

ADMINISTRATION OF HIGH-FLOW, VAPOR-PHASED, HUMIDIFIED NASAL CANNULA AIR (HF-HNC) DECREASES WORK OF BREATHING (WOB) IN HEALTHY SUBJECTS DURING EXERCISE. Ciccolella DE, Rao R, Schreiber N, McCool D, and G.J. Criner. Pulm.&CCM Sections, Temple Univ. Sch. of Med., Philadelphia, PA. & Memorial Hospital, Brown University Sch. Of Med., Pawtucket, RI.

We studied the effect of HF-HNC (Vapotherm™) at 6 different flows 0, 5, 10, 15, 20, and 25 L/min. in random order on 6 healthy male subjects (aged 37 ± 5.5 y.o.) both at rest and during cycle exercise at a constant 40% (mean 107 ± 21 watts) of their predetermined maximum workload using an esophageal balloon to measure esophageal pressures (Pes), non-invasive ventilatory monitoring employing a magnetometer system (EPRI Ventilation Monitor; EnerTech Consultants, Inc.) to measure ventilatory mechanics RR, Vt, Ti, Te, Ti/Tot, Vt/Ti, and Borg and Comfort scales to measure dyspnea and comfort (1-10 scale). There was no change in dyspnea & comfort (headache, sneezing, rhinorrhea, and nasal congestion) scores, or ventilatory mechanics during increasing flow at rest or during exercise. For rest, there was no change in Pes (range: 5.03 ± 1.43 to 5.83 ± 1.44) with increasing flow. During exercise, mean Pes shows a trend to decrease from lower flows at 0 l/m (19.7 ± 8), 5 l/m (20.5 ± 3), 10 l/m (21.8 ± 9) to higher flows at 15 l/m (17.1 ± 5), 20 L/min (16.1 ± 5) and 25 (16.8 ± 6) l/m ($p = .25$), which was not statistically significant. In conclusion, Pes shows a trend to decrease during exercise at higher flow rates. Conceivably, HF-HNC has the potential to decrease WOB, especially at higher workloads.

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