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Letter to the Editor

Reply to Comment on "Shall different cut-off points in the oldest old provide additional insight in sarcopenia research?"

Keywords:
Cut-off points
Sarcopenia
Grip strength
EWGSOP
Age
Oldest old

Dear Editor,

We would like to sincerely thank Dr. Colaci and colleagues for their comments on our article [1,2]. They suggest that nonagenarians represent an infrequent condition and could be considered a selected group with a successful aging. This idea is interesting and may be relevant. Understanding their specific features and performing separated analysis for this subgroup, could potentially provide information about the possible differences between aging and "ultra-ageing" (i.e. age >90 years) and specific cut-off values for different parameters.

However, we are not convinced that nonagenarians are a paradigm of successful aging. Many have survived to this age with significant mental decline, functional limitations and disability. There is still no universally accepted definition for successful aging, but the encyclopedia of aging defines as survival (longevity), health (lack of disabilities), and life satisfaction (happiness) [3]. Accordingly, in their article designed to estimate the prevalence of successful aging among nonagenarians by considering the physical, social, and psychological dimensions, Nosraty et al. [4] documented that the prevalence of successful aging varied from 1.6% to 18.3% in this age group. They concluded that the prevalence varies depending on the model applied and suggested that the models which emphasize the absence of disease and activity as criteria for successful aging may not be the most relevant and applicable in oldest old. Instead, preference should be given to models that focus more on autonomy, adaptation and sense of purpose. "Success" may better be defined as absence of disease and disability, maintained physical and mental functioning, and active engagement with life [5]. On the other hand, the oldest-old group meets the key biomedical criterion of successful aging—that is longevity.

Nevertheless, it is true that documentation of specific cut-off points for extreme old age may be of use in clinical practice. As detailed in our original manuscript, the cut-off thresholds for muscle mass were defined as the mean-2SD of the values of the young reference study population and for grip strength were calculated from ROC analyses using cutoff values that predicted gait speed $\leq$0.8 m/s. As the recommended determination of cut-off threshold for muscle mass is not related to the older adults' age, no other analysis has been performed for the muscle mass threshold between different older age groups. Accordingly, in our view the muscle mass threshold shall remain unchanged in the oldest old.

We enrolled old patients between 65 and 99 years old. However, only 20 subjects were $\geq$90 years old, so sample size does not allow for separate analysis. However, in Turkey, the expected survival at birth is lower than the developed countries—as 75.3 and 80.7 years for males and females, respectively, accounting for a mean of 78 years [6]. This may be-related to some worse life style choices (exercise, diet etc.), chronic disease control and preventive health services. Hence, it may be suggested that the older adults >80 years may represent the people with higher longevity component of the successful aging. Therefore, we divided our study population in 2 subgroups (<80 and $\geq$80 years of age) to explore changes in cut-off points for grip strength in young and old—old subgroups. Grip strength cut-off values were 32 kg and 30 kg for the males <80 years and $\geq$80 years, respectively (Fig. 1a and b). Grip strength cut-off values for females were 24 kg and 18 kg for those <80 years and those $\geq$80 years, respectively (Fig. 2a and b). These were somewhat different from the cut-off points identified when the cohort were not sub-divided in comparative age groups which were 32 kg and 22 kg for males and females, respectively [2].

These findings support the idea that the use of age-related cut-off points for muscle function may be worth to be investigated in sarcopenia research trials. The comparative use of these cut-off points should be investigated in order to test whether they may predict sarcopenia related adverse outcomes better.

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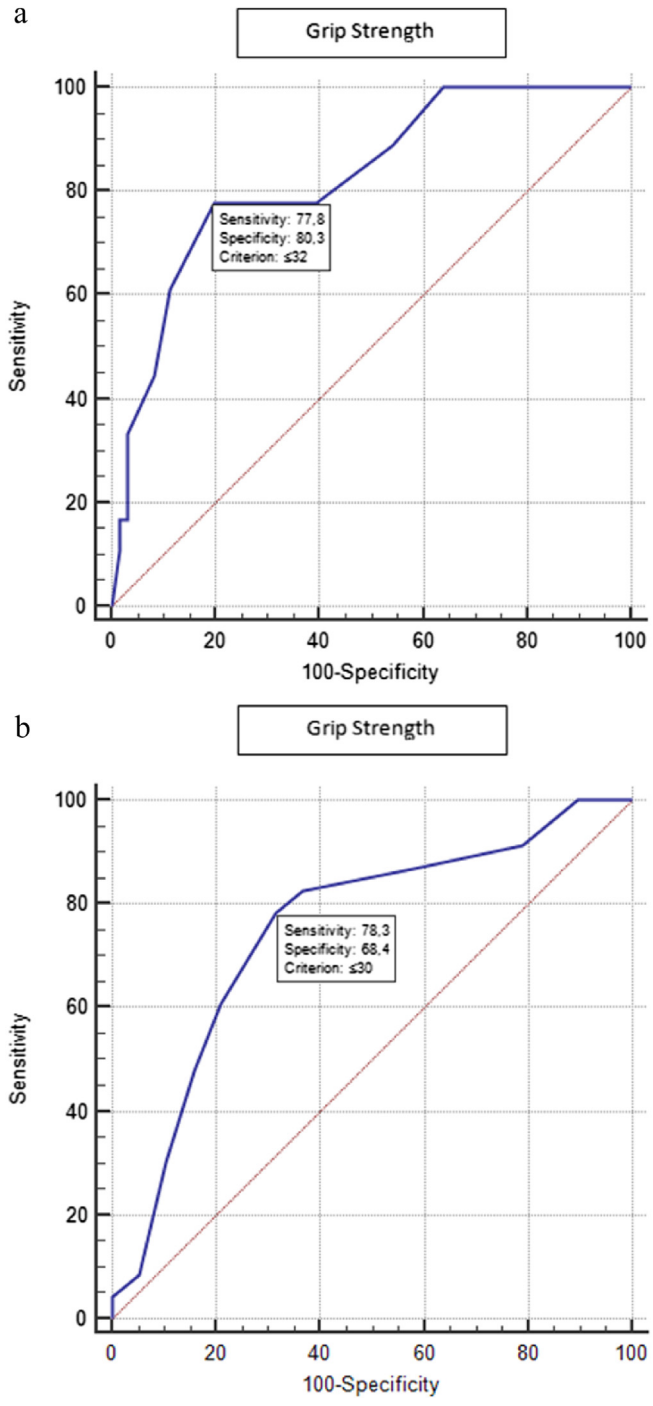


Fig. 1. a Grip strength cut-off value for the older <80 years males: ROC analysis results of grip strength for predicting usual gait speed (UGS) <0.8 m/s indicating the grip strength value of ideal highest sensitivity and specificity. b Grip strength cut-off value for the older ≥80 years males: ROC analysis results of grip strength for predicting usual gait speed (UGS) <0.8 m/s indicating the grip strength value of ideal highest sensitivity and specificity.

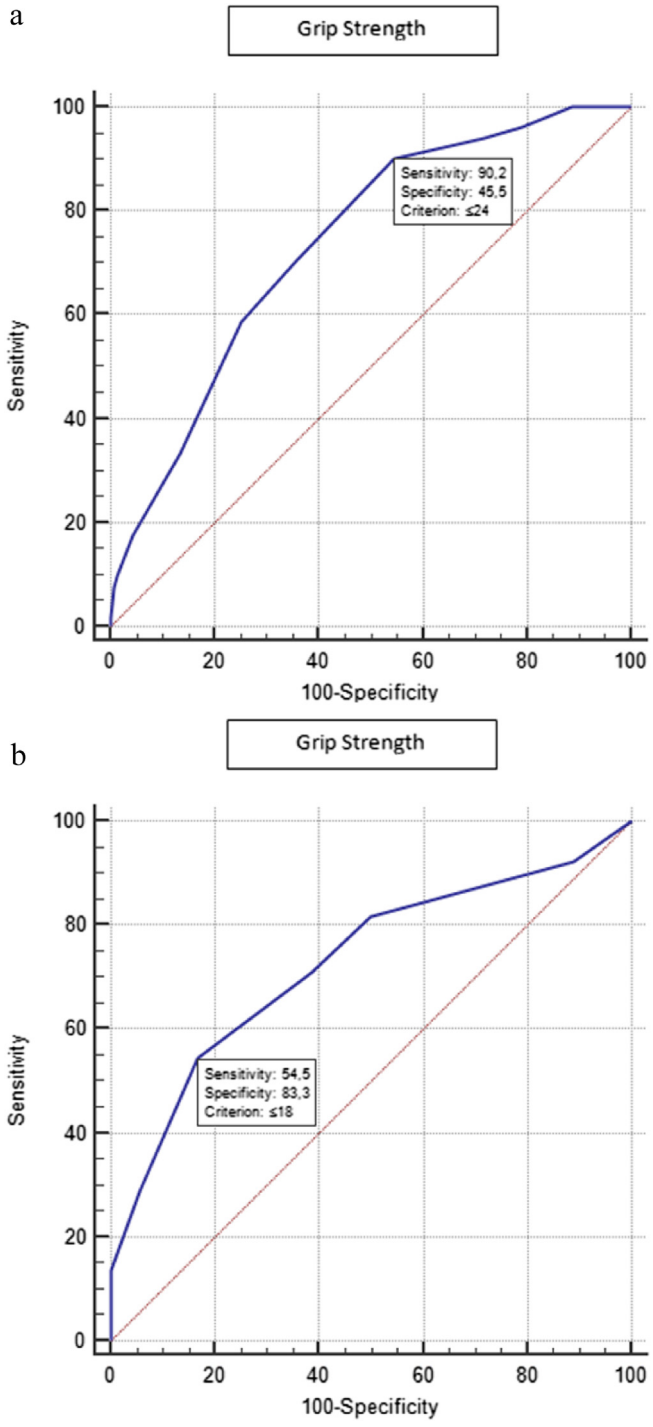


Fig. 2. a Grip strength cut-off value for the older <80 years females: ROC analysis results of grip strength for predicting usual gait speed (UGS) <0.8 m/s indicating the grip strength value of ideal highest sensitivity and specificity. b Grip strength cut-off value for the older ≥80 years females: ROC analysis results of grip strength for predicting usual gait speed (UGS) <0.8 m/s indicating the grip strength value of ideal highest sensitivity and specificity.

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