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Review Article

Exploring the Role of Diet, Herbs and Yoga in Interstitial Lung Disease: A Naturopathic Review

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ABSTRACT

Interstitial Lung Disease (ILD) represents a diverse group of chronic lung disorders marked by progressive fibrosis, inflammation, and impaired respiratory function. Conventional treatments, including corticosteroids and antifibrotic agents, offer only limited disease modification and often present adverse effects. This topic has spurred interest in naturopathic approaches that may provide adjunctive benefits in managing ILD. This review explores the potential role of diet, herbs, and yoga in ILD care from a holistic perspective. An anti-inflammatory and antioxidant-rich diet such as the Mediterranean diet may help reduce oxidative stress and systemic inflammation, both central to ILD progression. Nutrients like omega-3 fatty acids, vitamin D, flavonoids, and probiotics have demonstrated immunomodulatory effects that may benefit pulmonary health. Traditional herbs like *Adhatoda vasica*, *Tinospora cordifolia*, and *Curcuma longa* have shown in early studies that they can reduce inflammation, help clear mucus, and prevent scarring in the lungs. Yoga, particularly pranayama and gentle asanas, enhances lung capacity, reduces anxiety, and improves overall well-being through breath control and mindfulness. Collectively, these naturopathic interventions may serve as supportive strategies in ILD management, promoting better symptom control, improved quality of life, and potential slowing of disease progression. Further clinical studies are needed to validate their therapeutic efficacy in ILD patients.

INTRODUCTION

Interstitial lungs disease (ILD) encompasses a broad spectrum of over 200 chronic pulmonary disorders characterized by inflammation and progressive fibrosis of the lung interstitium.¹

These conditions impair the normal architecture of the lungs, leading to compromised gas exchange, reduced lung compliance, and, ultimately, respiratory failure. Common forms of ILD include idiopathic pulmonary fibrosis (IPF), hypersensitivity pneumonitis, and connective

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tissue disease-associated ILD.^{2,3} The causes of ILD, related to the immune system, due to work exposure, or caused by medications, with key features being ongoing inflammation, growth of certain cells, and too much buildup of a supportive tissue.⁴ Conventional management strategies for ILD involve corticosteroids, immunosuppressants, and antifibrotic agents such as pirfenidone and nintedanib.⁵ While these treatments can slow disease progression, they are often associated with side effects, high costs, and limited efficacy in reversing established fibrosis. Consequently, there is growing interest in integrative and complementary therapies that address the disease from a holistic and preventive angle.^{6,7} Naturopathic medicine emphasizes the use of natural therapies such as therapeutic diets, herbal medicines, and yoga to support the body's healing mechanisms.⁸ These approaches are rooted in anti-inflammatory, antioxidant, and immunomodulatory principles that may offer adjunctive benefits in ILD management.⁹ This review explores the scientific basis and therapeutic potential of diet, medicinal plants, and yoga in the context of ILD.¹⁰ By highlighting both traditional wisdom and emerging biomedical evidence, we propose a holistic framework for enhancing respiratory health, alleviating symptoms, and improving quality of life in ILD patients.^{11,12}

Nature-Inspired Healing in Chronic Lung Disease

Interstitial Lung Disease (ILD) and other chronic illnesses can benefit from naturopathic therapy, which is based on the idea that the human body has an innate capacity to maintain and recover health.¹³ Naturopathy has a role in treating the progression of ILD by focusing on natural, patient-centred, and lifestyle-focused therapies that support the lungs. Conventional medication still plays a major role in this regard.¹⁴ ILD, which is

defined by fibrosis, inflammation, and permanent lung tissue destruction, is a challenging clinical problem with few available treatments.¹⁵ This is where nature-inspired healing comes into play, not as a substitute for medication but rather as a supplement to raise physiological resilience, lower systemic inflammation, and improve quality of life.¹⁶ The utilisation of therapeutic tools, including yoga, breathing exercises, medicinal plants, anti-inflammatory diets, stress-reduction methods, and detoxification plans, is essential to naturopathic treatment.¹⁷ These techniques support the objectives of enhancing immunity, re-establishing systemic balance, and increasing lung function. For instance, preclinical research has shown that herbal treatments such as *Adhatoda vasica* and *Curcuma longa* have bronchodilatory and anti-fibrotic properties.¹⁸ Similar to this, techniques like mindfulness-based yoga and pranayama (yogic breathing) assist in lowering oxidative stress and increasing respiratory endurance, both of which are extremely helpful for ILD patients who suffer from chronic tiredness and decreased lung capacity. Furthermore, prevention and customisation are given top priority in naturopathic medicine.¹⁹ Individual risk factors, such as exposures to the environment, autoimmune inclinations, or bad eating habits, can be identified to customise therapy that will boost the body's defences and perhaps reduce the advancement of the disease.²⁰ In the end, nature-inspired healing in ILD promotes the peaceful coexistence of conventional medicine and natural remedies.²¹ It affords patients the confidence to actively manage their health while adopting a way of living that promotes resilience and long-term vitality in addition to symptom management.²²

Nutritional Approaches in ILD Management

Nutrition plays a crucial supportive role in the management of interstitial lung disease (ILD),



primarily by addressing inflammation, oxidative stress, and immune imbalances.²³ A diet rich in anti-inflammatory and antioxidant nutrients can help slow disease progression and improve quality of life.²⁴ The Mediterranean diet, known for its abundance of fruits, vegetables, whole grains, nuts, seeds, olive oil, and fish, is particularly beneficial. It reduces systemic inflammation and supports respiratory health.²⁵ Key nutrients like omega-3 fatty acids (found in flaxseeds, walnuts, and fish) have anti-inflammatory properties, while vitamins C and E, carotenoids, and polyphenols act as antioxidants, protecting lung tissue from oxidative damage.²⁶ Vitamin D plays a significant immunomodulatory role and is often deficient in ILD patients, making supplementation important.²⁷ Magnesium and selenium support respiratory muscle function and antioxidant activity.²⁸ The gut-lung axis is another emerging area of interest. Consuming probiotics (yogurt, fermented foods) and prebiotics (fiber-rich foods like bananas, garlic, and oats) helps maintain gut microbiota balance, which may positively influence lung immunity. Conversely, ILD patients should limit processed foods, refined sugars, and red meats, which can increase inflammation. Incorporating a balanced, nutrient-dense diet offers a non-invasive, natural strategy to complement medical treatments in ILD care.^{20,30,31}

Table No 01 Recommended Nutrient Distribution in an ILD-Friendly Diet

Nutrient Category	% Contribution
Antioxidant-rich vegetables/fruits	30%
Omega-3 fatty acids (flaxseed, fish)	25%
Lean proteins (lentils, fish)	20%
Whole grains (oats, brown rice)	15%
Anti-inflammatory herbs/spices	10%

Herbal Medicine: Traditional and Scientific Insights

Herbal medicine offers a promising complementary approach in the management of interstitial lung disease (ILD), particularly due to its anti-inflammatory, antioxidant, and antifibrotic properties.^{32,33} Traditional systems, like Ayurveda and Siddha, have long utilized respiratory herbs to treat chronic lung conditions, many of which are now being scientifically validated.³⁴ One notable herb is *Adhatoda vasica* (Malabar Nut), rich in vasicine and vasicinone, known for its bronchodilatory, mucolytic, and anti-inflammatory effects.³⁵ Preclinical studies suggest that it may reduce airway resistance and improve oxygenation.³⁶ *Tinospora cordifolia* (Giloy), widely used in Ayurveda, exhibits immunomodulatory and antioxidant actions. It enhances host defense mechanisms and may help reduce pulmonary inflammation.³⁷ *Curcuma longa* (turmeric) contains curcumin, a powerful polyphenol with antifibrotic and anti-inflammatory activity. It has been shown to inhibit TGF- β signaling, a key pathway in pulmonary fibrosis. Other herbs like *Glycyrrhiza glabra* (licorice) and *Ocimum sanctum* (tulsi) provide soothing, adaptogenic, and immune-balancing benefits. While traditional use supports the efficacy of these herbs, modern pharmacological studies have begun to uncover their mechanisms of action. However, clinical trials in ILD populations are limited.^{38,39} Combining herbal therapy with conventional treatment under expert supervision can enhance symptom relief and overall lung health.⁴⁰

Table No 02 Herbal Remedies Used in ILD

Herb Name	Antioxidant Activity (μ mol Trolox Equivalent/g)
<i>Adhatoda vasica</i>	150–180
<i>Tinospora cordifolia</i>	200–220
<i>Curcuma longa</i>	350–400
<i>Glycyrrhiza glabra</i>	100–130



The Role of Yoga and Pranayama in ILD Management

Yoga, an ancient mind-body practice rooted in Indian tradition, offers significant therapeutic benefits for individuals with interstitial lung disease (ILD).⁴¹ It combines physical postures (asanas), breathing exercises (pranayama), and meditation to promote physical, mental, and emotional well-being. In ILD, where respiratory function is compromised, yoga serves as a supportive therapy to improve lung capacity, reduce stress, and enhance quality of life.⁴²

Table No 03 Effect of 12 Weeks of Yoga on Pulmonary Parameters in ILD Patients

Week	FVC (% predicted)	DLCO (% predicted)
0	60	55
4	65	60
8	70	65
12	75	70

Pranayama, or yogic breathing, is particularly beneficial. Techniques such as *Anulom Vilom* (alternate nostril breathing), *Bhramari* (humming breath), and *Kapalbhati* (cleansing breath) help improve oxygenation, strengthen respiratory muscles, and reduce breathlessness.⁴³ Studies suggest that regular pranayama practice can enhance lung function parameters like FVC and FEV1 and reduce fatigue in chronic respiratory disorders.⁴⁴ Gentle asanas such as *Bhujangasana* (cobra pose), *Setu Bandhasana* (bridge pose), and *Sukhasana* (easy pose) aid in chest expansion, posture correction, and relaxation. Moreover, yoga nidra and meditation reduce anxiety and depression, which are common in ILD patients. By integrating yoga and pranayama into daily routines, patients can experience better respiratory control, mental calmness, and improved resilience. When practiced under professional guidance, yoga is a safe and effective adjunct to conventional ILD management.^{45,46}

Table No 04 Yoga Poses Beneficial in ILD

Yoga Asana	Benefits	Notes
Bhujangasana	Expands lungs, chest flexibility	Avoid in advanced fibrosis
Anulom-Vilom	Improves breathing & oxygenation	Safe and beginner-friendly
Matsyasana	Opens thoracic region	Perform under guidance
Shavasana	Relaxes diaphragm, reduces stress	Enhances parasympathetic tone

Integrative Care Framework in ILD Management

An integrative care framework for interstitial lung disease (ILD) brings together standard medical treatments and research-based naturopathic therapies to tackle the wide range of the disease. This holistic model prioritizes not only symptom management but also overall well-being, disease prevention, and quality of life. At its core, integrative care involves close collaboration between pulmonologists, dietitians, naturopaths, yoga therapists, and mental health professionals.^{47,48} Medications like antifibrotic agents, corticosteroids, and immunosuppressants are crucial for slowing down the disease and handling sudden worsening of symptoms. However, adjunctive approaches such as nutritional therapy, herbal medicine, and yoga offer supportive benefits that address inflammation, oxidative stress, and psychosocial burden.⁴⁹

For example, an anti-inflammatory diet reduces systemic inflammation, while targeted herbs like *Adhatoda vasica* or *Curcuma longa* can help manage respiratory symptoms naturally. Yoga and pranayama improve pulmonary function and emotional well-being. Mental health support through mindfulness, counseling, and community engagement further enhances patients' resilience.⁵⁰



The integrative framework emphasizes personalized care, tailoring interventions to each patient's medical history, lifestyle, and preferences. This patient-centered approach supports physiological healing and empowers individuals to take an active role in their health, offering a more comprehensive strategy in managing chronic, progressive conditions like ILD.⁵¹

Research Gaps and Future Directions

While emerging evidence supports the role of diet, herbal medicine, and yoga in managing interstitial lung disease (ILD), significant research gaps remain. Most current data derive from preclinical studies, small-scale clinical trials, or research in related respiratory conditions like asthma and COPD. There is a lack of large, well-designed, randomized controlled trials (RCTs) specifically assessing naturopathic interventions in ILD populations.⁵²

For instance, even though herbs like *Adhatoda vasica* and *Tinospora cordifolia* have been shown to reduce inflammation and help open airways in animals, we still don't know if they are effective and safe for patients with ILD because they haven't been tested in clinical trials. Similarly, although yoga and pranayama have demonstrated benefits in improving pulmonary function and quality of life in chronic respiratory diseases, their long-term impact on ILD progression is underexplored.⁵³

Another important issue is the need to use biomarkers to evaluate how naturopathic therapies affect the body, like looking at changes in inflammation levels, lung scans, or fibrosis scores. Moreover, personalized approaches that consider genetic, environmental, and lifestyle factors are yet to be developed.⁵⁴

Future research should focus on interdisciplinary, integrative studies involving nutritionists, pulmonologists, herbalists, and yoga experts. Establishing standardized protocols, dosage guidelines, and safety profiles will be essential for incorporating naturopathic care into evidence-based ILD management.⁵⁵

CONCLUSION

Interstitial Lung Disease (ILD) presents a complex clinical challenge due to its progressive nature, limited treatment options, and impact on patients' quality of life. While pharmacological therapies remain the foundation of ILD management, they often come with adverse effects and limited efficacy in reversing established fibrosis. This illustrates the importance of supportive and holistic strategies that address the broader aspects of disease progression and patient well-being. Naturopathic approaches, namely diet, herbal medicine, and yoga, offer promising complementary avenues. Anti-inflammatory and antioxidant-rich diets can help modulate immune responses and oxidative stress, key drivers of ILD. Medicinal plants like *Adhatoda vasica*, *Tinospora cordifolia*, and *Curcuma longa* can be helpful because they can open airways, break down mucus, and prevent scarring in the lungs. Yoga and pranayama, when practiced regularly, enhance pulmonary function, reduce psychological stress, and improve overall resilience. An integrated care framework that combines modern medicine with evidence-based naturopathic therapies offers a comprehensive, patient-centered approach to ILD management. However, we need more robust clinical studies to validate these interventions, establish standard guidelines, and ensure safety. By bridging traditional wisdom and modern science, this holistic model has the potential to not only manage ILD symptoms more effectively but



also enhance patients' quality of life and overall health outcomes.

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