

## Aerobic capacity estimation: ¿Is the VO<sub>2</sub> máx really maximum in overweight and obese children and adolescents?

Estimación de la capacidad aeróbica: ¿Es el VO<sub>2</sub> máximo realmente máximo en niños, niñas y adolescentes con sobrepeso y obesidad?

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Mr. Editor,

We would like to congratulate the authors of the study "*Hospitalary concurrent exercise program in overweight and obese school students and adolescents during COVID-19 pandemic*"<sup>1</sup>, whose purpose was to determine the effects of an exercise protocol in overweight and obese schoolchildren and adolescents on anthropometry, muscle function, aerobic capacity and metabolic control, during the COVID-19 pandemic. The research analyzed 24 children with an average age of 11 years who attended the South Metropolitan Health Service between June 2020 and February 2021. In relation to the conclusion of the work, the researchers indicated the following: "Overweight schoolchildren and adolescents and obesity improved their parameters of muscle function and aerobic capacity after 12 weeks of a concurrent exercise program."

Based on the study population addressed in the previously cited scientific work, we would like to provide relevant information on the estimation of aerobic capacity through the Shuttle 20 m run test<sup>1</sup>. To begin, we believe it is important to mention that VO<sub>2</sub> max is defined as the maximum volume of oxygen that the body can absorb, transport and consume in a given time, this being an important predictor for the assessment of survival, mortality and cardiovascular risk, as well as performance. Sport in events with a predominance of aerobic metabolism<sup>2,3</sup>.

Regarding the Shuttle test, this has been shown to be an appropriate test for estimating VO<sub>2</sub> in the pediatric population<sup>3</sup>. This despite the fact that the maximality of the VO<sub>2</sub> concept is still the subject of debate due to the existence of a stable VO<sub>2</sub> plateau, respiratory quotient (RER) > 1.1 and maximum heart rate during exercise<sup>4,5</sup>. In this sense, the literature has observed that only 51% of the healthy population can reach a VO<sub>2</sub> plateau condition, while 70% can only reach two of these criteria and 7% cannot reach any<sup>5</sup>, these findings being attributed mainly due to the existence of a non-significant re-

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relationship between the real intensity of the exercise and the rating of perceived exertion in children with overweight and obesity<sup>6</sup>.

For this reason, based on this exposed evidence,

we consider it more appropriate for future research to estimate the greatest amount of oxygen consumed during exercise or  $\text{VO}_2$  peak instead of  $\text{VO}_2$  max in a pediatric population subjected to the Shuttle test<sup>3,4</sup>.

## References

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