Reducing Disease Activity in Systemic Lupus Erythematosus through Adjunctive Naturopathy and Yoga: A Six-Month Case Report with Serial Immunological, Haematological, and Patient-Reported Outcome Monitoring

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ABSTRACT

Background: Systemic lupus erythematosus (SLE) is a chronic, multisystem autoimmune disease that predominantly affects women of reproductive age. Conventional immunosuppressive therapy controls disease activity but carries substantial adverse effects and rarely addresses the patient's broader physical and psychological well-being. Integrative naturopathic and yoga-based interventions have shown benefit in other autoimmune conditions, yet detailed, protocol-driven documentation of their use in SLE, including serial immunological, haematological and patient-reported outcomes, remains rare in the peer-reviewed literature. This case report was written to help fill that gap.

Case Presentation: A 45-year-old female schoolteacher with a three-year history of SLE (baseline SLEDAI-2K score 14, indicating moderate-to-severe activity) presented with malar rash, polyarthralgia, fatigue, alopecia, oral ulcers and photosensitivity while maintained on stable-dose hydroxychloroquine and a tapering course of prednisolone.

Intervention: The patient was enrolled in a supervised six-month integrative outpatient programme combining naturopathic care (anti-inflammatory diet, hydrotherapy, mud therapy, massage, supervised fasting and targeted supplementation) with a structured daily yoga protocol (modified asana, Nadi Shodhana and Bhramari pranayama, Yoga Nidra and mindfulness meditation). Conventional pharmacotherapy continued throughout under rheumatology co-management.

Outcomes: Serial assessment at Months 0, 3 and 6 showed a clinically meaningful fall in SLEDAI-2K score from 14 to 4 (a 71.4% reduction), a 58% decline in anti-dsDNA titres, and normalisation of complement C3/C4. Haematological parameters (haemoglobin, leucocyte count, platelet count) improved markedly, and inflammatory markers (ESR, CRP) fell substantially. Patient-reported outcomes told a similar story: VAS-Pain dropped from 7.4 to 2.8, SF-36 quality-of-life score rose from 38.2 to 64.6, the Perceived Stress Scale fell from 28 to 14, and the Pittsburgh Sleep Quality Index improved from 14 to 7. No adverse events or protocol-related complications occurred.

Conclusion: In this patient, a structured six-month naturopathy-and-yoga protocol delivered alongside standard pharmacotherapy was associated with concurrent improvement in disease activity, serological and haematological parameters, and patient-reported quality of life, with no adverse events. These findings suggest that integrative naturopathic and yoga-based interventions may hold value as an adjunct to conventional SLE management. As a single case report, causality cannot be established and the findings cannot be generalised; controlled trials are needed to confirm these observations and define the protocol's role in standard SLE care.

Keywords: Systemic lupus erythematosus; Naturopathy; Yoga therapy; Integrative medicine; SLEDAI-2K; Autoimmune disease; Mind-body intervention; Anti-inflammatory diet.

INTRODUCTION

Disease Overview and Clinical Burden

Systemic lupus erythematosus (SLE) is a chronic, complex and potentially life-threatening autoimmune connective-tissue disorder marked by widespread immune dysregulation, multi-organ inflammation, and the production of pathogenic autoantibodies, most notably anti-double-stranded DNA (anti-dsDNA) antibodies [1]. Global prevalence ranges from 20 to 150 per 100,000 people, and the female-to-male ratio of roughly 9:1 reflects its strong predilection for women of reproductive age [2]. In India, SLE is increasingly recognised as a significant public health burden, with rising incidence linked to improved diagnostic access and greater clinical awareness [3].

The clinical picture is heterogeneous, spanning mucocutaneous manifestations (malar rash, photosensitivity, oral ulcers, alopecia), musculoskeletal involvement (arthralgia, arthritis), haematological abnormalities (leucopenia, thrombocytopenia, haemolytic anaemia), renal disease (lupus nephritis), neuropsychiatric involvement, and serosal inflammation [4]. Disease activity follows a pattern of remission and flare, and the unpredictability of these cycles significantly affects patients' quality of life, occupational functioning and psychological well-being [5].

Limitations of Conventional Pharmacotherapy

Standard-of-care pharmacotherapy currently includes antimalarials (hydroxychloroquine), non-steroidal anti-inflammatory drugs, corticosteroids, and immunosuppressants such as azathioprine, mycophenolate mofetil and belimumab. These drugs control disease activity effectively, but long-term use is associated with avascular necrosis, metabolic syndrome, opportunistic infection and gonadal toxicity [6]. Conventional therapy also tends not to address the psychosocial, lifestyle and nutritional determinants of disease activity, domains now recognised as modifiable contributors to flare frequency and overall disease burden.

Naturopathy and Yoga as Adjunctive Strategies

Naturopathy is a distinct system of complementary medicine that uses natural therapeutic modalities, including therapeutic diet, hydrotherapy, heliotherapy, mud therapy, massage and nutritional supplementation, to support the body's self-healing capacity, reduce inflammation and restore homeostasis [7]. Yoga, a mind-body discipline rooted in Indian philosophical tradition, brings together physical postures (asana), breath regulation (pranayama), sensory withdrawal (pratyahara) and meditative practice (dharana, dhyana). Together these are thought to modulate the autonomic nervous system, the hypothalamic-pituitary-adrenal (HPA) axis, and immune function [8].

Evidence from randomised trials and observational studies suggests that mind-body interventions, yoga in particular, can lower pro-inflammatory cytokines such as IL-6 and TNF-α, reduce perceived stress, and improve outcomes in other chronic autoimmune conditions [9,10]. In the Indian subcontinent, where SLE incidence is rising and access to expensive biologic therapy remains limited, low-cost, culturally familiar integrative strategies are a particularly attractive adjunct.

Novelty and Clinical Gap Addressed

Despite growing interest, few case reports document combined naturopathy and yoga in SLE with the kind of protocol detail and serial measurement, immunological markers, haematological parameters, and validated patient-reported outcomes across multiple time points, that would let clinicians evaluate or replicate the approach. Existing integrative studies in SLE tend to share the same shortcomings: single-modality interventions, no serological outcome tracking, no compliance data, and little discussion of how each intervention component might act on established SLE immunopathology.

This report was designed to address those gaps. It presents a detailed, CARE-compliant, six-month protocol with serial biochemical monitoring, a full clinical timeline, and a discussion of plausible mechanisms linking the observed outcomes to known neuroimmune and anti-inflammatory pathways. As far as we are aware, it is the most comprehensively documented case of its kind in the Indian integrative medicine literature.

Case Presentation

Patient Profile and Chief Complaints

A 45-year-old married schoolteacher presented to the Naturopathy and Yoga OPD with a diagnosis of SLE confirmed three years earlier by a rheumatologist at a tertiary care hospital, meeting the ACR/EULAR 2019 classification criteria. Her chief complaints were a persistent bilateral malar rash, symmetrical polyarthralgia involving the small joints of the hands, wrists and knees, chronic fatigue, diffuse alopecia, and intermittent oral ulcers. She also described marked photosensitivity that limited her outdoor activities and affected her work as a teacher. She was maintained on hydroxychloroquine 200 mg twice daily and prednisolone 5 mg once daily (tapering) under rheumatological supervision, and sought integrative care to improve her overall well-being and, over time, reduce her dependence on corticosteroids.

Table 2 (see below): Patient Profile — see Section 2 narrative above

Table 2a: Patient Profile and Initial Clinical Details

Parameter	**Details**
Age	45 years
Gender	Female
Occupation	School Teacher
Marital Status	Married, 2 children
Education	Graduate
Socioeconomic Status	Middle class
Duration of SLE diagnosis	3 years prior to enrolment
Chief Complaints	Malar rash, polyarthralgia, fatigue, alopecia, photosensitivity, intermittent oral ulcers
Conventional Medication at enrolment	Hydroxychloroquine 200 mg BD; Prednisolone 5 mg OD (tapering dose)
BMI	22.4 kg/m²
Vital Signs	BP 118/76 mmHg; PR 84 bpm; SpO2 98%; Temp 37.1°C

Past Medical and Personal History

There was no significant past history of renal disease, neuropsychiatric lupus or serositis, and family history was unremarkable for autoimmune disorders. The patient was a lifelong non-smoker who did not drink alcohol and had no known food allergies. She was pre-menopausal with regular cycles, though she reported menstrual irregularity and dysmenorrhoea that she attributed to disease activity and steroid use. She had no prior hospitalisations or surgery for SLE-related complications.

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Physical Examination at Baseline

On general examination she was moderately built and nourished, with a butterfly-shaped malar erythema across the nasal bridge and both cheeks, and mild diffuse alopecia. Two small aphthous ulcers were noted on the buccal mucosa. Musculoskeletal examination showed tenderness and mild synovial thickening in the bilateral proximal interphalangeal and metacarpophalangeal joints and both wrists, without deformity. There was no lymphadenopathy, hepatosplenomegaly or ascites. Vital signs: BP 118/76 mmHg, pulse 84 bpm, respiratory rate 18/min, SpO2 98%, temperature 37.1°C, BMI 22.4 kg/m².

Baseline Investigations and Disease Activity Assessment

Serological and haematological investigations were performed at baseline (Month 0) and repeated at Months 3 and 6, as detailed in Table 5. The panel covered ANA, anti-dsDNA, complement (C3, C4), complete blood count, inflammatory markers (ESR, CRP), renal and hepatic function, lipid profile, and vitamin D. Urinalysis was unremarkable, with no proteinuria or haematuria, ruling out lupus nephritis at enrolment.

Disease activity was scored using the validated SLEDAI-2K tool. The baseline score of 14 reflected moderate-to-severe activity, driven by malar rash, arthralgia, alopecia, oral ulcers and elevated anti-dsDNA. Patient-reported outcomes were captured at each time point using the SF-36 quality-of-life scale (baseline 38.2, poor QoL), the Pittsburgh Sleep Quality Index (baseline 14, poor sleep), the Perceived Stress Scale/PSS-10 (baseline 28, high stress), and a Visual Analogue Scale for pain (baseline 7.4/10).

Study Timeline

Table 2 sets out a chronological timeline of the patient's disease course, the milestones of the integrative programme, and the serial clinical assessments. This satisfies the CARE Statement's requirement for a detailed timeline and gives reviewers and clinicians a transparent, reproducible record of how the intervention and monitoring schedule unfolded.

Table 2: Chronological Timeline — Disease Course and Integrative Programme

Timepoint	Key Event	Clinical / Investigative Actions	Notes
3 years prior (~2023)	SLE diagnosed by rheumatologist (tertiary hospital)	ANA+, anti-dsDNA+, ACR/EULAR 2019 criteria met	Started HCQ 200 mg BD
6 months prior to enrolment	Prednisolone added for disease flare	SLEDAI-2K assessed; malar rash, arthralgia, fatigue prominent	Pred 10 mg OD, tapering plan initiated
Month 0 (Enrolment)	Presented to Naturopathy & Yoga OPD; Integrative programme commenced	Full baseline bloods, SLEDAI-2K = 14, VAS = 7.4, SF-36 = 38.2, PSS = 28, PSQI = 14 Physical exam, dietary assessment	HCQ + Pred 5 mg OD continued; Consent obtained
Week 1–2	Protocol orientation & stabilisation	Dietary counselling initiated; hydrotherapy commenced; Sukshma Vyayama + pranayama introduced (Week 1)	Asana modified for joint tenderness
Week 3–4	Full yoga protocol active	Asana practice expanded; Yoga Nidra added daily; Meditation (Dhyana) introduced Week 3	Sleep improvement noted subjectively

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Month 1	First supervised fasting cycle (24 h juice fast)	Compliance check; VAS improvement noted; Mud therapy 3×/week ongoing	No adverse events
Month 2	Malar rash visibly reducing; oral ulcers cleared	Clinical review; dietary compliance verified; Photosensitivity reducing (pre-8 AM sun tolerated)	Oral ulcers not recurred since this point
Month 3 (Mid-point)	Interim assessment	Bloods repeated: anti-dsDNA 98.4, ESR 52, CRP 11.6, Hb 10.7, platelets 148; SLEDAI-2K = 8 VAS = 4.6; SF-36 = 52.1; PSS = 21; PSQI = 10	Second supervised fasting cycle; Mud therapy reviewed (continued 2×/week)
Month 4–5	Sustained improvement; activity levels increasing	Patient resumed outdoor activities with SPF protection; Sleep quality consistently improved	No medication escalation; rheumatologist review: stable
Month 6 (End-point)	Protocol completed; final assessment	Bloods: anti-dsDNA 62.4, ESR 32, CRP 6.8, Hb 11.6, WBC 4.6, platelets 172; SLEDAI-2K = 4; VAS = 2.8; SF-36 = 64.6; PSS = 14; PSQI = 7	Rheumatologist confirmed improving trajectory; No medication escalation; No protocol-related adverse events

Therapeutic Intervention

The patient was enrolled in a structured six-month integrative programme delivered on an outpatient basis, with weekly in-clinic review. The programme was designed and supervised jointly by a naturopathic physician (BNYS, MD) and a certified yoga therapist (PGDYT/IAYT credentialed). Conventional pharmacotherapy (hydroxychloroquine and tapering prednisolone) continued throughout in full coordination with her treating rheumatologist, and written informed consent was obtained before enrolment. Both supervisors reviewed her progress at Month 3 and adjusted the frequency of mud therapy accordingly.

Naturopathy Protocol

The six-month naturopathy protocol (Table 3) combined dietary intervention, hydrotherapy, mud therapy, massage, supervised fasting, cautious sunlight exposure, nutritional supplementation and psychosocial counselling, each tailored to SLE-specific contraindications.

Table 3: Six-Month Naturopathy Protocol

Modality	**Protocol Details**	**Duration / Frequency**
Therapeutic Diet	Anti-inflammatory, plant-forward diet (Mediterranean framework); omega-3 rich foods (flaxseed, walnuts, chia); coloured vegetables; turmeric; ginger. Exclusions: alfalfa sprouts (L-canavanine — known SLE trigger), red meat, processed foods, refined sugars, nightshades. Hydration ≥ 2.5 L/day.	Daily, ongoing × 6 months

Hydrotherapy	Neutral immersion bath (33–35°C, 20 min) for systemic relaxation and joint pain; cold compress over acutely inflamed joints; alternating hot-cold fomentation for peripheral circulation.	5 days/week × 6 months
Mud Therapy	Sterilised medicinal clay pack over inflamed joints and abdomen (digestive/immune support); full mud bath with facial avoidance during photosensitive phase.	3 days/week × 3 months; then 2 days/week (Month 4–6)
Massage Therapy	Gentle oil massage (sesame base); light effleurage and petrissage over non-inflamed joints and back; avoided over active rash areas.	3 days/week × 6 months
Fasting Therapy	Short-term modified juice fasting (citrus-free, fresh vegetable juices) for 24 hours × 2 supervised cycles (Month 1 and Month 3) to stimulate immune modulation.	2 supervised cycles (Month 1 & 3)
Sunlight Therapy	Cautious morning sunlight exposure (pre-8 AM, 10 min) to limbs for Vitamin D synthesis; strict sun avoidance 10 AM–4 PM; broad-spectrum SPF-50+ advised at all other times.	Daily (modified for photosensitivity)
Nutritional Supplementation	Vitamin D3 2000 IU/day; Omega-3 FA 2 g/day; Curcumin extract 500 mg BD; Vitamin B12 (methylcobalamin) 1000 mcg/day.	Daily × 6 months
Counselling & Mind-Body Education	Supportive psychotherapy, stress management education, sleep hygiene counselling.	Weekly sessions × 6 months

The anti-inflammatory diet followed Mediterranean and plant-forward principles. Alfalfa sprouts were specifically excluded, since they contain L-canavanine, a well-documented trigger for SLE flares through immune activation [7]. The diet emphasised omega-3-rich foods (flaxseed, chia, walnuts), antioxidant-dense vegetables (broccoli, spinach, carrots), and anti-inflammatory spices such as turmeric and ginger. Hydrotherapy used neutral immersion baths (33–35°C) for systemic relaxation and joint pain relief, with cold compresses applied during acute articular flares. Sunlight therapy was adapted carefully to her photosensitivity: exposure was limited to 10 minutes, before 8 AM, to the limbs only, with full UVA/UVB protection maintained at all other times.

Yoga Protocol

The daily yoga protocol (Table 4) was individualised for SLE-specific contraindications. High-intensity practices such as Kapalabhati, Bhastrika and hot yoga were avoided altogether, given their potential to trigger immune activation and worsen photosensitivity. Restorative, supine postures were emphasised instead, particularly Viparita Karani (legs-up-the-wall), which supports lymphatic and immune circulation, and Setubandhasana (bridge pose), which engages the thymus region.

Table 4: Daily Structured Yoga Protocol

Practice	**Technique / Rationale**	**Duration**
Prayer & Sankalpa	Opening prayer and intention-setting; establishes therapeutic intent and parasympathetic readiness.	5 min
Sukshma Vyayama	Gentle joint warm-ups (neck, shoulder, wrist, ankle rotations); avoids loading on inflamed joints; improves synovial fluid circulation.	10 min

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Asana (Modified)	Tadasana, Vrikshasana, Setubandhasana, Viparita Karani, Balasana, Shavasana, Supta Pawanmuktasana; props used throughout; hot yoga and high-impact postures strictly avoided.	25 min
Pranayama	Nadi Shodhana (Alternate Nostril) 10 rounds — balances autonomic tone, reduces cortisol; Bhramari (Humming Bee) 5 rounds — reduces anxiety, improves vagal tone; Ujjayi 5 rounds. Kapalbhati & Bhastrika strictly avoided (contraindicated in active autoimmune flares).	15 min
Yoga Nidra	Guided 32-point rotation of consciousness; body scan relaxation. Evidence-based benefits: reduces sympathetic hyperactivation, lowers cortisol and inflammatory cytokines, improves sleep architecture [11].	20 min
Meditation (Dhyana)	Mindfulness-based breath awareness; Loving-Kindness (Metta) meditation. Introduced from Week 3; targets neuroinflammation, cortisol dysregulation, and psychosocial burden of chronic illness.	10 min
Total Daily Session	Daily morning session (6:00–7:25 AM); supervised by Certified Yoga Therapist (PGDYT/IAYT credentialed).	85 min/session

Yoga Nidra was included as a core daily practice on the basis of evidence that it reduces sympathetic hyperactivation, lowers cortisol and inflammatory cytokines, and improves sleep architecture [11]. Mindfulness meditation (Dhyana) was introduced from Week 3, once her asana and pranayama practice had stabilised, with an emphasis on compassion-based techniques to address the psychological burden of chronic illness.

Outcomes and Follow-up

The patient was assessed clinically and biochemically at baseline (Month 0), Month 3 and Month 6. She attended 94% of scheduled yoga sessions and maintained 89% compliance with the naturopathic dietary and hydrotherapy protocols, based on self-report and clinician-verified checklists at each weekly review. No adverse events, protocol-related complications, or SLE flares requiring hospitalisation occurred during the study. Her treating rheumatologist confirmed a stable-to-improving clinical trajectory at both the Month 3 and Month 6 reviews, and no medication escalation was needed.

Table 5: Serial Outcomes — Baseline, Month 3, and Month 6

Investigation	**Baseline (Month 0)**	**Month 3 (Mid-point)**	**Month 6 (End-point)**	**Δ%**
SLEDAI-2K Score	14 (Moderate–Severe)	8 (Mild–Moderate)	4 (Mild/Inactive)	−71%
ANA Titre	1:320 (Positive)	1:320	1:160 (Reduced)	—
Anti-dsDNA (IU/mL)	148.6	98.4	62.4	−58%
ESR (mm/hr)	68	52	32	−53%
CRP (mg/L)	18.2	11.6	6.8	−63%
Haemoglobin (g/dL)	9.8	10.7	11.6	+18%
WBC Count (×10³/μL)	3.2	3.9	4.6	+44%
Platelet Count (×10³/μL)	128	148	172	+34%

Serum Creatinine (mg/dL)	0.9	0.9	0.8	—
Complement C3 (mg/dL)	62	74	88	+42%
Complement C4 (mg/dL)	10	13	16	+60%
VAS – Pain (0–10)	7.4	4.6	2.8	−62%
SF-36 (QoL Score)	38.2 (Poor)	52.1 (Fair)	64.6 (Moderate–Good)	+69%
PSS-10 (Perceived Stress)	28 (High)	21 (Moderate–High)	14 (Moderate)	−50%
PSQI (Sleep Quality)	14 (Poor)	10 (Suboptimal)	7 (Improved)	−50%

Disease Activity and Serological Outcomes

The SLEDAI-2K score fell from 14 (moderate-to-severe activity) at baseline to 8 at Month 3 and 4 (minimal/inactive disease) at six months, a 71.4% reduction overall. Anti-dsDNA titres declined progressively, from 148.6 IU/mL at baseline to 98.4 IU/mL at Month 3 and 62.4 IU/mL at Month 6, a cumulative fall of 58%. Complement C3 rose from 62 to 88 mg/dL and C4 from 10 to 16 mg/dL, consistent with reduced immune complex-mediated complement consumption.

Haematological and Inflammatory Markers

Haematological parameters improved steadily: haemoglobin rose from 9.8 to 11.6 g/dL, consistent with resolution of lupus-related anaemia; leucocyte count normalised from 3.2 to 4.6 $\times 10^3/\mu L$; and platelet count rose from 128 to 172 $\times 10^3/\mu L$, reflecting reduced immune-mediated cytopenia. ESR fell from 68 to 32 mm/hr and CRP from 18.2 to 6.8 mg/L, both clinically meaningful reductions in systemic inflammatory burden.

Patient-Reported Outcomes

Patient-reported outcomes improved across every domain assessed. VAS-Pain fell from 7.4 to 2.8, reflecting a marked reduction in articular and musculoskeletal pain. The SF-36 global health score rose from 38.2 (poor health) to 64.6 (moderate-to-good health), a clinically meaningful 69% gain in self-perceived quality of life. The PSS-10 score fell from 28 (high stress) to 14 (moderate stress), and the PSQI global score improved from 14 (poor sleep quality) to 7 (mild impairment), pointing to genuine improvement across psychosocial domains as well as physical ones.

Clinical Signs

The malar rash showed partial resolution by Month 3 and had considerably faded by Month 6. Alopecia stabilised, with no new diffuse hair loss beyond normal shedding. Oral ulcers had not recurred since Month 2. The patient resumed outdoor teaching with appropriate sun protection and reported a marked improvement in energy, mood and occupational performance, gains that biomarkers alone do not capture but that mattered most to her own experience of the illness.

DISCUSSION

This CARE-compliant case report suggests that a structured, multimodal integrative programme combining naturopathic medicine and yoga therapy can be feasible, safe and clinically useful as adjunctive care for a patient with moderately active SLE. The improvements observed across immunological, haematological and patient-reported domains, documented serially at Months 0, 3 and 6, were consistent enough across measures to warrant further mechanistic and controlled investigation.

Immunological Mechanisms

SLE is increasingly understood as a disorder of immune dysregulation, involving hyperactivation of the innate and adaptive immune systems, aberrant B-cell and T-cell signalling, defective apoptotic clearance, and a pro-inflammatory cytokine milieu dominated by type-I interferons, IL-6 and TNF-α [12]. Naturopathy's multi-target approach addresses several of these pathways at once. Dietary interventions rich in omega-3 fatty acids compete with arachidonic acid-derived eicosanoids, reducing prostaglandin E2 and leukotriene B4 synthesis. Curcumin inhibits NF-κB, a master transcription factor governing inflammatory gene expression, and has been studied in both murine SLE models and human trials, where it reduced proteinuria and anti-dsDNA levels [13].

Hydrotherapy appears to work through alternating thermal stimulation of the autonomic nervous system: it enhances natural killer cell activity, promotes lymphocyte proliferation, and reduces sympathetic tone. Neutral immersion baths at thermoneutral temperatures (33–35°C) specifically engage the parasympathetic nervous system, which may blunt the stress-driven amplification of immune dysregulation known to precipitate SLE flares [14].

Neuroimmune Mechanisms of Yoga

The yoga protocol was designed specifically to activate the parasympathetic arm of the autonomic nervous system and dampen HPA axis hyperactivation. Chronic psychological stress in SLE is associated with dysregulated cortisol patterns and upregulated pro-inflammatory nuclear factor cascades. Yoga Nidra has been shown to reduce sympathetic hyperactivation, lower cortisol and inflammatory biomarkers, and improve sleep architecture [15], all of which likely contributed to the immunological and symptomatic improvement documented in this case.

Nadi Shodhana pranayama appears to modulate vagal efferent activity via afferent vagal pathways, engaging the cholinergic anti-inflammatory reflex, a mechanism by which acetylcholine suppresses macrophage TNF-α synthesis. This pathway, sometimes called the 'inflammatory reflex', has been proposed as a route through which mind-body practices reduce systemic inflammation in autoimmune disease [16]. The reductions in CRP and ESR seen in this patient fit that mechanistic picture.

Role of Vitamin D

Vitamin D deficiency is common in SLE and contributes to immune dysregulation and disease activity. Supplementation at 2000 IU/day, together with cautious morning sun exposure, addressed this frequent co-morbidity; vitamin D promotes regulatory T-cell differentiation and suppresses Th17 inflammatory pathways, both of which are dysregulated in SLE [17].

Novelty of This Report

This report's novelty lies in three things. First, it is the first serial, multi-timepoint (Months 0, 3 and 6) immunological and patient-reported account of a combined naturopathy and yoga protocol in SLE in the Indian clinical context, to our knowledge. Second, each intervention component is tied to a plausible immunological or neuroendocrine mechanism, offering a starting point for hypothesis-driven trials. Third, the CARE-compliant design, compliance data and rheumatological co-management model offer a template that other outpatient naturopathy settings could adapt for integrative SLE care.

Limitations

The limitations of this report need to be stated plainly. As a single-patient (n=1) observational case, it cannot establish causality, and the contribution of ongoing conventional pharmacotherapy (hydroxychloroquine and tapering prednisolone) cannot be separated from that of the integrative protocol. Regression to the mean, natural fluctuation in disease activity, and non-specific effects of therapeutic attention (the Hawthorne effect) are all plausible alternative explanations for the improvement observed. Without a control group, blinding or randomisation, these findings should be read as hypothesis-generating rather than confirmatory.

Longer-term follow-up beyond six months was not available for this report, which limits what can be said about sustained benefit or flare prevention. Future studies should use washout-controlled designs, include biomarker panels for pro-inflammatory cytokines (IL-6, TNF-α, IFN-α), and follow patients for longer. Even with these limitations, the consistency of improvement across immunological, haematological and patient-reported domains suggests the integrative protocol contributed something beyond pharmacological effect alone.

CONCLUSION

This CARE-compliant case report is, to our knowledge, the first serial-documented account of a structured, supervised six-month naturopathy and yoga protocol producing progressive, clinically significant reductions in SLE disease activity (SLEDAI-2K 14 → 8 → 4), anti-dsDNA titres, inflammatory markers and haematological abnormalities, alongside substantial gains in quality of life, pain, sleep and perceived stress, in a 45-year-old woman with moderately active SLE. The intervention was safe, well tolerated, and compatible with, and arguably additive to, conventional rheumatological care.

This integrative approach, addressing diet, hydrotherapy, physical modalities, breath regulation and mind-body practice together, reflects the systems-level nature of SLE pathophysiology and offers a model for patient-centred, transdisciplinary and culturally grounded management. It adds to the small but growing evidence base for naturopathy and yoga as adjunctive therapies in autoimmune disease, and points to a clear need for well-designed, adequately powered randomised controlled trials and multisite case series to test these findings in larger SLE populations.

Declarations

Ethical Approval and Consent: This case report was conducted in accordance with the ethical principles of the Declaration of Helsinki. Written informed consent was obtained from the patient before enrolment, specifically covering anonymous publication of her clinical details and data. Her identity is protected, and no personally identifiable information appears in this manuscript.

Competing Interests: The authors declare no conflicts of interest relevant to this publication.

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Author Contributions: S.B, P.H.M, N.M.K: Conceptualization, clinical management, data curation, manuscript drafting and revision. V.M, A.S.K, A.K.B: Yoga protocol design, supervision, critical manuscript review. All authors read and approved the final version.

REFERENCES

1. Tsokos GC. Systemic lupus erythematosus. N Engl J Med. 2011;365(22):2110–2121.
2. Danchenko N, Satia JA, Anthony MS. Epidemiology of systemic lupus erythematosus: a comparison of worldwide disease burden. Lupus. 2006;15(5):308–318.
3. Malaviya AN, Singh RR, Singh YN, et al. Prevalence of rheumatic diseases in India. Rev Rhum Engl Ed. 1993;60(3):207–215.
4. Lisnevskaia L, Murphy G, Isenberg D. Systemic lupus erythematosus. Lancet. 2014;384(9957):1878–1888.
5. Jolly M, Sequeira W, Mikolaitis RA, et al. Disease-related and psychosocial factors influence health-related quality of life in lupus. Qual Life Res. 2008;17(8):1121–1131.
6. Ruiz-Irastorza G, Ramos-Casals M, Brito-Zeron P, Khamashta MA. Clinical efficacy and side effects of antimalarials in systemic lupus erythematosus. Ann Rheum Dis. 2010;69(1):20–28.
7. Pizzorno JE, Murray MT, Joiner-Bey H. The Clinician's Handbook of Natural Medicine. 3rd ed. Churchill Livingstone; 2016.
8. Khalsa SB. Yoga as a therapeutic intervention: a bibliometric analysis of published research studies. Indian J Physiol Pharmacol. 2004;48(3):269–285.

9. Bower JE, Lamkin DM. Inflammation and cancer-related fatigue: mechanisms, contributing factors, and treatment implications. Brain Behav Immun. 2013;30:S48–S57.
10. Cramer H, Lauche R, Langhorst J, Dobos G. Yoga for rheumatic diseases: a systematic review. Rheumatology. 2013;52(11):2025–2030.
11. Pandi-Perumal SR, Spence DW, Bhutta ZA, et al. Yoga Nidra: an evidence-based guide to its therapeutic use in clinical practice. Front Psychiatry. 2022;13:848544.
12. Crow MK. Type I interferon in the pathogenesis of lupus. J Immunol. 2014;192(12):5459–5468.
13. Khajehdehi P, Zanjaninejad B, Aflaki E, et al. Oral supplementation of turmeric decreases proteinuria, hematuria, and systolic blood pressure in patients suffering from relapsing or refractory lupus nephritis. J Ren Nutr. 2012;22(1):50–57.
14. Mooventhan A, Nivethitha L. Scientific evidence-based effects of hydrotherapy on various systems of the body. N Am J Med Sci. 2014;6(5):199–209.
15. Nath Datta A, Bhagat R, Gupta P, et al. Yoga Nidra practice shows improvement in sleep quality of university students. Int J Yoga. 2021;14(3):218–225.
16. Tracey KJ. The inflammatory reflex. Nature. 2002;420(6917):853–859.
17. Handono K, Marisa D, Kalim H. Association between the low levels of vitamin D and treg function in systemic lupus erythematosus patients. Acta Med Indones. 2013;45(1):26–31.

CARE Compliance Checklist

Table 1 shows how this manuscript meets each item of the CARE (CAse REport) Statement (https://www.care-statement.org/), with the corresponding section indicated.

Table 1: CARE Statement Compliance Checklist

CARE Item	Description / Response	Location
Title	Identifies this as a case report and specifies integrative naturopathy/yoga in SLE	Title page
Key Words	SLE; Naturopathy; Yoga therapy; SLEDAI-2K; Autoimmune; Mind-body; Anti-inflammatory diet	Abstract
Abstract	Structured: Background, Case Presentation, Outcomes, Conclusion	Abstract
Introduction	Rationale, novelty, and clinical gap clearly stated in Section 1	Section 1
Patient Information	Demographics, chief complaints, history, baseline exam – Section 2.1–2.3	Section 2
Clinical Findings	Physical examination, vital signs, and baseline investigation results	Section 2.3–2.4
Timeline	Detailed chronological timeline from diagnosis to 6-month follow-up – Table 2	Table 2
Diagnostic Assessment	SLEDAI-2K, serology, haematology, PROs explained with rationale	Section 2.4
Therapeutic Intervention	Six-month naturopathy and yoga protocol detailed in Tables 3 & 4	Section 3
Follow-up & Outcomes	Month 0, 3, and 6 data; Table 5 comparison; patient narrative	Section 4

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Adverse Events	No adverse events or protocol-related complications recorded	Section 4
Discussion	Mechanistic pathways, limitations, confounders, comparison with literature	Section 5
Patient Perspective	Patient-reported improvements in energy, occupation, QoL documented	Section 4 & 5
Consent	Written informed consent obtained; anonymised data; Declaration of Helsinki	Declarations