

Publication

Cystic fibrosis related diabetes is not associated with maximal aerobic exercise capacity in cystic fibrosis: a cross-sectional analysis of an international multicenter trial

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BACKGROUND: Previous studies have reported differences in aerobic exercise capacity, expressed as peak oxygen uptake (VO₂peak), between people with and without cystic fibrosis (CF) related diabetes (CFRD). However, none of the studies controlled for the potential influence of physical activity on VO₂peak. We investigated associations between CFRD and VO₂peak following rigorous control for confounders including objectively measured physical activity. **METHODS:** Baseline data from the international multicenter trial ACTIVATE-CF with participants ≥ 12 years performing up to 4 h per week of vigorous physical activity were used for this project. Multivariable models were computed to study associations between CFRD and VO₂peak (mL.min⁻¹) adjusting for a set of pre-defined covariates: age, sex, weight, forced expiratory volume in 1 s (FEV₁), breathing reserve index, Pseudomonas aeruginosa infection, and physical activity (aerobic step counts from pedometry). Variables were selected based on their potential confounding effect on the association between VO₂peak and CFRD. **RESULTS:** Among 117 randomized individuals, 103 (52% female) had a maximal exercise test and were included in the analysis. Participants with (n = 19) and without (n = 84) CFRD did not differ in FEV₁, physical activity, nutritional status, and other clinical characteristics. There were also no differences in VO₂peak (mL.min⁻¹) or mL.kg⁻¹.min⁻¹) or % predicted). In the final multivariable model, all pre-defined covariates were significant predictors of VO₂peak (mL.min⁻¹), however CFRD [coefficient 82.1, 95% CI -69.5 to 233.8, p = 0.28] was not. **CONCLUSIONS:** This study suggests no meaningful differences in VO₂peak between people with and without CFRD given comparable levels of physical activity.

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