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ALTERNATIVE APPROACHES TO DEAL WITH LONG COVID ILLNESS: AN AYURVEDIC NARRATIVE REVIEW

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ABSTRACT

Background: Long COVID, or Post-Acute Sequelae of SARS-CoV-2 (PASC), has emerged as a global health issue. Characterised by persistent symptoms such as fatigue, cognitive impairment and respiratory distress. Conventional medicine primarily offers symptomatic relief, leaving a therapeutic gap, making the exploration of alternative and integrative systems like Ayurveda a need of the hour.

Objective: This narrative review evaluates the Ayurvedic approach to address the long-term effects of COVID-19, termed as Long COVID.

Materials and methods: Relevant literature was collected from PubMed, Scopus, and Google Scholar published from 2020 to 2025 to identify Ayurvedic concepts, formulations, and clinical findings related to post-COVID recovery.

Review Results: Preliminary clinical reports and case studies suggest that Ayurvedic treatment alleviates chronic fatigue, breathlessness, and neurocognitive symptoms, improving quality of life and functional capacity. Ayurvedic herbs and formulations such as Brahma *Rasayan, Chyawanprash*, *Agastya Haritaki aveleh* and *Kushmandaka Rasayan* are recognised for their immunomodulatory properties.

Conclusion: While anecdotal evidence and small studies show promise, the current body of research on Ayurveda for Long COVID is limited. This review concludes that more rigorous, large-scale controlled clinical trials are essential to scientifically validate the efficacy of specific Ayurvedic protocols. Such research is crucial to facilitate the safe and effective integration of these practices into a comprehensive, multidisciplinary strategy for Long COVID management.

Key words: Ayurveda, Acute Respiratory Distress Syndrome (ARDS), Long COVID, Alternative medicine.

1. INTRODUCTION

Coronavirus disease (COVID-19) is a highly contagious viral infection caused by SARS-CoV-2. After its widespread transmission across the world in 2019, it was declared a global health crisis and classified as a pandemic by the World Health Organisation (WHO) (Jebril, 2020). The infection was initially countered with high doses of available repurposed antivirals (Shirle and Shirit 2020). Due to overuse, rapid lifecycle and high mutation rates, SARS-CoV-2 quickly became resistant to the established antivirals (Kemp et al., 2021). The resistant variant of the virus resulted in higher morbidity, transmissibility and mortality rates (Kemp et al., 2021). Some of the deadliest of the mutant strains are beta, delta and omicron (Alam et al., 2023).

The Indian subcontinent experienced 3 waves of the pandemic (Negi et al., 2024). Populations affected during the first and third waves of the pandemic had mild to moderate symptoms, with less than 5% of

the population pro5gressing to acute respiratory distress syndrome (ARDS) (Negi et al., 2024). People in the second wave, caused by the delta variant, had severe respiratory distress, with more than 15% of the population developing fatal pneumonia and septic shock with multiple organ failure (Negi et al., 2024).

SARS-CoV-2 virus disrupts immune responses of the infected patient, leading to uncontrolled inflammatory responses and an impaired immune system, accompanied by several other multi-system dysfunctions (Yang et al., 2020).

While most of the affected population recovered relatively faster following an acute infection, there is significant evidence that some patients reported persistent symptoms or appearance of wide variety of symptoms with variable intensity, much after the onset of disease, regardless of the initial disease severity (Higgins et al., 2021; Wang et al., 2025; Yong et al., 2022), prompting the hypothesis that the symptoms were associated with COVID-19 infection.

The SARS-CoV-2 virus significantly disrupts the immune responses of infected individuals, leading to uncontrolled inflammatory reactions and an impaired immune system (Ahmet et al.,2020). This disruption manifests as granulocyte and monocyte abnormalities, high cytokine levels, and elevated total antibodies, contributing to various multisystem dysfunctions (Yang et al., 2020). While many patients recover quickly from the acute infection, a substantial number experience persistent symptoms or develop new ones with varying intensity long after the initial illness, irrespective of its severity (Mangavita et al., 2023). Even in the long run, the symptoms of Long COVID have been observed to reduce the quality of life significantly by limiting the functionality of the affected population (Hitch et al., 2025).

In Ayurveda, COVID is considered a *Sankramika roga* (contagious disease) caused by *Krimi* (pathogenic organism) (Adluri and Tripathi 2022); however, Long COVID is treated as a consequence of vitiated *Vata* and *Kapha* doshas, disturbed *agni* (digestive fire) and accumulation of *ama* (toxins). Based on this, Ayurveda addresses Long COVID with a holistic approach of addressing these imbalances rather than treating the symptoms (Wajpeyi 2022).

Although we have survived the worst of the pandemic, in recent months reemergence and upsurge of COVID infections have been observed worldwide (Choudhary et al., 2025). Signifying the importance of adapting alternative approaches. The detailed description of the approach to address Long COVID is discussed in the current article.

2. MATERIALS AND METHODS

This narrative review was systematically conducted to provide a comprehensive understanding of Ayurvedic approaches for managing Long COVID symptoms by searching major scientific databases, namely PubMed, Scopus, and Google Scholar. Publications between January 2020 to September 2025 were primarily considered, and older classical Ayurvedic texts, along with articles detailing formulations and Ayurvedic techniques, were also reviewed for relevant theoretical frameworks and formulations.

The search strategy employed a combination of controlled vocabulary and keywords such as ‘Long COVID’, ‘Post-Acute Sequelae of SARS-CoV-2’, ‘Ayurveda’, ‘Post COVID recovery’ and ‘Ayurvedic formulations’ linked using Boolean operators (AND, OR) to identify relevant research articles, case reports, and clinical trials.

A total of 156 results were obtained, among which 62 articles were selected for full-text review. 29 articles that met the inclusion criteria were considered for the final synthesis.

Inclusion criteria comprised of Review articles, Research articles, case reports, case series, and clinical trials (randomised or non-randomised) that investigated the use of Ayurvedic formulations, therapies, or principles for the management of Long

COVID symptoms or post-COVID-19 complications. All the retrieved records were independently screened against the inclusion criteria.

3. Review of literature

3.1. Long COVID: Long COVID, also known as Post-Acute Sequelae of SARS-CoV-2 (PASC), is a complex, multisystemic condition affecting a significant number of post-COVID-19 patients (Parums 2024). It has been recorded that a large population of COVID-19 survivors (of about 45%) experienced a range of symptoms after full recovery from the infection, irrespective of hospitalisation (Parums 2024).

The long COVID is characterised by symptoms such as persistent fatigue, dyspnoea, neuro-cognitive disturbances, breathlessness, cognitive dysfunction, joint pain, metabolic dysregulation, anxiety and other mental health disorders and varies greatly in severity (Mangavita et al., 2023). There is no widely accepted definitive treatment in conventional medicine (Roever et al., 2023).

COVID-19 recovery has been categorised into 3 distinct stages by the British National Institute for Health and Care Excellence (NICE).

1. Acute COVID-19 - within 4 weeks after the positive diagnosis.
2. Ongoing symptomatic COVID-19 - 4-12 weeks after the positive diagnosis.
3. Long COVID-19 - >12 weeks after the positive diagnosis. (Venkatesan, 2021)

3.2. Conventional treatment for Long COVID:

Currently, there is no single, definitive conventional treatment specifically approved to cure Long COVID. The approach remains largely focused on managing the diverse symptoms rather than providing a singular curative therapy for the syndrome itself.

The core of conventional treatment for Long COVID is symptomatic, supportive, and rehabilitative. The treatment addresses individual symptoms like fever or fatigue, and provides support for neurological issues such as "brain fog" and anxiety through counselling and rehabilitation (Bannerjee et al., 2022). While crucial for patient comfort and function, this approach does not necessarily target the underlying causes of Long COVID.

The symptomatic treatments are specific to the patient and presenting symptoms. Such as, Patients presenting with fever can be treated with Paracetamol and Vitamin C for Fatigue (Bannerjee et al., 2022).

Supportive treatments include treating the neurological symptoms such as anxiety, depression and brain fog with cognitive behavioural therapy and counselling (Bannerjee et al., 2022).

Rehabilitative treatment mainly consists of self-monitoring and pulmonary rehabilitation, such as breathing exercises.

All the above-mentioned treatment protocols are generic and are considered preliminary healthcare treatments and are not specific to Long COVID (Bannerjee et al., 2022).

Many pharmacotherapeutic agents, such as Montelukast (a leukotriene antagonist) (Fundacio 2024) and Deupirfenidone (an antifibrotic drug) (Zhou et al., 2022), are still undergoing clinical trials to determine their efficacy for Long COVID (Bannerjee et al., 2022). This indicates that established, widely effective conventional drug treatments are still in development, leading to a gap in readily available, proven solutions.

A significant limitation is suggested by the fact that "a large proportion of individuals who suffer from the syndrome, reportedly seek self-care and often resort to polypharmacy to gain some relief from the presenting foremost symptom". This implies that conventional options may not be fully addressing patients' needs, prompting them to explore multiple avenues and medications in their search for relief (Bannerjee et al., 2022).

3.3. Approach of Ayurveda:

Ayurveda is known for its holistic, personalised, and immunity-oriented approach.

Ayurvedic medicine, with its emphasis on restoring systemic balance and enhancing immunity (ṛasāyana), offers a multimodal framework that can be adapted to these sequelae. Ayurveda conceptualises Long COVID as the effect of the *prāṇavaha srotas* (respiratory channels) and a chronic *jvara* (fever) state. The integrated regimen aims to normalise immune function, attenuate residual inflammation, and restore functional capacity (Singh et al 2021).

3.4. Treatment regimens for COVID in Ayurveda: Although there are no standardised treatment protocols in Ayurveda for Long COVID, the treatment regimen is personalised according to the imbalances observed in the patient and their medical history.

A 53-year-old male who experienced persistent Long COVID symptoms, including low-grade fever, loss of appetite, general weakness, and fatigue, lasting eight days after his initial COVID-19 recovery. His treatment involved a 30-day Ayurvedic regimen that included specific herbal preparations such as Ashwagandha *Ghanavati, Sanshamani vati, Chyawanaprasha*, and *Shadanga paniya*. Crucially, the plan also incorporated personalised dietary and behavioural guidelines (*pathyapathya*), emphasising a wholesome diet, daily *Pranayama* (e.g., *Anulomaviloma* and *Kapalbhati*), breathing exercises, meditation, and adequate rest. Following this intervention, the patient reported significant subjective improvement in his symptoms, with the benefits attributed to the anti-inflammatory, antioxidant, immunomodulatory, and rejuvenating properties of the herbal formulations and the holistic lifestyle approach. This case highlights Ayurveda's potential in alleviating common post-COVID symptoms through a combined therapeutic strategy adapted during the treatment regimen to prevent long COVID symptoms (Kohale and Wajpeyi 2021). As the COVID infections have now become a common occurrence, this strategy helps in avoiding the occurance of Long COVID symptoms post infection.

Addressing Post-COVID Olfactory Dysfunction: Another case study by Bhat et al. involved a 20-year-old female who developed post-viral olfactory dysfunction (parosmia) six months after SARS-CoV-2 infection, also experiencing dysgeusia and nausea, leading to stress and sleep disturbances. The patient was effectively treated using an integrative approach with Ayurveda. The Ayurvedic aspect of the treatment included *Shadbindu taila marsha nasya* for seven days, followed by *Shadbindu taila pratimarsha nasya* (intranasal oil instillation) for four months, alongside oral administration of *Naradiya laxmivilasa rasa* for one month. This case demonstrates the application of specific Ayurvedic nasal therapies for neurological sequelae of Long COVID, highlighting an integrative modality for managing sensory disturbances (Bhat et al., 2023).

Resolution of Severe Persistent COVID-19 Symptoms with Ayurvedic Dietary Guidelines:

A 71-year-old patient, presenting with persistent severe shortness of breath and high dependence on methylprednisolone after two ICU admissions for COVID-19, showed significant improvement through an Ayurvedic dietary approach. Despite a poor prognosis from conventional care, specific Ayurvedic dietary guidelines (*āhāra*) and supporting herbal and herbomineral formulations were initiated to enhance digestive metabolism and promote respiratory repair by addressing the mismatch between food intake and digestive mechanism, which leads to inflammatory cascades, reducing infection-induced metabolic sluggishness (dyspepsia). Within three weeks, the patient's clinical condition improved and radiological findings also showed improvement within six weeks, suggesting that an Ayurvedic diet can play

a crucial role in resolving severe and persistent post-COVID symptoms, even in complex cases (Adluri and Bhattacharya, 2022).

Add-on Ayurvedic Treatment for High-Risk COVID-19 Patients with Persistent Symptoms:

While not a single case report, a prospective, controlled pilot study by Kumar et al., examined the efficacy of add-on personalised Ayurveda treatment in hospitalised mild to moderate COVID-19 patients with Type 2 Diabetes. The study found that among 13 assessed symptoms, cough, general weakness, and sore throat showed statistically significant improvement in the group receiving add-on Ayurveda compared to the group receiving only Standard of Care. This indicates that Ayurvedic interventions, when integrated with conventional treatment, can positively impact the resolution of persistent symptoms often associated with Long COVID, particularly in vulnerable patient populations (Kumar et al.,2024).

Table 1. Core modalities in Ayurveda for Long COVID.

Category	Interventions	Therapeutic Intent	Reference
Lifestyle & Daily Regimen	*Āhāra Vidhi* (balanced diet), *Dinacharya* (structured routine), *Sadvṛtti* (ethical conduct)	Normalize digestion (*agni*), circadian rhythm, and mental equilibrium.	(Mishrikoti et al., 2024)
Rasāyana (Rejuvenation)	*Punarnava Mandura, Pravalpanchmruta Rasa, Śamśāmani Vati, Kuśmanda Rasayana, Ashwagandha Rasayana, Vardhamāna Pippali Rasayana*	Enhance immunity, counter oxidative stress, promote tissue repair.	(Govindarajan et al., 2005)
Herbal Formulations	*Ayush Kwatha*, *Guduchi* powder, *Ashwagandha* powder, *Āmalki* fruit/powder, *Yashtimadhu* powder, warm milk + *Haridrā*, turmeric-salt gargle(under qualified physician)	Provide immunomodulatory and anti-inflammatory effects.	(Manisha and Gaur 2022)
Pancakarma-Based Procedures	*Abhyanga* (oil massage), *Śvedana* (fomentation), *Mṛdu Virecana* (mild purgation), *Sneha/Kāṣāya Basti* (medicated enema), *Śirodhara, Udvartana* (dry massage), *Nasya* (nasal drops)	Remove doshic blockage, improve pulmonary clearance, restore autonomic balance.	(Ahlavat and Ohlan 2024)

Yoga & *Prāṇāyāma*	Thoracic-expanding asanas, diaphragmatic breathing, *Nadi Shodhana*, *Bhramari*	Strengthen cardio-respiratory coupling, increase parasympathetic tone, reduce anxiety/depression.	(Sarkar et al., 2025)

Table 2. Ayurvedic formulations used for treating Long COVID.

Ayurvedic Formulations	**Key properties**	
Tab NAOQ 19	Immunity enhancement, anti-inflammatory, reduces CRP levels, addresses related Long COVID symptoms.	(Bharadwaj et al., 2023)
Brahma Rasayan	Memory enhancer, improves speech, rejuvenation, antioxidant, strengthens respiratory system, and is immunomodulatory.	(Dash and Joshi, 2025)
Chyawanprash	Anti-ageing, eases constipation, strengthens immune system, improves memory and concentration, calms the nervous system, purifies blood, improves complexion, fights bacterial skin infection, antidepressant, and improves bone and muscle strength.	(Gupta et al., 2021)
Agastya Haritaki aveleh	Relaxes respiratory spasm, expels mucus, eases breathing, and builds immunity.	(Poudel et al., 2019)
Kushmandaka Rasayan	Addresses cough, dyspnea/asthma, chest issues, chronic fever, bleeding disorders, emesis, thirst, weakness, hoarseness of voice and anti-inflammatory.	(Sharma et al., 2022)
Vardhaman Pippali	Rejuvenative, anti-ageing, improves lung strength, stimulates appetite	(Abhani and Goyal, 2023)
Amlaki rasayan	Anti-ageing, nourishes and rejuvenates tissues, improves digestion, boosts immunity	(Salunkhe et al., 2024)

3.5. Upsides of Ayurvedic approach:

Holistic and Personalised Treatment: Ayurvedic philosophy emphasises holistic healing that extends beyond symptom management. Ayurveda focuses on addressing the underlying issues and tailors the treatment according to the individual. Treatment protocols are personalised considering the individual's unique body constitution (*Prakriti*) and the specific imbalance (*Vikriti*) caused by Long COVID. This approach enables the development of a customised treatment plan that targets the underlying cause of a patient's symptoms, whether they are primarily related to fatigue, brain fog, or respiratory issues, rather than a one-size-fits-all approach (Nair et al., 2022).

Focus on Root Cause, Not Just Symptoms: Unlike conventional medicine, which often targets individual symptoms, Ayurveda

seeks to restore the body's fundamental physiological balance. By focusing on the digestive fire (*Agni*) and elimination of toxins (*Ama*), Ayurveda intervention aims to rectify systemic dysfunction that is the root of the various Long COVID symptoms. This focus on internal equilibrium is a key to sustainable recovery that benefits the individual's overall health (Adluri and Bhattacharya 2022).

Minimal Side Effects: Conventional drugs such as Remdesivir and Paxlovid are known to cause side effects such as nausea, elevated liver enzymes, diarrhoea and altered sense of taste (Zadeh et al., 2021). Whereas Ayurvedic treatments primarily use natural herbs, dietary modifications and lifestyle changes. The natural basis of the intervention is associated with few to no side effects in comparison to conventional pharmaceutical drugs. This is a significant advantage for a condition that can last for months or years, where long-term medication use could lead to other health complications (Verma et al., 2024).

Patient empowerment and self-care: A fundamental principle of Ayurveda is the active involvement of patients in their healing journey. By educating them on diet, daily routines (*Dinacharya*), and mind-body practices like Yoga and meditation, it empowers individuals to take an active role in their recovery. This is particularly beneficial for a condition like Long COVID, where the recovery process is often gradual and requires consistent adherence to the therapeutic regimen (Manisha and Gaur, 2022).

Addresses Mental and Emotional Well-being: Long COVID frequently presents significant mental health challenges such as anxiety, depression, and stress (Chandrasekhar et al., 2012). Ayurveda inherently integrates mind-body practices into its therapeutic regimen. Herbs like Ashwagandha, combined with mindfulness and meditation techniques, are used to calm the nervous system, reduce stress, and improve mental clarity, offering a comprehensive solution that goes beyond just the physical symptoms (Chandrasekhar et al., 2012).

Promotes Long-Term Well-being: The goal of Ayurvedic treatment is not just to get rid of symptoms but to strengthen the body's immune system (*Ojas*), improve overall vitality and prevent future illnesses. This focus on rejuvenation leads to lasting health benefits and a more resilient constitution, potentially preventing future relapses and improving quality of life long after the symptoms have subsided (Prabhakar 2025).

Accessibility and Affordability: In many regions of the world, Ayurvedic remedies and practices can be more accessible and affordable compared to a continuous regimen of expensive conventional drugs, especially when dealing with a chronic condition like Long COVID that requires long-term management (Srikanth 2025).

4. OBSERVATIONS:

Across the studies identified through the literature search, Ayurvedic interventions consistently demonstrated beneficial effects in addressing Long COVID and its diverse symptoms. Many of the included case reports and pilot studies documented improvements in persistent fatigue, breathlessness, cognitive disturbances, and general weakness following the use of Ayurvedic formulations and lifestyle-based therapies. These findings, along with the holistic and personalised nature of Ayurveda, indicate that it may serve as a valuable complementary approach for individuals experiencing post-COVID sequelae.

A notable observation from the search is that independent case studies and small observational reports were far more common than large, rigorously designed clinical trials. While these case studies provide encouraging evidence supporting the efficacy of Ayurvedic regimens, they cannot be generalised due to limited sample sizes and methodological constraints. The scarcity of extensive research papers underscores the need for more structured investigations to validate the outcomes observed in smaller reports.

Overall, the findings highlight the potential of Ayurveda to expand therapeutic possibilities for Long COVID patients. Scientifically validating these traditional practices through well-designed studies would not only strengthen the evidence base but also facilitate the development of an integrated, patient-centred model of care that harmonises the strengths of both conventional medicine and Ayurveda.

5. DISCUSSION: The narrative review suggests that Ayurveda offers a promising complementary strategy for managing Long COVID through its emphasis on restoring systemic equilibrium and immune homeostasis. The review findings indicate that the most frequently reported post-COVID problems include persistent fatigue, breathlessness, neuro-cognitive issues such as brain fog, anxiety, sleep disturbances, and general weakness. Some patients also experience loss of taste or smell, joint pain, and low mood, all of which significantly affect quality of life and recovery. In the literature reviewed, conventional medicine primarily focuses on symptom management using anti-inflammatory drugs, corticosteroids, bronchodilators, and psychological counselling. While such treatments provide temporary relief, they often fail to address the underlying pathophysiological imbalances, resulting in incomplete recovery or recurrence of symptoms.

In contrast, Ayurveda adopts a root-cause-based approach, targeting underlying disturbances. The reviewed studies and case reports showed that Ayurvedic formulations such as Brahma Rasayan, *Chyawanprash*, *Agastya Haritaki Avaleha, Kushmandaka Rasayan*, and *Ashwagandha* preparations were most frequently used and demonstrated notable improvement in chronic fatigue, respiratory discomfort, and neuro-cognitive symptoms. These formulations act through their immunomodulatory, antioxidant, and rejuvenative properties, helping restore physiological balance and enhance recovery. Alongside pharmacological preparations, Ayurvedic dietary and lifestyle practices such as *Ahara Vidhi* (wholesome diet), *Dinacharya* (daily regimen), and mind-body practices like Yoga and Pranayama were reported to improve mental well-being, respiratory function, and overall vitality. These integrative regimens were particularly effective in alleviating fatigue and anxiety, areas where conventional therapies showed limited long-term benefit.

The significance of the Ayurvedic approach lies in its comprehensive and personalised framework that addresses the root cause of imbalance rather than just the symptoms. By combining herbal remedies, diet, lifestyle modification, and mental health practices, Ayurveda not only aims to restore physiological balance and immunity but also empowers patients to participate actively in their own recovery. This holistic focus on both the physical and psychological dimensions of Long COVID makes

Ayurveda a valuable complementary system for post-COVID management.

However, the review also recognises that the evidence base is still emerging. Most available data are anecdotal or derived from small-scale studies, limiting generalisability. Therefore, larger, well-designed clinical trials are required to validate the efficacy and safety of specific Ayurvedic interventions and to establish their role within integrated models of post-COVID care.

6. Limitations and future directions

While the reviewed literature indicate that Ayurvedic interventions hold considerable potential in management of Long COVID, several limitations also exist.

The majority of available studies are case reports and small-scale studies which make it hard to obtain definitive clinical conclusions.

The limited integration of Ayurvedic outcome parameters such as *Agni, Ama* and *Ojas* with biomedical markers restricts the ability to correlate traditional diagnostic concepts with conventional diagnostic parameters. Additionally, sample sizes in existing studies are small and long-term data are scarce, making it difficult to evaluate sustained efficacy.

To bridge these gaps, future research should prioritize large-scale randomised control trials evaluating specific Ayurvedic formulations and integrative treatment models and elucidate mechanistic pathways.

This research would be crucial for integrating these traditional healing practices with modern medicine to provide a more effective and comprehensive treatment strategy for Long COVID patients.

7. CONCLUSION:

In conclusion, while conventional medicine has yet to find a single, definitive cure for Long COVID, this challenge has opened a vital door to exploring holistic and integrative approaches. The insights from Ayurveda, with its focus on personalised care and addressing the root cause of imbalance, offer a hopeful and promising path forward. By empowering patients with a comprehensive regimen of natural therapies, dietary adjustments, and mind-body practices, Ayurveda not only helps alleviate persistent symptoms but also promotes long-term resilience and well-being. This shift towards a more integrated understanding of health provides a beacon of hope for those navigating the complexities of Long COVID, highlighting that a blend of modern science and traditional wisdom may be the key to a full and lasting recovery.

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