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The Role of Yoga in Cardiovascular Prevention and Rehabilitation - A Structured Narrative Review

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Abstract

Background: Yoga is increasingly used as an adjunct mind–body intervention in cardiovascular prevention and rehabilitation, with proposed effects on stress regulation and autonomic balance.

Aim: To summarize evidence on yoga-based interventions in cardiovascular disease and cardiac rehabilitation, focusing on clinical outcomes, patient-reported outcomes, and autonomic function.

Material and methods: A focused narrative review of clinical trials and evidence syntheses evaluating yoga in coronary heart disease/post–myocardial infarction settings, arrhythmias, and chronic heart failure was performed. Evidence was synthesized qualitatively and grouped by clinical condition and outcome domain.

Results: In paroxysmal atrial fibrillation, yoga interventions have been associated with reductions in arrhythmia burden and improvements in anxiety, depression, and quality of life in controlled studies. In coronary heart disease and secondary prevention, systematic reviews suggest improvements in selected cardiovascular risk factors and patient-centered outcomes, although confidence is limited by heterogeneity in yoga protocols, comparators, and endpoints. In post–myocardial infarction cardiac rehabilitation, randomized trials report feasibility of structured delivery and improvements in rehabilitation-related and psychosocial outcomes. In chronic heart failure, clinical studies and meta-analytic evidence indicate favorable changes in hemodynamic measures and autonomic indices, including heart rate variability.

Conclusions: Yoga may offer adjunctive benefits for quality of life, psychological outcomes, autonomic function, and selected physiological measures, while evidence for hard clinical endpoints remains limited. Larger, standardized randomized trials with consistent outcome reporting are needed.

Key words: yoga; cardiovascular disease; cardiac rehabilitation; coronary heart disease; myocardial infarction; atrial fibrillation; heart failure; heart rate variability.

1. INTRODUCTION

Cardiovascular diseases (CVDs) remain a major cause of long-term morbidity, disability, and healthcare burden, not only because of acute events such as myocardial infarction, but also due to chronic trajectories characterized by persistent symptoms, reduced exercise tolerance, and impaired quality of life. In secondary prevention, the clinical challenge often extends beyond prescribing evidence-based pharmacotherapy; it also involves achieving durable lifestyle change, supporting adherence, and helping patients maintain regular physical activity and effective stress management in everyday settings [8]. Even when patients are motivated, barriers such as limited access to structured programs, comorbid psychological distress, and low confidence in exercising after a cardiac event frequently reduce uptake and long-term persistence with rehabilitation behaviors.

Exercise-based cardiac rehabilitation is a cornerstone of comprehensive cardiovascular care, particularly in coronary heart disease and after myocardial infarction, but it is also clear that different exercise modalities may vary in effectiveness depending on targeted outcomes and patient populations [10]. Against this background, there has been growing interest in interventions that are feasible, scalable, and acceptable to patients - especially those that combine physical activity with elements that may support self-regulation, stress reduction, and overall well-being. Yoga is increasingly discussed as such an adjunct approach.

Yoga is a multimodal practice typically involving physical postures (asanas), breathing techniques (pranayama), relaxation, and sometimes meditation or lifestyle guidance. This combination may be clinically relevant because it potentially acts through several pathways simultaneously: modest improvements in physical conditioning, reductions in stress reactivity, and behavioral changes that support cardiovascular risk modification. Narrative and review literature in cardiology has therefore positioned yoga not as a replacement for guideline-based treatment, but as a complementary strategy that may be particularly useful in rehabilitation

contexts and in patients with a substantial psychosocial or autonomic component to symptom burden [9,12,14].

A recurring mechanistic theme in the yoga–cardiology literature is autonomic modulation. Autonomic imbalance - typically conceptualized as heightened sympathetic drive with reduced parasympathetic (vagal) activity - is implicated in multiple cardiovascular conditions and is often assessed using heart rate variability (HRV). A comprehensive review of yoga and HRV suggests that yoga practice is frequently associated with increases in HRV measures interpreted as improved vagal modulation, although methodological variability across studies (protocols, populations, and HRV measurement approaches) limits comparability and certainty [15]. More recent work has also discussed "cardiac resonance" and the potential role of slow, paced breathing in supporting cardiorespiratory coupling and autonomic stability, again noting the need for better standardization and higher-quality evidence [7]. Importantly, these mechanistic considerations are not merely theoretical; they connect plausibly to outcomes that matter to patients, including symptom perception, stress and anxiety, and functional capacity.

Clinical evidence spans several cardiovascular domains. In arrhythmia populations, a focused review has summarized the role of yoga in the management of cardiac arrhythmias and highlights potential links to autonomic regulation and symptom improvement, though the included studies vary in design and rigor [1]. In paroxysmal atrial fibrillation specifically, yoga has been tested in a controlled trial setting, with reported reductions in arrhythmia burden and improvements in anxiety, depression, and quality of life - outcomes that are clinically meaningful given the close relationship between symptom experience and psychological distress in atrial fibrillation [3]. Together, these data underpin ongoing interest in whether yoga can complement conventional management strategies in selected patients.

Yoga has also been investigated in coronary disease settings and cardiac rehabilitation. Randomized trials have evaluated yoga-based cardiac rehabilitation approaches after acute myocardial infarction, reporting feasibility of structured delivery and improvements in rehabilitation-related and psychosocial outcomes [23]. Similarly, integrated yoga practice has been tested within a cardiac rehabilitation program in a randomized controlled trial, reflecting a pragmatic question of whether yoga can be embedded within rehabilitation services rather than offered only as an optional add-on [6]. At the level of evidence synthesis, systematic reviews - including Cochrane reviews - have assessed yoga for secondary prevention of coronary heart disease, suggesting potential benefits for selected risk factors and patient-

centered outcomes while emphasizing heterogeneity of interventions and limitations in certainty [19-21].

In chronic heart failure, yoga has been explored as adjunct therapy in smaller clinical studies and in evidence syntheses. A clinical study reported improvements in physiological measures such as heart rate and blood pressure and described shifts in HRV indices consistent with enhanced parasympathetic activity [4]. In parallel, a systematic review and meta-analysis of randomized trials supports the possibility of benefit while also highlighting variability in protocols and outcomes across the available studies [17]. Finally, broader reviews have discussed potential effects of yoga on cardiovascular risk factors, which may be relevant across diagnostic categories, though consistency and strength of evidence differ between endpoints [11,12].

Given this mixed but increasingly substantial body of literature, the aim of this review is to synthesize evidence on yoga-based interventions across key cardiovascular conditions and rehabilitation settings, with emphasis on (i) arrhythmias (including atrial fibrillation), (ii) coronary disease and post–myocardial infarction rehabilitation, and (iii) chronic heart failure, while also summarizing HRV and autonomic modulation as cross-cutting mechanistic themes [19–21,23].

2. MATERIALS AND METHODS

This paper was prepared as a focused narrative review based exclusively on the 23 full-text articles. The objective was not to conduct a formal systematic review, but to offer a clinically oriented synthesis of available findings across cardiovascular conditions in which yoga has been evaluated.

The included materials comprised randomized controlled trials and other clinical studies, systematic reviews and meta-analyses, and narrative or mechanistic reviews that contextualize yoga within cardiovascular care and autonomic regulation. Additional papers addressing cardiovascular risk factors and secondary prevention were used to support clinical framing and interpretation.

For each article, we summarized the study type and clinical population, the key components of the yoga intervention (e.g., postures, breathing, relaxation/meditation and, where applicable, lifestyle elements), the duration and setting (such as rehabilitation-based delivery versus home practice), and the outcomes reported. Emphasis was placed on clinically meaningful endpoints (arrhythmia burden, functional outcomes, quality of life, and psychological measures), physiological parameters (blood pressure and heart rate), and autonomic markers such as heart rate variability. Evidence was synthesized qualitatively and organized into thematic sections covering arrhythmias, coronary heart disease and post–myocardial infarction rehabilitation, chronic heart failure, and cross-cutting mechanistic considerations related to autonomic function.

3. RESULTS

3.1. Overview of the included evidence

Across the included papers, the evidence on yoga in cardiology spans several layers: mechanistic and physiological work focused on autonomic regulation and heart rate variability (HRV), clinical studies testing yoga as an adjunct to standard care in defined cardiac populations, larger rehabilitation programs delivered after myocardial infarction, and systematic reviews/meta-analyses synthesizing heterogeneous yoga interventions. Importantly, "yoga" is not treated as a single standardized exposure across studies; interventions vary in intensity, duration, supervision, and the balance between postures, breathing, relaxation, meditation, and lifestyle counseling. As a consequence, outcomes are reported in a wide range of formats and endpoints, with patient-reported outcomes and intermediate physiological measures appearing more consistently than hard clinical endpoints. This overall heterogeneity is a recurring theme emphasized by both narrative and evidence-synthesis papers in the field [9,15,17,19–21].

3.2. Yoga and cardiac arrhythmias (with emphasis on atrial fibrillation)

Among arrhythmia-focused studies, atrial fibrillation (AF) has the clearest interventional evidence. In symptomatic paroxysmal AF, the "YOGA My Heart" study reported that yoga training was associated with lower AF episode burden and improvements in psychological

outcomes and quality of life. Specifically, the authors reported reductions in symptomatic AF episodes (3.8 ± 3 vs. 2.1 ± 2.6), symptomatic non-AF episodes (2.9 ± 3.4 vs. 1.4 ± 2.0), and asymptomatic AF episodes (0.12 ± 0.44 vs. 0.04 ± 0.20), alongside improvements in anxiety and depression measures and in SF-36 quality-of-life domains [3]. From a clinical perspective, this bundle of outcomes matters because many patients experience AF as a combination of palpitations, symptom vigilance, stress reactivity, and activity limitation, so an intervention that shifts both symptom burden and psychosocial state may be practically meaningful even if it is not positioned as a replacement for rhythm-control strategies.

The broader arrhythmia review supports the plausibility of such findings by describing yoga as a potentially relevant adjunct in arrhythmia management, often framed around autonomic modulation and stress reduction. At the same time, the review underscores that arrhythmia-related evidence includes diverse designs and endpoints, which limits strong generalization across arrhythmia subtypes and highlights the need for more consistent protocols and outcome definitions [1]. Taken together, the arrhythmia-related literature suggests a "signal of benefit" for symptom burden and patient-centered outcomes, with the strongest direct data currently concentrated in paroxysmal AF [1,3].

3.3. Coronary heart disease and secondary prevention

In coronary heart disease (CHD) and secondary prevention, evidence includes both older lifestyle-oriented interventions and newer evidence syntheses applying stricter criteria. The yoga lifestyle intervention described in the Caring Heart Project reports changes interpreted as favorable, including angiographic findings in subsets of participants, and it is frequently discussed as an example of intensive lifestyle approaches incorporating yoga components in CHD care [2]. However, the interpretability of older lifestyle programs can be complicated by differences from contemporary guideline-based secondary prevention, including background therapy, healthcare context, and the structure of comparators.

From a more methodological standpoint, the Cochrane reviews emphasize how historically difficult it has been to identify randomized controlled trials meeting strict inclusion criteria for secondary prevention outcomes. The updated review explicitly states that no randomized controlled trials met its inclusion criteria, leading to cautious conclusions about uncertainty rather than firm claims of effectiveness or ineffectiveness [19,20]. This is a useful result in itself because it helps explain why clinical conversations about yoga in CHD often contain more

“promise” than certainty: for a long time, the evidence base simply did not align with the methodological standards typically required for secondary prevention recommendations.

A more recent systematic review and meta-analysis synthesizing available trials reported that yoga had no effect on all-cause mortality (RR 1.02; 95% CI 0.75–1.39) but was associated with a statistically significant improvement in health-related quality of life, with a small effect size (SMD 0.07; 95% CI 0.01–0.14) [21]. In practical terms, this pattern suggests that yoga may be more reliably linked to recovery experience and well-being than to short-term changes in mortality risk, which is consistent with how many lifestyle interventions behave when tested in heterogeneous trials with variable adherence and differing intensities.

3.4. Yoga in cardiac rehabilitation after myocardial infarction

The most robust rehabilitation evidence comes from the Yoga-CaRe randomized trial, conducted across 24 medical centers in India and including 3,959 patients after acute myocardial infarction. With a median follow-up of 22 months (minimum 6 months), the hazard ratio for major adverse cardiovascular events (MACE) in the yoga group versus enhanced standard care was 0.90 (95% CI 0.71–1.15; p = 0.41), indicating no statistically significant difference for the primary composite endpoint. However, self-rated health at 12 weeks favored Yoga-CaRe (baseline-adjusted mean difference 1.5; 95% CI 0.5–2.5; p = 0.002) [23]. Interpreted clinically, Yoga-CaRe reads as a pragmatic rehabilitation intervention that may support perceived recovery and functioning even when a measurable reduction in major clinical events is not demonstrated in the studied timeframe and delivery format.

A smaller randomized controlled trial evaluating integrated yoga practice within a cardiac rehabilitation context provides a complementary perspective. In this study, 66 post-MI patients participated, and the authors reported statistically significant reductions in depression and anxiety measures (Cardiac Depression Scale and Hamilton Anxiety Rating Scale) and significant increases in functional/quality-of-life proxies (MET and DASI). In contrast, left ventricular ejection fraction showed only a small change that did not achieve statistical significance (p = 0.218) [6]. This pattern - stronger signal for psychological and functional recovery than for structural cardiac measures - appears repeatedly across the yoga–cardiology literature and is consistent with the idea that yoga may act primarily through supportive mechanisms related to self-regulation, symptom coping, and activity engagement rather than through rapid structural remodeling.

3.5. Chronic heart failure

In chronic heart failure, the included evidence combines a clinical trial focusing on physiological and autonomic parameters with a systematic review/meta-analysis synthesizing broader trial data. A controlled study evaluating a 12-week yoga therapy program reported significant decreases in heart rate, blood pressure, and rate-pressure product in the yoga group compared to control, alongside HRV changes described as reduced sympathetic modulation (lower LFnu and LF/HF ratio) and increased parasympathetic modulation (higher HFnu) [4]. While this study design does not settle all questions about long-term clinical outcomes, it provides a coherent physiological pattern: improvements in basic hemodynamic measures accompanied by autonomic shifts that are mechanistically plausible in heart failure.

At the synthesis level, a systematic review and meta-analysis identified 11 randomized controlled trials involving a total of 552 participants and reported that yoga was associated with significant improvements in peak VO_2, exercise capacity, quality of life, and selected biomarkers such as NT-proBNP, while not demonstrating a statistically significant improvement in left ventricular ejection fraction [17]. This configuration of findings is clinically intuitive: in heart failure, interventions may meaningfully affect functional status and symptom burden without producing large short-term changes in ventricular function, especially when trial duration is limited and patient populations are diverse.

3.6. Autonomic function and HRV as a cross-cutting theme

Across conditions, autonomic regulation and HRV emerge as one of the most consistent mechanistic narratives linking yoga to cardiovascular outcomes. A comprehensive review of yoga and HRV describes frequent associations between yoga practice and HRV changes interpreted as enhanced vagal activity and improved autonomic balance, while also emphasizing substantial variability in study protocols, populations, and HRV measurement methods [15]. A more recent review focusing on the concept of "cardiac resonance" argues that slow, paced breathing and breath-focused practices may influence cardiorespiratory coupling and autonomic stability, again stressing the need for standardization and higher-quality evidence to support more definitive mechanistic claims [7]. These mechanistic sources help explain why benefits are often most visible in outcomes that are sensitive to autonomic and

stress pathways, such as resting heart rate, blood pressure, anxiety/depression, and perceived health [3,4,7,15].

3.7. Summary of outcome patterns across cardiovascular domains

When results are read across arrhythmias, CHD/secondary prevention, post-MI rehabilitation, and heart failure, a fairly consistent hierarchy of outcomes appears. The most reproducible benefits cluster around patient-reported outcomes (quality of life, anxiety/depression, self-rated health) and functional measures reflecting daily-life capacity and recovery experience [3,6,17,21,23]. Physiological signals such as reductions in resting heart rate and blood pressure, and shifts in HRV indices consistent with greater parasympathetic modulation, appear in multiple settings, although interpretation depends on the specifics of the intervention and HRV assessment [3,4,7,15]. Outcomes that typically require longer time horizons or larger samples - such as hard cardiovascular events or consistent structural cardiac improvement - are less consistently affected; notably, large pragmatic evidence shows no statistically significant reduction in composite major events while still demonstrating improved perceived health during recovery [17,23]. Overall, within the boundaries, yoga is best supported as an adjunctive component of cardiovascular care - particularly in rehabilitation and chronic disease management - rather than as a standalone substitute for guideline-based pharmacotherapy or conventional exercise-based rehabilitation [9,17,19–21,23].

4. DISCUSSION

4.1. Principal findings and how to interpret the “signal”

The body of evidence included in this review suggests a broadly consistent pattern: yoga-based interventions tend to show their clearest and most reproducible benefits in patient-centered outcomes (quality of life, anxiety/depression, perceived health) and in selected intermediate physiological measures (resting heart rate, blood pressure, and autonomic indices), while evidence for hard clinical endpoints is either limited or neutral in larger pragmatic settings [3,4,6,15,17,21,23]. This does not make the findings “weak”; rather, it points to what yoga is most likely to do in cardiovascular care - namely to support regulation, recovery experience, and long-term engagement - rather than to act as a single-target treatment expected to rapidly shift structural cardiac parameters or event rates on its own.

This pattern is visible across clinical domains. In paroxysmal atrial fibrillation, yoga was associated with lower arrhythmia burden and improved psychological outcomes and quality of life [3], which aligns with the idea that symptom experience and autonomic reactivity are closely interwoven in AF. In heart failure, yoga studies and a meta-analysis indicate improvements in exercise capacity and quality of life, with autonomic shifts and favorable hemodynamic changes reported in clinical studies, while left ventricular ejection fraction appears less consistently affected [4,17]. In post–myocardial infarction rehabilitation, a large multicenter trial did not demonstrate a statistically significant reduction in major adverse events but did show improved self-rated health and recovery-oriented outcomes [23], and smaller controlled programs showed benefits particularly in psychological and functional domains [6]. Taken together, these findings support a realistic clinical positioning of yoga as an adjunct that may improve how patients feel and function, and potentially strengthen the behavioral "scaffolding" needed for long-term prevention.

4.2. Why patient-centered outcomes may improve before "hard" endpoints

It is worth acknowledging a simple, almost intuitive clinical point: many patients do not experience cardiovascular disease only as a set of lab values or imaging results. They experience it as fatigue, breathlessness, palpitations, worry, disrupted sleep, low confidence in activity, and fear of recurrence. Interventions that combine gentle physical activity with structured breathing and relaxation may affect these experience-based outcomes earlier and more consistently than they affect structural measures or event rates [9,12,14]. In that sense, improvements in quality of life or perceived health should not be treated as "soft" or secondary in importance, particularly in chronic disease trajectories where patient engagement and adherence are central to long-term outcomes [8].

Moreover, for hard endpoints to change meaningfully, several conditions usually need to be met: adequate intervention dose, sufficient follow-up duration, consistent adherence, and a comparator that allows the specific added value to be detected. In pragmatic trials, any behavioral intervention can be diluted by variation in adherence and in real-world delivery, while in smaller trials, statistical power is simply not large enough to detect event differences. The Yoga-CaRe trial is a good example of this tension: it provides scalability and robust event adjudication, but it also reflects real-world delivery constraints, and its positive results were clearer for perceived health and functional recovery than for composite event reduction [23].

This does not contradict smaller studies; it simply highlights that “what changes first” may differ from “what changes last,” and that the most reliable early gains may be in domains closely linked to stress regulation and activity confidence

.

4.3. Mechanistic plausibility: autonomic regulation as a unifying pathway

Across the included literature, autonomic modulation is one of the most consistent proposed mechanisms for yoga’s cardiovascular effects, and HRV is repeatedly used as an accessible marker of this process [7,15]. A comprehensive review suggests that yoga practice is often associated with HRV patterns interpreted as improved vagal modulation, while also emphasizing heterogeneity in protocols and measurement approaches [15]. The more recent “cardiac resonance” perspective further emphasizes paced breathing as a potential driver of autonomic stability and cardiorespiratory coupling, again coupled with calls for better standardization and methodological rigor [7]. These mechanistic models are particularly relevant for conditions where autonomic fluctuations are clinically meaningful, such as arrhythmias, or where neurohormonal and autonomic dysregulation is part of the disease phenotype, such as heart failure [1,4,16,17].

At the clinical study level, the heart failure trial reporting HRV shifts toward parasympathetic predominance adds a concrete physiological pattern that matches the conceptual model [4]. In atrial fibrillation, the simultaneous improvements in arrhythmia burden, anxiety/depression, and hemodynamic measures are also consistent with a combined physiological–psychological pathway rather than a single isolated mechanism [3]. In other words, even if individual measures vary by study, the overall “story” - better regulation, less sympathetic dominance, improved stress-related symptom amplification - appears repeatedly across settings [3,4,7,15,16]. That said, mechanistic plausibility should not be confused with proof; it is a strong rationale for why the effects could be real, but it still needs stronger causal testing through standardized protocols and consistent autonomic assessments.

4.4. Intervention heterogeneity: “yoga” is not one intervention

One of the major limitations - and simultaneously one of the reasons yoga may be attractive - is its flexibility. Across studies, yoga may be delivered as gentle postural practice, breathing-focused programs, integrated rehabilitation modules, or broader lifestyle interventions [2,6,22,23]. This creates heterogeneity in dose (frequency, session duration), setting

(supervised vs home-based), instructor expertise, and content emphasis (postures vs breathing/relaxation vs meditation). As a result, it becomes difficult to compare "yoga" across trials as if it were a single standardized treatment, and this limits the precision of evidence syntheses [15,17,19–21].

From a practical standpoint, the validated module approach is a helpful direction, because it signals an attempt to define what is being delivered and how it could be reproduced in clinical settings [22]. Without that kind of standardization, it is easy for yoga to become a moving target: beneficial in one trial because of structured breathing and relaxation, less effective in another because the protocol is more physically demanding or inconsistently taught, or simply difficult to interpret because "usual care" and background activity vary widely. This likely contributes to why systematic reviews can show "some improvements" while remaining cautious about certainty and generalizability [19–21].

4.5. Clinical positioning: adjunctive, not substitutive

A consistent theme in the cardiology-oriented reviews in your set is that yoga is best considered a complementary strategy rather than a substitute for guideline-based therapy and conventional rehabilitation [9,12,13]. This framing is important, especially in secondary prevention where pharmacotherapy, smoking cessation, lipid management, and blood pressure control remain core determinants of risk reduction [8]. The Yoga-CaRe findings illustrate this pragmatic reality: event reduction was not clearly demonstrated, but recovery-related outcomes improved, suggesting that yoga may add value in areas not always fully addressed by standard care [23]. For many patients, particularly those who struggle with anxiety, low confidence in exertion, or difficulties maintaining structured exercise, yoga may function as a "bridge": a tolerable and acceptable entry point into movement, self-monitoring, and stress regulation that can support broader lifestyle adherence over time [9,11,12].

In rehabilitation design terms, yoga can also be thought of as one potential modality within the broader exercise and rehabilitation toolbox. Evidence from broader exercise comparisons in coronary heart disease suggests that different exercise types can have varying effectiveness depending on the outcome of interest [10]. Yoga may therefore be most useful when the clinical goal includes psychosocial recovery, autonomic stability, and sustained engagement - goals that are highly relevant yet often underemphasized in traditional outcome hierarchies.

4.6. Safety and feasibility considerations

The included trials and syntheses generally report yoga as feasible and well-tolerated in cardiac populations when appropriately delivered, and serious adverse events related to yoga appear uncommon in the summarized evidence [3,17]. Nevertheless, “safe in general” does not mean “safe in any form.” Some yoga practices can be physically demanding, and breathing techniques vary greatly in physiological impact. For cardiac populations - particularly post-MI patients, individuals with heart failure, or those with symptomatic arrhythmias - programs should be tailored, preferably supervised or introduced under guidance, and designed with clinical constraints in mind [9,15,22]. This is not a limitation unique to yoga; it applies to all exercise and rehabilitation modalities, but it becomes especially relevant when patients may attempt unsupervised practice based on non-medical media sources.

4.7. Limitations of the current review and directions for future research

This review has clear boundaries. It was based solely on the provided set of articles and was conducted as a narrative synthesis rather than a formal systematic review. As a result, the conclusions should be interpreted as a structured clinical summary rather than as a definitive estimate of effect sizes across all available literature. In addition, the underlying evidence has its own limitations: small samples in many trials, heterogeneous protocols, variable comparators, inconsistent outcome selection, and limited follow-up for hard endpoints [15,17,19–21].

Future research would benefit from several practical improvements that recur across the included sources. First, yoga interventions should be described in sufficient detail and ideally standardized (or at least modular) to allow replication and meaningful comparison [22]. Second, outcomes should include a consistent core set across trials - combining patient-centered outcomes (quality of life, anxiety/depression), functional capacity measures, and clearly defined clinical endpoints - so that evidence synthesis becomes more informative over time [17,21]. Third, mechanistic assessments (including HRV methodology) should be standardized and interpreted cautiously, recognizing that breathing patterns can shift HRV frequency components in ways that may complicate simplistic “more HRV is always better” narratives [7,15]. Finally, larger pragmatic trials remain important, but they should be designed to capture what yoga may realistically influence (recovery experience, adherence, functional status, psychosocial outcomes) alongside longer-term endpoints where feasible [23].

4.8. Overall interpretation

Within the evidence base provided, yoga appears to offer the most consistent benefits as an adjunct intervention in cardiovascular care - supporting psychological well-being, perceived health, functional recovery, and autonomic regulation - while effects on structural measures and major adverse events are less consistently demonstrated and may depend on intervention dose, setting, and follow-up duration [3,4,6,15,17,21,23]. For clinicians and rehabilitation services, this points toward a pragmatic conclusion: yoga is unlikely to replace standard secondary prevention and rehabilitation, but it may meaningfully enhance patient-centered recovery and support long-term engagement, especially in populations where stress, autonomic dysregulation, and low confidence in exertion are prominent features of the clinical picture [8,9,12,23].

5. CONCLUSIONS

Yoga-based interventions appear to offer meaningful adjunctive benefits in cardiovascular care, particularly by improving quality of life, psychological well-being, perceived recovery, and selected physiological markers such as resting heart rate, blood pressure, and indicators of autonomic regulation. Across cardiac populations, the most consistent effects are observed in patient-centered and functional outcomes, while evidence for reductions in major clinical events or for structural cardiac improvement is less consistent and may depend on intervention dose, follow-up duration, and protocol standardization. Overall, yoga can be reasonably considered a complementary component of cardiac rehabilitation and chronic cardiovascular disease management when tailored to patient capacity and delivered in a structured, safe manner. Further well-designed trials with standardized interventions and consistent outcome reporting are needed to clarify which cardiac populations benefit most and to define optimal delivery models.

Disclosure

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