

# Does disease duration influence the exercise training responses of patients with type 2 diabetes?

Sir,

Regular exercise is recognized as an effective therapy for type 2 diabetes.<sup>[1-3]</sup> One issue that has not been well addressed, however, is the extent to which diabetes duration (i.e., time since diagnosis) influences responses to exercise training. Understanding this response as a function of disease duration is important for exercise prescription because it provides insight into the question of when therapeutic exercise should be implemented during the disease trajectory. Indeed, it has been reported that there exists a limited or specific window of opportunity within which to best exploit the benefits of a given therapy in several chronic, debilitating conditions,<sup>[4-6]</sup> although this was not always the case.<sup>[7]</sup> Specific to type 2 diabetes, one study showed beneficial effects of exercise training in patients with long-standing disease;<sup>[8]</sup> however, the magnitude of change in comparison to patients with shorter disease duration was not addressed.

To that end, we conducted a preliminary evaluation of the adaptations to a high daily and high weekly frequency resistance training program that consisted of two daily sessions, 5 days/week for 12 weeks in patients with short-standing ( $3 \pm 2$  years) or long-standing ( $10 \pm 3$  years) type 2 diabetes. Improvements in blood markers of glucose control and body composition did not appear to depend on disease duration. Patients with long-standing disease, however, demonstrated increased grip strength and greater peak exercise time and load during graded exercise; those with short-standing disease did not. Based on these preliminary data, we believe that patients with a long history of diabetes may demonstrate equivalent or greater responsiveness to exercise training, and a comprehensive evaluation of greater scope may be warranted.

## AUTHOR'S CONTRIBUTION

BSP contributed to the conception and design of the work, performed data analysis, drafted the manuscript, performed significant revisions, approved the final version of the manuscript, and agreed for all aspects of the work. AVK contributed to the conception and design of the work, performed data analysis, drafted

the manuscript, performed significant revisions, approved the final version of the manuscript, and agreed for all aspects of the work. LEB contributed to the interpretation of the data, revised the draft, approved the final version of the manuscript, and agreed for all aspects of the work. DYK contributed to the conception and design of the work, performed data collection and analysis, approved the final version of the manuscript, and agreed for all aspects of the work. KAH contributed to the conception and design of the work, performed data collection and analysis, approved the final version of the manuscript, and agreed for all aspects of the work. KWM contributed to the conception and design of the work, performed data collection and analysis, approved the final version of the manuscript, and agreed for all aspects of the work. GHA contributed to the conception and design of the work, performed data analysis, drafted the manuscript, performed significant revisions, approved the final version of the manuscript, and agreed for all aspects of the work

**Bong-Sup Park, Andy V. Khamoui<sup>1</sup>,  
Lee E. Brown<sup>2</sup>, Do-Youn Kim<sup>3</sup>, Kyung-Ah Han<sup>4</sup>,  
Kyung-Wan Min<sup>4</sup>, Geun-Hee An<sup>5</sup>**

Department of Physical Education, Chung-Ang University, Seoul, <sup>3</sup>Department of Physical Education, INHA University, Incheon, <sup>4</sup>Department of Internal Medicine, School of Medicine, Eulji University, Daejeon, <sup>5</sup>Department of Sports Science, Daejin University, Pocheon, Korea, <sup>1</sup>Division of Respiratory & Critical Care Physiology & Medicine, Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, Torrance, CA, <sup>2</sup>Department of Kinesiology, Center for Sport Performance, California State University, Fullerton, California, USA

**Address for correspondence:** Dr. Geun-Hee An,  
Department of Sports Science, Daejin University,  
Hogukro 1007, Pocheon-si, Gyeonggi-do - 487 711, Korea.  
E-mail: akh.daejin@gmail.com

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