

## World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (WCO-IOF-ESCEO 2021): EUGMS-ESCEO-IOF Symposium Abstracts

© International Osteoporosis Foundation and National Osteoporosis Foundation 2021

### EUGMS-ESCEO-IOF1

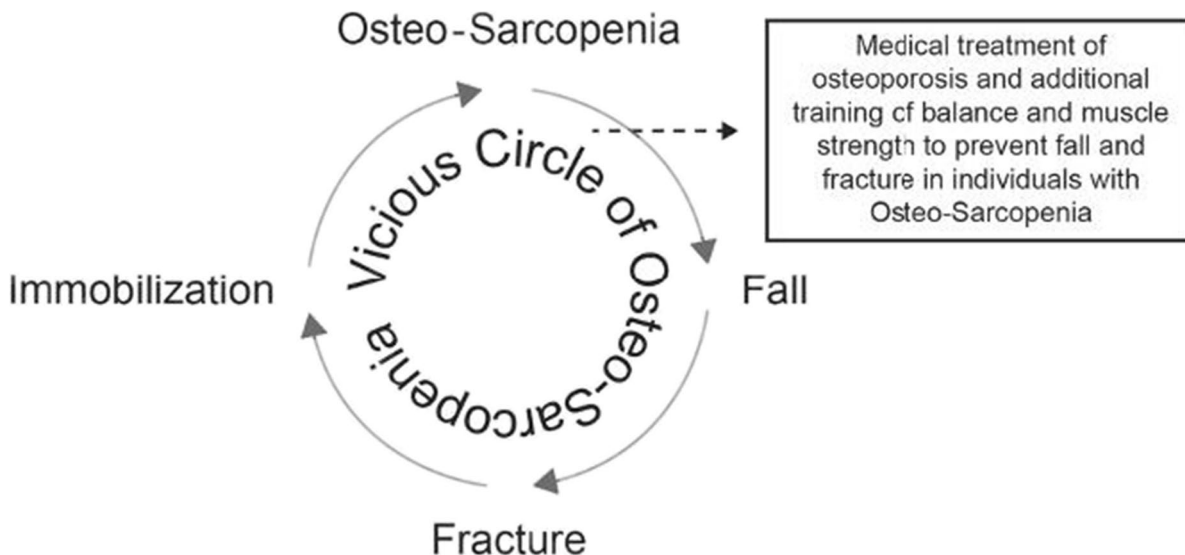
#### OSTEOSARCOPENIA: PREVALENCE AND CONSEQUENCES

B. Rubek Nielsen<sup>1,2</sup>

<sup>1</sup>Department of Internal Medicine M, Geriatric Section, Amager and Hvidovre Hospital, Glostrup, Denmark, <sup>2</sup>Department of Internal Medicine, Lung Section, Amager and Hvidovre Hospital, Glostrup, Denmark

Older age has a negative effect on the musculoskeletal system and, due to the increase life expectancy, a heightened risk of osteoporosis and sarcopenia is expected. Hence, the prevalence of the combined geriatric syndrome “OsteoSarcopenia” is expected to increase as well.

Osteoporosis, defined by WHO in 1994, is characterized by changes of the microarchitecture of the bone causing a fragile state leading to induced risk of low-energy fracture (1). No consensus regarding the definition of sarcopenia is present. However, a combination of impaired muscle strength and mass as well as physical function is considered essential (2). In older home dwelling populations, the prevalence of osteosarcopenia is relatively high but inconsistent due to varying definitions of sarcopenia (1.5 to 32.2%) (3–7). In a more fragile population of geriatric inpatients a prevalence of 14.2% is reported (8). Higher prevalence is reported in patients from osteoporosis outpatient clinics (20% to 65%) (9–11) and patients who have incurred an osteoporosis related fracture (46% estimated from pooled data in a meta-analysis) (12).



(3) Both osteoporosis and sarcopenia independently increase the risk of fall, fracture, loss of mobility and mortality (13–15).

As illustrated, patients with osteosarcopenia is expected to enter a vicious circle that may lead to a higher risk of those outcome, though conflicting data exists (16, 17).

This oral lecture on osteosarcopenia aims to share the newest data on the prevalence of osteosarcopenia. Furthermore, data pro and con the hypothesis of an increased risk of negative outcome in patients suffering from osteosarcopenia versus either osteoporosis or sarcopenia alone will be presented.

## Reference

1. WHO. Assessment of fracture risk and its application to screening for postmenopausal osteoporosis. *World Health Organ Tech Rep Ser* 843:1–129; 1994.
2. Cruz-Jentoft AJ, Bahat G, Bauer J, Boirie Y, Bruyère O, Cederholm T, et al. Sarcopenia: revised European consensus on definition and diagnosis. *Age and ageing*. 2019;48(1):16–31.
3. Nielsen BR, Andersen HE, Haddock B, Hovind P, Schwarz P, Suetta C. Prevalence of muscle dysfunction concomitant with osteoporosis in a home-dwelling Danish population aged 65–93 years—The Copenhagen Sarcopenia Study. *Experimental gerontology*. 2020;138:110,974.
4. Drey M, Sieber CC, Bertsch T, Bauer JM, Schmidmaier R. Osteosarcopenia is more than sarcopenia and osteopenia alone. *Ageing clinical and experimental research*. 2016;28(5):895–9.
5. Gentil P, Lima RM, Jaco de Oliveira R, Pereira RW, Reis VM. Association between femoral neck bone mineral density and lower limb fat-free mass in postmenopausal women. *Journal of clinical densitometry: the official journal of the International Society for Clinical Densitometry*. 2007;10(2):174–8.
6. Locquet M, Beaudart C, Bruyère O, Kanis JA, Delandsheere L, Reginster JY. Bone health assessment in older people with or without muscle health impairment. *Osteoporosis international: a journal established as result of cooperation between the European Foundation for Osteoporosis and the National Osteoporosis Foundation of the USA*. 2018;29(5):1057–67.
7. Buehring B, Krueger D, Binkley N. Effect of including historical height and radius BMD measurement on sarcosteoporosis prevalence. *Journal of cachexia, sarcopenia and muscle*. 2013;4(1):47–54.
8. Reiss J, Iglseider B, Alzner R, Mayr-Pirker B, Pirich C, Kässmann H, et al. Sarcopenia and osteoporosis are interrelated in geriatric inpatients. *Zeitschrift für Gerontologie und Geriatrie*. 2019;52(7):688–93.
9. Genaro PS, Pereira GA, Pinheiro MM, Szejnfeld VL, Martini LA. Influence of body composition on bone mass in postmenopausal osteoporotic women. *Archives of gerontology and geriatrics*. 2010;51(3):295–8.
10. Hamad B, Basaran S, Coskun Benlidayi I. Osteosarcopenia among postmenopausal women and handgrip strength as a practical method for predicting the risk. *Ageing clinical and experimental research*. 2020;32(10):1923–30.
11. Huo YR, Suriyaarachchi P, Gomez F, Curcio CL, Boersma D, Muir SW, et al. Phenotype of osteosarcopenia in older individuals with a history of falling. *Journal of the American Medical Directors Association*. 2015;16(4):290–5.
12. Nielsen BR, Abdulla J, Andersen HE, Schwarz P, Suetta C. Sarcopenia and osteoporosis in older people: a systematic review and meta-analysis. *European Geriatric Medicine*. 2018(9):419–34.
13. Baumgartner RN, Koehler KM, Gallagher D, Romero L, Heymsfield SB, Ross RR, et al. Epidemiology of sarcopenia among the elderly in New Mexico. *American journal of epidemiology*. 1998;147(8):755–63.
14. Frisoli A, Jr., Chaves PH, Ingham SJ, Fried LP. Severe osteopenia and osteoporosis, sarcopenia, and frailty status in community-dwelling older women: results from the Women's Health and Aging Study (WHAS) II. *Bone*. 2011;48(4):952–7.
15. Marks R. Hip fracture epidemiological trends, outcomes, and risk factors, 1970–2009. *International journal of general medicine*. 2010;3:1–17.
16. Paintin J, Cooper C, Dennison E. Osteosarcopenia. *British journal of hospital medicine (London, England: 2005)*. 2018;79(5):253–8.
17. Scott D, Johansson J, McMillan LB, Ebeling PR, Nordstrom P, Nordstrom A. Associations of Sarcopenia and Its Components with Bone Structure and Incident Falls in Swedish Older Adults. *Calcified tissue international*. 2019;105(1):26–36.

## EUGMS-ESCEO-IOF2

### MUSCLE MATTERS FOR EXPERTS IN OSTEOPOROSIS

S. Perkasias<sup>1</sup>

<sup>1</sup>University Center of Geriatrics, Univeristy of Antwerp, Antwerp, Belgium

**Objectives:** This presentation is intended to convince the audience to shift the focus of their osteoporosis management away from the bone and towards the muscle.

**Material and Methods:** Not applicable

**Results:** Not applicable

**Conclusion:** The pathophysiology of osteoporosis is quite complicated, as it is not only an interplay between changes intrinsic to the bone itself, but also to external factors. Of the latter, activity of the muscles seems to be the most important. The exact mechanism of muscle-bone crosstalk, with myokines and osteokines as primary actors, is still not quite understood. However, instead of waiting for the mysteries of this crosstalk to be unraveled and translated into a use for clinical practice, perhaps it is advisable to use a simpler and more functional viewing point on the matter. Understanding the changes that occur in the muscle and to be able to measure them, will improve the timing of—preventive – treatment options that exist for osteoporosis, eventually leading to better outcomes.

In this presentation, two main points will be addressed. First, an overview will be given on this muscle-bone interaction, with special emphasis on osteoporosis being a consequence to be avoided, rather than a disease to be treated. Some provocative viewing points will be introduced, for instance why osteoporosis should not pose any problem for either patients or health care systems. Second, an insight into the most recent recommendations for muscle mass assessment will be given, including the new guidelines for ultrasonographic measurements. The exact place of ultrasound in the assessment of muscle will be highlighted, as also the potential it has on future osteoporosis screening.

**References:** Not applicable

**Acknowledgments:** Not applicable

**Disclosures:** I have no conflict of interest to disclose.