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| **Physiological responses to exercise in survivors of preterm birth: a systematic review and meta-analysis** |
| Michael Beaven1,2, James Gibbons1,2,3, Christopher Course4, Sarah Kotecha4, Thomas Hixson5, Andrew Maiorana1,6, Melissa Zuidersma3, Sailesh Kotecha4, Elizabeth Smith1,2, Shannon Simpson1,2 |
| *1Curtin School of Allied Health, Curtin University, Perth, WA, Australia**2Children’s Lung Health, Wal-yan Respiratory Research Centre, Telethon Kids Institute, Perth, WA, Australia**3Department of Respiratory Medicine, Perth Children’s Hospital, Perth, WA, Australia**4Department of Child Health, School of Medicine, Cardiff University, Cardiff, United Kingdom**5Regional Neonatal Intensive Care Unit, University Hospital of Wales, Cardiff, United Kingdom*.*6Department of Allied Health, Fiona Stanley Hospital, Perth, WA, Australia* |
| **Introduction:** Survivors of preterm birth (<37 weeks gestation) reportedly have low peak oxygen consumption (V̇O2 peak), a known indicator of poor health outcomes. However, beyond V̇O2 peak, little is known about reduced exercise capacity in this group. We hypothesised that those born preterm (PT) would have impaired responses to exercise beyond V̇O2 peak, and aimed to systematically review the literature to examine these differences.**Methods:** Studies reporting cardiopulmonary exercise outcomes in those born PT, compared with full-term (FT) controls, were identified via PRISMA methods. V̇O2 peak, V̇O2/work-rate, respiratory exchange ratio, minute ventilation (V̇E), tidal volume (Vt), respiratory rate, ventilatory equivalents for CO2 (V̇E/V̇CO2) and O2, heart rate (HR), and V̇O2/HR (O2 pulse) data were extracted. Meta-analyses were performed using the R packages *meta* and *metafor*. Data are presented as standardised mean difference [95%CI].**Results:** 44 articles were included. In line with previous studies, the PT group had lower **V̇O2 peak** compared to FT (-0.40 [-0.54 to -0.26]). Further, the PT group had impaired ventilatory (**V̇E:** -0.37 [-0.53 to -0.22], **Vt:** -0.38 [-0.66 to -0.10]), **V̇E/V̇CO2**: (0.25 [0.09 to 0.41]) **and** cardiac indices (**O2 pulse:** -0.53 [-0.87 to -0.19], and **HR:** -0.16 [-0.27 to -0.05]) compared to FT. No significant differences were seen in the remaining outcomes.**Conclusion:** Respiratory and cardiac responses to exercise are impaired in those born preterm. Understanding the mechanisms driving reduced exercise capacity may be a key step to improving poor health outcomes for those born preterm. **Key Words:** preterm birth, exercise capacity, cardiopulmonary exercise testing, cardiorespiratory fitness.**Nomination for New Investigator Award****Grant Support:** Curtin Strategic Scholarship, Wal-yan Respiratory Centre Top-up Scholarship |

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