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Response to Letter Regarding Article, “Cardiovascular and Metabolic Heterogeneity of Obesity: Clinical Challenges and Implications for Management”

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We thank Dr. Kahn for his letter regarding the supine sagittal abdominal diameter (SAD) as a useful indicator of abdominal adiposity and its associated dysmetabolic state. We agree that the SAD method can be helpful given its correlation with visceral adipose tissue (VAT), adverse metabolic biomarkers, and cardiometabolic events. Furthermore, it may have potential advantages over other methods since gravity can shift excess abdominal subcutaneous adipose tissue to the patient periphery and may allow a more accurate approximation of VAT. Indeed, in a Korean study of 5,257 healthy men and women, SAD measured with computed tomography (CT) was more strongly correlated with VAT than was waist circumference.¹ SAD measured by CT was also found to be more closely related to traditional cardiovascular risk factors in 151 Canadian adults than the waist-hip ratio.² Implementation of a standardized protocol and use of portable calipers, rather than CT-based measurements, make use of the SAD more feasible in clinical practice.

However, as with any anthropometric index of abdominal adiposity, the SAD cannot replace direct imaging assessments of VAT and so it remains a potentially useful, although purely surrogate, measure of VAT. It is unfortunate that the two studies^{3, 4} referenced by Dr. Kahn demonstrating the association between SAD and incident cardiovascular disease and type 2 diabetes did not also measure VAT by imaging in order to compare the relative strengths of association between SAD and VAT for incident events. Future epidemiological studies directly comparing the two methods would be informative. Furthermore, although SAD appears to have marginally better correlations with VAT than waist circumference, waist measurement remains more accessible to health professionals than what is required to measure SAD which could explain why societal guidelines recommend measuring waist (in addition to body mass index) rather than SAD. We applaud Dr. Kahn and his colleagues on

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publishing normative data for SAD and encourage the medical and public health community to consider incorporating it into the toolkit for assessing adiposity.

The common denominator of both our review article⁵ and Dr. Kahn's letter remains that we must move beyond the body mass index (BMI) towards a more sophisticated and informative approach to assessing adiposity and its implication for cardiometabolic risk. Unfortunately, despite increasing recognition that more specific indicators of visceral adiposity are readily available and contribute important information to a meaningful clinical interpretation of the BMI, many in the academic and clinical medical communities steadfastly adhere to the BMI as the "best" measure of obesity despite ample literature to the contrary. Assessing expanding waistlines and not just weight, by measuring waist, SAD, or VAT directly, should be a priority as we move toward more personalized medicine approaches to improve the health of individuals and populations in the future.

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