Preterm birth may later impact cardiovascular and muscular health

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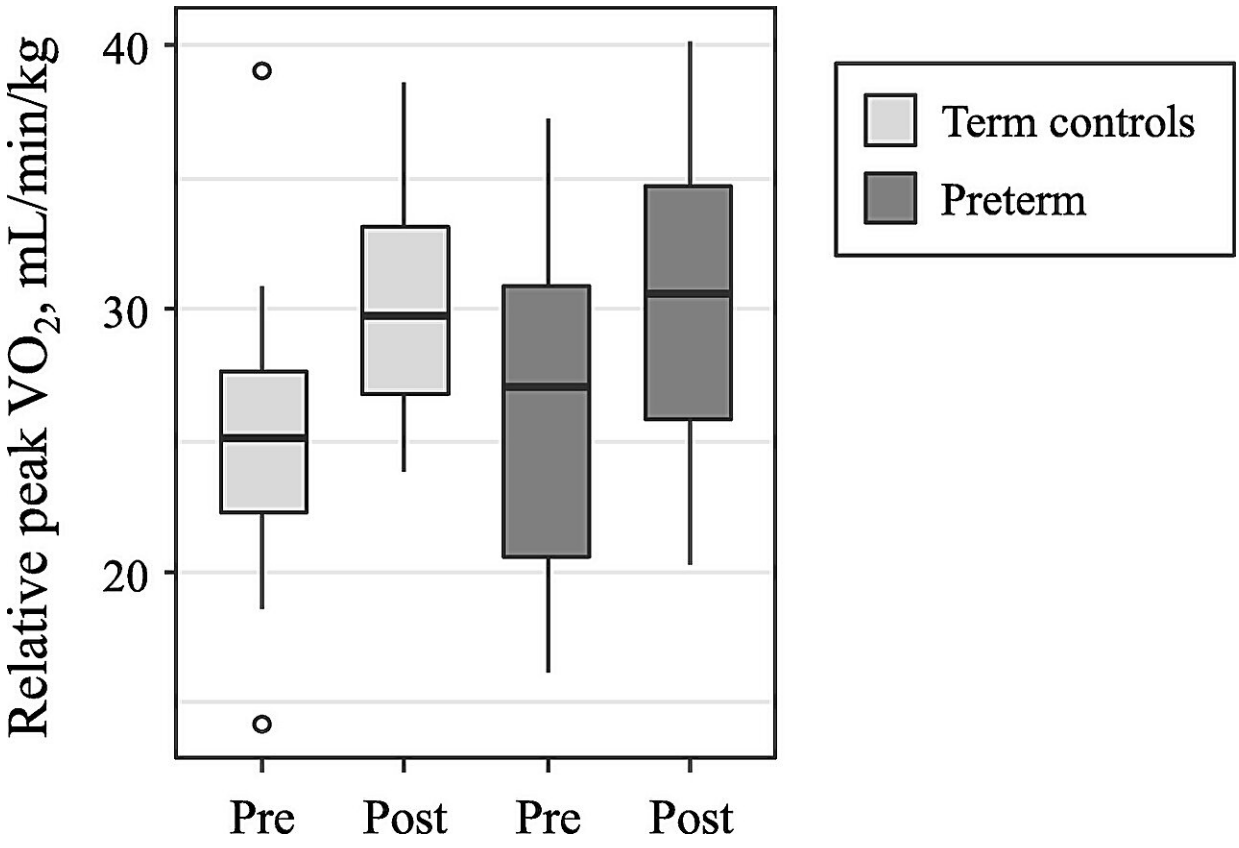

Increase in relative peak VO_2 in preterm and full-term controls after the exercise intervention program (females only). Data are shown as median (interquartile range). Credit: *Medicine & Science in Sports & Exercise* (2023). DOI: 10.1249/MSS.0000000000003279

Adults born very preterm have poorer cardiorespiratory health than those born at term, suggests a new study led by Université de Montréal professors Thuy Mai Luu and Anne-Monique Nuyt, researchers at CHU Sainte-Justine.

The findings, published in the *European Respiratory Journal*, strongly suggest that preterm birth causes muscle damage, reducing exercise capacity. Fortunately, preliminary results from the same laboratory suggest that some of the impact can be offset by regular exercise.

This study opens up new avenues for research and non-pharmacological approaches to improving the health of people born preterm, and underscores the importance of taking preterm birth into account in medical care at all ages.

Reduced exercise capacity

To assess exercise capacity, the research team measured peak oxygen consumption and analyzed cardiac function in 71 HAPI cohort adults aged 18 to 29 born at less than 30 weeks, and in 73 individuals in the same age group born at full term.

They found that participants born preterm had significantly lower oxygen uptake during exercise than those born at term, but there was no difference in cardiac function. The decrease in exercise capacity was even greater in subjects who had spent a long time in intensive care after birth.

"These findings suggest that muscle function and metabolism are affected by preterm birth," explained Nuyt, head of the Department of Pediatrics at UdeM. "Until now, research has focused on the impact of preterm birth on the brain, lungs and heart. This study opens up a whole new field of research."

Reversing the negative effects through regular exercise is also the finding of another study, published in *Medicine & Science in Sports & Exercise*, conducted on 21 HAPI cohort subjects. They, along with 37 young adults born at full term, saw their physical exertion capacity increase following a supervised 14-week exercise program.

"These are very encouraging preliminary results," said Luu, a researcher at the Center de recherche Azrieli du CHU Sainte-Justine who worked with her student, Camille Bastien-Tardif, first author of the study.

"This means that people born preterm, just like those born at full term, can improve their cardiovascular health by moving more and adopting healthy lifestyle habits. Other studies have shown the benefits of physical activity in preterm children, but our study suggests that these benefits continue into adulthood."

A lifelong risk factor

Even in people who feel healthy, preterm birth is a lifelong risk factor in the same way as a sedentary lifestyle or heavy smoking.

"The differences observed between the two groups of participants are not alarming," said Camille Girard-Bock, a student and first author of the study published in the *European Respiratory Journal*. "But when you add other physical deconditioning risk factors, such as smoking, a sedentary lifestyle or aging, it can make things even worse."

That's why it's so important for doctors and health care professionals to take preterm birth into account to prevent health problems and provide adequate medical follow-up, she said.

More information: Jacques Delfrate et al, Cardiopulmonary response to exercise in adults born very preterm, *European Respiratory Journal*

(2023). DOI: 10.1183/13993003.00503-2023

Camille Bastien Tardif et al, HAPI Fit: An Exercise Intervention to Improve Peak Aerobic Capacity in Young Adults Born Very Preterm, *Medicine & Science in Sports & Exercise* (2023). DOI: 10.1249/MSS.0000000000003279