

We read with interest the article by Thomas et al. (1). However, we are concerned that the presented statement did not consider children and adolescents with congenital heart disease (CHD), as this patient group might also benefit from home-based rehabilitation.

In childhood, physical activity is particularly important, not only for somatic health, but also for neurologic, emotional, and psychosocial development. Furthermore, exercise may be beneficial to prevent acquired diseases typical for sedentary individuals, i.e. atherosclerotic cardiovascular disease, obesity, hypertension, and type 2 diabetes.

Unfortunately, children with CHD have often reduced levels of physical activity, mainly due to overprotection of parents and caregivers, teachers and sport trainers, physicians and health care professionals, and also due to misperceptions regarding the relative risks versus benefits of participation (2).

In a pilot study in children and adolescents with pulmonary arterial hypertension, we recently were able to show that a home-based exercise training in combination with online-feedback and motivational phone calls might be a promising approach in this age group (3).

In children with CHD, exercise training has shown to be effective as well (4), however the experience with home-based rehabilitation programs is limited so far. The use of digital media with the aim of developing an online training platform executed by experts in cardiology, sports science, psychology and physiotherapy may represent an innovative approach, and lastly might be the key to increase the attractiveness of home-based cardiac rehabilitation programs for tech-savvy children and adolescents with CHD who grew up with computer devices (5).

References

1 Thomas RJ, Beatty AL, Beckie TM, et al. Home-Based Cardiac Rehabilitation. A Scientific Statement From the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology. *J Cardiopulm Rehabil Prev.* 2019;39:208-225.

2 Takken T, Giardini A, Reybrouck T, et al. Recommendations for physical activity, recreation sport, and exercise training in paediatric patients with congenital heart disease: a report from the Exercise, Basic & Translational Research Section of the European Association of Cardiovascular Prevention and Rehabilitation, the European Congenital Heart and Lung Exercise Group, and the Association for European Paediatric Cardiology. *Eur J Prev Cardiol.* 2012;19:1034-65.

3 Zöller D, Siaplaouras J, Apitz A, et al. Home Exercise Training in Children and Adolescents with Pulmonary Arterial Hypertension: A Pilot Study. *Pediatr Cardiol.* 2017;38:191-198.

4 Duppen N, Takken T, Hopman MT, et al. Systematic review of the effects of physical exercise training programmes in children and young adults with congenital heart disease. *Int J Cardiol.* 2013;168:1779-87.

5 Siaplaouras J, Albrecht C, Helm P, Sticker E, and Apitz C. Physical activity with congenital heart disease: Current options and future developments. *Monatsschr Kinderheilkd* 2019; 167: 51-57.

Writing Group Response

The AACVPR/AHA/ACC Scientific Statement on Home-based Cardiac Rehabilitation is focused on cardiac rehabilitation services for adults, which is the primary focus of cardiac rehabilitation services in most centers. However, we agree with the points raised in the letter from Siaplaouras and Apitz that very significant opportunities exist to explore the role of cardiac rehabilitation services in pediatric patients.

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On behalf of the writing group for the AACVPR/AHA/ACC Scientific Statement on Home-based Cardiac Rehabilitation