

*Correspondence*

# Reply to: Correlation Between Right Ventricular Echocardiography Measurements and Functional Capacity in Patients With Pulmonary Arterial Hypertension

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*To the Editor:*

We have thoroughly engaged with the article “Correlation Between Right Ventricular Echocardiography Measurements and Functional Capacity in Patients With Pulmonary Arterial Hypertension,” written by J. L. Woo et al.<sup>1</sup> In this study, echocardiography-derived parameters of tricuspid regurgitant peak velocity reportedly had a negative correlation with the 6-minute walk test, peak oxygen consumption on exercise testing, and average daily steps on accelerometry, but they had a positive correlation with median sedentary time on accelerometry. Pulmonary arterial acceleration time positively correlated with peak oxygen consumption on exercise testing. Additional right ventricular (RV) functional assessments, such as RV fractional area change and 3-dimensional volumetric assessments, were not included as study variables. As observed by Badagliacca et al,<sup>2</sup> however, echocardiographic parameters such as RV fractional area change, right atrial area, and speckle tracking–derived RV dyssynchrony are independent predictors of aerobic exercise capacity in patients with pulmonary arterial hypertension (PAH). It would therefore be interesting to evaluate and concretely define through future studies the correlation between accelerometry and these important echocardiographically derived parameters.

Another interesting finding from this study was that the improvement of RV global longitudinal strain and free-wall strain with the increase of an individual’s World Health Organization functional class was clearly clinically significant but did not reach statistical significance. A recent study<sup>3</sup> identified 3 phenotypically distinct RV strain–derived postsystolic patterns that corresponded to different degrees of PAH severity. The study proved that adding RV postsystolic patterns to clinical and hemodynamic variables in multivariable models for predictions of clinical worsening significantly increased their prognostic power.<sup>3</sup> In consideration of these results, increasing patient sample size in future evaluations will be required to reach statistical significance.

It is well established in literature how peak baseline oxygen consumption measured during cardiopulmonary exercise testing has a relevant prognostic impact on the follow-up of patients with stable PAH.<sup>4</sup> Taking into account the feasibility and cost-effectiveness of obtaining accelerometric and echocardiographic data, it would be useful to construct and validate prognostic models that include these variables, as well, to introduce accelerometry as a useful, noninvasive, and cost-effective tool to monitor disease progression in patients with PAH.

It should nevertheless be kept in mind that patients with PAH develop diverse pathophysiologic adaptations to different types of exercise; as shown by Valli et al,<sup>5</sup> for example, the data obtained from walking tests are not identical to data obtained from cycling tests. It appears that patients with PAH tolerate less walking than cycling, but walking better reveals the degree of gas exchange inefficiency and should be used to assess arterial oxygen desaturation during exercise.<sup>5</sup> To monitor disease progression, accelerometric data should therefore always be integrated with gas

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exchange data derived from cardiopulmonary exercise testing for a more complete evaluation of the patient's functional capacity. Together, they could be useful tools for faster and easier detection of disease progression in patients with PAH.

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## Article Information

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## Abbreviations and Acronyms

PAH	pulmonary arterial hypertension
RV	right ventricular

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