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THE NATUROPATH'S GUIDE

MULTIPLE SCLEROSIS

A focus on the herbal approach for managing multiple sclerosis

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RUE
(*Ruta graveolens*)

MULTIPLE SCLEROSIS

MS is the most common chronic autoimmune disease of the central nervous system (brain and spinal cord).

It is an inflammatory and neurodegenerative disease, that primarily affects young women, causing neurological dysfunction and disability. MS can affect different regions in the brain and spinal cord and, according to the area which is affected, it can cause different symptoms.

Condition Overview

MS means there is damage to the protective sheath (known as myelin) that surrounds the nerve fibres (axons) in the brain and spinal cord. It is characterised by sclerosis which is a Greek word meaning scars. This damage (demyelination) causes scars, or lesions, in the nervous system, meaning that the nerves cannot send signals around the body properly and, depending on where they develop, manifest into various symptoms. MS affects more than 25,600 people in Australia and is three times more common in women than in men. The cause of MS is still not well understood but both genetic and environmental factors have been found to have important roles in its initiation or progression.

While MS is rarely fatal it is often disabling with about one third of patients losing the ability to walk 15 to 20 years after onset. It is usually an episodic disorder with episodes lasting for days, weeks or months, alternating with remissions (periods of reduced or no symptoms). Some people may not get remissions and, instead, get progressively worse. Based on this clinical course MS is usually divided in four major forms: relapsing-remitting MS is the most common form which affects 85% of MS patients, secondary progressive MS which may develop in some relapsing-remitting MS patients, primary progressive MS which affects approximately 10% of MS patients and progressive-relapsing MS occurring in fewer than 5% of patients. Disease activity (rate of relapses and new lesions) is thought to reflect inflammatory processes whereas disease progression (worsening of disability and brain and cord atrophy) may better reflect neuronal injury.

Disease progression in MS can be highly variable, the prognosis is often uncertain and there is no universal consensus regarding terminology or management. Therefore people with MS usually contend with an uncertain future as their MS worsens or progresses alongside, in many cases, an accumulating symptomatic burden and increasing levels of disability. Drug treatments, their associated side effects and the impact of regular monitoring add to the disease burden. Not surprisingly, exacerbations and progressive MS can disrupt many aspects of daily life including employment, daily activities, relationships, establishing a family and sense of self.

Common Symptoms

No two cases of MS are the same. Symptoms are varied, and unpredictable, and depend on where MS lesions develop on the brain and spinal cord and the severity of the attack. They are attributed to impaired impulse conduction and later to axonal damage due to demyelination of the tracts of the central nervous system.

- Vision problems such as blurred or double vision
- Muscle weakness, often in the hands and legs, and muscle stiffness accompanied by painful muscle spasms, problems with coordination, balance, slurred speech and difficulty chewing and swallowing
- Tingling, numbness, pins and needles or neuralgia in the arms, legs, trunk or face
- Clumsiness, particularly difficulty staying balanced when walking
- Bladder control problems including bladder incontinence and constipation
- Vertigo, dizziness and loss of balance
- Heat sensitivity. A hot day, hot bath or even a hot cup of tea can make symptoms worse
- Sexual dysfunction (e.g. impotence)
- Mental or physical fatigue, extreme tiredness
- Mood changes, depression
- Cognitive dysfunction such as problems concentrating, multitasking, thinking, learning or difficulties with memory or judgment. Occurs in up to 70% of patients spanning all subtypes of the disease

Risk Factors

Like most autoimmune diseases the cause of multiple sclerosis remains unknown however, as mentioned previously, there is evidence that a combination of genetics and environmental factors is responsible. These risk factors appear to be extremely complex and varied according to the individual. A 2020 systemic review found that lowering obesity and Epstein Barr virus infection and increasing physical activity and serum vitamin D levels can reduce the risk of MS.

Genetics, Family History and Ethnicity

MS risk is greatly increased with increasing relatedness to someone who has MS. The genetic basis for this increase in risk is due almost entirely to genes affecting the immune response. More than 200 genes have now been identified but their precise biological role remains to be clarified. Twin concordance studies in MS suggest that genetics can only partly explain the susceptibility for developing MS and that environmental factors contribute significantly to disease occurrence. MS is uncommon in some ethnic groups such as Uzbeks, Samis, Turkmen, Kyrgyzis, Kazakhs, native Siberians, North and South Amerindians, Japanese, Chinese, indigenous African and New Zealand Maori. Although these differences could be partially explained by exposure to specific environmental factors (such as certain pathogens) the presence of MS-resistant or low-incidence ancestral groups suggests that the history and genetic architecture of a population influence its own risk of developing MS.

Sex

MS affects women more often than men (3:1 ratio).

Age

MS usually begins in adults aged 20 to 45.

Geographical Location, Sun Exposure and Vitamin D Deficiency

People living in northern Europe and North America have a higher incidence of MS when compared with southern Europeans. That MS prevalence increases with greater distance from the equator, led to the hypothesis that lower exposure to ultraviolet radiation and subsequently, lower vitamin D status, increases the risk of MS. The most frequently cited environmental factors relating to MS include the incidence of MS increasing as one moves farther away from the equator, the incidence of MS increasing with a chronic decrease in exposure to sunlight and the incidence of MS increasing in those with a low level of serum vitamin D. A recent review concluded that identification and correction of vitamin D insufficiency, with supplementation at recommended doses, is a sensible clinical objective.

Infections (e.g. virus)

More recently infectious factors are being considered as a potential cause of MS including, but not limited to, Epstein Barr virus (EBV) and herpes simplex virus. Compared with uninfected individuals the hazard of developing MS is approximately 15-fold higher among individuals infected with EBV in childhood and about 30-fold higher among those infected with EBV in adolescence or later in life. Although the mechanisms underlying this association remain unclear, the data provides strong evidence of a causal relation between EBV infection and MS risk. A higher number of bacterial and viral infections during childhood that are accompanied by frequent use of antibiotics are associated with greater risk of MS.

Physical Activity

Moderate to vigorous levels of physical activity are associated with a decreased MS risk.

Mental Stress

Several studies have shown that stressful life events are associated with a subsequent significant increase in risk of MS exacerbations but it is not known whether stressful life events could increase the risk of developing the disease itself.

Hygiene Hypothesis and Gut Microbiota (Gut Dysbiosis and Intestinal Permeability)

The hygiene hypothesis, suggesting that low exposure to pathogens early in life due to improved hygiene can increase the risk for immune-mediated diseases, has been proposed as an explanation for the increase in incidence of allergy and autoimmune diseases in industrialised countries during the last decades. Several aspects of the hygiene hypothesis have been related to MS. Recent studies have described potential associations between the rate of certain bacterial infections and prevalence of autoimmune or neurological diseases such as MS (and Alzheimer's disease). The mediators through which these factors interact include Westernisation of lifestyles, improvements in sanitation and changes in gut microbiota. Dysbiosis in the gut microbiota has emerged as a potential risk factor for MS following a report of its key role in shaping the immune response. The microbiome is an important component of the environmental risk factors in MS. Circulating levels of microbiome-derived microbial products are deficient in MS patients resulting in decreased innate immune regulation.

Hormones

MS is clearly more common in women in whom incidence has been rising. Hormone-related physiological conditions in women such as puberty, pregnancy, post partum and menopause exert significant influence both on MS prevalence as well as on outcomes. Hormonal factors are therefore believed to be involved in regulating the course of disease. Some environmental factors, such as vitamin D or the microbiome, may affect endogenous sex hormone levels which then alter hormonal interaction with MS susceptibility genes.

Inflammatory Bowel Disease (IBD)

Both IBD and MS patients seem to have a 50% increased risk of MS or IBD comorbidity, respectively, with no apparent differences between patients with Crohn's disease or ulcerative colitis.

Food Allergy, Gluten and Coeliac Disease

Allergies to certain foods may play a role in the development or exacerbation of MS. Several publications have reported the prevalence of gluten-related antibodies among patients with MS however no direct link between MS and gluten disorders has been established. A few studies do suggest that MS, as an autoimmune disease, may be associated with a gluten sensitivity. The most powerful studies investigating a potential association between coeliac disease and MS are two Danish population based studies and a Swedish case control study, including 14,371 coeliac disease patients and 70,096 reference individuals, however none of them found any association. Research, while contradictory, shows a high correlation between MS and dairy products because of the high saturated fat content and specific proteins in cow's milk.

Obesity and Diet

Several high quality observational studies have reported that obesity in adolescence and early

adulthood is associated with approximately double the risk of developing paediatric and adult MS compared with normal-weight individuals. Obesity related comorbidities, such as type 2 diabetes and insulin resistance, have been associated with worse outcomes among people with MS. The health benefits of a Mediterranean-style diet for such comorbidities are well-established. Researchers have recently suggested that it is reasonable, in the absence of a specific "MS diet" that is shown in well-designed trials to reduce the risk of relapses or disability, to advise patients with MS to adopt a Mediterranean-style diet as a means of reducing obesity-related comorbidity risk.

Smoking

Cigarette smoking is a well-established risk factor for MS onset with a clear dose response relationship. Smoking is associated with a greater chance of developing progressive disease and accruing more rapid disability. Quitting smoking is associated with a gradual decline in the excess risk of MS, to zero at 10 years post-cessation regardless of the cumulative dose, thus providing MS patients with one more reason to quit smoking.

Chemical and Heavy Metal Exposure

Exposure to heavy metals, including lead and mercury, is a potential risk factor for MS. Organic solvents may be slightly associated with an increased risk to develop MS. Organic solvents are mostly a mixture of hydrocarbons including alcohols, aromatics, acetates, esters, halogenated hydrocarbons, ethers, glycols, ketones and petroleum distillates. Highly exposed groups include floor layers, painters, dry cleaning workers and car painters. A combined exposure to genetic markers, smoking and exposure to organic solvents increases the risk of developing MS considerably. A strong association between air pollution (but not water or land pollution) and having paediatric MS has been reported and attributed to exposure to sulphur dioxide, particulate matter 2.5 (fine inhalable particles), carbon monoxide and lead.

Drugs

The results of a recent study show that drug abuse, including marijuana, cocaine and amphetamines, may coexist with MS and their presence may modify the course of the disease.

Free Radicals

Accumulating evidence suggests that free radical damage and subsequent oxidative stress plays a major role in the development of MS. Reactive oxygen species (ROS), which if produced in excess lead to oxidative stress, have been implicated as mediators of demyelination and axonal damage in both MS and its animal models.

How To Get The Correct Diagnosis

MS is difficult to diagnose, and sometimes it can take years to reach a diagnosis, because there is no single test. Therefore MS remains a clinical diagnosis requiring a complete neurological exam and medical history review. MS is diagnosed by excluding other potential causes of symptoms. Doctors will normally start with a medical exam and include blood tests, a physical examination to check reflexes and responses, lumbar punctures, an MRI (magnetic resonance imaging to detect lesions in the central nervous system) and other types of tests to measure nerve activity. A person will be diagnosed with MS if there is evidence of lesions in different parts of the central nervous system, at different times, with no other explanation than MS.

Conventional Treatment & Prevention

Unfortunately there is currently no cure for MS. Conventional treatments for MS are divided into disease modifying therapies (or immunotherapies), which seek to alter the course or progression of the illness, and therapies designed to control specific symptoms. Disease modifying therapies work by targeting the immune system and slow the frequency and severity of attacks so the myelin sheaths are damaged less. These treatments do not reverse current symptoms and there can be significant side effects. They are usually used for people with relapsing-remitting MS. Although the availability of these therapies has improved the disease course in MS there are still a significant number of MS patients who do not benefit from these therapies. Some patients do not respond to

these treatments and the cost of therapy may be prohibitive.

Mild symptoms may not require any treatment. Corticosteroids are often prescribed to reduce nerve inflammation and suppress the immune system which can decrease the severity of an MS attack. There are many different treatments that are used to attempt to slow the progression of the disease however each treatment is considered on an individual basis depending on the type and progression of the disease. Based on the limited evidence so far available the non-psychotropic cannabinoid, cannabidiol (derived from Cannabis sativa), appears to be a highly promising drug with significant immunomodulating and disease-modifying potential for MS.

Acetylcholinesterase inhibitors have been the most promising class of medications tested in MS for pro-cognitive effects. These drugs increase levels of acetylcholine in the brain, a neurotransmitter thought to promote learning and memory. However in recent reviews of clinical trials these drugs failed to significantly improve performance on measures of processing speed, memory or executive functioning in patients with MS. Further research still needs to be done to address this significant therapeutic need. It may be that there is no 'single' drug which can improve cognition in all patients with MS that are adversely affected due to differences in the underlying causes of these problems.

In line with this the current data suggests that irregular acetylcholine levels may contribute to the development of MS thus maintaining the pro-inflammatory state. The reestablishment of the correct acetylcholine homeostasis in the immune system of MS patients, with the consequent regulation of pro-inflammatory cytokines, may be a new, interesting therapeutic perspective for MS.

"MS has symptoms that are like icebergs; you only see what's on the surface...it is sometimes called the snowflake disease because, with over 50 symptoms of varying severity, no two MS patients are alike."

Valerian
(Valeriana officinalis)

INTERVENTION	Adaptogens. etc	Anti-inflammatory	Antioxidants	Analgesics etc.	Immune modulators
Bacopa	✓	✓	✓	✓	
Ginger		✓	✓	✓	✓
Ginkgo	✓	✓	✓		
Korean Ginseng	✓		✓		✓
Muira Puama	✓		✓		
Pau D'Arco		✓	✓	✓	
Rosemary			✓	✓	
Rue		✓		✓	
Saffron	✓	✓	✓	✓	
St John's Wort	✓	✓		✓	
Turmeric	✓	✓	✓	✓	✓
Valerian	✓			✓	

Natural Therapies For Treatment & Prevention

With the shock of being diagnosed with MS many patients may feel overwhelmed with a sudden lack of control. Natural strategies can assist people with navigating the physical, psychological and emotional challenges of this mysterious and debilitating condition thus empowering and offering hope for patients living with MS. Naturopaths and herbalists can play a supportive and multifaceted role in what is a complex autoimmune disease, with a number of underlying and modifiable risk factors, involving many aspects of health and epigenetics. By addressing these with patients it is possible to potentially delay or halt the disease progression. This requires considerable insight and judgment regarding appropriate services and treatment modalities that can adapt to the ever-changing needs of the patient. Like conventional medicine a thorough health review will assist in developing a comprehensive approach. Naturopaths and herbalists will often find that the majority of MS patients will first present with malabsorption and inflammatory bowel disorders such as poor gut health, either parasite or bacterial overgrowth, significant intestinal permeability or small intestinal bacterial overgrowth (SIBO). In addition viral infections, the regular ingestion of foods they are intolerant to, heavy metal exposure, stress and vitamin and mineral deficiencies are key treatment areas that, once cleared, allow the patient to improve dramatically.

While there is no one size fits all approach some basic principles can be applied to the majority of MS patients including:

- Modulate the immune response. This includes identification and avoidance of food allergens to reduce immune activation and eradicating infection if it is present.
- Investigate and treat intestinal permeability, parasites, fungal infections, bacterial overgrowth, SIBO and any viral infections.
- Reduce inflammation and oxidative stress.
- Reduce degeneration, promote repair of the myelin sheath.
- Improve nerve function, support the nervous system and manage stress.
- Assess nutritional status.
- Support detoxification.

Diet

A healthy diet may improve the physical and inflammatory status of patients with MS. Findings that particular components of the diet can influence the degree of the inflammatory response suggest that an appropriate nutritive intervention may improve the course of MS and may be considered as a possible complementary treatment in the disease.

- A fresh, whole food, high fibre, unrefined diet low in sugars, coffee (a bladder and bowel irritant), alcohol, refined grains, artificial sweeteners, unhealthy fats, dairy and processed foods is advised with an emphasis on anti-inflammatory and antioxidant foods produced without chemically formulated fertilisers, growth stimulants, antibiotics or pesticides. Foods to include are turmeric, berries, ginger, brightly coloured fruits, green, leafy vegetables and immune boosting garlic and mushrooms.
- Small quantities of good quality protein, ideally organic and/or grass fed animals, bone broths.
- Increase probiotic foods such as yoghurt and fermented foods to assist in feeding beneficial gut bacteria.
- Good quality fats (needed for proper nerve function) such as cold pressed, organic olive oil, grass fed butter, avocado, coconut oil, nuts and seeds, oily fish (wild caught or sustainably farmed to avoid heavy metals) and eggs.
- Identify and avoid food allergens: Eliminating gluten from the diet is part of the The Wahls Protocol, a multimodal lifestyle intervention including, among others, adherence to a modified paleolithic (Paleo) diet. Clinical studies have illustrated that The Wahls Protocol can contribute to improving primarily self-reported outcomes, such as mood, fatigue and quality of life among patients with relapsing-remitting MS and progressive MS. Due to the multimodal nature of the interventions it is not possible to quantify the effects of eliminating gluten from the diet. Nevertheless these studies highlight that lifestyle modifications can contribute to improving the quality of life of patients with MS.

This is of utmost importance for patients with the progressive forms of MS as highly effective treatments for these patients are still lacking.

- Other popular dietary programs include The Swank diet (low saturated fat), plant based, low fat McDougall diet, Mediterranean diet and ketogenic diet however no two people are alike and each patient requires a personalised diet to achieve the best results. This requires commitment from the patient to take an active role in their healthcare management.

Lifestyle

- Adequate sunlight exposure for Vitamin D .
- Exercise is a safe andeffective means of rehabilitation in MS patients. Existing evidence shows that a supervised and individualised exercise program may improve fitness, functional capacity and quality of life as well as modifiable impairments in MS patients.
- Ensure the body temperature is kept in balance by wearing cooling garments and using cool compresses and fans. Avoid hot situations such as hot baths.
- Avoid exposure to environmental toxins including tobacco.
- Stress management techniques include gentle exercise, yoga, meditation and counselling.
- Physiotherapy, speech therapy, occupational therapy, acupuncture and massage may help maintain flexibility and reduce muscle spasms (spasticity) as well as improving wellbeing.

Potential Treatment Plans

Multiple Sclerosis	Bacopa	Ginger	Ginkgo	Muira Puama	Pau D'Arco
Multiple Sclerosis with fatigue	Korean Ginseng	Muira Puama	Saffron	Turmeric	Valerian
Multiple Sclerosis with memory impairment	Bacopa	Ginkgo	Rosemary	Rue	Saffron
Multiple Sclerosis with depression	Rosemary	Saffron	St John's Wort	Turmeric	Valerian

Ginkgo
(Ginkgo biloba)

Desired Herbal Actions and Potential Herbs Include:

Adaptogens, Adrenal Trophorestoratives, Antidepressants, Nervine Tonics, Nervine Trophorestoratives, Nootropics (Cognitive Enhancers), Sedatives

To help counteract the fatigue, weakness, cognitive and depressive symptoms. Herbs such as andrographis, bacopa, chamomile, ginkgo, gotu kola, hops, Korean ginseng, lavender, lemon balm, liquorice, magnolia, oats, muira puama, passionflower, pomegranate, rehmannia, reishi, rosemary, saffron, St John's wort, schizandra, scullcap, valerian

Anti-inflammatories

To reduce inflammation which is a key contributor to MS severity. Herbs such as bacopa, bilberry, bupleurum, chamomile, dandelion root, elderberry, elder flowers, feverfew, garlic, ginger, ginkgo, gotu kola, green tea, liquorice, magnolia, nettle leaf, pau d'arco, pomegranate, rehmannia, reishi, rue, saffron, St Mary's thistle, turmeric

Antioxidants

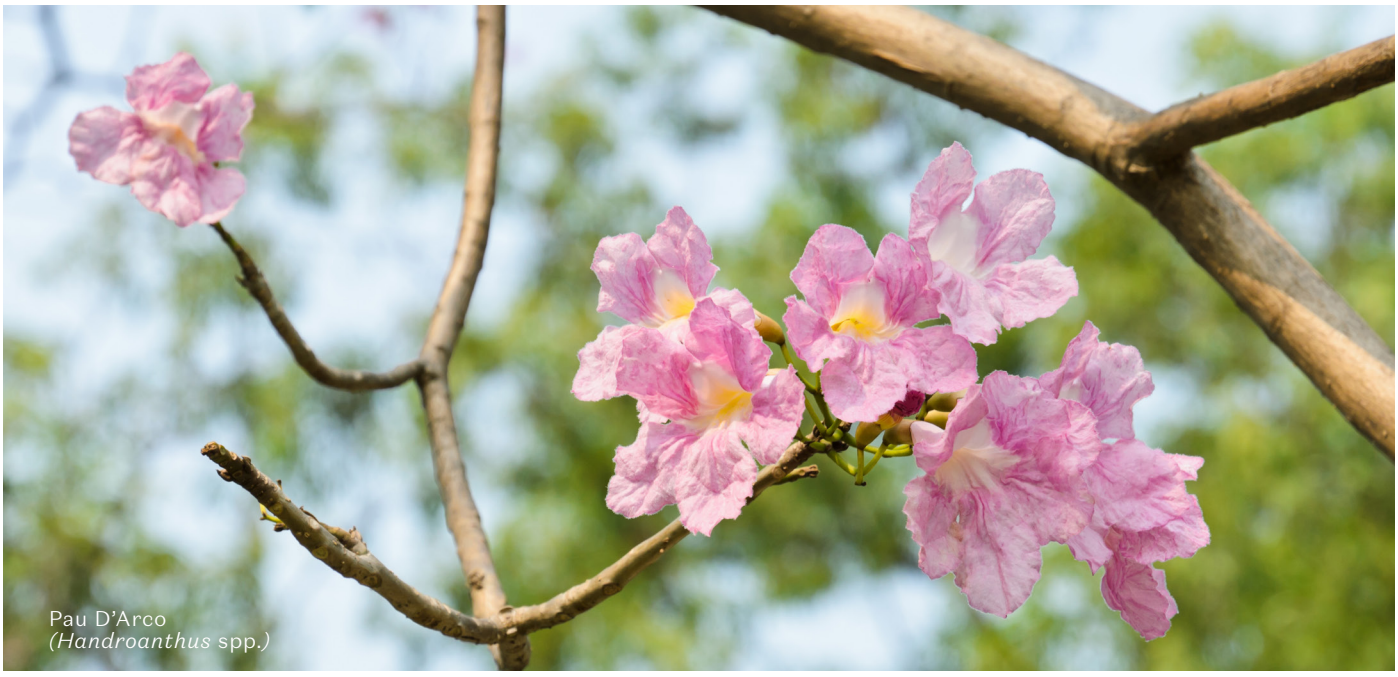
To reduce oxidation and free radical damage. One of the key factors in the development of MS is oxidative stress which enhances inflammation and neurodegeneration. Antioxidants could contribute to the reduction or even prevention of the progression of MS. Herbs such as bilberry, chamomile, dandelion root, elderberry, elder flowers, garlic, ginkgo, gotu kola, green tea, hawthorn, Korean ginseng, liquorice, magnolia, maritime pine, muira puama, nettle leaf, pau d'arco, reishi, pomegranate, rosemary, saffron, St. Mary's thistle, schizandra, turmeric

Analgesics, Antinococeptive and Antispasmodics

Chronic pain affects more than half of the people with MS in Australia with up to 30% reporting pain as their most severe symptom. Antispasmodics can assist with bladder dysfunction and muscle spasms. Herbs such as bacopa, Californian poppy, chamomile, fennel, feverfew, ginger, Jamaica dogwood, magnolia, pau d'arco, peppermint, rosemary, rue, saffron, willow bark

Immune Modulators

Enhance the immune system, modulate the immune response, protect autoimmune aggravation and eradicate infection. Herbs such as andrographis, astragalus, elderberry, elder flowers, garlic, ginger, green tea, hemidesmus, liquorice, reishi, Korean ginseng, pau d'arco, pomegranate, turmeric



Pau D'Arco
(Handroanthus spp.*)*

Herbal Support Could Include:

HERB NAME	DESCRIPTION	ACTIONS
Bacopa *(Bacopa monnieri)* 	Bacopa is a well known nootropic herb commonly used for longevity and to enhance cognition. Constituents in bacopa possess neuroprotective as well as anti-inflammatory actions. Humans trials are yet to be done however in MS animal models these constituents were able to inhibit inflammatory cytokines. MS is characterised by pro-inflammatory cytokine production. Chronic inflammation of the myelin sheath is one of the main causes of the progression of MS so a substance which can potentially limit inflammation in the central nervous system offers a promising treatment for many central nervous system disorders.	Nootropic Anxiolytic Sedative Nervine Tonic Adaptogen Neuroprotective Antioxidant Antidepressant Anti-inflammatory Vasodilator Antinociceptive
Ginger *(Zingiber officinale)* 	There has been growing evidence for the therapeutic potential of ginger in central nervous system diseases mainly through its anti-inflammatory properties. Accumulating evidence suggests anti-inflammatory medication is more effective when applied in the early phases of MS development. While there have been no human studies to confirm recommendation, in 2019 ginger was shown to reduce tissue injury in the spinal cords of mice in an MS mouse model.	Carminative Digestive Stimulant Anti-inflammatory Antispasmodic Anodyne Analgesic Antioxidant Antimicrobial Circulatory Stimulant Immunomodulatory

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Ginkgo *(Ginkgo biloba)* 	Ginkgo is the most famous of the memory herbs and has proved useful in a number of conditions related to cognitive impairment. An open trial in 29 people with MS and memory impairment showed that eight weeks treatment with 240mg per day of ginkgo may improve memory and quality of life.	Antioxidant Circulatory Stimulant Anxiolytic Nootropic Brain Tonic Anti-inflammatory Neuroprotective Peripheral Vasodilator Antibacterial Antifungal
Korean Ginseng *(Panax ginseng)* 	Fatigue is one of the most common complaints of MS patients. A recent randomised, placebo-controlled, double-blind pilot study found that Korean ginseng may be an effective remedy for MS-related fatigue and enhancing quality of life in these patients. Female MS patients received 250mg Korean ginseng twice daily over three months. Statistical analysis showed better effects for Korean ginseng than the placebo.	Adaptogen Tonic Immunostimulant Antioxidant Aphrodisiac
Muira Puama *(Dulacia inopiflora)* 	Muira puama is used by Amazonian people for the treatment of various central nervous system conditions in which free radicals are likely to be implicated. Some promising effects in animals have been shown for a neuroprotective action although no human trials have been conducted to support these claims. In preclinical studies muira puama has been found to significantly inhibit acetylcholinesterase activity in areas of the brain related to memory function. Researchers propose that such acetylcholinesterase inhibitory activity may explain a number of therapeutic properties traditionally claimed for muira puama, particularly those associated with cognition. MS is associated with cholinergic deficits so the purported acetylcholinesterase inhibiting activity of muira puama may help slow the memory decline in MS.	Nervine Tonic Antioxidant Aphrodisiac Nootropic Neuroprotective Adaptogen

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Pau D'Arco *(Handroanthus* spp.*)* 	Constituents in pau d'arco have been found to be effective in the treatment of inflammatory diseases such as MS in preclinical trials by selectively inhibiting the expression of several proinflammatory cytokines. Human research is needed to confirm this.	Antioxidant Antimicrobial Anti-inflammatory Analgesic
Rosemary *(Rosmarius officinalis)* 	Rosemary has powerful antioxidant properties and is a mild antidepressant. In different degenerative disease models it protects against free radical damage which is thought to contribute to the development of MS.	Antioxidant Antispasmodic Antidepressant Circulatory Stimulant Rejuvenating Tonic Digestive
Rue *(Ruta graveolens)* 	There are unpublished reports of some MS patients who have tried rue and noticed improved vision and considerable loss of spasticity. Demyelinating diseases lead to the uncovering of axonal potassium channels, located beneath the myelin sheath, thus rendering conduction of nerve impulses very difficult. Rue has been tested preclinically and been shown to block the potassium channels activated by MS. This may improve nerve function and may be beneficial in the treatment of MS. Rue may also affect the neurotransmitter acetylcholine, or the components of the nervous system that use acetylcholine, which is a facilitator of memory formation. Cognitive functions in the brain are improved by increasing the availability of this neurotransmitter. Rue may also work as an acetylcholinesterase inhibitor meaning it can inhibit the enzyme that breaks down acetylcholine which leads to memory loss. While these results cannot be extrapolated to human use they do show promise.	Antispasmodic Anti-inflammatory Antimicrobial

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Saffron *(Crocus sativus)* 	Saffron was used in traditional Persian medicine for treating depression and there is strong scientific support for this condition. Saffron may be able to improve the impairment of learning and memory in MS as well as improve oxidative stress.	Nervine Tonic Antidepressant Anxiolytic Adaptogen Neuroprotective Cognitive Enhancer Sedative Antioxidant Anti-inflammatory Antinociceptive (inhibits the sensation of pain) Analgesic Aphrodisiac Antispasmodic
St John's Wort *(Hypericum perforatum)* 	St. John's wort is used in traditional medicine for the treatment of mild to moderate depression, a common symptom of MS. More recently results of studies have reported that St. John's wort plays a modulating role on MS pain pathways in rats. It seems that St. John's wort has potential therapeutic effects against MS-induced oxidative stress. The cellular and molecular mechanisms that underlie these effects are not known however results in the literature suggest they could be related to an increased antioxidant effect.	Anti-inflammatory Nervine Tonic Antiviral Hepatic Antispasmodic Relaxing Nervine Nervous System Trophorestorative Anxiolytic Antidepressant Alterative Anodyne

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Turmeric *(Curcuma longa)* 	Turmeric's use (as a full spectrum extract) in MS hasn't been well studied however its benefits look promising. MS progresses in different stages beginning with a cascade of inflammation. This inflammation damages or destroys the myelin sheath that protects the cells in the central nervous system. It is thought that turmeric might reduce this inflammation. According to a recent study nanoparticles of the constituent curcumin were injected into rats with myelin sheath damage. They found the treatment offered myelin protective effects and reduced inflammation within the rats' central nervous system. To date these findings haven't been confirmed in people with MS taking full spectrum turmeric orally.	Anti-inflammatory Antioxidant Neuroprotective Immunomodulator Hepatoprotective Analgesic Antimicrobial Antiviral Antifungal Antidepressant
Valerian *(Valeriana officinalis)* 	Sleep disturbance is the most important cause of fatigue in MS patients. Valerian can be of benefit for MS patients due to its effects on improving sleeping problems and fatigue.	Anxiolytic Sedative Hypnotic Antispasmodic Relaxing Nervine

Conclusion

It is never too late to see the benefit of positive lifestyle changes. People who are able to make significant lifestyle changes in order to manage this major illness will do better than those who don't. Naturopaths and herbalists can work with MS patients as a team to make sure that every aspect of their wellbeing is supported in a journey that promotes health and vitality. In his book Taking Control of MS, Prof George Jelinek, a doctor with symptom free MS said: "The science is clear. People with MS who learn these self-help techniques, integrate them with the best of current medical management and sustain the lifestyle changes, can reasonably hope to stabilse their condition where it is; that is to halt its progression. There is the more radical possibility of profound healing and the reversal of symptoms... it is clear that remaining well after a diagnosis of MS is more than just a possibility. With commitment to the right lifestyle changes, there is the real probability that many people with MS can live long, healthy lives relatively free of the usual problems associated with the illness."

Resources

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