓	✓			✓	✓		✓	◆	●
Australian Unity	✓	✓		✓	✓	✓		✓		
BUPA	✓	✓						✓		✓
CBHS Health Fund	✓	✓			✓		✓	✓		✓
Doctors Health Fund								✓		
HCF	✓	✓			✓			✓		
Medibank Private	✓	✓	✓	✓		✓		✓		✓
NIB	✓	✓			✓	✓		✓		

✓ *Therapy covered by Fund*

Please note that this table is only a guide to show what funds cover ATMS accredited modalities. If the modality that you are accredited for is not listed, this means that no health fund covers the modality. The only exceptions are Chiropractic and Osteopathy. ATMS accreditation in a modality does not guarantee provider status as all funds have their individual set of strict eligibility requirements. Please see our website www.atms.com.au or contact our office for current requirements. Rebates do not usually cover medicines, only face to face consultations. For further rebate terms and conditions, patients should contact their health fund. Policies may change without prior notice.

◆ ARHG are only recognising Remedial Therapists who are accredited for this modality and were approved for ARHG Provider status under their old criteria.

● ARHG are recognising Chinese Massage, however the eligibility requirements and provider number is exactly the same as Remedial Massage. See ARHG Health Fund Information for further information.

Herbal farming and manufacturing update

by Warren Morey | Herbalist and Manager of the Pharmaceutical Plant Company

Today we hosted the Maroondah City Council Food Safety Inspector, we produce plenty of fruit and vegetable extracts for the food and beverage market. Food Safety adds another dimension to PPC quality control. Food safety puts focus on food handling, temperature control where required and allergens are a key point of interest. Our Auditor was impressed with our comprehensive documentation systems.

October was a big month for Paw Paw fermentation, with more fruit arriving over the coming weeks.

Our Percolators continue to operate at high capacity, Witch Hazel finally arrived, and we have had large batched of Withania/ Ashwagandha root, Liquorice root, Turmeric root, Valerian root and St Mary's Thistle seed moving through. The forward schedule includes Horsetail herb, herb, Pau Dárco stem bark and Clivers herb.

Farming Update

Update by Warren Morey (Ronald was too busy with the new 24/25 growing season)

I first visited Ronald and Marleen Van de Winckel at Marleen Herbs of Tasmania some 10 years ago.

PPC Herbs and Marleen Herbs work together to bring Herbalists and Naturopaths, Australia's largest range of Organically Certified, Fresh Plant Tinctures and Glycetracts. Every time I visit, I can't believe how lucky we are that Ronald and Marleen chose to bring their family to Tasmania and create this amazing herbal wonderland. Starting from nothing more than grazing paddocks in 2010, they have established Australia's most diverse planting of commercial medicinal plants. Currently PPC offers 125 stunning Fresh Plant Tinctures.

The original farm has now been expanded by another 100 acres that has completed conversion to organic status.

With organics comes a strong commitment to sustainability. It starts with sustainable farming practices without the use of artificial fertilizers, pesticides or herbicides. Green crops are sown to break pest and disease cycles and later ploughed in to nourish the soil. Green crops can also out compete weed species and reduce weed burden for the following year.

The harvester is electric with a large solar panel roof over the top. A percentage of the crops are also dried and sent to PPC for manufacture of traditional extracts. Here the drying system takes warm solar heated air from the roof space and blows it up through the herb drying beds. It is a very energy efficient system.

Recent deliveries include Wormwood (Artemisia absinthium), Chamomile (Matricaria chamomilla) Fennel (Foeniculum vulgare), Dandelion (Taraxacum officinale)

PPC Herbs is TGA licenced and ACO Organic Certified.

If you have further questions, please email ***warren.morey@ppcherbs.com.au***

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Established in Sydney in 1990 and founded and directed by Master Zhang Hao (B. ED, Dip. TCM, RM.) the Australian School of Remedial Therapies offers nationally accredited vocational education training qualifications in Diploma of Remedial Massage and Diploma of (TCM) Remedial Massage.

The school also regularly delivers the short CPE skill update workshops throughout the year which are specifically designed for professional massage therapists and health care workers.

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Core Body Therapy

info@corebodytherapy.com.au | **www.corebodytherapy.com.au** | 0405 386 256

Core Body Therapy was developed in 2003 by Chris O'Brien, one of the most respected Myofascial Release Therapists and Teachers in the industry. A complete system of bodywork not offered in any other institution, our hands-on CPE courses will take your therapeutic bodywork deeper than traditional injury therapy moving beyond your initial training.

Core Body Therapy recognises the need for small groups to give the highest quality training possible. We make sure you get plenty of one on one time for optimum learning. Our courses are geared towards dedicated, results oriented therapists seeking to further their practice.

Hair Tissue Mineral Analysis

lab@interclinical.com.au | **www.interclinical.com.au** | 02 9693 2888

Proudly, the Australian Leader in HTMA setting the standard for over 25yrs, providing nutrient and heavy metal assessment. Our laboratory has specialised in testing human and animal hair for over 40 years, using the latest and most sophisticated analytical equipment - ICP Mass Spectrometer. The HTMA Report measures up to 38 minerals in parts per million with the highest level of accuracy and reproducibility in the industry. The analysis includes 27 key mineral ratios and recommendations that are both comprehensive and informative, based on expertise that comes from testing of over 1.5million hair samples. As little as 0.25grams of hair is required. InterClinical practitioners are supported with valuable resources and educational materials, free weekly mentoring and a free practitioner advisory service, ensuring you're equipped with the knowledge and skills required to achieve best possible patient outcomes. An Australian owned company, serving health care professionals since 1996.

Helio Supply Co

tcm@heliosupply.com.au | **www.heliosupply.com.au** | 02 9698 5555

Helio Supply Co is a wholesaler of Acupuncture and TCM supplies. We distribute both nationally and internationally and we pride ourselves on our service to customers. Established in 2000, we are committed to providing educational opportunities, a practitioner support line and sourcing the best domestic and international equipment and materials.

Herbs of Gold Pty Ltd

info@herbsofgold.com.au | **www.herbsofgold.com.au** | 02 9545 2633

Herbs of Gold has been dedicated to health since 1989, providing premium and practitioner strength herbal and nutritional supplements. Formulated by qualified, clinical and industry experienced naturopaths, herbalists and nutritionists, our formulations are based on current scientific research and traditional evidence. We take great care in all aspects of our business; right from the selection of raw materials through to the finished product, reviewing our environmental impact and sustainability of ingredients. All Herbs of Gold products meet stringent regulations for safety, quality and efficacy.

HESTA

hesta@hesta.com.au | **hesta.com.au** | 1800 813 327

For more than 25 years, HESTA has focused on helping those in the health and community services sector reach their retirement goals. We now have more than 785,000 members, 155,000 employers and more than $28 billion in assets. HESTA's size means we can offer many benefits to members and employers. These include: low fees, a fully portable account, easy administration, access to low-cost income protection and death insurance, limited financial advice (at no extra cost), super education sessions and transition to retirement options. We also provide access to great value health insurance, banking and financial planning. For more info visit **hesta.com.au** or call 1800 813 327.

InterClinical Professional

lab@interclinical.com.au | **www.interclinical.com.au** | 02 9693 2888

InterClinical Laboratories is one of Australia's leading practitioner-aligned nutritional medicine and health screening companies. Our vegan-friendly practitioner-only range of nutritional supplements, InterClinical Professional, supports practitioners to better treat and manage patient health. Our acclaimed, evidenced-based nutritional, herbal and natural medicines are developed by a team of local and international researchers, skilled experts, and practitioners. All formulations are evidence-based, synergistic, highly bioavailable and have minimal excipients and allergens. Offering personalised health programs is convenient through layered therapy, optimal dosing, and elemental minerals. We are committed to providing practitioners with the highest quality Australian-made nutritional supplements. InterClinical has been serving Australian health care professionals since 1996 and is proudly Australian-Made and Australian-Owned.

Mental Health Training

futuretraining4u@gmail.com | **www.futuretraining4u.com.au** | 0488 171 500

Australia-wide fully accredited training in Mental Health First Aid. Face to Face or Online. Highly relevant, evidence-based, and practical training. Gain CPE recognition by negotiation with your association. Learn how to identify and approach people who are experiencing mental health issues and crises. Build your confidence to have the conversations to support clients, colleagues, family, and friends to possibly save a life. Topics covered include an understanding of depression, anxiety, panic attacks, psychosis, substance abuse and suicide. Contact us today. Courses held regularly.

Metagenics

www.metagenics.com.au | 1800 777 648

Metagenics has been providing Natural Medicines for over 30 years and is the number one supplier of quality Natural Medicines in Australia and New Zealand. We are committed to providing the best education and services, and ensuring we deliver products of high quality and efficacy, helping natural healthcare professionals achieve the best outcomes. We are dedicated to helping people live happier, healthier lives, and believe a personalised and holistic approach is fundamental to addressing the drivers of dysfunction and disease. At Metagenics, we believe that understanding the underlying cause to disease is key in achieving optimal health.

McLoughlin Scar Tissue Release®

gailtumesMSTR@gmail.com | **www.mcloughlin-scar-release.com/gail-tumes** | 0417 005 510

CPE RECOGNITION with your preferred Instructor – Gail Tumes. MSTR® is a highly-advanced, innovative and successful method of scar tissue treatment. Untreated scar tissue can impede or prevent successful therapeutic intervention. Many bodyworkers have little or no knowledge of scar tissue, how it affects the body and more importantly what can be done to treat it and minimise its effect. This 1-day Workshop can change all that. To secure your place with Gail Tumes, go to **www.mcloughlin-scar-release.com/gail-tumes**

SFI Health

www.sfihealth.com.au/health-professionals/ | 1800 334 224

We've recently introduced a fresh new look across our portfolio of evidence-based medicines. Previously represented by the Flordis brand, we've introduced SFI Health as our primary brand to represent our company and products worldwide. This enables us to leverage the wider expertise within our company, share more of what we do with regional markets, including product launches and scientific support and in this way better help you to experience better health outcomes.While we are transitioning from Flordis to SFI Health, all our products remain the same high quality, clinically researched natural health products that you know and trust. For research and clinical resources register online at **www.sfihealth.com.au/health-professionals/**

Terra Rosa

terrarosa@gmail.com | **www.terrarosa.com.au** | 0402 059 570

Terra Rosa specialised in educational massage DVDs and books. It has the largest collection of massage DVDs in Australia and the world, covering all modalities from Anatomy, Swedish Massage, Reflexology, Sports Massage to Myofascial Release and Structural Integration. We also provide the best in continuing education with workshops by international presenters including Orthopaedic Massage, Taping, Fascial Fitness and Myofascial Therapy.

The Pharmaceutical Plant Company

sales@ppcherbs.com.au | **www.ppcherbs.com.au** | 03 9762 3777

Where nature, science and health come together. PPC offers healthcare professionals a choice of either traditionally made herbal extracts from dried plant materials; or fresh plant tinctures that are all grown in Tasmania and processed within hours of harvest. PPC uses Organically certified herb where possible, with the entire Fresh Plant Tincture range being Australian Certified Organic. The Pharmaceutical Plant Company has 25 years experience in manufacturing and distributing traditional herbal extracts, fresh plant tinctures and listed medicines in Australia.

Continuing Professional Education

Continuing Professional Education (CPE) is a structured program of further education for practitioners in their professional occupations.

The ATMS CPE policy is designed to ensure its practitioners regularly update their clinical skills and professional knowledge. One of the main aims of CPE is to keep members abreast of current research and new developments which inform contemporary clinical practice.

The ATMS CPE policy is based on the following principles:

- Easily accessible to all members, regardless of geographic location
- Members should not be given broad latitude in the selection and design of their individual learning programs
- Applicable to not only the disciplines in which a member has ATMS accreditation, but also to other practices that are relevant to clinical practice which ATMS does not accredit (e.g. Ayurveda, yoga)
- Applicable to not only clinical practice, but also to all activities associated with managing a small business (e.g. book-keeping, advertising)
- Seminars, workshops and conferences that qualify for CPE points must be of a high standard and encompass both broad based topics as well as discipline-specific topics
- Financially viable, so that costs will not inhibit participation by members, especially those in remote areas
- Relevant to the learning needs of practitioners, taking into account different learning styles and needs
- Collaborative processes between professional complementary medicine associations, teaching institutions, suppliers of therapeutic goods and devices and government agencies to offer members the widest possible choice in CPE activities
- Emphasis on consultation and co-operation with ATMS members in the development and implementation of the CPE program

ATMS members can gain CPE points through a wide range of professional activities in accordance with the ATMS CPE policy. CPE activities are described in the CPE policy document as well as the CPE Record. These documents can be obtained from the ATMS office (telephone 1800 456 855, fax (02) 9809 7570, or email **info@atms.com.au**) or downloaded from the ATMS website at **www.atms.com.au.**

It is a mandatory requirement of ATMS membership that members accumulate 20 CPE points per financial year. CPE points can be gained by selecting any of the following articles, reading them carefully and critically reflecting on how the information in the article may influence your own practice and/or understanding of complementary medicine practice. You can gain one (1) CPE point per article to a maximum of three (3) CPE points per journal from this activity:

- **Rubic L. The intersection of autoimmunity and the menopause transition**
- **McEwen B. The microbiome and autoimmune disease: An introduction**
- **Sanderson S. Magnesium: The immune system's super mineral**
- **Brinkworth C. Omega-3 SDA - a sustainable omega solution in addressing autoimmunity?**
- **Medhurst R. Recent research in homeopathy**
- **Pagura I. Changes to industrial relations law across Australia**

As part of your critical reflection and analysis, answer in approximately 100 words the following questions for each of the three articles:

1. What new information did I learn from this article?
2. In what ways will this information affect my clinical prescribing/techniques and/or my understanding of complementary medicine practice?
3. In what ways has my attitude to this topic changed?

Record your answers clearly on paper for each article. Date and sign the sheets and attach to your ATMS CPE Record. As a condition of membership, the CPE Record must be kept in a safe place, and be produced on request from ATMS.

Biz Club

Grow your business naturally

Join the ATMS Biz Club starting 30 January 2025 and kickstart your path to networking, growth, and success.

The ATMS Biz Club is more than just a course—it's your 12-month roadmap to success. With fortnightly webinars designed to guide you through every aspect of building and scaling your practice, this program offers the perfect blend of expert insights and practical application. We're all about real-world strategies you can implement immediately to see results!

Each quarter zooms in on a key area of business development. Whether it's practice building, marketing success, client growth, or operational excellence, we've got you covered with webinars featuring expert teachings that combine both theoretical knowledge and actionable advice.

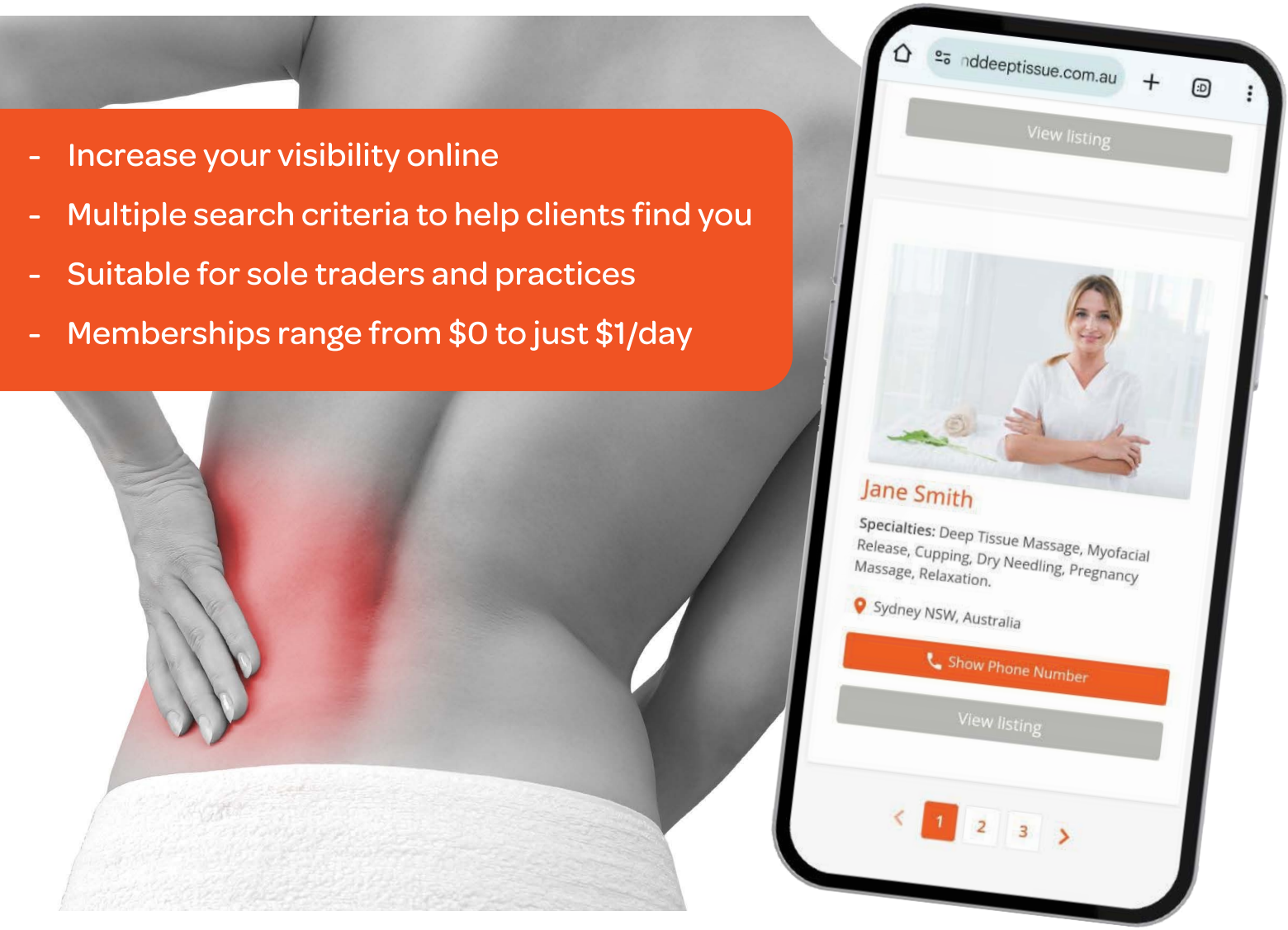
Key Features:

- **Program Duration:** 12 months of high-value business coaching, starting 30 January 2025
- **Webinars: Thursday 12-1 PM** Fortnightly
- **Session Length:** 1 hour
- **Expert Guests:** Each session will feature a guest Natural Medicine Practitioner or Business Owner who's been there, done that, and is eager to share their experience and insights.
- **+ Earn 4 CPE points per quarter**

REGISTER NOW!

SPORTS & DEEP TISSUE®
DIRECTORY

JOIN AUSTRALIA'S MOST COMPREHENSIVE REMEDIAL THERAPIST'S DIRECTORY TODAY!



It's free to join!

Scan the QR code for the chance to win a FREE GOLD MEMBERSHIP for 6 months valued at $180!* T&C's apply.

https://sportsanddeeptissue.com.au/therapist/join-us.php

*This offer is only valid until end of March 2025 for the first 100 therapists to join our directory with the QR code provided.

ATMS

NEW 12-month CPE Program

FEBRUARY–NOVEMBER 2025

FEBRUARY

Sydney
8
SPECIAL EVENT
Transition to Practice

Melbourne
15&16
Rob Orr
Lower Cross Syndrome

WEBINAR
18
Farida Irani
Integrating Ayurveda Aromatherapy

Sydney
22&23
Donna Eddy
Releasing Joints

WEBINAR
26
Dr Nancy O'Hara
Demystifying PANS/PANDAS

MARCH

WEBINAR
6
Dr Nancy O'Hara
Demystifying POTS

Newcastle
8&9
Rob Orr
Lower Cross Syndrome

WEBINAR
11
Tim Crowe
Managing Osteoarthritis Effectively

WEBINAR SERIES
18&25
Rob Orr
Lumbar spine vs Sacroiliac joint

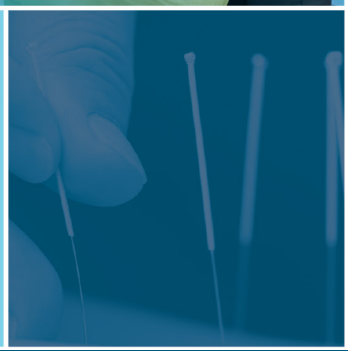
Sydney
30
SPECIAL EVENT
Lipoedema Symposium

APRIL

WEBINAR
1
Tracey Hogan
L-Theanine Effects on Brain Waves

Adelaide
5&6
Donna Eddy
Releasing Joints

WEBINAR SERIES
30 APRIL & 7 MAY
Riccardo Galeotti
Bunions and Plantar Fasciitis



MAY

Hobart
3&4
Riccardo Galeotti
Mastering Foot Mechanics

WEBINAR
6
Greg Cumberford & Ella Baker
Sustainable omegas

WEBINAR
13
Rebecca Edwards
Probiotics for Skin and Allergic Conditions

Sydney
17&18
Michael Stanborough
Upper Body Myofascial Release - Arms, Cervical Spine and TMJ

Coffs Harbour
17&18
Rob Orr
Lumbar spine vs Sacroiliac joint

WEBINAR
21 FREE
Ryan Neary
Understanding Emerging Insurance Risks

WEBINAR
28
Diana Boot
Antidepressant Withdrawal

JUNE

WEBINAR SERIES

3&10

Susan Szczesny
Environmental Toxins

WEBINAR SERIES

4&11

Jimmy Barker
Gluteal Tendinopathy

Melbourne

7&8

Michael Stanborough
Upper Body Myofascial Release - Arms, Cervical Spine and TMJ

Sydney

14&15

Rob Orr
Lumbar spine vs Sacroiliac joint

Brisbane

14&15

Donna Eddy
Releasing Joints

WEBINAR

17

Marieke O'Halloran
Paediatric Acupuncture: Gentle Care for Children

Adelaide

28&29

Riccardo Galeotti
Mastering Foot Mechanics

AUGUST

WEBINAR

6

Amy Tyler
An Introduction to Cancer for Bodyworkers

Sydney

10

Jimmy Barker
Hamstring Tendinopathy

WEBINAR

26

Riccardo Galeotti
Expanding Beyond the Foot in Limb Mechanics

Sydney

30

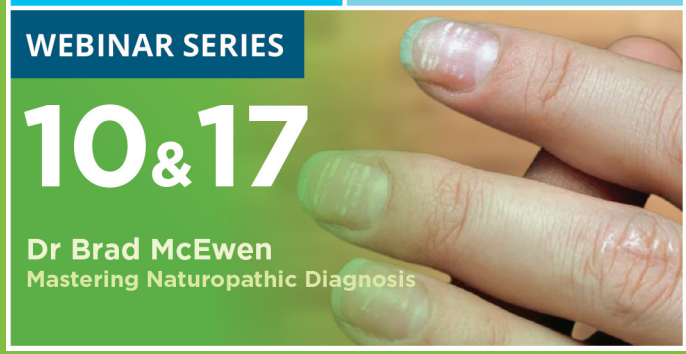
Healthy Brain Symposium

ATMS SPECIAL EVENT

SEPTEMBER

WEBINAR
16
Donna Eddy
Loosening Hips

Newcastle
20&21
Donna Eddy
Releasing Joints



WEBINAR SERIES
10&17
Dr Brad McEwen
Mastering Naturopathic Diagnosis

OCTOBER

WEBINAR
15
Dr Helena Popovic
How our beliefs affect our biology

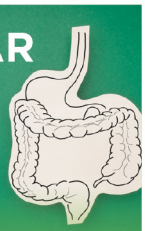
Perth
18&19
Riccardo Galeotti
Mastering Foot Mechanics

Adelaide
25&26
Rafael Bucater
Sports Massage Anatomy Essentials

Sydney
25&26
Amy Tyler
An introduction to Breast Cancer Recovery and Rehabilitation

NOVEMBER

SYDNEY2025
9
ATMS SEMINAR +AGM
SAVE THE DATE



WEBINAR
26
Dr Deep Bhuyan
Understanding Postbiotics: Guardians of Gut Health

WEBINAR SERIES
29 OCT & 5 NOV
Robin Kerr
Pain Science