determined as the difference between esophageal and mouth pressure loops.

Z scores from previously established normative data (Noguchi, et al 2009) provided benchmarks.

Results VFI was not significantly different between lift and rest phase for any of our participants. All measurements were within a standard deviation of previously established normative data. There were no incidences of fetal bradycardia.

Conclusions 3D power flow Doppler imaging can guide resistance training during pregnancy to prevent fetal injury due to hypoperfusion. Resistance training up to an RM1 of 50lbs did not result in a significant reduction in placental blood flow from resting state in the study population.

**Abstract Withdrawn**

**Effects of Salbutamol Prior to Diesel Exhaust Exposure Does Not Affect Dyspnea Despite Reducing the Work of Breathing in Individuals with Exercise-induced Bronchoconstriction**

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Background Individuals with exercise-induced bronchoconstriction (EIB) use inhaled β2-agonists prior to exercise to prevent respiratory symptoms. The resulting bronchodilation could increase the dose of inhaled pollutants and worsen dyspnea when exercise is performed in air pollution.

Objective To assess the effects of salbutamol, a β2-agonist, and diesel exhaust (DE) exposure during exercise on dyspnea and the metabolic cost of breathing in individuals with EIB.

Setting Double-blind, randomised, repeated measures.

Participants Nineteen participants (9 women) with EIB (age 22–33 years).

Intervention Participants completed four exposure visits. After the inhalation of either 400µg of salbutamol or placebo, participants sat in the exposure chamber for 60min, breathing either filtered air (FA) or DE (PM2.5 <300µg/m³). Following the rest period, participants cycled for 30min at 50% of peak work rate while breathing FA or DE.

Main Outcome Measurements Dyspnea was rated using the 0–10 category-ratio Borg scale at baseline, 7.5min and 27.5min into the cycling bout. Transpulmonary pressure was calculated as the difference between esophageal and mouth pressure. The work of breathing (WOB) was then determined by integrating ensemble averaged transpulmonary pressure-tidal volume loops.

Results Dyspnea increased significantly (p<0.01) from 0±1 at baseline to 2±1 at 7.5min and 3±2 at 27.5min. Neither DE (p = 0.71) nor salbutamol (p=0.45) affected dyspnea. WOB increased with exercise duration, starting at 8.3 ± 6.8 J/min at baseline to 95.5 ± 35.9 J/min (p<0.01) at 7.5min and 105.0±47.5 J/min (p <0.01) at 27.5 min. Exposure to DE did not affect WOB (p=0.49); however, salbutamol reduced WOB significantly (p=0.049). At 7.5min in the salbutamol trial, WOB was reduced by 10.8 ± 2.9 J/min compared to placebo (p=0.048). At 27.5min, WOB was reduced by 3.9±1.3 J/min after salbutamol compared to placebo although this did not reach statistical significance (p=0.12).

Conclusions The use of salbutamol prior to exercise in DE does not appear to affect dyspnea despite reducing the WOB in individuals with EIB.