Table S1. Search strategy

1. “sarcopenia”
2. “sarcopenic”
3. “loss of muscle mass and strength”
4. “age-related sarcopenic muscle wasting”
5. (1 OR 2 OR 3 OR 4)
6. “hypertension”
7. “HBP”
8. “high blood pressure”
9. “blood pressure”
10. “cardiovascular disease”
11. “vascular diseases”
12. “cardiovascular”
13. “coronary heart disease”
14. “ischemic heart disease”
15. “myocardial infarction”
16. “carotid artery diseases”
17. “heart failure”
18. “cerebrovascular accident”
19. “intracranial hemorrhages”
20. “stroke”
21. “cerebrovascular disorders”
22. “brain ischemia”
23. “intracranial embolism and thrombosis”

24. “myocardial infarction”
25. (6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24)
26. “cohorts”
27. “prospective studies”
28. “cross-sectional studies”
29. “case-control studies”
30. “relative risk”
31. “population-based”
32. “odds ratio”
33. “hazard ratio”
34. “incidence rate ratio”
35. (26 OR 27 OR 28 OR 29 OR 30 OR 31 OR 32 OR 32OR 33 OR 34)
36. 5 AND 25 AND 35

Table S2. Extract data

Study design	Cross-sectional study
Title	Sarcopenia is independently associated with cardiovascular disease in older Korean adults: the Korea National Health and Nutrition Examination Survey (KNHANES) from 2009 [1]
First author	Chin SO
Year	2013
Country/Region	Korea
Source of participants	Korea National Health and Nutrition Examination Survey (KNHANES)
Sample size	1,578 subjects
Total Person-years	NA
Age at baseline (years)	65 years and older
Sex	Male and Female
Follow-up period (years)	NA
Definition of Sarcopenia	A subject was classified as having sarcopenia when having an ASM/weight (kg) less than 1 SD below the gender-specific mean of a younger reference group between 20 and 39 years of age (1,017 men and 1,284 women), which was modified from the studies of Janssen et al. and Lim et al. [4,23]. For men, the cutoff value for sarcopenia was 32.2% (ASM/weight), defined as less than 1 SD below the sexspecific normal mean for the young reference group. For women, the corresponding cutoff value was 25.6% (ASM/weight).
Definition of Sarcopenic obesity	A subject was classified as obese if one had a BMI greater than 25 kg/m2. Sarcopenic obesity was defined when a subject satisfied the criteria for both sarcopenia and obesity.
Outcomes	Cardiovascular Disease (CVD)
Assessment of CVD	The presence of CVD events was ascertained from the health interview survey in KNHANES IV. Those who answered “yes” to the question; “ Have you ever been diagnosed with either acute myocardial infarction, unstable or stable angina, or stroke by a physician or a health care professional?” were classified as subjects with previous CVD events.

Results (RR/OR/HR) (95%CI)	OR:1.768 (1.075–2.909)
Adjusted confounding factors	Adjusted for age, gender, DM, HTN, hyperlipidemia, current smoking, obesity, serum creatinine, DM with medications, HTN with medications, and hyperlipidemia with medications.
Subgroup	NA
Sub-case	NA
Person-years	NA
Results RR/OR/HR	NA

[1] Chin SO, Rhee SY, Chon S, et al. Sarcopenia is independently associated with cardiovascular disease in older Korean adults: the Korea National Health and Nutrition Examination Survey (KNHANES) from 2009. PLoS One. 2013;8(3):e60119.

Table S3. Characteristics of studies included in the meta–analysis

Author	Year	Country	Sample size	Age	Outcome	Exposure	Definition	Effect Size (95%CI)
Chin SO [17]	2013	Korea	1,578	≥65	CVD	Sarcopenia	For men, the cutoff value for sarcopenia was 32.2% (ASM/weight), defined as less than 1 SD below the sexspecific normal mean for the young reference group. For women, the corresponding cutoff value was 25.6% (ASM/weight).	1.77 (1.08 - 2.91)
Park SH [18]	2013	Korea	7,893	49.4	Hypertension	Sarcopenia; Sarcopenic obesity	Sarcopenia was defined as an ASM/Wt that was below two standard deviations from the mean of a sample of healthy young adults.Obesity was defined as a waist circumference (WC) greater than or equal to 90 cm for men and greater than or equal to 85 cm for women, according to a study that redefined the WC cutoff points for central obesity among Korean adults. Sarcopenic obesity was considered to be a combination of sarcopenia and obesity according to each definition.	1.20 (0.61 - 2.36)
Park S [19]	2014	Korea	7，208	≥50	CVD; Stroke	Sarcopenia	SmI values of participants aged 18–39 years corresponding to 1 and 2 standard deviations (SDs) below the gender-specific mean levels were used to identify sarcopenia (SmI <29.0% in men, SmI <22.8% in women)	1.46 (0.58 - 3.66)
Han K [20]	2014	Korea	4,846	≥60	Hypertension	Sarcopenia; Sarcopenic obesity	Sarcopenia was defined as an ASM/Wt ,1 SD below the mean of a sample of healthy adults aged 20 to 40 years. For males, the cutoff value for sarcopenia was 30.5% (ASM/Wt), defined as less than 1 SD below the gender-specific normal mean for the young reference group. For females, the corresponding limit was 23.9% (ASM/Wt). A subject was classified as obese if his or her BMI was 25 kg/m2.	1.33 (1.06 - 1.67)

Han E [21]	2020	Korea	7,191	53.3±15.0	ASCVD	Sarcopenia	The sarcopenia index was calculated as follows: sarcopenia index = total appendicular skeletal muscle mass(kg)/BMI (kg/m2). Sarcopenia was defined as the lowest quintile for sex-specific sarcopenia index cutoff values (<0.882 for men and<0.582 for women).	1.40 (1.08 - 1.82)
Xia MF [22]	2021	China	2,432	62.2 ± 8.4	MI	Sarcopenia; Sarcopenic obesity	Sarcopenia was defined based on the skeletal muscle mass assessed by ASM/height2 and the cutoff points of ASM/height2 < 7.0 kg/m2 in men and <5.4 kg/m2 in women were used as recommended by the consensus of Asian Working Group for Sarcopenia (AWGS). sarcopenic obese (BMI>24 kg/m2 with sarcopenia) groups according to their body weight and sarcopenia status.	2.78 (1.02 - 7.59)
Gao K [23]	2022	China	17,708	≥45	CVD; Heart Disease; Stroke;	Sarcopenia	Sarcopenia is diagnosed when low muscle mass plus low muscle strength or low physical performance are detected. And the ASM/Ht2 values of <5.63 kg/m2 in women and <7.05 kg/m2 in men were considered as low muscle mass; physical performance, the gait speed and the chair stand test.	1.33 (1.04 - 1.71)
Pasdar Y [24]	2022	Iran	4,021	47.9 ± 8.4	Hypertension	Sarcopenia; Sarcopenic obesity	Sarcopenia was categorized based on skeletal muscle mass and skeletal muscle strength. Individuals who were categorized as “sarcopenic obese,”were in the high tertile of WC and the low tertile of muscle mass and muscle strength.	0.94 (0.65 - 1.35)

Abbreviations: CVD: Cardiovascular disease; MI: Myocardial infarction; ASCVD: Atherosclerotic cardiovascular disease;

Table S4. Results of quality assessment using the Newcastle-Ottawa Scale.

Study	Selection				Comparability	Exposure			Scores
	Adequate definition of cases	Representativeness of the cases	Selection of controls	Definition of controls	Control of important factor	Ascertainment of exposure	Same method of Ascertainment for cases and contorls	Non-response rate	
Chin SO , 2013 (*17*)	★	★	★	★	★★	★	★		8
Park SH, 2013 (*18*)	★	★	★	★	★★	★	★		8
Park S, 2014 (*19*)	★	★	★	★	★★	★	★		8
Han K, 2014 (*20*)	★	★	★	★	★★	★	★		8
Xia MF, 2021 (*22*)	★	★	★	★	★★	★	★		8
Han E, 2020 (*21*)	★	★	★	★	★★	★	★		8
Gao K, 2022 (*23*)	★	★	★	★	★★	★	★		8
Pasdar Y, 2022 (*24*)	★	★	★	★	★★	★	★		8

Table S5. Results of meta-regression analyses

Factors	Coefficient	Standard error	*P* value
Year	0.0033912	0.0345152	0.926
Age	0.0128450	0.0125489	0.364
Sample size	-5.040006	0.0000209	0.821

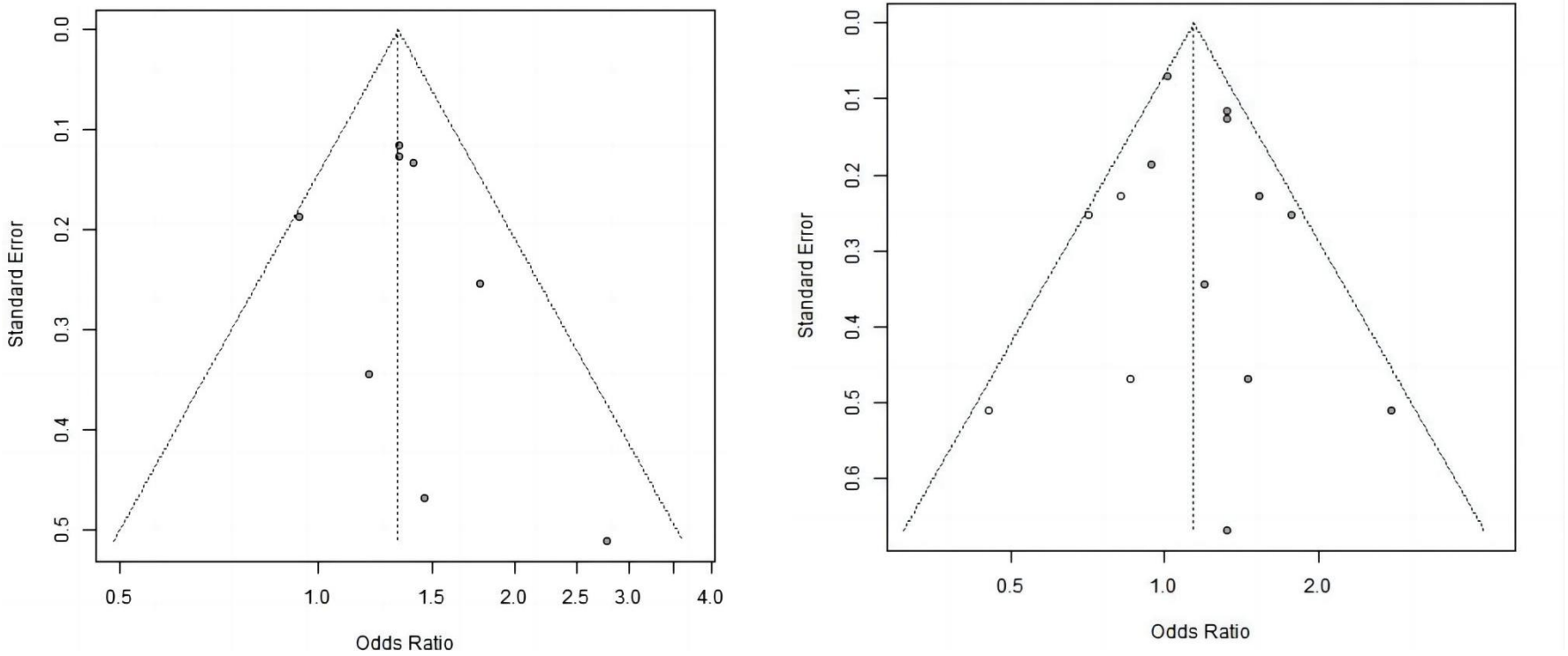

Figure S1. Funnel plot for evaluation publication bias. (A) before trim-and-fill method. (B) After trim-and-fill method. The hollow circles represent the missing studies that the trim-and-fill method identified.