

# Long COVID submission



## Executive summary:

Naturopathy is a system of health care which is based on traditional philosophies and principles and utilises a wide variety of tools and techniques to achieve health for a patient. It is estimated that naturopathic practitioners consult with approximately 6% of the Australian population, equating to some 1.5 million Australians, engaging in around four million consultations each year. Naturopaths in Australia are required to complete Bachelor level training. They are consulted for a diverse range of health issues, including diagnosed conditions of national and global significance, and increasingly long COVID. Preventive health is a governing philosophy for naturopaths and naturopathic practice (Sadowski et al., 2022), and best practice regarding the prevention of long COVID would be realized through Naturopathic intervention.

This submission focuses on TOR 3, 4, 5, and 6, and is submitted by the Australian Naturopathic Council.

## About Australian Naturopathic Council (ANC)

The Australian Naturopathic Council (ANC) represents the Australian members of the World Naturopathic Federation (WNF), and through lobbying and stakeholder engagement, promotes the profession of naturopathy. The WNF is part of the World Health Organisation (WHO) and represents over 50 naturopathic organizations from across the world with the aim to promote and advance the naturopathic profession globally.

The ANC is a coordinating body of organisations representing the naturopathic profession in Australia and provides a united voice on important issues affecting Australian naturopaths. The ANC membership is comprised of three professional organisations:

- Australian Register of Naturopaths and Herbalists (ARONAH)
- Complementary Medicine Association (CMA)
- Naturopaths and Herbalists Association of Australia (NHAA)

The ANC also includes the two educational institutions that deliver recognised naturopathic training in Australia:

- Endeavour College of Natural Health (ECNH), and
- Torrens University

More information about the ANC can be found at <https://www.naturopathiccouncil.org.au/>. This submission represents a collaborative submission by the professional associations of the ANC, namely NHAA and CMA who have also consulted with naturopaths working in the long COVID space.

More information on NHAA can be found here: <https://nhaa.org.au/>

More information on CMA can be found here: <https://cma.asn.au/>

## Terms of Reference

### **3. Research into the potential and known effects, causes, risk factors, prevalence, management, and treatment of long COVID and/or repeated COVID infections in Australia;**

#### Overview

Long COVID may be considered a 'post COVID condition' albeit a definition of long COVID is lacking (Yong, 2021), with the terms 'long COVID' and 'post COVID syndrome' [Long COVID] often referred to interchangeably. The literature suggests that long COVID can be divided into two stages, depending on the duration of the signs and symptoms which remain or develop during 1) post-acute COVID, being beyond three weeks but less than 12 weeks following initial infection, and 2) during chronic COVID which extends beyond 12 weeks from infection (Raveendran et al., 2021). Signs and symptoms of the acute infection may persist during long COVID or there may even be the appearance of new symptoms (Raveendran et al 2021), which can be continuous or relapsing. Developing long-term effects of COVID19 are not deemed to be related to the acute infection and its severity (Shah et al., 2021). The aetiology of long COVID remains elusive; judicious clinical evaluation and validated informed research will assist to identify the causes of long COVID and to customize treatments (Raveendran et al., 2021).

#### The effects and risk factors of long COVID in Australia

In Australia, The Royal Australian College of General Practitioners [RACGP] have published guidelines to support general practitioners in treating patients with post-COVID-19 conditions (RACGP, n.d.). These guidelines outline risk factors for long COVID and post COVID conditions which include increasing age, being female, suffering severe illness during an acute COVID19 occurrence, and/or having pre-existing comorbidities such as obesity, diabetes, hypertension, cardiovascular/renal disease, or cancer. Indeed, greater than one third of patients presenting with post-COVID conditions, including long COVID, suffer with such pre-existing comorbidities (Pavli et al., 2021).

COVID19 infection far surpasses a respiratory syndrome, with one Naturopath suggesting "...most sufferers have devastating multisystem illness that is taking many months to slowly improve". The post-acute sequelae of COVID-19 (PASC) suggests differing underlying biological drivers for the signs and symptoms of long COVID in individual patients (Proal & VanElzakker, 2021). Pathophysiological effects of long COVID report complications on multiple body systems (White-Dzuro et al., 2021), including the immune system, initiating a cytokine storm, interferon production, interleukin secretion and the production of tumor necrosis factors (TNF) (Cañas, 2020), in turn causing intravascular hyperinflammation (Pablos et al., 2020). Circulating cytokines and immune mediators coupled with severe systemic inflammation then has influence on the cardiovascular system and potential for myocardial injury (Silva Andrade et al., 2021). Both the hematological and pulmonary systems are also influenced by long COVID through negative regulation of the hACE2-R receptor with the former experiencing accumulation of angiotensin II, causing vasoconstriction, profibrotic, and proinflammatory effects, and the later expressing complications with the kinin-kallicrein system, the renin-angiotensin system, and coagulation coexpressed in alveolar cells (Silva Andrade et al., 2021). The coagulation cascade can then cause thrombotic issues which may translate into nervous system complications such as ischemic stroke or cerebral venous thrombosis (Silva Andrade et al., 2021). COVID19 also influences the gastrointestinal system where the virus activates receptors in the intestines initiating tissue inflammation, microbiome disturbances, dysbiosis, and gastrointestinal symptoms (Yeoh et al., 2021).

#### The prevalence of long COVID in Australia

Reports remain heterogeneous. A population-based cohort study in New South Wales determined that approximately 5% of COVID19 cases will continue to experience symptoms up to and including 3 months (Liu et al., 2021). Other sources, including a survey identifying the COVID-19 experience in Australia, suggest that 29% of Australian adults with confirmed COVID-19 cases experienced symptoms for more than 4 weeks following initial infection (Australian National University et al., 2022). In comparison, most respondents from an international cohort (93.2%) confirmed a time to recovery from long COVID exceeding 35 weeks (Davis et al., 2021).

# Management and treatment of long COVID in Australia

Due to the rapid emergence of COVID-19, effective management and treatment of long COVID is incipient, following a standardized approach of evaluating symptoms and providing symptomatic relief while treating underlying issues and any comorbidities (Raveendran et al., 2021).

Individuals suffering from long COVID deserve a multidisciplinary patient centric approach to managing the long-term individualized effects of COVID19, considering patient education through an integrated health workforce to meet population-based needs (Deeble Institute et al., 2021). "It may be that for some [people with long COVID] you need to be referred on to someone very specialist, but . . . it's not going to be one magic bullet, one drug, or one therapy that's going to help... People are probably going to need a spectrum of inputs to help them." (Iacobucci, 2022). A person-centred approach to long COVID includes a comprehensive overview of the COVID19 history, including previous and current symptoms, plus history of other health conditions, and if pre-existing conditions are exacerbated (RACGP, n.d.). The evaluation of mental health and well-being and available support networks should also be considered when managing long COVID (RACGP, n.d.).

Pragmatic strategies to combat long COVID reside in promoting robust immune function through traditional non-pharmacological approaches such as dietary and lifestyle changes (Roth et al., 2021). Hence, effective treatment of long COVID may be attributed, in part, to foods as medicine, nutraceuticals, and/or nutritional support (Motti et al., 2022; Tosato et al., 2022).

## **4. The health, social, educational and economic impacts in Australia on individuals who develop long COVID and/or have repeated COVID infections, their families, and the broader community, including for groups that face a greater risk of serious illness due to factors such as age, existing health conditions, disability and background;**

### Overview

The consequences of long COVID are only emerging yet the social, educational, and economic complications to arise may be entirely unsurprising and consistent with that of previous pandemics or global outbreaks (Deeble Institute et al., 2021). Long COVID support groups exist in Australia however are not yet widespread so access to these services remains limited (Deeble Institute et al., 2021).

### The health of Australians living with long COVID

Those Australians reporting COVID symptoms for greater than four weeks stated a reduced capacity to conduct daily activities, compared with prior to COVID-19 infection, reporting low levels of life satisfaction (Australian National University et al., 2022). The health impacts of long COVID resonate through individuals and families into communities where many individuals with long COVID are no longer able to work full-time and/or appropriately care or provide for family and children (de Leeuw et al., 2022). Consequently, there is a ballooning of mental health issues (Brüssow & Timmis, 2021). The health implications of long COVID are scripted in testimonies of those living within its burdens including a 46-year-old female from Victoria who, being diagnosed with long COVID suffering neurological and cognitive issues amongst others, has not been able to drive for the last 6 months and is not eligible for any Government support. "...This has greatly impacted my family. I have not been able to leave my house due to my symptoms and have missed milestones, special events, and major parts of my family's lives". In cases of those vulnerable and volatile individuals, including those with comorbidities or disability, daily basics such as showering may become cumbersome. Further testimony discloses..." I've been bed-ridden for more than 6 months with various debilitating symptoms that 5 specialists have been unable to help me with. I'm unable to do most things for myself and require constant care".

Often, long COVID sufferers report their symptoms being dismissed by health practitioners who fail to offer adequate care for their patients or themselves (Pantelic & Alwan, 2021). One naturopathic patient recounts "What makes

managing long Covid even more difficult is the lack of understanding, support or guidance from medical practitioners who routinely offer nothing but 'it's just long Covid, you need to wait it out.' The relief and improvement I have seen with my symptoms has been through accessing complementary alternative medicine, such as Naturopathy and Traditional Chinese Medicine”.

The physical and mental health issues associated with long COVID are showcased to Australian frontline healthcare workers on a daily basis; everyday Australians facing the burdens and subsequent issues of long COVID professionally and personally (Deeble Institute et al., 2021). A 39-year-old registered nurse from Tasmania divulges .... “My family was Covid positive just before Easter '22. Although I never returned a positive RAT test, I have been unable to work as a Cardiac Nurse since. The PEM (post exertional malaise), headaches, racing heart, dizziness and short-ness of breath have made it impossible for me to be working in a busy, stressful hospital environment... I am hopeful that I will return to full health and productivity, but some days it feels a long way off.” An esteemed Naturopath with over 20 years' experience recounts” .... The Long COVID patients I have worked with are some of the most challenging cases I have supported.”

## The economic implications of long COVID in Australia

“COVID-19 caused significant disruption to historic patterns of growth in the Australian economy. With most COVID-19 related restrictions and health measures lifted, economic growth has begun to return to longer term patterns” (Australian Bureau of Statistics, 2022). Notwithstanding, the sustained and multiplied disadvantage of suffering ongoing debilitating symptoms of COVID-19 have economic consequences stemming from issues with workforce productivity and employment opportunities as well as housing and services access (de Leeuw et al., 2022). One patient recalls: “Financially, this has been difficult on my husband and family. We are fortunate enough to have had a buffer, but it is almost gone. 7 months later, I am still trying to apply for income protection”. Australian workers are suffering from long COVID, and some remain unemployed or under-employed, working reduced working hours as a result of prolonged symptoms. As consumers with long COVID, Australians spend more time at home, hence household consumption has shifted toward goods purchased with the use of online platforms (Australian Bureau of Statistics, 2022).

## The social implications of long COVID in Australia

The social implications of long COVID in Australia manifest in the potential for Australians to suffer social isolation, social distancing, and/or loneliness (Australian Institute of Health and Welfare, 2021). Australian adults have identified issues accessing services and in maintaining important relationships and life roles (de Leeuw et al., 2022). The social issues of long COVID also stem from the potential to sully Australian's hopes and dreams, and their personal and social values, impacting meaningful relationships and face to face reconnections, employment stability and future work opportunities, and travel opportunities (Huang et al., 2022).

Social implications of long COVID extend to those Australians, and their communities, who care for and live with long COVID sufferers. Patients recall “I'm unable to do most things for myself and require constant care... I'm only able to leave the house for medical appointments and require a wheelchair”. Such disparity is further highlighted in a statement made by one Naturopath regarding long COVID patients “...They often have a feeling of complete lack of understanding or support from their communities”.

Being managed by limited frontline and primary health professionals often without reference to holistic clinical guidelines, long COVID, disrupts normal healthcare services, placing further strain on the healthcare system, and widening any socioeconomic inequalities associated with the effects of post COVID symptoms or COVID vaccines (Pavli et al., 2021). From this disruption and further strain, societal impacts in Australia may manifest in population-wide increases in preventable morbidity and mortality (Brüssow & Timmis, 2021).

## The educational implications of long COVID in Australia

The sustained effects of COVID-19 also impacts the educational outlook in Australia, causing negative effects on international student enrolments in Australian universities in turn reducing revenues and university resources (Thatcher et al., 2020). The progress of tertiary students and their ability to secure future employment in specific

industries is also a concern, as so expressed by Australian undergraduate aviation students (Miani et al., 2021). Further, educational deficits occur amongst Australia's youth, in some cases being altogether absent or having extended hiatus from the face-to-face classroom and relegated to online learning options (Heffernan et al, 2021).

The impacts of long COVID can be summarized within the heroic efforts of our fearless and enduring Naturopathic practitioners who..." hope this Government Inquiry can highlight the multifaceted needs of Long COVID patients I see daily. They really need support with their huge health, economic, and social burdens, urgently".

## **5. The impact of long COVID and/or repeated COVID infections on Australia's overall health system, particularly in relation to deferred treatment, reduced health screening, postponed elective surgery, and increased risk of various conditions including cardiovascular, neurological and immunological conditions in the general population;**

### Overview

The persisting treatment of COVID has demanded rationing of health services with a deferment to the prevention and treatment of other pressing health issues, including non-communicable diseases. The reduced healthcare capacity in Australia has led to delayed health procedures and services and diminished ability to ensure the ongoing healthcare needs of Australian individuals, their families and the broader community are met. One 30 year old from Victoria relents "...I am 5 months in (to long COVID) with multiple ECGs, blood tests, MRIs, CT scans, IV drips, (and) thankfully to herbal medicine care, and the right supplements...I am starting to get in the right direction to recovery"

### Long COVID and the Australian health system

The effects of COVID instigated the suspension of all non-urgent elective surgeries causing a severe backlog in access to surgery and public specialist appointments (Storen, 2022). Deferred surgery and specialist appointments further congest the health system and, for those with long COVID, stagnate within a low quality of life, incapacity to work, and reliance upon medications (Storen, 2022). Long COVID patients have screening and consultations which can be deferred or conducted via videoconferencing and/or telephone, however, the quality of these services present concerns (Hall Dykgraaf et al., 2021). Patient testimony reveals "...I have accessed complementary medicine to support me as the wait for care through the hospital system is so long. My GP referred me to a long COVID clinic in May and I am yet to have a face-to-face appointment with any yet". Others implore, "...I've been on a waiting list for a long COVID clinic for months. My mental health has been severely affected also". Further, barriers and health service interruptions are imposed on those seeking quality, affordable, and timely care for issues such as mental health and substance abuse disorders (Lynch & Pusey-Murray, 2021).

### The increased risk of various conditions

Viral infections are reported to be associated with, or exacerbate, autoimmune diseases such as multiple sclerosis (MS) and systemic lupus erythematosus (SLE); in COVID-19 patients, both new onset MS and SLE, as well as the occurrence of other autoimmune-like pathologies, have been reported (Moody et al., 2021). Further, neuropsychiatric manifestations of those with long COVID, including sleep disturbances, anxiety, and depression, are common and increase significantly in prevalence over time (Premraj et al., 2022).

The presence of a pre-existing cardiovascular issue in individuals with persisting COVID increases the risk of morbidity and mortality (Zaman et al., 2020).

## 6. Best practice responses regarding the prevention, diagnosis and treatment of long COVID and/or repeated infections. Both in Australia and Internationally.

### Overview

Preventive health is a governing philosophy for Naturopaths and Naturopathic practice (Sadowski et al., 2022), therefore, best practice regarding the prevention of long COVID would be realized through Naturopathic intervention. Indeed, the immune system is mediated by micronutrients, such as vitamins A, C, D, E, and zinc, which act as immunomodulatory tools for the management of COVID-19 (Gasmi et al., 2020). Imbalances in these micronutrients promote immune dysregulation and an individual's susceptibility to virus infection and re-infection. Prudent prevention starts with the balancing of these micronutrients.

Best practice diagnosis of long COVID would ensure that, regardless of the duration and/or severity of the presenting signs and symptoms, appropriate testing was conducted to confirm the initial COVID infection (Raveendran et al., 2021). The best practice treatment for long COVID has been supported through some Naturopaths who stated they "...use a long COVID validated assessment tool to monitor monthly progress in my patients, so while it's slow for many, we see improvements."

### Prevention and treatment of long COVID in Australia

The emerging COVID literature suggests incorporating physical exercise as a preventive strategy for COVID-19 (Fernández-Lázaro et al., 2020). Physical exercise is also addressed as an effective treatment in patients with long COVID, demonstrating an increased exercise capacity and quality of life with improvements after 6 weeks of personalized interdisciplinary pulmonary rehabilitation (Nopp et al., 2022).

Long COVID research also investigates preventive and treatment strategies utilizing foods, and their bioactive compounds, for example discerning the use of vitamin C to combat fatigue for long COVID (Vollbracht & Kraft, 2021). It stands to reason that freshly cooked plant-based diets incorporating minimal processed foods sustain the crucial vitamins and minerals required for robust vitality and optimal immunity (Picone et al., 2022), which are key determinants in the prevention and treatment of long COVID.

The immunomodulatory effects of vitamin D have been investigated (Barrea et al., 2022) and many experts believe that vitamin D supplementation could play an important role in prevention and treatment of long COVID due to the overlapping of deficiency risk factors and severity of COVID-19 infection. The first available data from epidemiological studies suggest that low serum vitamin D levels are associated with increased susceptibility, as well as with severe courses of COVID-19 infection (Smaha et al., 2020). Vitamin D supplementation also reduces the risk of respiratory tract infections and reduces the risk of developing COVID-19. Serum Vitamin D concentrations tend to decrease with age, which may be important for COVID-19 because case-fatality rates (CFRs) increase with age (Grant et al., 2020). Further research investigates melatonin as a treatment option for those individuals suffering the common symptoms of COVID-19 including insomnia, depression, fatigue, and brain fog (Jarrott et al., 2022).

Herbs and their constituents have also been explored as treatment options for long COVID. Carnosic acid (CA), located in Rosemary, may serve therapeutically against the cognitive effects of long COVID (Satoh et al., 2022) (Satoh et al., 2022). Alleviating the cognitive effects of long COVID have also been explored through the herb Ginkgo biloba, as a special extract (EGb 761), a low-risk treatment consideration for those suffering from long COVID (Zifko et al., 2022). Adaptogenic herbs including *Andrographis paniculata*, *Eleutherococcus senticosus*, *Glycyrrhiza* spp., *Panax* spp., and *Withania somnifera*, may also be considered in the prevention and treatment of viral infections at all stages of progression (Panossian & Brendler, 2020). Product formulation (Chisan®), from a fixed combination of adaptogenic herbs including *Rhodiola rosea*, *Eleutherococcus senticosus*, and *Schisandra chinensis*, has been demonstrated to elevate physical performance in long COVID and reduce the duration of fatigue and chronic pain (Karosanidze et al., 2022).

The World Naturopathic Federation, of which the NHAA and CMA are Australian members, has created a Live Review, a developing resource which collates published peer-reviewed evidence on natural health products of application to COVID. Botanical and nutritional products which feature in the Live Review to date include quercetin,

Vitamin C, ginseng/ginsenosides, Glycyrrhizin (Licorice), boswellic acids (Boswellia), and Omega-3 LCFAs.

<https://worldnaturopathicfederation.org/live-review-of-natural-health-products-nhps-researched-with-respect-to-the-covid-pandemic/>

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