Letter to the Editor

Letter to the Editor from Smith et al: Osteosarcopenia in Reproductive-Aged Women with Polycystic Ovary Syndrome: A Multicenter Case-Control Study

Cassandra Smith,[1,2] **David Scott,**[2,3,4] **Peter Ebeling,**[4] **and Itamar Levinger**[1,2]

[1]Institute for Health and Sport (IHES), Victoria University, Melbourne, Victoria, Australia; [2]Australian Institute for Musculoskeletal Science (AIMSS), University of Melbourne and Western Health, St Albans, Victoria, Australia; [3]Institute for Physical Activity and Nutrition, School of Exercise and Nutrition Sciences, Deakin University, Geelong, Victoria, Australia; and [4]Department of Medicine, School of Clinical Sciences at Monash Health, Monash University, Clayton, Victoria, Australia

ORCiD numbers: 0000-0002-2517-2824 (C. Smith); 0000-0001-9194-2033 (I. Levinger).

We read with interest the article by Kazemi et al (1) on differences in bone mineral density (BMD) and lean mass in women with polycystic ovarian syndrome (PCOS) compared with women with other reproductive phenotypes and controls. The findings are potentially important for the understanding of musculoskeletal pathophysiology of women with PCOS. Nevertheless, we are concerned that the authors chose to use the term "osteosarcopenia" in the context of their study.

Although osteosarcopenia is a relatively new concept with no accepted definition, its 2 components are well-defined. Osteoporosis and sarcopenia are both diseases of ageing and when considering premenopausal women, men aged < 50 years, and children, the International Society for Clinical Densitometry recommends ethnic- or race-adjusted BMD *z*-scores and terminology such as "low BMD for chronological age" (2). Additionally, younger adults who have low BMD are not necessarily osteoporotic and there is currently no evidence-based treatments for this because commonly it is caused by secondary conditions (3). Similarly, the task force of the International Conference on Sarcopenia and Frailty Research recommends screening for sarcopenia in adults aged ≥ 65 years (4). We therefore believe that the use of the term "osteosarcopenia" in this young cohort (mean age ~27 years) is inappropriate.

Exploring whether women with PCOS have low BMD compared with other age-matched groups is relevant, but the authors have not reported BMD *z*-scores or prevalence of low BMD (*z*-score < –2). The authors claimed to use common methods for the determination of "sarcopenia" in their cohort but quantified only lean mass. Recent consensus statements from the European Working Group on Sarcopenia in Older People (5) and Sarcopenia Definitions and Outcomes Consortium (6-8) highlight the importance of muscle strength in sarcopenia. Thus, even ignoring that the use of the term "osteosarcopenia" is inappropriate for this age group, the analysis performed does not allow us to determine whether prevalence of low BMD, muscle mass/strength, or their combination, is increased in these young women with PCOS.

It is important to clarify the results of Kazemi et al (1) and inform others of pitfalls in the use of terms such as osteoporosis, sarcopenia, and osteosarcopenia in studies of younger populations. It is important that study protocols take into account internationally recognized definitions when using these terms because when used incorrectly, it can be misleading for researchers and for clinicians, the end-users putting our research into practice.

Additional Information

Correspondence and Reprint requests: Itamar Levinger, Institute for Health and Sport (IHES), Victoria University, Melbourne, Victoria, Australia; Australian Institute for Musculoskeletal Science (AIMSS), University of Melbourne and Western Health, St Albans, Victoria, Australia. E-mail: itamar.levinger@vu.edu.au.

References

1. Kazemi M, Jarrett BY, Parry SA, et al. Osteosarcopenia in reproductive-aged women with polycystic ovary syndrome: a multicenter case-control study. *J Clin Endocrinol Metab.* 2020;105(9):e3400–e3414.
2. Schousboe JT, Shepherd JA, Bilezikian JP, Baim S. Executive summary of the 2013 International Society for Clinical Densitometry Position Development Conference on bone densitometry. *J Clin Densitom.* 2013;**16**(4):455-466.
3. Rozenberg S, Bruyère O, Bergmann P, et al. How to manage osteoporosis before the age of 50. *Maturitas.* 2020;**138**:14-25.
4. Dent E, Morley JE, Cruz-Jentoft AJ, et al. International Clinical Practice Guidelines for Sarcopenia (ICFSR): screening, diagnosis and management. *J Nutr Health Aging.* 2018;**22**(10):1148-1161.
5. Cruz-Jentoft AJ, Bahat G, Bauer J, et al.; Writing Group for the European Working Group on Sarcopenia in Older People 2 (EWGSOP2), and the Extended Group for EWGSOP2. Sarcopenia: revised European consensus on definition and diagnosis. *Age Ageing.* 2019;**48**(1):16-31.
6. Cawthon PM, Manini T, Patel SM, et al. Putative cut-points in sarcopenia components and incident adverse health outcomes: an SDOC analysis. *J Am Geriatr Soc.* 2020;**68**(7):1429-1437.
7. Manini TM, Patel SM, Newman AB, et al. Identification of sarcopenia components that discriminate slow walking speed: a pooled data analysis. *J Am Geriatr Soc.* 2020;**68**(7):1419-1428.
8. Bhasin S, Travison TG, Manini TM, et al. Sarcopenia definition: the position statements of the sarcopenia definition and outcomes consortium. *J Am Geriatr Soc.* 2020;**68**(7):1410-1418.