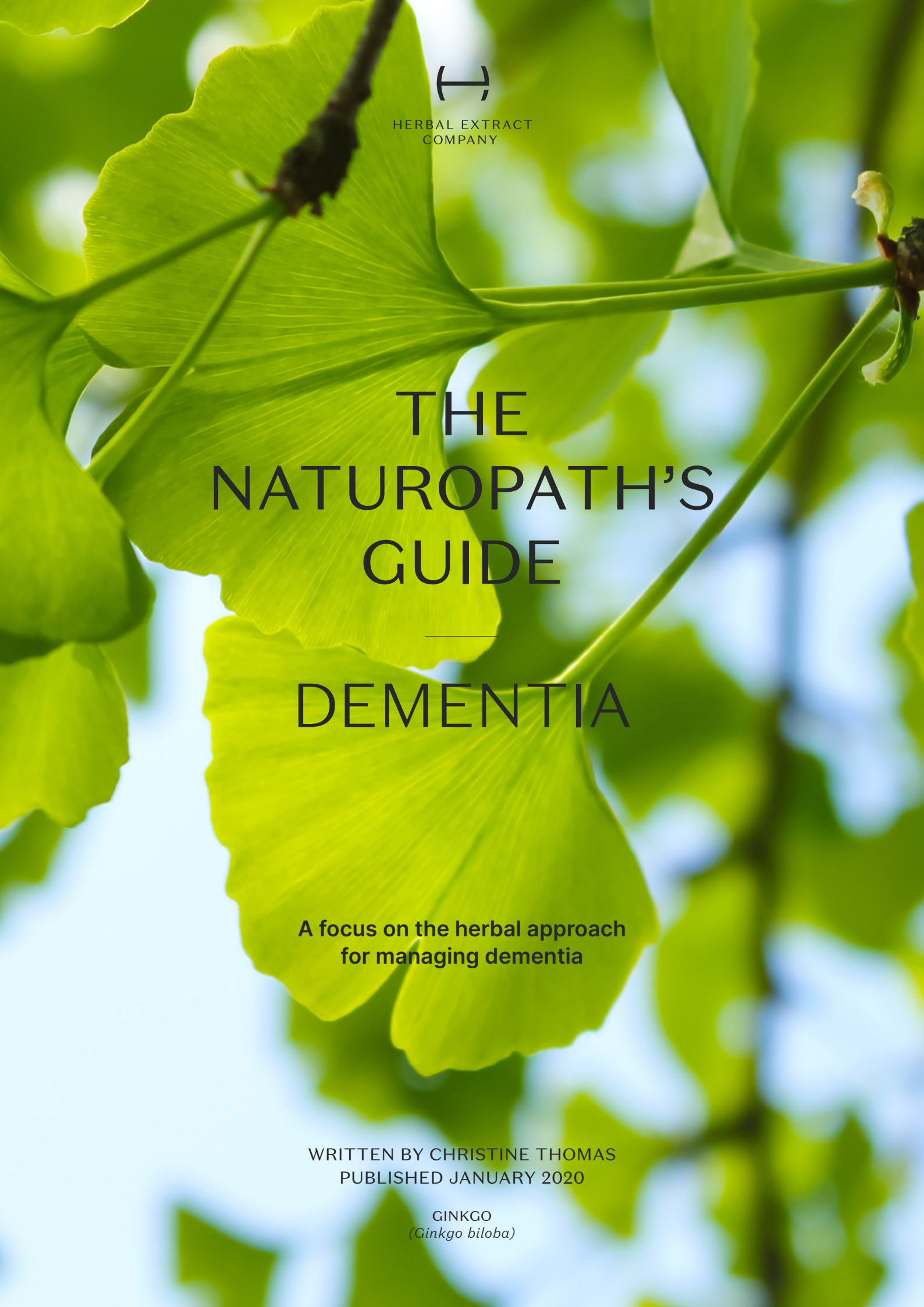

HERBAL EXTRACT COMPANY

THE NATUROPATH'S GUIDE

DEMENTIA

A focus on the herbal approach for managing dementia

WRITTEN BY CHRISTINE THOMAS
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GINKGO
(Ginkgo biloba)

DEMENTIA

Dementia is not one specific disease but the umbrella term for a number of neurological conditions of which the major symptom is a decline in brain function.

Dementia is a devastating condition that is the second leading cause of death in Australians after coronary heart disease. It is one of the major causes of disability and dependency among older people worldwide. Although it primarily affects older people, and is more common after the age of 65, dementia is not a natural part of ageing. What are initially dismissed as "senior moments" could be a sign of something more serious.

Condition Overview

Dementia is becoming a global emergency of epidemic proportions affecting millions of people worldwide and costing billions of dollars. It is one of the most feared conditions of aging being thought of as a fate worse than death. No one wants their life, or their loved ones', to end with the long goodbye of dementia however the statistics are grim. In Australia deaths due to dementia have increased by 68.6% since 2009. Its prevalence is rising because of the increasing numbers of ageing populations (known by the ageist metaphor as the "silver tsunami"), unhealthy lifestyles, overwhelmed health services, poor diagnosis of dementia cases and ineffective treatments.

Dementia is a multifactorial condition which develops from complex interactions between a number of genetic, physiological and environmental factors. Simply though it is caused by loss of nerve cells in the brain. It is a progressive condition meaning that symptoms gradually get worse. This is because when a nerve cell dies it cannot usually be replaced. As more and more cells die the brain starts to shrink. However it is not known if the dementia causes the brain cell death or the brain cell death causes the dementia. Despite this it is now accepted in the medical scientific community that the adult brain is capable of growing new neurons and glial cells, something previously disbelieved by the medical establishment. The brain is now considered to be resilient, pliable and plastic. The term neuroplasticity refers to the ability of the brain to 'rewire' itself through practice of a desired skill. When fresh nerve cells are stimulated (i.e. trained through specific learning exercises) they make new connections. In other words they become healthy brain cells that contribute to learning and the development of new skills.

Most people associate dementia with memory loss which is one of the first and most common symptoms of the disease. However memory loss does not automatically imply dementia. Memory is not about perfection and most people have forgotten something. The inability to learn new things, regressing to childhood memories and forgetting names of family and friends are core symptoms of dementia. This syndrome also involves deterioration in thinking, behaviour, the ability to perform everyday tasks, problem solving, language

and perception. In a person with dementia these symptoms are bad enough to affect daily life. Besides the person who has dementia it has a profound impact upon their loved ones and carers. Stress and anxiety caused by cognitive impairment, as well as agitation, are common features that are highly distressing to patients and their caregivers. It is important to remember that while patients with dementia don't remember what is said they remember how it is said.

The symptoms of dementia are caused by different diseases that affect the brain. In fact there are over 100 diseases that may cause dementia. Many of the diseases which cause it are terminal and it is common for multiple diseases to contribute to any one patient's dementia syndrome. Neurodegenerative dementias, like Alzheimer's disease and dementia with Lewy bodies, are most common in the elderly (Alzheimer's disease is facetiously known as "Old Timer's disease") while traumatic brain injury and brain tumours are common causes in younger adults.

Alzheimer's disease is the most common form of dementia and may contribute to 60 to 70% of cases. The hallmarks of Alzheimer's disease are the presence of amyloid beta protein and intraneural deposits of neurofibrillary tangles (abnormal accumulations of a protein called tau) in the brain. In more recent years focus has shifted to other candidates one of which is the build-up of misshapen proteins inside the brain cells, not between them. Other researchers assert that its oligomers, even smaller molecules that occur naturally in neurons and similar, that are causing the damage, and that the tangles and plaques are consequences of this. Although this pathology is also seen in people without dementia it is the distribution of these plaques in the brain that differentiates normal and abnormal brain changes. Alzheimer's disease itself can't be proven without an autopsy. Cellular changes in the brains of the patients suffering from Alzheimer's disease occur well in advance of the clinical symptoms. The nerve cell loss that happens in Alzheimer's disease might start around 40 years but by the time the person shows symptoms (for example in their 60s or 70s) a large percentage of the damage has already been done to their brain. This is, therefore, a disorder which is best prevented.

Vascular dementia results from brain cell death caused by conditions such as cerebrovascular disease, for example, stroke. This prevents normal blood flow depriving brain cells of oxygen. Some types of traumatic brain injury, particularly if repetitive such as those received by sports players, have been linked to certain dementias appearing later in life. Evidence is weak, however, that a single brain injury raises the likelihood of having a degenerative dementia such as Alzheimer's disease. Dementia can also be caused by prion diseases, for example Parkinson's disease, Creutzfeldt-Jakob disease and HIV infection. There are a number of conditions that produce symptoms similar to dementia. These include some vitamin and hormone deficiencies, thyroid abnormalities, depression, medication interactions or overmedication, infections and brain tumours.

Dementia is roughly split into four stages. In the early stages a person may have general forgetfulness and feel anxious about their memory. In the middle stage they may experience difficulty with everyday functions such as meal preparation or getting lost. In the third stage daily life becomes more challenging and people have difficulty with basic self-care tasks such as remembering to eat meals and brushing their hair. There are also likely to be sleep disturbances. The tertiary stage of illness is when symptoms have worsened considerably. They may have lost their ability to communicate, might need fulltime care and might be bedridden. Simple tasks, such as sitting and holding one's head up, become impossible. Bladder control may be lost.

Mild cognitive impairment is the stage between the expected cognitive decline of normal aging and the more serious decline of dementia. It can involve problems with memory, language, thinking and judgment that are greater than normal age-related changes. In mild cognitive impairment memory or mental function may have slightly deteriorated and family and close friends may notice a change. However these changes are not severe enough to significantly interfere with daily life and usual activities. Mild cognitive impairment may increase the risk of later developing dementia caused by Alzheimer's disease or other neurological conditions. Some people with mild cognitive impairment never get worse and a few eventually get better. Researchers suggest that early detection and

intervention may be effective strategies to slow its progression.

Common Symptoms

The early signs of dementia are subtle and vague and may not be immediately obvious. Each person will experience dementia differently and the symptoms will depend on the areas of the brain effected. Common early symptoms include short term memory loss, apathy and depressed mood but these symptoms are often just seen as being a part of normal ageing making early diagnosis difficult.

Some common symptoms may include:

- Progressive and frequent memory loss
- Changes in short term memory
- Problems with concentrating and planning
- Confusion
- Personality change
- Apathy and withdrawal
- Trouble completing everyday tasks
- Problems with language and finding the right words
- Being repetitive
- Finding it hard to follow a storyline
- Disorientation of time and place and poor sense of direction
- Poor or decreased judgement
- Difficulty with abstract thinking
- Difficulty adapting to changes
- Misplacing things
- Changes in mood or behaviour
- Loss of initiative

Risk Factors

Potentially Non Modifiable

Age

Age is the single biggest risk factor for dementia. Studies of prevalence and incidence of dementia and Alzheimer's disease have consistently shown an almost exponential increase with advancing age, in that estimates of both prevalence and incidence double with every five-year increase in age.

Gender

In Australia females account for 64.5% of all dementia related deaths. Depending on the subtype of dementia the ratio of male to female prevalence differs. For example females are at greater risk of developing Alzheimer's disease whereas males are at greater risk of developing vascular dementia.

Genetics and Family History

It has been suggested that genetic susceptibility is implicated in the cognitive impairment seen in ageing and a first-degree family history of Alzheimer's disease is associated with a greater risk for developing the disease. Apolipoprotein E (APOE4) and angiotensin converting enzyme genes have been associated with cognitive impairments seen in ageing and dementia. APOE4 is a particular gene responsible for creating a protein that carries cholesterol and other fats in our bloodstream. This gene is considered to be one of the main causes of early onset dementia and dementia with a genetic cause. In certain cases this gene undergoes a mutation and people may therefore carry a polymorphic allele. Individuals carrying the E4 allele have a higher risk of developing dementia. Not everybody who presents the mutated gene will go on to develop dementia and not all people living with dementia are APOE4 carriers. Regular exercise, not smoking, drinking sensibly and eating a healthy diet have been found to reduce the risk of getting dementia even if a person has a higher genetic risk of developing the condition.

Potentially Modifiable

Education Limited to the Age of 12

Lower education has been associated with a greater risk for dementia in many but not all studies.

Loss of Hearing

Hearing loss is associated with higher incidence of dementia in older adults however the causal link of how hearing loss increases the risk of developing dementia is not well understood.

Hypertension

High blood pressure increases the risk of vascular damage and disrupts the blood brain barrier. A reduction in high blood pressure may be a preventive measure against stroke and cognitive decline in elderly patients.

Midlife Central Obesity

Being overweight or obese in midlife may be more detrimental to subsequent age related cognitive decline than being overweight or obese at later stages of the lifespan. Conditions arising from obesity such as insulin resistance diabetes, hypertension and cardiovascular disease can, in turn, have negative consequences on the brain. A high body mass index increases the risk for dementia due to bioactive hormonal compounds that are secreted by adipose tissue.

Smoking

Smokers show an increased risk of dementia and quitting smoking decreases the risk to that of people who have never smoked. Smoking directly damages blood vessels increasing the risk of atherosclerosis and other circulatory diseases.

A History of Anxiety or Depression

A history of nervous disorders such as anxiety and depression has been linked to poor cognitive health later in life.

Social Isolation

Loneliness is associated with increased risk of dementia.

Diabetes

Type 2 diabetes is associated with cognitive deficits and increased risk of dementia therefore people at high risk for this disease (e.g. those who are overweight) are also at greater risk for cognitive decline. Scientists now call Alzheimer's disease type 3 diabetes, or brain diabetes, because of its connection to high blood sugars causing damage to the nerves and systemic inflammation. New research shows insulin resistance, or "diabesity" (the curse of the modern lifestyle from eating too many carbohydrates and sugar and not enough fat) which leads to inflammation, is one of the major factors that starts the brain damage. The cause of diabetes and dementia is complex and risk factors for these two diseases tend to overlap. Examples of overlapping mechanisms of diabetes and dementia are inflammation, oxidative stress and mitochondrial dysfunction.

Lack of Mental Activity

Older adults are advised to engage in mentally stimulating activity as a way of reducing their risk of dementia. Cognitive activity strengthens the functioning and plasticity of neural circuits (the brain's software) thus supporting cognitive reserve in different ways.

Alcohol Use

The risk of dementia was increased in people who abstained from alcohol in midlife or consumed more than 14 units a week (with one unit being equal to a standard serve of red wine (100mL) with alcohol volume 13.5% or a small glass (285mL) of full strength beer with alcohol volume 4.8%). Moderate alcohol consumption is thought to be associated with a lower risk of dementia.

Lack of Physical Exercise

Physical activity, both throughout life and later in life, is associated with lower risk of Alzheimer's disease.

Malnutrition

After more than two decades of research on nutrition and dementia there is strong evidence for the preventive effects of vitamin E, B vitamins and omega 3 fatty acids, and deleterious effects of saturated fat, on dementia. Among specific foods with evidence of neuroprotection are green leafy vegetables and other vegetables, berries and seafood.

Atherosclerosis

Hardening of the arteries can interfere with the delivery of blood to the brain and can lead to stroke so it is an independent and important risk factor for dementia.

Elevated Homocysteine Levels

Elevated levels of the amino acid homocysteine are also associated with cognitive dysfunction in the elderly. Folate deficiency is associated with high blood levels of homocysteine, which is linked to the risk of arterial disease, dementia and Alzheimer's disease.

Inflammation

The almost ubiquitous presence of inflammation in the metabolic processes and diseases of old age has given rise to the "inflammation theory of aging" and the coining of the phrase "inflammaging". A 2018 study found that people who have an increase in inflammation during midlife, that persists into later life, have greater abnormalities in the brain which ultimately affects cognitive function and possibly leads to dementia. Chronic inflammation can be caused by cardiovascular disease, diabetes and insulin resistance, heart failure, hypertension, chronic viral infections like hepatitis C and HIV, oral bacteria, various moulds or fungi, poor diet, gut health or exposure to heavy metals.

Hernias

A 2019 study found an association between abdominal hernia and the risk of subsequent dementia.

Toxic Exposure to Chemicals and Infection

A history of ongoing infection such as Lyme disease, mould toxicity and periodontal disease, such as gingivitis, has been linked to dementia. Spirochete infections which are seen in Lyme disease are unusual causes of cognitive impairment but important to consider as they are treatable. There is growing evidence that chronic use of certain over the counter and prescription drugs are linked to the development and exacerbation of dementia and its symptoms. Higher cumulative anticholinergic drugs (used to treat bladder conditions, Parkinson's disease and depression) use is associated with an increased risk for dementia. Exposure to heavy metals such as arsenic, mercury, aluminium, lithium or lead can lead to cognitive decline, particularly after acute exposure. Evidence is emerging that greater exposure to airborne pollutants such as particulate matter, nitrogen dioxide, nitrous oxides and carbon monoxide is associated with increased risk of dementia.

Hormones

Multiple lines of evidence suggest that loss of oestrogens in the aging brain of both women and men may play a role in the cognitive declines associated with Alzheimer's disease. A significant contributor to early onset dementia is having a full hysterectomy at an early age. Low levels of testosterone are associated with a risk for dementia in elderly men.

Traumatic Brain Injury

Traumatic brain injuries throughout the lifespan are associated with adverse effects on the brain. This could be related to repeated concussion, car accidents, blast injury in combat or other injury but also other assaults to the brain such as heavy anaesthesia use. Boxers and football players in particular have an increased risk associated with repeated concussion.

How To Get The Correct Diagnosis

Timely diagnosis is of paramount importance. It is essential that a medical diagnosis is obtained at an early stage when symptoms first appear and are not dismissed as "just a part of ageing". Cognitive assessments for aging people should be part of an annual wellness exam. Detecting dementia early, and effective intervention, can significantly improve the patient's quality of life. If the symptoms are caused by dementia an early diagnosis will mean early access to support, information and medication should it be necessary. A systematic approach to diagnosing dementia includes a medical examination, patient history, cognitive assessment, medication review and blood tests. Imaging can be used to rule out other forms of dementia. People with mild cognitive impairment should be reviewed after six to 18 months. Unlike other catastrophic illnesses such as cancer and heart disease, which can be diagnosed through a battery of tests, Alzheimer's disease is a complex condition that can be difficult to diagnose because dementia is a common by-product of the normal aging process. Another roadblock in diagnosis is that degeneration of a patient's neurologic functions can take a number of years to reach a stage where the diagnosis of Alzheimer's disease becomes definitive.

Conventional Treatment & Prevention

Although many dementia manifestations are manageable there is no known cure for degenerative

dementia and only symptomatic treatments are available in conventional practice. If dementia symptoms are due to a reversible, nondegenerative cause then treatment may be possible to prevent or halt further brain tissue damage. Examples include injury, medication effects, vitamin deficiency, vascular brain damage, inflammation and oxidative stress, metabolic syndrome and diabetes, which are associated with pathologies like atherosclerosis. Despite there being no cure clinicians from varied disciplines and medical specialties can alleviate suffering, treat contributing conditions, use medications (such as cholinesterase inhibitors) to improve cognitive, neuropsychiatric and motor symptoms, promote brain healthy behaviours and improve overall quality of life for patients and families. The mainstream drug intervention approach is to temporarily alleviate symptoms by targeting the metabolism of acetylcholine, an essential neurotransmitter involved in cognitive processes. Reduced acetylcholine levels in the Alzheimer's dementia brain is implicated in cognitive decline. However, in the first instance, non-drug treatments should be explored. The guidelines advise against prescribing antipsychotic drugs to people with mild to moderate behavioural and psychological symptoms of dementia because of the increased risk of adverse health effects. Before any dementia drugs are prescribed it is essential to ensure that the person with dementia is physically healthy, comfortable and well cared for. Whenever possible the person should be helped to lead an active life with interesting and stimulating daily activities. Families should be included in the planning, decision making, care and management of people with dementia.

" Having Alzheimer's disease is like having a leaky roof with 36 holes. Fixing one will not solve the problem."

Dale E. Bredesen in The End of Alzheimer's, 2017.

Bacopa
(Bacopa monnieri)

INTERVENTION	Antioxidant	Antidepressant	Anti-inflammatory	Anxiolytic	Circulatory stimulant/ peripheral vasodilator	Nootropic (cognitive enhancing)	Sedative/hyponic
Astragalus	✓						
Bacopa	✓	✓	✓	✓	✓	✓	✓
Ginkgo	✓		✓	✓	✓	✓	
Gotu Kola	✓	✓	✓	✓	✓	✓	✓
Lemon Balm		✓	✓	✓		✓	✓
Magnolia	✓	✓	✓	✓		✓	✓
Maritime Pine	✓		✓				
Pomegranate	✓		✓				
Rosemary	✓		✓				
Sage	✓						
Turmeric	✓	✓	✓				
Withania			✓	✓			✓

Natural Therapies For Treatment & Prevention

Prevention and early diagnosis are the focal point of naturopathic treatment of dementia. Dementia can be prevented, and in some cases halted and reversed, if caught early enough by attending to all the factors that affect brain function. There is no magic pill for this debilitating disease. As an expert in neurodegenerative diseases, Dale Bredesen says: "Having Alzheimer's disease is like having a leaky roof with 36 holes. Fixing one will not solve the problem." Dementia, and Alzheimer's disease in particular, should be rare however current efforts to guard against declining brain health are often a case of too little, too late. Advice for people to reduce their risk of brain problems, including their risk of getting dementia, is most commonly given in their 60s or later when the damage is already done. 2019 research suggests brain health can decline much earlier in life than previously thought largely due to a society that promotes unhealthy lifestyle choices. One of the best chances people have of avoiding preventable brain problems when they are older is to eat well, exercise and monitor their emotional wellness from a young age. The message is simple however bringing about positive change is a challenge involving individuals, parents, medical and health professionals and governments.

Fortunately, naturopaths can use early prevention strategies to reduce modifiable risk factors that stop the progression of mild cognitive impairment to dementia with an emphasis on addressing the underlying causes of disease. Success requires a long term, multi-pronged approach that is individualised. A detailed account of the presenting case and patient history will help determine an appropriate treatment approach and aid in determining the risk factors that may have contributed to presenting cognitive complaints, and whether the presenting symptoms are due to normal or pathological ageing. Treatments include botanical medicine, nutrition, behavioural therapy, exercise, stress reduction, improving vascular risk factors like hypertension and diabetes mellitus, treatment of depression, immunomodulators, cognitive retraining, non-invasive brain stimulation, addressing toxins, hormonal imbalances and inflammation. Often a similar approach to treating diabetes will help as Alzheimer's disease in particular is also known as type 3 diabetes (see the Herbal Extract Company's Naturopath's guide to type 2 diabetes).

Avoiding irreversible damage is ideal but sadly, in some cases, the damage may already be done. By the time the dementia diagnosis is received families are often already deeply frustrated, tired and fearful of the future. Despite this, improvements can be made to bring out the best outcomes. It is important for naturopaths to detect signs of early cognitive decline in senior patients and, together with appropriate referrals to other medical professionals qualified to diagnose and monitor the progression of cognitive decline, prepare older patients for making decisions about their future care before they have lost the ability to do so. Naturopaths can provide a complementary treatment approach prescribing holistic remedies proven to slow the progression of cognitive decline in these patients using a combination of herbal, nutritional and lifestyle interventions. The management of advanced dementia should address behavioural and psychological symptoms, maintain quality of life, maximise function in daily activities, improve recognition skills and mood, foster a safe living environment and promote social engagement. Caring for someone with dementia can be rewarding but also difficult, exhausting, lonely, and at times, overwhelming. Caregivers could also receive naturopathic treatment for the associated challenges.

Key naturopathic treatment protocols include decreasing oxidative stress, reducing inflammatory markers, enhancing vascular system integrity and function, reducing heavy metal exposure and enhancing mental function with herbal cognitive enhancers.

A therapeutic approach could include these factors:

Diet

Diets high in fat, especially trans and saturated fats, adversely affect cognition, while those high in fruits, vegetables, cereals and fish are associated with better cognitive function and lower risk of dementia. Patients can be encouraged to follow a low glycaemic, low inflammatory diet to balance

blood sugar. This can be achieved by eating a whole food diet including pesticide free vegetables, coloured berries (antioxidants) and healthy fats like avocados, walnuts, almonds and cashews, small amounts of animal protein such as grass fed meats, pastured chicken and eggs, fish (three to four times a week with at least two servings of oily fish such as salmon, mackerel, anchovies, sardines or herrings), olive and coconut oil and eliminating refined carbohydrates, sugar, alcohol, caffeine (drink green tea), processed foods, dairy and unhealthy fats such as inflammatory, omega-6 rich oils such as vegetable and seed oils. Intermittent fasting, where meals are spaced to promote better regulation of blood sugar and insulin levels, may be an effective intervention to protect against age related metabolic disturbances, although it is still controversial. Finishing the last meal three hours before bedtime and allowing for a 12 to 14 hour overnight fast may improve sleep and can help improve blood glucose and insulin. Dehydration is a common issue with older people and can contribute to confusion and memory lapses so encourage regular hydration with purified water and herbal teas.

Inflammation

Address inflammation and food intolerances with an anti-inflammatory lifestyle and healthy swaps. Common food allergens like gluten, soy and dairy can contribute to systemic inflammation.

Gut Environment

Determine if there is underlying gastrointestinal pathology and treat accordingly to improve the health of the digestive tract and the absorption of nutrients. Insufficient digestive enzyme production may lead to inadequate digestion and assimilation of micronutrients to vital tissues and organs, resulting in poor health, poor immunity and disability. Use herbal medicines with bitter or aromatic properties such as gentian or wormwood.

Assess Nutrient Levels and Oxidative Stress

Correct any nutritional imbalances and investigate oxidative stress. Oxidative stress is strongly implicated in the ageing process in addition to various disease states including dementia, Alzheimer's disease and cardiovascular conditions such as stroke.

Lifestyle

Optimise lifestyle habits. Encourage patients to keep physically, mentally and socially active which can boost memory and self-esteem and help avoid depression.

Regular Exercise

Regular physical exercise improves insulin sensitivity and helps maintain active brain tissue particularly in the hippocampus which is the seat of memory. Exercise at least four to five times a week combining aerobic fitness including jogging, cycling or brisk walking with weight or resistance training, aiming for a minimum of 150 minutes of exercise every week.

Improve Sleep Habits

People with dementia often have problems with sleeping or may experience changes in their sleep schedule. Optimise sleep by implementing good sleep hygiene and aim for eight hours of sleep a night. A study published in November 2019 found that the brain waves generated during deep sleep appear to trigger a cleaning system in the brain that protects it against Alzheimer's and other neurodegenerative diseases.

Toxicity

Investigate toxicity and decrease environmental chemicals. Neurotoxicity describes neurophysiological changes caused by chronic or acute exposure to toxic agents which may result in cognitive changes and memory disorders. Common toxic agents include certain heavy metals, drugs, organophosphates, bacterial and animal neurotoxins. Drink purified water and avoid using cookware or deodorants which contain aluminium.

Assess Hormonal Status

Address hormonal imbalances including checks on thyroid and sex hormone levels.

Relaxation Techniques and Helpful Habits:

Reduce Stress

Yoga, meditation, gardening, spending time in nature or music. Established research has examined music as a recall trigger for autobiographical memories in patients with Alzheimer's disease showing that there

is potential to use music as a trigger when rebuilding memory.

Brain Stimulation

Like a muscle the brain needs constant exercise to stay in shape. The 'use it or lose it' theory of cognitive ageing proposes that a combination of intellectual, social and physical activities prevents cognitive decline in older age. Cognitive stimulation might involve doing word and number puzzles, computer brain games such as the Double Decision speed training game found in the app program Brain HQ, discussing current affairs, life story work, sharing memories and experiences with a carer or nurse to create a "life story book", reading and writing. Taking up a new hobby that requires complex learning like learning a new language. Continue learning by taking classes, attending lectures and exploring new topics.

Protection

Wear protective head gear where appropriate, for example when playing sport.

Social Activity

Suggest volunteering, continuing to work and spending time with family and friends.

Potential Treatment Plans

Alzheimer's disease	Bacopa	Ginkgo	Magnolia	Rosemary	Withania
Vascular dementia	Astragalus	Ginkgo	Magnolia	Pomegranate	Withania
Prophylactic for age associated cognitive decline	Bacopa	Ginkgo	Maritime Pine	Pomegranate	Turmeric
Mild cognitive impairment	Ginkgo	Gotu Kola	Lemon Balm	Sage	Turmeric

Rosemary
(Rosmarinus officinalis)

Desired Herbal Actions and Potential Herbs Include:

There is a long history of herbal medicine use to boost memory and cognitive functions and manage behavioural and psychological symptoms associated with dementia. The use of herbal medicine for the treatment of ageing related disorders was documented in the literature more than 2000 years ago in ancient China where herbal remedies were used to boost memory function and increase longevity.

Antioxidant

Especially plants with protective activity on the microvasculature. Herbs such as astragalus, bacopa, bilberry, garlic, ginkgo, gotu kola, green tea, lemon balm, magnolia, maritime pine, pomegranate, rosemary, sage, turmeric, withania.

Antidepressant

People with dementia of any type have a high incidence of major depression. Herbs such as bacopa, damiana, gotu kola, lavender, lemon balm, magnolia, oats green, oats seed, perilla, rosemary, St John's wort, schizandra, turmeric, vervain.

Anti-inflammatory

Reduce chronic inflammation. Herbs such as bacopa, bupleurum, ginkgo, gotu kola, lemon balm, magnolia, maritime pine, pomegranate, rehmannia, rhodiola, rosemary, turmeric, withania.

Anxiolytic (thymoleptic)

Anxiety is a common symptom in patients with dementia. Herbs such as angelica, bacopa, Californian poppy, chamomile, damiana, ginkgo, hops, gotu kola, Korean ginseng, lavender, lemon balm, lime flowers, magnolia, oats green, oats seed, passion flower, paw paw, rhodiola, sage, St John's wort, schizandra, scullcap, Siberian ginseng, valerian, withania, zizyphus.

Circulatory Stimulant (cerebral)/Peripheral Vasodilator

Improving circulation and therefore blood flow and oxygen to the cerebral structures. There is increasing evidence linking the role of vascular function to cognitive decline and dementia. A review of the literature noted that vascular factors resulting in brain ageing and cognitive decline include reduced cerebral blood flow, reduced cerebral blood volume, poor capillary elasticity and poor vasodilatory capacity. Herbs include bacopa, garlic, ginkgo, gotu kola, prickly ash (not to be used if hypertension is present), rosemary.

Nootropic (cognitive enhancing)

These substances enhance memory and cognition and compensate for any reduced cognitive function. Herbs such as bacopa, cat's claw, ginkgo, gotu kola, green tea, Korean ginseng, lemon balm, muira puama, rhodiola, rosemary, sage, schizandra, withania.

Sedative/Hypnotic

Similar to anxiolytics but tend to be sedative at a higher dose. For the management of sleep disorders. Herbs such as bacopa, boldo, chamomile, Californian poppy, hops, Jamaica dogwood, lavender, lemon balm, magnolia, passionflower, paw paw, scullcap, valerian, zizyphus.

Herbal Support Could Include:

HERB NAME	DESCRIPTION	ACTIONS
Astragalus *(Astragalus membranaceus)* 	Compounds derived from astragalus have gained attention in anti-aging medicine for their reputation as activators of the enzyme telomerase. Telomerase enzyme rejuvenates telomeres, the protective chromosome endcaps that become damaged with age. Shortening of telomeres is associated with risks for dementia and research suggests that agents that prevent telomere shortening might decrease the incidence of age-related dementia. Chronic activation of nuclear factor kappa B, a pro-inflammatory gene transcription factor, and tumour necrosis factor, an important pro-inflammatory cytokine, are both associated with aging. Telomere destruction is affected by inflammation. Astragalus compounds may affect telomeres not only through the activation of telomerase but also by anti-inflammatory mechanisms such as downregulation of nuclear factor kappa B and/or tumour necrosis factor.	Immunomodulator Antioxidant Hepatoprotective Cardioprotective Adaptogen Antibacterial Antiviral Hypoglycaemic Neuroprotective Hypotensive
Bacopa *(Bacopa monnieri)* 	Various mechanisms may be involved in the neuroprotective and memory enhancing effects of bacopa such as increasing antioxidant activity, free radical scavenging, binding and detoxification of metal ions, modifying levels of acetylcholine and increasing cerebral blood flow via vasodilation. Studies have reported that in Alzheimer's disease patients bacopa (300mg standardised bacopa twice a day) improved attention, language, writing and comprehension following six months' intervention.	Anxiolytic Sedative Nervine tonic Nootropic Adaptogen Neuroprotective Antioxidant Antidepressant Anti-inflammatory Vasodilator

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Ginkgo *(Ginkgo biloba)* 	The available evidence suggests that ginkgo has potentially beneficial effects over placebo on cognitive performance, activities of daily living and clinical global impression (a measure of symptom severity, treatment response and the efficacy of treatments in treatment studies of patients with mental disorders) in the treatment of dementia at doses greater than 200mg/day (usually 240mg/day) administrated for 22 weeks or longer. Numerous clinical trials demonstrate that ginkgo improves memory loss and concentration and decreases anxiety in patients with dementia and/or vascular dementia. For example a randomised, double blind, placebo controlled trial of 216 participants with Alzheimer's disease or vascular dementia showed a significant improvement in attention and memory function in the standardised ginkgo treated group after 24 weeks treatment. In a more recent trial 404 people with dementia were treated with 240mg standardised ginkgo or placebo over 24 weeks. The results demonstrate that ginkgo treatment significantly improves cognitive function and neuropsychiatric symptoms.	Anxiolytic Nootropic Antioxidant Cardioprotective Anti-inflammatory Neuroprotective Circulatory Stimulant
Gotu Kola *(Centella asiatica)* 	A human clinical study aimed at managing mild cognitive impairment (MCI) and other age-related problems in the elderly returned positive results. As previously stated, MCI is a problem which may convert into Alzheimer's disease in later stages. In 60 people aged 65 and above gotu kola aqueous extract was prescribed in a dose of 500mg twice a day (1000 mg daily) for six months. A favourable improvement was observed in MCI along with other problems like hypertension, insomnia, loss of appetite and constipation.	Adaptogen Anxiolytic Nervine Tonic Neuroprotective Nootropic Sedative Antidepressant Antioxidant Anti-inflammatory Antidiabetic Circulatory Stimulant

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Lemon Balm *(Melissa officinalis)* 	Human clinical trials have shown that lemon balm can relieve agitation in people with dementia	Antidepressant Anxiolytic Sedative Nervine Tonic Nootropic Relaxing Nervine Antimicrobial Antiviral Carminative Aromatic Digestant Anti-inflammatory Antioxidant
Magnolia *(Magnolia officinalis)* 	Magnolia may be able to delay the aggravation of Alzheimer's disease by influencing levels of acetylcholine (ACh), a neurotransmitter essential for processing memory and learning. Maintaining ACh levels in the brain, by antagonizing the activity of acetylcholinesterase (ACHE), the enzyme that degrades ACh, is one of the few therapeutic options in Alzheimer's disease patients. Ethanol extracts of magnolia and its constituent 4-O-methylhonokiol were found to dose-dependently attenuate the induced increase in ACHE activity in the cortex and hippocampus of mice and inhibited ACHE activity in vitro.	Anxiolytic Sedative Nootropic Neuroprotective Antidepressant Antioxidant Anti-inflammatory Antimicrobial Cardioprotective Antiarrhythmic Antiobesity
Maritime Pine *(Pinus pinaster)* 	Human clinical trials have demonstrated that standardised maritime pine enhances cognitive ability. In vitro and in vivo animal and human studies have assessed its mechanisms of action, particularly its strong antioxidative properties as well as anti-inflammatory and vascular functions.	Antioxidant Anti-inflammatory Antiviral

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Pomegranate *(Punica granatum)* 	Research indicates that pomegranate peel could be used as a possible source of natural antioxidant agents and tyrosinase inhibitors for diseases stimulated and aggravated by free radicals like Alzheimer's disease, diabetic complications and Parkinson's disease.	Antioxidant Anti-inflammatory Cardioprotective Neuroprotective Immunomodulatory Hypoglycaemic Antimicrobial Antifungal Antiviral Antibacterial Anthelmintic Astringent Gastroprotective
Rosemary *(Rosmarinus officinalis)* 	Ophelia mentioned rosemary in Shakespeare's Hamlet: "There's rosemary, that's for remembrance." Research indicates that moderate doses of rosemary, as well as the essential oil aroma, can have positive effects on cognition and mood.	Antioxidant Circulatory Stimulant Hepatoprotective Antimicrobial Anti-inflammatory
Sage *(Salvia officinalis)* 	After four months of treatment sage (60 drops per day) produced a significantly better outcome on cognitive functions than placebo in patients with mild to moderate Alzheimer's disease aged between 65 and 80 years.	Antimicrobial Antioxidant

Herbal Support Could Include: (Cont.)

HERB NAME	DESCRIPTION	ACTIONS
Turmeric *(Curcuma longa)* 	A population-based study of 1,010 Asian seniors without dementia showed that consumption of turmeric containing curry was associated with improved cognitive function.	Anti-inflammatory Antioxidant Neuroprotective Immunomodulator Hepatoprotective Hypolipidaemic Antiatherogenic Antimicrobial Antidepressant Antiaging
Withania *(Withania somnifera)* 	At the molecular level withania may produce beneficial effects in Alzheimer's disease by inhibiting the activation of nuclear factor kappa B, blocking beta amyloid production, reducing apoptotic cell death, restoring synaptic function and enhancing antioxidant effects through the migration of nuclear factor kappa B to the nucleus, where it increases the expression of antioxidant enzymes.	Adaptogen Anxiolytic Nervine Tonic Relaxing Nervine Mild Sedative Anti-inflammatory Antioxidant Immunomodulatory Cardioprotective

Conclusion

While there's no denying the final outcome, aging is not a terminal disease. Naturopaths can provide an infrastructure to support aging elders who can benefit from a holistic approach to wellness. Creating a lifestyle of healthy behaviours, with special attention to diet and daily exercise, and using herbs daily for nourishment and medicinal support can make growing older much more enjoyable and have an influence on health span which is more important than lifespan. Successful aging is not just about living longer but about living well, in full vitality with a sense of purpose, love and connection, and maintaining optimal mental, social, physical, spiritual, economic and environmental aspects of wellbeing. In fact successful aging does not emerge spontaneously in late life, it is the fruit of the previous life stages. Naturopaths are in a powerful position to assist with this early health intervention. Any treatment approach that delays the onset and improves the symptoms of dementia will have significant individual, societal and economic benefits.

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