

# RECOGNISING SARCOPENIA

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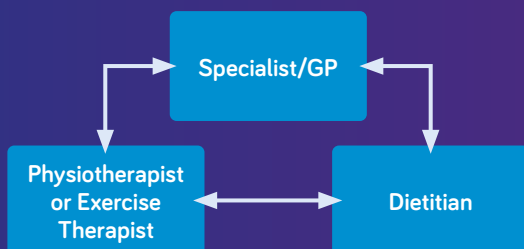


## What is sarcopenia?

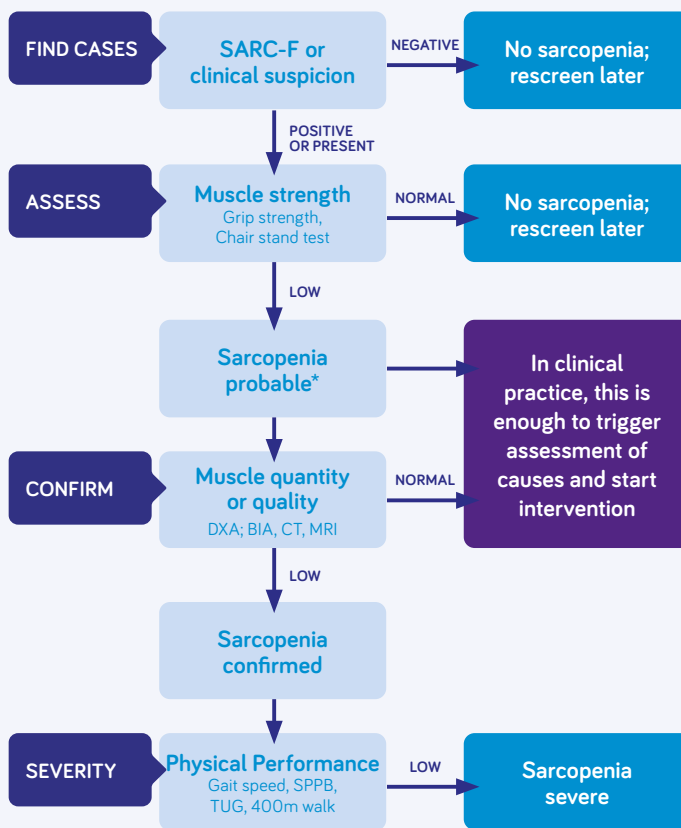
Sarcopenia is an age-associated low muscle mass, muscle strength and walking speed<sup>1</sup>. It is prevalent in approximately 30% of older adults<sup>2</sup> and associated with falls, fractures<sup>3</sup> and mortality<sup>4</sup>.

## Multidisciplinary approach

A multidisciplinary approach is necessary to prevent, diagnose and treat sarcopenia. The specialist, General Practitioner (GP), physiotherapist and Dietitian should collaborate in diagnosing and treating sarcopenia.



## European consensus on sarcopenia definition (2019)<sup>1</sup>



\*Consider other reasons for low muscle strength (e.g. depression, stroke, balance disorders, peripheral vascular disorders).

## Muscle strength<sup>1</sup>

### Handgrip strength

Dynamometer

Measure 3x right and 3x left

Men: <27 kg

Women: <16 kg



### Chair-stand test

>15 seconds  
(total time of 5 reps)

## Physical performance<sup>1</sup>

### 4-meter walk test

≤0,8m/s



### Short Physical Performance Battery

≤8 points

### Timed up and Go test

≥20 seconds

### 400-meter walk test

≥6 minutes or unable to complete

## Muscle mass<sup>1</sup>

### Dual-energy X-ray absorptiometry (DXA)

Appendicular lean mass  
(arms and legs) index:

Men: <7.0 kg/m<sup>2</sup>

Women: <5.5 kg/m<sup>2</sup>

### Bio-electrical impedance (BIA)

Skeletal muscle mass index:

Men: ≤10.75 kg/m<sup>2</sup>

Women: ≤6.75 kg/m<sup>2</sup>

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# SARCOPENIA MANAGEMENT



## Physiotherapist or exercise specialist<sup>5</sup>

### Muscle strengthening

Progressive resistance-based training at a high intensity has the most effect on increasing muscle mass and strength.

### Things to consider:

- The dose-response relationship
- The recovery period
- Co-morbidities (consider to consult a geriatric physical therapist)



## Physical exercise recommendations<sup>6</sup>

### Exercises

- 8-10 different large muscle groups
- Muscle groups: arms, legs and trunk

### Intensity

- High intensity (BORG 7-8/10)
- 80% of 1RM

### Frequency

- 3 or more times per week

### Repetition

- 8-12 reps, 1 set
- Rest of approximately 2 minutes in between exercises

## Dietitian

### Nutritional intervention<sup>7,8</sup>

The nutritional intervention is based on maintenance and growth of muscle protein, through adequate supply of protein, energy, calcium and vitamin D.

The dietitian translates the nutritional advice into a nutritional plan that is feasible in daily practice and sustainable in the long-term.



## Nutritional recommendations

### Protein<sup>7</sup>

- 1.2-1.5g/kg bodyweight/day
- Equal amounts spread across 3 meals
- Aim to obtain +/- 25g per meal

### Energy<sup>8</sup>

- 30kcal/kg bodyweight/day

### Calcium<sup>9</sup>

- 51-70 years: 1100 mg/day
- >70 years: 1200mg/day

### Vitamin D<sup>10</sup>

- Women 51-70 years: 10 mcg/day
- Men and women >70 years: 20mcg/day

The combination of strength training and an adequate protein intake is the most effective intervention to increase muscle mass and muscle strength. **The collaboration between the physiotherapist or exercise specialist and the dietitian is essential.**

## References

1. Cruz-Jentoft A, et al. Age Ageing. 2019;48:16-31.
2. Pacifico J, et al. Exp Gerontol. 2020;131:110801.
3. Yeung SSY, et al. J Cachexia Sarcopenia Muscle. 2019;10:485-500.
4. Xu J, et al. Gerontology. 2021;27:1-16.
5. Peterson MD, et al. Ageing Res Rev. 2010;9:226-37.
6. Montero-Fernández N, et al. Eur J Phys Rehabil Med. 2013;49:131-43.
7. Bauer J, et al. J Am Med Dir Assoc. 2013;14:542-59.
8. Volkert D, et al. Clin Nutr. 2019;38:10-47.
9. Institute of Medicine, Food and Nutrition Board. Dietary Reference Intakes for Calcium and Vitamin D. Washington, DC: National Academy Press, 2010.
10. Evaluatie van de voedingsnormen voor vitamine D. Publicatienr. 2012/15. Den Haag: Gezondheidsraad; 2012.

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