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Title: How long does it take for supine TLNO & TLCO to become stable after sitting upright?

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Body: Introduction: We previously investigated (ERS Congress, 2011) the change in gas transfer for carbon monoxide (TLCO) from sitting to supine in healthy subjects, but were unable to find published studies showing how long subjects should be supine before a stable TLNO measurement could be made. Method: We measured single breath TLCO & TLNO in 13 healthy subjects (5F:8M; ages 23-57 years; mean height (SD) 1.77 m (0.10)) using a Master Screen lung function system (Jaeger Ltd, Hochberg, Germany), twice sitting at rest and then after 10,15,20,25 & 30 mins respectively lying supine. Results: Table 1 shows mean (SD) for TLCO and TLNO

TABLE1; Absolute and percentage change from sitting to supine.

Time (mins)	Sitting	Supine +10	Supine +15	Supine +20	Supine +25	Supine +30
TLCO	10.0 (2.4)	0.55*	0.58*	0.23	0.18	0.39
%Change		6%	7%	3%	2%	2%
TLNO	40.0 (8.8)	0.46	0.59	0.90	1.16	1.42
%Change		0%	2%	2%	2%	2%
TLCO/TLNO	4.00 (0.26)	-0.21*	-0.18	-0.03	0.04	-0.05
%Change		-5%	-4%	-1%	1%	0%
VA Eff (L)	6.43 (0.39)	-0.23*	-0.22*	-0.26*	-0.24*	-0.08*
%Change		-4%	-4%	-4%	-6%	-5%

Values shown as Mean (SD) TLCO in mmol/kPa/min; TLNO in mmol/kPa/min/L; VAeff in Litres

Discussion: We have shown that when supine for 30 mins TLCO changes but TLNO remains stable. We confirm TLCO increases from sitting to supine but that TLNO, which reflects membrane function, remains unchanged. TLNO/TLCO demonstrates a small decrease followed by an accommodation in pulmonary capillary blood volume. **Conclusion:** Supine gas transfer using TLNO + TLCO show physiological changes consistent with changes in pulmonary capillary blood volume when subjects lie supine. Measurements before 20 mins are transients and suggest care should be taken when making supine gas transfer

estimations.