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REVIEWER'S REPORT

Manuscript No.: IJAR-56818

Title: Radiologic Biomarkers in Lifestyle Medicine: Imaging as an Objective Endpoint of Behavioral Interventions

Recommendation:

- Accept as it is
- ✓ Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr S. K. Nath

Detailed Reviewer's Report

Strengths of the Study

- **Originality:** The paper introduces a novel, integrative framework (Imaging-Guided Lifestyle Medicine, IGLM) for incorporating advanced radiologic biomarkers into lifestyle medicine, which is an innovative approach.
- **Relevance:** Addresses a critical gap in the objective measurement of behavioral intervention responses in chronic diseases, aligning with current needs in precision and personalized medicine.
- **Methodology:** The use of a comprehensive narrative review methodology, including systematic searches across multiple databases, is appropriate for synthesizing current evidence.
- **Data Quality:** The review appears to include high-quality, recent studies with validated imaging biomarkers such as MRI-PDF, cIMT, DXA, and CT skeletal muscle assessments.
- **Contribution:** Offers a practical, tiered imaging framework adaptable to diverse healthcare settings and proposes future directions integrating AI and radiomics, which could significantly influence research and clinical practice.

Weaknesses of the Study

- **Methodological Limitations:** The narrative review design limits systematic synthesis, raising concerns about potential selection bias and reproducibility.
- **Sample Size and Data Variability:** The review references heterogeneous studies; some may have small sample sizes or variable methodologies, impacting the strength of the conclusions.
- **Statistical Analysis:** The review lacks a quantitative meta-analytic approach; thus, synthesized evidence is qualitative, which may not fully capture the magnitude of effects.
- **Ethical Considerations:** No mention of ethical approval, patient consent, or ethical considerations related to the primary studies or proposed clinical frameworks.
- **Presentation:** Some sections could benefit from clearer subheadings and structured summaries. There are minor typographical and language inconsistencies.
- **References:** The citations are current and relevant but could be more critically appraised, especially regarding limitations of the included studies.

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Reviewer Comments

- **Title and Abstract:** The title clearly conveys the focus of the manuscript. The abstract is well-structured, summarizing background, objectives, methods, key findings, and conclusions effectively. Minor improvements could include explicitly stating the main innovative aspects of the proposed framework.
- **Introduction and Objectives:** The introduction provides adequate context on the limitations of traditional outcome measures in lifestyle medicine and rightly emphasizes the potential of imaging. The objectives are clearly articulated but could be enhanced by explicitly stating hypotheses or specific research questions.
- **Methodology:** The search strategy and inclusion criteria are described sufficiently for a narrative review. However, the methodology would benefit from a more explicit discussion on how study quality was appraised and how evidence was synthesized, particularly concerning heterogeneity among studies.
- **Results and Discussion:** The results are comprehensive, covering each disease domain with supportive evidence. The discussion effectively integrates evidence to support the proposed IGLM framework. Nonetheless, a more critical appraisal of limitations and conflicting evidence would improve depth.
- **Conclusion and Implications:** The conclusions are justified based on the presented evidence and appropriately outline future directions. The potential impact of imaging biomarkers for clinical practice is convincingly articulated.
- **Ethical Clearance:** The manuscript does not mention any ethical approval or patient consent, which is understandable for a review article but relevant when proposing new frameworks involving imaging, especially in clinical studies.
- **Language and Formatting:** The manuscript is generally well-written. Minor grammatical corrections and typographic consistency would enhance readability.
- **Tables, Figures, and References:** The tables are informative and well-organized. Figure quality and clarity should be reviewed in the actual manuscript; the references are appropriate, covering recent and foundational studies.