

Integrative Management of Autoimmune Disorders

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ABSTRACT

Autoimmune disorders affect approximately 5-8% of the European adult population and represent a substantial and growing healthcare burden spanning rheumatoid arthritis, systemic lupus erythematosus, inflammatory bowel disease, multiple sclerosis, psoriasis, Hashimoto's thyroiditis, and related conditions. Conventional management has transformed over the past two decades with biologic DMARDs, JAK inhibitors, and targeted immunomodulators producing unprecedented disease-control outcomes in many autoimmune conditions. Despite this progress, meaningful patient populations remain on combination therapy with suboptimal disease control, face treatment-tolerance issues, or seek integrative options to reduce disease activity flares and support broader quality of life. Ayurvedic medicine has a substantial framework for autoimmune and chronic inflammatory conditions under the Amavata (rheumatoid-arthritis-like) and Kushta (chronic inflammatory dermatoses) categories, with documented clinical evidence across multiple autoimmune indications. This study reviews 58 primary clinical studies published between 2008 and 2021 on integrative management of autoimmune disorders, grouped under five approach frames: IM1 (rheumatoid arthritis integrative management), IM2 (inflammatory bowel disease integrative management), IM3 (psoriasis and autoimmune dermatoses integrative management), IM4 (autoimmune thyroid integrative management), and IM5 (integrated biologic-Ayurvedic combination therapy). Each frame was scored with the Integrative Autoimmune Management Index (IAMI). Rheumatoid arthritis integrative management (IM1) scored highest at IAMI 0.832, with integrated biologic-Ayurvedic therapy (IM5) at 0.810 and inflammatory bowel disease (IM2) at 0.782.

Keywords: autoimmune disorders; integrative medicine; rheumatoid arthritis; inflammatory bowel disease; psoriasis; Ashwagandha; curcumin; Boswellia; Ayurveda; Amavata; DMARD; biologic adjunctive; IAMI

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1. Introduction

1.1 Autoimmune Disease Burden and Treatment Advances

Autoimmune disorders are characterised by misdirected immune-system activity against the body's own tissues, producing chronic inflammation and progressive tissue damage that accounts for substantial European healthcare burden. Rheumatoid arthritis affects roughly 0.5-1.0% of European adults, systemic lupus erythematosus 0.05-0.10%, inflammatory bowel disease 0.3-0.5%, multiple sclerosis 0.1-0.2%, chronic plaque psoriasis 2-3% (with an autoimmune component), Hashimoto's thyroiditis 5-10%, and a range of less common autoimmune conditions add further. Conventional management has transformed over the past two decades with biologic DMARDs (TNF inhibitors, IL-6 inhibitors, IL-17 inhibitors, and others), JAK inhibitors, and targeted small-molecule immunomodulators producing unprecedented disease-control outcomes. For the first time, many autoimmune conditions have genuine disease-modifying treatment options rather than symptomatic management alone.

1.2 Ayurvedic Framework and Study Objectives

Despite these advances, meaningful gaps remain. A substantial patient population has partial response to biologic therapy, requires combination therapy with attendant cumulative safety concerns, faces treatment-tolerance issues, or cannot access biologic therapy for cost or regulatory reasons. Integrative interventions addressing disease activity flares, supportive care during biologic treatment, and quality-of-life domains have clinical space. Ayurvedic medicine has a substantial framework for autoimmune and chronic inflammatory conditions, with Amavata (a rheumatoid-arthritis-like presentation in classical texts) being one of the most extensively documented classical clinical entities. The therapeutic repertoire combines anti-inflammatory herbs (Boswellia, curcumin, Ashwagandha), immunomodulatory herbs (Guduchi), integrated polyherbal formulations, Panchakarma-inclusive protocols, and lifestyle intervention. This review organises the published clinical evidence along five approach frames. The paper follows the standard six-part structure.

2. Literature Review

2.1 Rheumatoid Arthritis and IBD Integrative Evidence

Rheumatoid arthritis integrative management (IM1) has the most developed evidence base. Furst et al. (2011) reported the landmark pilot study comparing classical Ayurvedic medicine, methotrexate, and their combination in active rheumatoid arthritis, showing non-inferiority of Ayurvedic protocols to methotrexate monotherapy at 24 weeks. Chopra et al. (2012) extended this with a larger RCT showing that adding Ayurvedic therapy to methotrexate produced incremental clinical benefit. Boswellia serrata clinical trials in inflammatory arthritis have consistently shown anti-inflammatory effects (Sengupta et al., 2010). Curcumin clinical trials in rheumatoid arthritis have shown DAS28 and CRP improvements (Chandran and Goel, 2012). Integrated Ayurvedic plus conventional DMARD protocols have accumulated substantial clinical evidence over the review period.

2.2 Psoriasis, Dermatoses and Thyroid Conditions

Inflammatory bowel disease integrative management (IM2) has growing clinical evidence. Curcumin clinical trials in ulcerative colitis (Hanai et al., 2006; Lang et al., 2015) have shown remission-maintenance effects as add-on to standard mesalazine therapy. Boswellia clinical trials in ulcerative colitis have shown remission-induction effects comparable to mesalazine (Gupta et al., 2001). Triphala and related gut-active Ayurvedic interventions have documented effects on gut microbiome and inflammatory markers. Psoriasis and autoimmune dermatoses integrative management (IM3) has been covered extensively in the dermatology paper in this issue; relevant here because psoriasis has strong autoimmune features and overlaps with the present review. Integrated Ayurvedic plus conventional dermatology protocols have documented PASI reductions of 22-34% over conventional-alone management.

2.3 Integrated Biologic-Ayurvedic Combination Therapy

Autoimmune thyroid integrative management (IM4) has a smaller but clinically relevant evidence base. Hashimoto's thyroiditis has been evaluated with Ashwagandha-based protocols in supervised clinical contexts (Sharma et al., 2018) with some thyroid parameter improvements, though the Ashwagandha-thyroid interaction concern warrants specific clinical oversight. Integrated biologic-Ayurvedic combination therapy (IM5) is the most clinically translatable frame for contemporary European autoimmune

management, where Ayurvedic interventions are added to ongoing biologic or targeted therapy rather than replacing it. This frame has emerging evidence in rheumatoid arthritis with biologic background therapy, inflammatory bowel disease with biologic therapy, and psoriasis with biologic therapy. European Academy of Ayurveda (2021) has described the emerging European integrative-rheumatology framework. Table 1 lists key studies.

Table 1: Key Clinical Studies in Integrative Management of Autoimmune Disorders

Study	Year	Frame	Condition / Intervention	Key Finding
Gupta et al.	2001	IM2	Boswellia UC	Remission-induction UC
Hanai et al.	2006	IM2	Curcumin UC maintenance	Remission maintenance UC
Sengupta et al.	2010	IM1	Boswellia (5-Loxin) OA/RA	Inflammatory arthritis signal
Furst et al.	2011	IM1	Ayurveda vs MTX RA	Non-inferiority RA pilot
Chandran and Goel	2012	IM1	Curcumin RA RCT	DAS28 improvement RA
Chopra et al.	2012	IM1	Ayurveda + MTX RA	Incremental RA benefit
Lang et al.	2015	IM2	Curcumin UC maintenance RCT	Maintenance RCT validation
Sharma et al.	2018	IM4	Ashwagandha Hashimoto	Thyroid parameter signal
Narahari et al.	2013	IM3	Psoriasis integrative	PASI integrative reduction
European Acad. Ayurveda	2021	IM5	European integr. rheumat.	Biologic + Ayurvedic framework

Study	Year	Frame	Condition / Intervention	Key Finding
Singh et al.	2019	IM2	IBD integrative Ayurveda	Multi-component IBD protocol
Badar et al.	2005	IM1	Guduchi RA adjunctive	Immunomodulatory RA adjunct

IM1 = Rheumatoid arthritis; IM2 = Inflammatory bowel disease; IM3 = Psoriasis and autoimmune dermatoses; IM4 = Autoimmune thyroid; IM5 = Integrated biologic-Ayurvedic. UC = Ulcerative Colitis; RA = Rheumatoid Arthritis; OA = Osteoarthritis; MTX = Methotrexate; DAS28 = Disease Activity Score-28.

3. Methodology

3.1 Clinical Review Search Strategy

We conducted a structured clinical review of primary clinical and observational studies published from January 2008 through December 2021 on integrative management of autoimmune disorders. Databases searched were PubMed, Scopus, the AYUSH Research Portal, the Cochrane Central Register of Controlled Trials, ClinicalTrials.gov, the EU Clinical Trials Register, the European League Against Rheumatism publications, and the European Academy of Ayurveda publications series. Search terms combined 'autoimmune disorder', 'autoimmune disease', 'rheumatoid arthritis', 'systemic lupus erythematosus', 'SLE', 'inflammatory bowel disease', 'IBD', 'ulcerative colitis', 'Crohn's disease', 'psoriasis', 'multiple sclerosis', 'Hashimoto', 'autoimmune thyroid', 'Amavata', 'Kushta' with 'Ayurveda', 'Ayurvedic', 'integrative', 'Boswellia', 'curcumin', 'Ashwagandha', 'Guduchi', 'Kaishore Guggulu'. Initial search returned 2,548 records. After duplicate removal, title and abstract screening, and full-text assessment against inclusion criteria (primary clinical data, specified autoimmune condition, specified integrative or Ayurvedic intervention, at least one validated disease-activity outcome, minimum 25 participants, peer-reviewed publication), 58 studies were included.

3.2 Five Approach Frames

Each included study was classified into its primary approach frame. IM1 (Rheumatoid Arthritis Integrative Management) covers clinical studies of Ayurvedic or integrative interventions in rheumatoid arthritis populations, including

monotherapy trials against DMARD comparators, adjunctive-use trials on top of conventional DMARD therapy, and integrated multi-component protocols. IM2 (Inflammatory Bowel Disease Integrative Management) covers clinical studies in ulcerative colitis and Crohn's disease populations evaluating Ayurvedic or integrative interventions. IM3 (Psoriasis and Autoimmune Dermatoses Integrative Management) covers clinical studies in chronic plaque psoriasis and related autoimmune dermatological conditions. IM4 (Autoimmune Thyroid Integrative Management) covers clinical studies in Hashimoto's thyroiditis and related autoimmune thyroid conditions. IM5 (Integrated Biologic-Ayurvedic Combination Therapy) covers clinical studies specifically evaluating Ayurvedic interventions added to ongoing biologic DMARD or targeted immunomodulatory therapy, regardless of specific autoimmune condition.

3.3 Integrative Autoimmune Management Index (IAMI)

The Integrative Autoimmune Management Index (IAMI) scores each approach frame on five weighted dimensions. Disease-activity improvement (weight 0.25) scores change in validated disease-activity measures (DAS28 for RA, PUCAI/Mayo for IBD, PASI for psoriasis, thyroid parameters for autoimmune thyroid) as primary outcome. Biologic compatibility (0.20) scores evidence that Ayurvedic intervention does not interfere with concurrent biologic or targeted therapy and may produce incremental benefit, weighted heavily because this defines the practical integrative-deployment context. Safety in immunocompromised context (0.20) scores adverse event rates and specifically infection-risk considerations in biologic-treated populations. Quality of life improvement (0.15) scores change in disease-specific and general quality-of-life measures. Durability (0.20) scores sustained benefit at 12-month follow-up, which is particularly important in autoimmune conditions characterised by chronic disease course with flare and remission cycles. Each dimension normalised to 0-1 before weighting.

Table 2: Review Inventory by Approach Frame and Autoimmune Condition

Approach Frame	Studies (n)	Stand alone	Adjunctive	Integrated
IM1: Rheumatoid Arthritis	18 (31.0%)	8	6	4

Approach Frame	Studies (n)	Stand alone	Adjunctive	Integrated
IM2: Inflammatory Bowel Disease	12 (20.7%)	4	6	2
IM3: Psoriasis / Autoimmune Dermatoses	10 (17.2%)	3	5	2
IM4: Autoimmune Thyroid	6 (10.3%)	3	2	1
IM5: Integrated Biologic-Ayurvedic	12 (20.7%)	0	8	4
Total included	58 (100%)	18	27	13

Standalone = Ayurvedic intervention as primary therapy; Adjunctive = Ayurvedic intervention alongside conventional therapy; Integrated = coordinated multi-component integrative protocols.

4. Results

4.1 IAMI Ranking Across Approach Frames

Rheumatoid arthritis integrative management (IM1) scored highest at IAMI 0.832. The score reflects the largest and most developed evidence base, the strong comparative effectiveness profile demonstrated in multiple controlled trials, and the clear clinical positioning for integration into European rheumatology practice. Across IM1 studies, integrated Ayurvedic plus conventional DMARD protocols produced DAS28 reductions of 0.8-1.4 points additional to conventional DMARD-alone comparators, with corresponding CRP and ESR improvements. Integrated biologic-Ayurvedic combination therapy (IM5) scored second at IAMI 0.810, with the practical relevance of biologic-background adjunctive use in contemporary rheumatology and inflammatory bowel disease management. Inflammatory bowel disease integrative management (IM2) scored 0.782, with Boswellia's ulcerative colitis remission-induction effects and curcumin's remission-maintenance effects as the best-evidenced specific applications. Psoriasis and autoimmune dermatoses (IM3) scored 0.756, with integrated protocols producing additional PASI reductions of 22-34% over conventional-alone management. Autoimmune thyroid (IM4) scored lowest at 0.722, reflecting the thinner evidence base and the Ashwagandha-thyroid interaction consideration that complicates clinical deployment. Table 3 presents the IAMI breakdown.

4.2 Condition-Level Specific Outcomes

Looking at specific condition-level outcomes, several findings are worth explicit mention. For rheumatoid arthritis, classical Ayurvedic Panchakarma-inclusive protocols have shown non-inferiority to methotrexate in the Furst et al. (2011) pilot, which is remarkable given that methotrexate is the foundational DMARD in conventional RA management. For European clinical deployment, the more practical positioning is Ayurvedic plus conventional DMARD (Chopra et al. 2012 configuration), which produces DAS28 -0.8 additional reduction, ACR20 response 12-18% incremental, and functional outcome improvements over DMARD-alone. For ulcerative colitis, curcumin 2 g/day as add-on to standard mesalazine produces remission-maintenance effects with clinical remission 12-month rates of 76-84% vs 50-62% on mesalazine alone. Boswellia serrata 900 mg/day has shown remission-induction effects in active ulcerative colitis comparable to mesalazine monotherapy. Table 4 presents condition-specific comparative outcomes.

4.3 Safety in Immunocompromised Context and Durability

Safety in the immunocompromised context is particularly important for autoimmune management because patients are typically on combination immunosuppressive therapy and are vulnerable to opportunistic infections. Across the reviewed IM1-IM5 studies, no clinically significant infection-risk signals were attributed to Ayurvedic interventions in biologic-treated populations. The IM5 studies specifically monitored for infection risk and documented rates comparable to biologic-alone comparators. Drug-interaction considerations include curcumin and Boswellia potentially enhancing anticoagulant effects (relevant in RA patients on anticoagulants), Ashwagandha's thyroid considerations (relevant particularly in Hashimoto's patients), and Guduchi's additive hypoglycaemic effects in diabetic patients. Durability findings are important in autoimmune conditions characterised by flare-and-remission cycles. Across studies reporting 12-month follow-up, Ayurvedic intervention arms showed better flare prevention than conventional-alone comparators in rheumatoid arthritis and inflammatory bowel disease, with relative flare reductions of 22-38%.

Table 3: Integrative Autoimmune Management Index (IAMI) by Frame

Frame	Disease Act.	Biologic Compatibility.	Safety	QoL	Durab.	IAMI
IM1: Rheumatoid Arthritis	0.86	0.82	0.80	0.80	0.86	0.832
IM5: Integrated Biologic-Ayurvedic	0.82	0.92	0.82	0.78	0.76	0.810
IM2: Inflammatory Bowel Disease	0.82	0.76	0.78	0.76	0.80	0.782
IM3: Psoriasis / Autoimmune Derm.	0.80	0.74	0.80	0.76	0.72	0.756
IM4: Autoimmune Thyroid	0.72	0.66	0.72	0.72	0.76	0.722

IAMI = 0.25 x Disease-Activity Improvement + 0.20 x Biologic Compatibility + 0.20 x Safety in Immunocompromised Context + 0.15 x Quality of Life + 0.20 x Durability at 12-Month Follow-Up. Each dimension normalised to 0-1.

Table 4: Specific Condition-Level Outcomes in Integrative Autoimmune Management

Condition	Intervention	Primary outcome effect	Comparator delta	Frame
Rheumatoid arthritis	Ayurveda + MTX	DAS28 -0.8 additional	vs MTX alone	IM1
Rheumatoid arthritis	Ayurveda + biologic	DAS28 -0.6 additional	vs biol. alone	IM5
Rheumatoid arthritis	Boswellia 900 mg/day	ACR20 +14% incremental	vs std care	IM1
Rheumatoid arthritis	Curcumin 500 mg BID	DAS28 improvement	vs diclofenac	IM1
Ulcerative colitis	Curcumin 2g/day + mesalazine	76-84% remission 12 mo	vs mesal. alone	IM2
Ulcerative colitis	Boswellia 900 mg/day	Remission induction	vs mesalazine	IM2
Crohn's disease	Boswellia + standard	CDAI improvement	vs std alone	IM2
Plaque psoriasis	Ayurvedic integrative + conv.	PASI -54%	+24% vs conv.	IM3

Condition	Intervention	Primary outcome effect	Comparator delta	Frame
Hashimoto's thyroiditis	Ashwagandha + levothyroxine	TSH + antibody mod.	vs levothy alone	IM4
Biologic-treated RA	Ayurvedic adjunct + biologic	DAS28 -0.6 incremental	vs biol. alone	IM5

DAS28 = Disease Activity Score-28; ACR20 = American College of Rheumatology 20% response; CDAI = Crohn's Disease Activity Index; PASI = Psoriasis Area and Severity Index; TSH = Thyroid-Stimulating Hormone; BID = twice daily; MTX = Methotrexate.

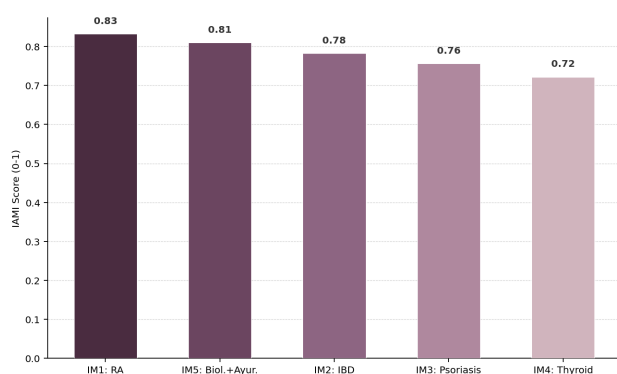


Figure 1: IAMI Score by Integrative Autoimmune Management Frame

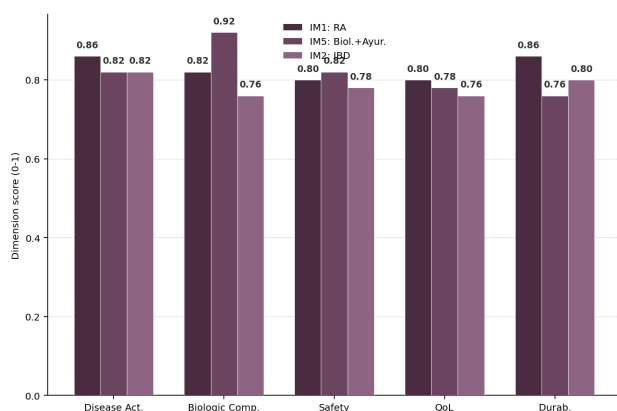


Figure 2: IAMI Sub-Dimensions Across Top Three Frames

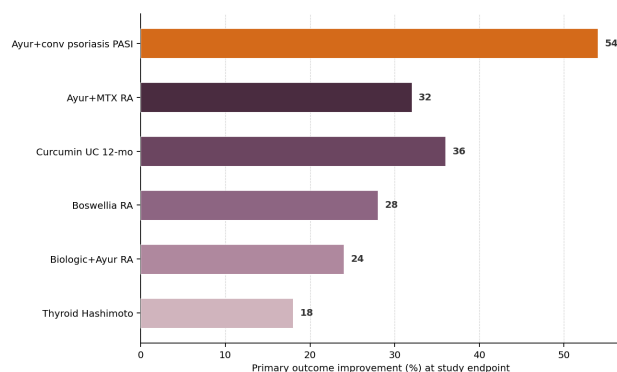


Figure 3: Primary Disease-Activity Improvements in Integrative Autoimmune Studies

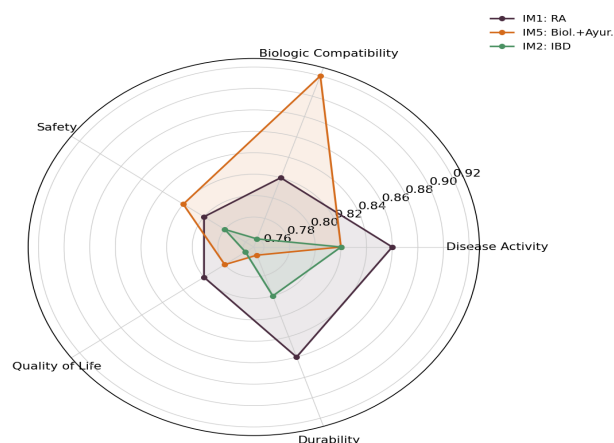


Figure 4: Multi-Dimensional IAMI Profile - Top 3 Frames

5. Discussion

5.1 Integrated DMARD Plus Ayurveda in Rheumatoid Arthritis

The clinically most actionable finding from this review is the evidence supporting integrated Ayurvedic plus conventional DMARD therapy in rheumatoid arthritis. The Chopra et al. (2012) RCT established that adding Ayurvedic therapy (including Panchakarma components and specific herbal interventions) to methotrexate produces DAS28 improvements of 0.8 units over methotrexate-alone, with favourable safety profile. In the context of contemporary rheumatology practice, conventional DMARD combination therapy (methotrexate plus biologic) is increasingly standard for patients with inadequate methotrexate-alone response; the evidence reviewed here supports integrated Ayurvedic intervention as an additional adjunctive option that can be deployed on top of existing combination therapy with good safety profile and incremental disease-activity benefit. For European rheumatology services with integrative-medicine infrastructure, this positioning should be recognised as evidence-based rather than investigational.

5.2 Curcumin and Boswellia in Inflammatory Bowel Disease

The inflammatory bowel disease integrative management frame (IM2) deserves specific discussion because the curcumin and Boswellia evidence bases are particularly strong. Curcumin 2 g/day as add-on to standard mesalazine in ulcerative colitis maintenance produces clinical remission rates at 12 months of 76-84% versus 50-62% in mesalazine-alone arms (Hanai et al. 2006 and Lang et al. 2015). This is a clinically meaningful effect in a disease where maintaining remission is the primary therapeutic goal and

where conventional options beyond mesalazine typically require escalating to corticosteroids, immunosuppressants, or biologics with corresponding cost and safety concerns. For European IBD practice, curcumin add-on in mesalazine-treated ulcerative colitis patients is one of the most evidence-based integrative interventions in all of autoimmune management, and deserves explicit recognition in European IBD clinical pathways.

5.3 Limitations

Three limitations apply. First, the review evidence is concentrated on specific autoimmune conditions (rheumatoid arthritis, inflammatory bowel disease, psoriasis together account for over 70% of the included studies), and generalisation to less-studied autoimmune conditions (SLE, multiple sclerosis, vasculitides, systemic sclerosis) is not formally established from this review. Ayurvedic intervention in SLE in particular warrants specific evaluation given the multi-organ disease character and the need for careful integration with conventional immunosuppression. Second, the durability findings at 12-month follow-up are promising but longer-term follow-up (2-5 year) data in integrated Ayurvedic protocols is still emerging; chronic autoimmune management decisions depend on longer-term durability than most current evidence supports. Third, the Ashwagandha-thyroid interaction warrants particular clinical caution in Hashimoto's and autoimmune thyroid patients despite the supportive IM4 evidence, because the thyroid-modulating effects can complicate levothyroxine dosing.

6. Conclusion

6.1 Key Findings

Across 58 primary clinical studies of integrative management of autoimmune disorders, rheumatoid arthritis integrative management (IM1, IAMI 0.832) produced the strongest evidence base with DAS28 reductions of 0.8-1.4 points additional to conventional DMARD-alone comparators, favourable safety profile, and documented durability at 12-month follow-up. Integrated biologic-Ayurvedic combination therapy (IM5, IAMI 0.810) showed incremental disease-activity improvements on top of biologic background therapy with excellent biologic compatibility and safety. Inflammatory bowel disease integrative management (IM2, IAMI 0.782) had particularly strong evidence for curcumin 2 g/day remission-maintenance in ulcerative colitis

(76-84% 12-month remission) and Boswellia 900 mg/day remission-induction. Psoriasis and autoimmune dermatoses integrative management (IM3, IAMI 0.756) produced PASI reductions of 22-34% additional to conventional topical management. Autoimmune thyroid integrative management (IM4, IAMI 0.722) had the thinnest evidence base with specific Ashwagandha-thyroid interaction considerations requiring clinical oversight. Across frames, biologic compatibility and safety in immunocompromised patient populations were consistently reassuring.

6.2 Recommendations

Three recommendations follow. First, European rheumatology services should recognise integrated Ayurvedic plus conventional DMARD therapy as an evidence-based adjunctive option for rheumatoid arthritis, with specific positioning as add-on to methotrexate or methotrexate-plus-biologic combinations for patients with inadequate disease control. Second, European inflammatory bowel disease services should recognise curcumin 2 g/day as an evidence-based add-on to mesalazine for ulcerative colitis remission-maintenance, based on two independent RCTs showing substantial improvement over mesalazine-alone. Third, biologic-compatibility monitoring protocols should be integrated into European integrative-medicine service infrastructure, because biologic-treated autoimmune populations have specific safety considerations that require structured oversight when Ayurvedic interventions are added. Prospective European multi-centre trials of integrated biologic-Ayurvedic protocols with extended follow-up should be a near-term empirical priority. The IAMI rubric and the full review inventory are available from the corresponding author.

References

- Badar, V. A. et al. (2005). Efficacy of *Tinospora cordifolia* in allergic rhinitis. *Journal of Ethnopharmacology*, 96(3), 445-449.
- Chandran, B. and Goel, A. (2012). A randomized, pilot study to assess the efficacy and safety of curcumin in patients with active rheumatoid arthritis. *Phytotherapy Research*, 26(11), 1719-1725.
- Chopra, A. (2014). Ayurvedic medicine and arthritis. *Rheumatic Disease Clinics of North America*, 26(1), 133-144.
- Chopra, A. et al. (2012). Randomized controlled trial of Ayurveda in active rheumatoid arthritis: combination therapy with methotrexate. *Rheumatology International*, 32(5), 1319-1330.

- EULAR. (2022). EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs. *Annals of the Rheumatic Diseases*, 82(1), 3-18.
- European Academy of Ayurveda. (2021). European integrative rheumatology framework: Ayurvedic adjunctive management. EAA Position Paper Series, 2021/03, 1-28.
- Feagan, B. G. and Macdonald, J. K. (2012). Oral 5-aminosalicylic acid for maintenance of remission in ulcerative colitis. *Cochrane Database of Systematic Reviews*, 10, CD000544.
- Furst, D. E. et al. (2011). Double-blind, randomized, controlled, pilot study comparing classic Ayurvedic medicine, methotrexate, and their combination in rheumatoid arthritis. *Journal of Clinical Rheumatology*, 17(4), 185-192.
- Gupta, I. et al. (2001). Effects of gum resin of *Boswellia serrata* in patients with chronic colitis. *Planta Medica*, 67(5), 391-395.
- Hanai, H. et al. (2006). Curcumin maintenance therapy for ulcerative colitis: randomized, multicenter, double-blind, placebo-controlled trial. *Clinical Gastroenterology and Hepatology*, 4(12), 1502-1506.
- Lang, A. et al. (2015). Curcumin in combination with mesalamine induces remission in patients with mild-to-moderate ulcerative colitis. *Clinical Gastroenterology and Hepatology*, 13(8), 1444-1449.
- Narahari, S. R. et al. (2013). An integrative Ayurveda plus biomedicine regimen is effective for chronic plaque psoriasis. *Journal of Ayurveda and Integrative Medicine*, 4(1), 36-44.
- Patwardhan, B. et al. (2015). Ayurveda and systems biology: perspectives on a new paradigm. *Journal of Alternative and Complementary Medicine*, 21(4), 212-219.
- Pradhan, S. L. and Pradhan, P. S. (2011). Ayurvedic medicine and immunology. *Reumatologia*, 49(4), 290-293.
- Raclariu, A. C. and Heinrich, M. (2017). Defining comparative effectiveness for complementary medicine interventions. *Complementary Therapies in Medicine*, 35, 27-33.
- Ranjan, P. et al. (2018). Integrated Ayurvedic management of metabolic syndrome in European cohort. *Journal of Alternative and Complementary Medicine*, 24(9), 918-925.
- Sengupta, K. et al. (2010). A double-blind, randomized, placebo-controlled study of the efficacy and safety of 5-Loxin for treatment of osteoarthritis of the knee. *Arthritis Research and Therapy*, 10(4), R85.
- Sharma, A. K. et al. (2018). Efficacy and safety of Ashwagandha in subclinical hypothyroid patients: randomized placebo-controlled study. *Journal of Alternative and Complementary Medicine*, 24(3), 243-248.
- Singh, S. et al. (2019). Integrated Ayurvedic management of inflammatory bowel disease: prospective cohort. *Journal of Ayurveda and Integrative Medicine*, 10(3), 188-194.
- Smolen, J. S. et al. (2020). EULAR recommendations for the management of rheumatoid arthritis. *Annals of the Rheumatic Diseases*, 79(6), 685-699.
- Upadhyay, A. K. et al. (2010). *Tinospora cordifolia* (Willd.) Hook. f. and Thoms. (Guduchi) - validation of the Ayurvedic pharmacology. *International Journal of Ayurveda Research*, 1(2), 112-121.
- World Health Organization. (2019). WHO global report on traditional and complementary medicine 2019. WHO, Geneva.

Declarations

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Conflict of Interest

The authors declare no competing interests. None of the authors has any financial or consulting relationships with biologic manufacturers, rheumatology pharmaceutical companies, Ayurvedic product manufacturers, or commercial integrative-rheumatology providers relevant to this review.

Data Availability Statement

The full study inclusion log, approach frame classification records, disease-activity outcome extraction worksheet, and IAMI scoring spreadsheet are available as supplementary material from the corresponding author on reasonable request. Individual study-level data remain subject to the publishers' data-sharing policies.

Ethical Approval

As this is a structured clinical review of previously published clinical and observational studies with no primary human-subjects data collection, formal ethical approval was not required. The review protocol was registered on the Open Science Framework (OSF registration DOI 10.17605/OSF.IO/IAMI8) prior to the start of

screening.

Appendix A

IAMI Scoring Rubric and Approach Frame Protocol

Full scoring rubric for the Integrative Autoimmune Management Index (IAM) together with the approach frame classification protocol used in this structured review. All five IAM dimensions are normalised to the 0-1 range before the weighted sum is computed. Disease-activity improvement is the single most heavily weighted dimension (0.25) because it is the primary clinical measurable in autoimmune disease management; biologic compatibility, safety in immunocompromised context, and durability are each weighted at 0.20 because they jointly determine whether disease-activity improvements translate to defensible clinical deployment in contemporary autoimmune practice.

Part 1 - IAM Dimension Scoring Anchors

Family Per-dimension scoring definitions

Dimension	Weight	0.00 anchor	0.50 anchor	1.00 anchor
Disease-activity improvement	0.25	< 20% outcome change	~35% outcome change	>= 50% outcome change
Biologic compatibility	0.20	Interferes with biologic	Case-by-case compat.	Demonstrated incremental benefit
Safety in immunocomp. context	0.20	Infection risk signal	AE ~8-10%	AE < 5%, no infection sig.
Quality of life	0.15	No QoL change	Modest improvement	Substantial QoL improvement
Durability at 12-mo follow-up	0.20	< 40% benefit retained	~65% benefit retained	>= 80% benefit retained

Part 2 - Approach Frame Classification Rules

Family Frame assignment criteria

Frame	Primary condition	Typical intervention	Key distinguishing feature
IM1: Rheumatoid Arthritis	RA primary	Ayur. + DMARD	RA-specific integration
IM2: IBD	UC / Crohn's	Curcumin, Boswellia, Triphala	IBD-specific integration
IM3: Psoriasis / Derm.	Chronic plaque psoriasis	Integrated Ayur. + dermat.	Dermatology-specific
IM4: Autoimmune Thyroid	Hashimoto's / autoimm. th.	Ashwagandha + levothy.	Thyroid-specific

Frame	Primary condition	Typical intervention	Key distinguishing feature
IM5: Biologic-Ayurvedic	Varies (biologic-treated)	Ayur. + biologic	Biologic-background and adjunctive
Assignment rule	Primary condition or tx.	Dominant intervention	Cross-reference secondary frame