Supplementary Marterial 3

When oxygen flow rates of 15 to 6 L/min were supplied through the oxygen supply line from the non-pressure-compensated oxygen flowmeter, the bobbin of the oxygen flowmeter was maintained at the set oxygen flow rates. However, when an 18 G catheter was connected, the bobbin immediately decreased below the set flow (e.g., 15 → 8.5; 12 → 7.5; 9 → 6.5; 6 → 5 L/min) (n = 3). Meanwhile, we observed no decrease when an 18 G catheter was used with a pressure-compensated oxygen flowmeter (n = 3). This finding indicates that a pressure-compensated oxygen flowmeter capable of handling back pressure is mandatory to supply a constant oxygen flow when the modified Rapid-O2 is used. However, despite using a pressure-compensated oxygen flowmeter, the oxygen flow through a 20 G catheter was decreased (15 → 12; 12 → 11.3; 9 → 9; 6 → 6 L/min) (n = 3). In preliminary studies, when a 20 G inner catheter was used, the insufflating flows were lower than those in other inner catheter sizes, indicating that the 20 G inner catheter was too small to allow for adequate flow through the insufflation catheter.