Osteosarcopenia

Osteosarcopenia is a geriatric syndrome characterized by the coexistence of osteopenia/osteoporosis and sarcopenia in the same individual. It involves:

Reduced bone mass and strength (as seen in osteopenia or osteoporosis), increasing fracture risk

Loss of muscle mass, strength, and/or function (as seen in sarcopenia), increasing risk of falls and disability

Clinical relevance

Common in older adults, especially postmenopausal women

Associated with frailty, falls, fractures, loss of independence, and increased mortality

Diagnosis typically involves bone mineral density testing (DXA) and assessment of muscle mass and function (e.g., gait speed, grip strength)

Treatment

Focuses on nutritional support (adequate protein, calcium, vitamin D), physical activity (especially resistance training), and pharmacological therapy for osteoporosis where indicated.

Narrative reviews

In a narrative review Walker et al. explore the intersection of osteoporosis, sarcopenia, radiomics, and machine learning in spine surgery, with a focus on clinical applications and opportunities for advancing assessment and predictive modeling methods [1)].

An overly broad, jargon-stuffed narrative review pretending to map the frontier between artificial intelligence and spinal aging, but offering little more than recycled generalities, vague enthusiasm, and name-dropping of technologies. Strategic vagueness cloaked in academic prestige.

Major Criticisms

1. A Title That Promises a Feast, but Serves Air The phrase “Current Concepts” suggests either:

1. a synthesis of well-established clinical principles, or
2. the presentation of solid, emerging evidence.

This paper delivers neither. Instead, it is a foggy collage of loosely related terms—osteosarcopenia, radiomics, AI, frailty, ML—glued together with sweeping statements and minimal critical appraisal.

2. Artificial Intelligence as Ornament, Not Tool The mention of “machine learning,” “radiomics,” and “predictive modeling” is pure academic theater. No models are reviewed in depth, no algorithm is dissected, and no validation process is discussed. The result is *AI-as-decoration*: a buzzword salad to impress committees, not help surgeons.

3. Methodology: A Literature Review Masquerading as Foresight The “Methods” section is a fig leaf. A few keyword searches and handpicked citations do not constitute a structured review, and certainly not one with the rigor expected in 2025 for the integration of AI into clinical pathways.

4. No Real-World Data, No Real-World Use There’s no actual analysis of patient data, no examination of model performance, and no practical guidance. It reads like a grant pitch, not a surgeon’s guide.

5. The Senescence Task Force: Too Many Authors, Too Few Ideas The author list is a who's-who of spine surgery societies. Yet, the end product feels like a bureaucratic consensus, not a visionary synthesis. There is more committee than critique here.

6. Lack of Specificity: A Void in the Heart of the Review Despite repeated references to frailty, sarcopenia, osteoporosis, and senescence, the paper fails to define how these interact *concretely* in surgical outcomes or perioperative planning. No quantitative criteria, no risk stratification frameworks, no imaging protocols—just generic encouragements to “use AI better.”

7. No Ethical or Interpretability Considerations For a paper invoking AI, it is striking how absent are discussions on:

1. Bias in training datasets
2. Explainability of models
3. Clinical responsibility for AI-driven decisions

These are fundamental in modern computational medicine and their omission borders on negligence.

Key Quote That Sums It Up

> “Advanced imaging and machine learning approaches offer the potential for more precise assessments and tailored interventions.”

Translation: *we don’t know how yet, but it sounds impressive enough to publish.*

For the Neurosurgical Reader

You will learn **nothing actionable** from this review. No imaging pipeline. No ML framework. No surgical impact analysis. No clinical decision tool. What you get is an aesthetically pleasing PowerPoint slide in article form, padded with trendy keywords.

Verdict

An empty cathedral of fashionable terminology, built on soft ground. A missed opportunity to build a real bridge between radiology, AI, and spinal aging. The SRS Task Force should return to the drawing board—with fewer authors and more substance.

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Walker CT, Babadjouni R, Gibbs W, Lord E, Gausper A, Osorio J, Molina C, Jones K, van Hooff M, Theologis A, Yagi M, Blakemore L, Shah S, Hu S, de Kleuver M, Pizones J, Kelly M, Pellise F, Ames C, Eastlack R; ...On Behalf of the Scoliosis Research Society Adult Spinal Deformity Task Force Senescence Committee. Current Concepts on Imaging and Artificial Intelligence of Osteosarcopenia in the Aging Spine - A Review for Spinal Surgeons by the SRS Adult Spinal Deformity Task Force on Senescence. Spine (Phila Pa 1976). 2025 Jun 13. doi: 10.1097/BRS.0000000000005426. Epub ahead of print. PMID: 40511548.