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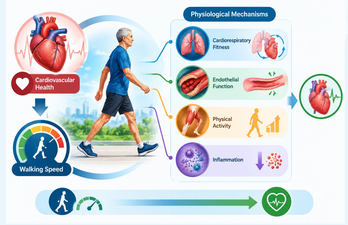


Gait Speed as a Vital Sign of Cardiovascular Health: A Narrative Analytical Review of Evidence and Physiological Mechanisms

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Graphical Abstract

Backgrounds

Gait speed is a simple, comprehensive physical function measure, recently proposed as a potential "vital sign" for health assessment, particularly in older adults. Evidence links reduced gait speed to increased cardiovascular disease (CVD) risk and mortality, yet this relationship is underexplored from an exercise physiology perspective. This analytical review aimed to examine evidence on the association between gait speed and cardiovascular risk factors and to elucidate physiological mechanisms from an exercise physiology standpoint.

Methods

This narrative analytical review was conducted via a targeted search of PubMed, Scopus, and Web of Science up to January 15, 2026, using keywords related to "gait speed" and "cardiovascular diseases." The review was guided by the PRISMA-ScR checklist. Relevant articles, with an emphasis on recent meta-analyses and large cohort studies published between 2015 and 2026, were identified, and their findings were analytically categorized and interpreted.

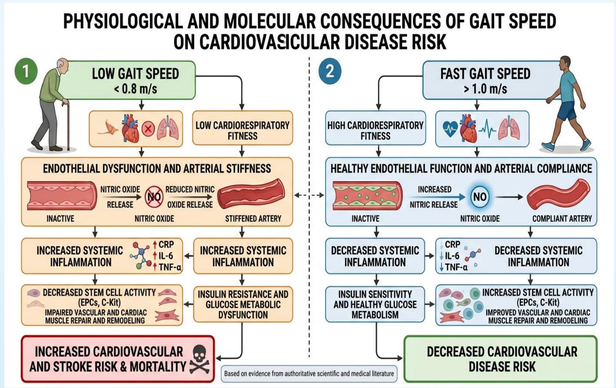
Findings

Meta-analyses show the slowest gait speed, versus the fastest, is associated with a 49% increased risk of all-cause mortality (RR = 1.49) and a 20% increased risk of CVD (RR = 1.20). The fastest speed is linked to a 46% reduced risk of coronary artery disease (RR = 0.54).

Row	Author(s) (Year)	Study Population	Primary Outcome	Key Finding (RR/HR, 95% CI)
1	Zaccardi et al. (2022)	380,693 (UK Biobank)	Coronary Artery Disease	RR = 0.40 (0.38-0.43) for fastest vs. slowest speed
2	Veronese et al. (2025)	48 studies (meta-analysis)	All-cause mortality & CVD	RR = 1.49 (mortality) & RR = 1.20 (CVD) for slowest vs. fastest speed
3	Cureus Meta-Analysis (2024)	160,519 (5 cohorts)	Coronary Artery Disease	RR = 0.54 (0.45-0.66) for fastest vs. slowest speed
4	Baskerville et al. (2026)	Type 2 Diabetes patients (132,967)	Cardiovascular Events	HR range: 1.18 to 5.88 for slowest vs. fastest speed
5	Jayedi et al. (2024)	Meta-analysis (Cohort studies)	Type 2 Diabetes	15% reduction (3.2-4.8 km/h) & 24% reduction (4.8-6.4 km/h) vs. slow speed

the Association of Gait Speed with Cardiovascular and Metabolic Outcomes

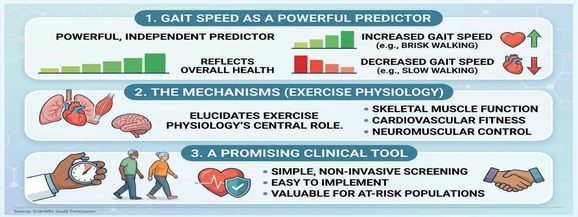
Each 0.1 m/s increase in gait speed reduces CVD risk by 4%. This association is explainable through physiological pathways including cardiorespiratory fitness, endothelial function, physical activity level, and inflammatory markers.



a large cohort study of over 3 million people found that the protective association between higher gait speed and reduced risk of CVD is stronger in individuals with pre-diabetes or type 2 diabetes.

Conclusion

Gait speed is a powerful, independent predictor of cardiovascular risk; elucidating its mechanisms highlights exercise physiology's central role. Its use as a simple, non-invasive screening tool in clinical settings, especially for at-risk populations, appears promising.



References

1. Franklin BA BJ, Sacks R, Trivax J, Friedman H. Reduced Walking Speed and Distance as Harbingers of the Approaching Grim Reaper. American Journal of Cardiology. 2015;116(2):313-7.
2. Ahmad Jayedi 1 M-SZ, Alireza Emadi 3 , Dagfinn Aune. Walking speed and the risk of type 2 diabetes: a systematic review and meta-analysis. Br J Sports Med. 2024;58(6):334-42.