

Prevalence of Sarcopenia in Community-Dwelling Adults According to AWGS 2019 and the other four criteria in Korea



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Objective

To determine the prevalence of sarcopenia in a group of community-dwelling adults using five sets of international diagnostic criteria : Asian Working Group for Sarcopenia (AWGS) 2019 consensus, revised European Working Group on Sarcopenia in Older People 2 (EWGSOP2), EWGSOP, Foundation for the National Institutes of Health (FNIH) and International Working Group on Sarcopenia (IWGS) criteria.

Method

A total of 125 ambulatory community-dwelling Korean adults, aged of 58.7 ± 9.1 years (42-83 years; 67.2% men) who visited at tertiary medical institution for health screenings. (Table 1)

Physical function was assessed by handgrip strength, usual gait speed, the five-times-sit-to-stand test (5-CST), the timed up-and-go (TUG) test, and the Short Physical Performance Battery (SPPB). Appendicular skeletal muscle mass (ASM) was measured by bioelectrical impedance analysis.

Result

The prevalence of sarcopenia was 3.2% (male 0%, female 9.8%) according to AWGS 2019 definition, and 4.7% (male 3.6%, female 7.3%) according to the EWGSOP1, and 7.9% (male 6.0%, female 12.2%) according to the IWGS, and 0% according to EWGSOP2, FNIH. According to AWGS 2019 definition, the prevalence of possible sarcopenia was 14.2% (male 7.1%, female 29.3%), and the prevalence of probable sarcopenia according to EWGSOP2 was 0.8%.

The prevalence of low muscle strength was 0-6.4% when using grip strength, which was lower than that of low muscle mass and physical function. The prevalence of low muscle mass was the lowest at 8.7-12.8% when using ASM/height², and 25.6% (using ASM), 25% (using ASM/BMI). The prevalence of low physical function was the highest at 16.8~37.0% when using gait speed, and 4.0~10.2% when using SPPB, 0.8~8.7% when using 5-CST, and the lowest was 0% when using TUG.

The prevalence of possible sarcopenia according to AWGS 2019 was 7.8% in middle-aged and 25% in old age, and the prevalence of sarcopenia was 2.6% in middle-aged and 4.2% in old age. (Figure 2)

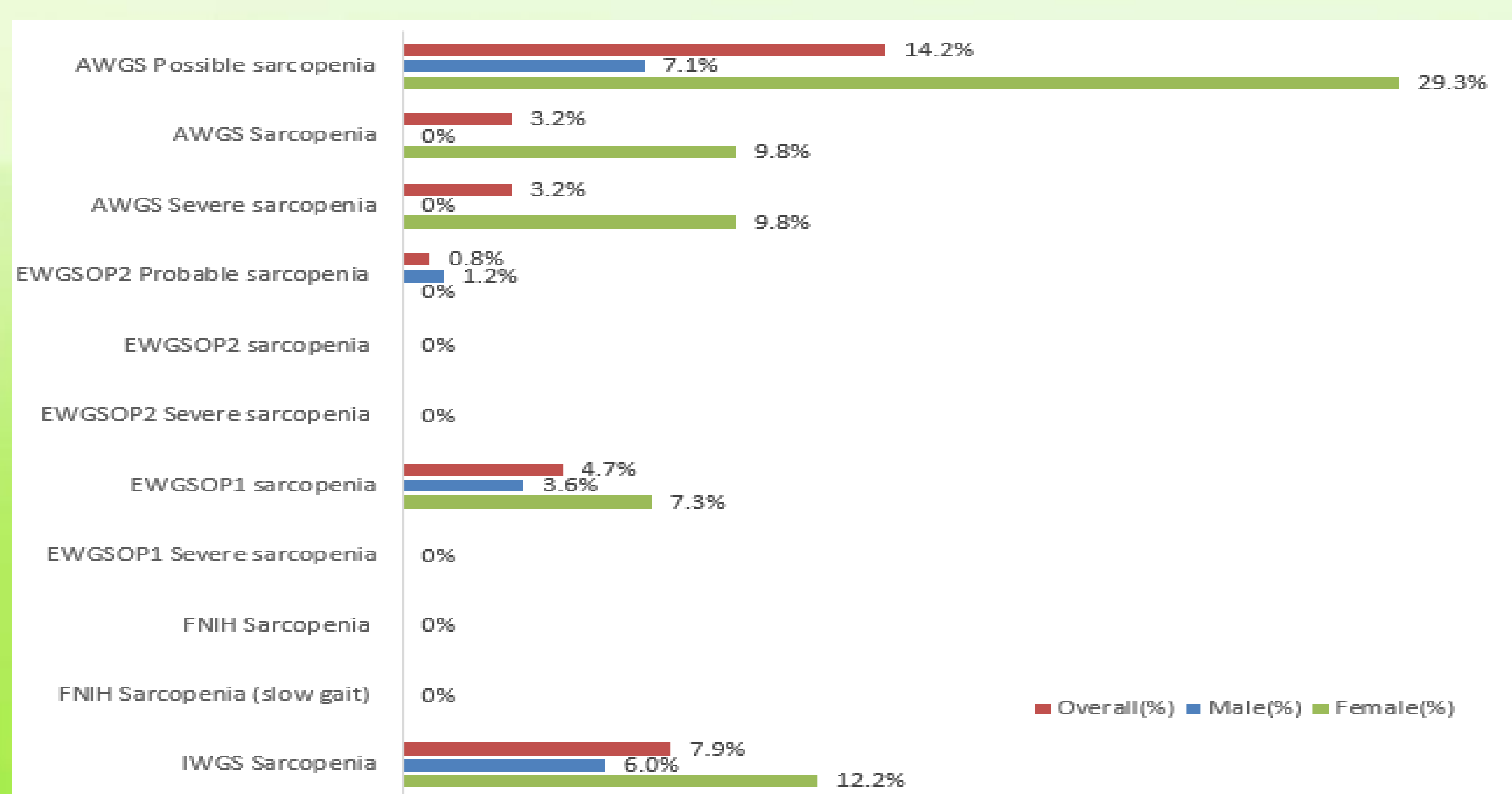
The sensitivity of Calf circumference for diagnosis of possible sarcopenia by AWGS 2019 was 11.1%, specificity was 90.7%, PPV was 16.7%, and NPV was 85.8%.

Table 1. Mean and standard deviation of multiple parameters related to sarcopenia

Variable	Total, n=125	Male, n=84	Female, n=41
Age [median, IQR], years	58 [53-63]	57 [52-61]	59 [55-67]
Height(cm) [mean, SD]	165.1±9.9	170.5±6.2**	154.1±6.0**
Weight(kg) [mean, SD]	70.1±12.4	75.4±1.2**	59.0±5.8**
BMI(kg/m ²) [mean, SD]	25.6±3.4	26.0±3.6	24.9±2.9
Number of comorbidities	0.92 ± 0.75	0.96 ± 0.76	0.83 ± 0.73
Smoking [n, %]	44 (35.2)	44 (52.4)**	0 (0)**
Alcohol [n, %]	37 (29.6)	35 (41.7)**	2 (4.9)**
Muscle strength			
Handgrip strength, kg	40.2±17.1	47.7±14.4**	24.7±10.4**
Muscle mass			
Appendicular skeletal muscle mass (ASM), kg	20.8±5.2	23.8±3.5**	14.7±1.0**
ASM/height ²	7.50±1.18	8.17±0.80**	6.20±0.50**
ASM/BMI	0.81±0.20	0.91±0.14**	0.60±0.10**
Physical performance			
4m usual gait speed, m/s	1.08±0.30	1.15±0.29**	0.93±0.28**
Five times sit to stand test, s	8.3±2.7	8.0±2.6	9.0±2.7
Short Physical Performance Battery (SPPB), score	11.3±1.2	11.5±0.9	11.0±1.5
Timed up-and-go test (TUG), s	6.7±1.9	6.5±2.0	7.1±1.6

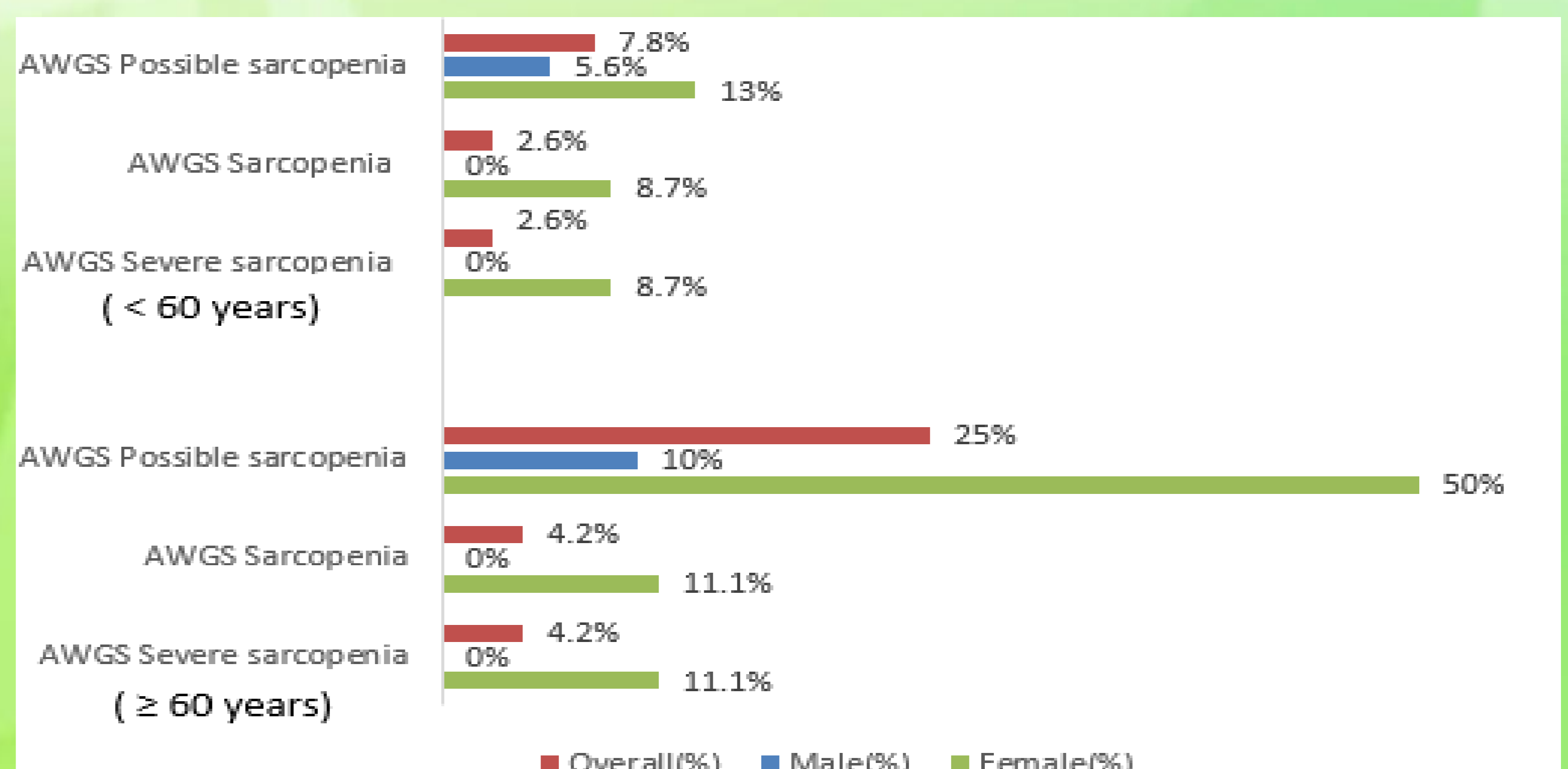
AWGS, Asian Working Group for Sarcopenia; EWGSOP, European Working Group on Sarcopenia in Older People; FNIH, Foundation for the National Institutes of Health; IWGS, International Working Group on Sarcopenia.
**p<0.01, significant difference between male and female

Figure 1. Prevalence of sarcopenia according to five diagnostic criterias



AWGS, Asian Working Group for Sarcopenia; EWGSOP, European Working Group on Sarcopenia in Older People; FNIH, Foundation for the National Institutes of Health; IWGS, International Working Group on Sarcopenia.

Figure 2. Prevalence of sarcopenia according to the AWGS 2019 criteria in middle (< 60yrs) and old age (≥60yrs) groups



AWGS, Asian working group for Sarcopenia

Conclusion

In conclusion, the prevalence of sarcopenia using the international diagnostic criterias in community-dwelling normal Korean adults varies depending on the cutoff value and which item among the strength, muscle mass and physical function assessments is applied. Even in middle-aged normal adults, the prevalence of sarcopenia was found to be about half that of the elderly, so further large-scale studies of its medical and socio-economic value will be needed. As a screening test, the calf circumference is relatively more useful in distinguishing individuals without sarcopenia.