Table S1 – Reference values of DUS measurements in healthy subjects				
Author, year	**n**	**Technique**	**Measure**	**Reference values / Conclusions**
Harris 1983 (1)	50	Supine Subcostal MCL and longitudinal orientation	*Mobility - DB	Anterior third: 4.0±1.6 cm Middle and posterior third: 4.8±1.6 cm 4.0±1.2 cm (F); 5.4±1.7 cm (M)
Wait 1989 (2)	20*	*10 necropsy (the same segment) - US diaphragmatic thickness - Ruler diaphragmatic thickness *10 "in vivo" (sitting) – transducer: - between the ribs, 9th lateral interspace. - End-expiratory thickness (Tdi)	*Thickness-Tdi *TF	- Necropsy (US thickness x ruler thickness): - US diaphragm thickness = 4.4 ± 0.9 mm, - Ruler diaphragm thickness = 4.2 ± 0.9 mm - US and ruler correlation (R = 0.93) - In vivo, - US Tdi = 2.2 ± 0.41 mm.
Ueki 1995 (3)	13	Transducer: ZOA - perpendicular to the chest wall - right intercostal space, between AAL-MAL, 0.5-2 cm below the costophrenic angle	*Thickness: - TLC, - FRC, - RV	Mean (SD) thickness: 4.5 ±0.9 mm at TLC 1.7 ±0.2 mm at FRC 1.6 ±0.2 mm at RV
Gerscovich 2001 (4)	23	Supine, Longitudinal semi-coronal Subcostal or low intercostal between MCL and MAL	*Mobility - QB	Right hemidiaphragm - QB: 1.5 cm; DB: 5.7 cm; Sniff: 1.7 cm Left hemidiaphragm - QB: 1.6 cm; DB: 6.7 cm; Sniff: 1.8 cm
Kantarci 2004 (5)	160	Supine, Coronal plane Low anterior intercostal or subcostal approach, or both	*Mobility - DB	DB = Right: 4.7±1.0 (F) vs 5.3±1.1 cm (M) Left 4.8±0.3 (F) vs 5.4±1.3 cm (F)
Boussuges 2009 (6)	210	Standing Right subcostal between MCL-AAL Left lower intercostal spaces or subcostal, between AAL and MAL	*Mobility - QB - DB	QB = -Right: 1.6±0.3 cm (F); 1.8±0.3 cm (M) -Left: 1.6±0.4 cm (F); 1.8±0.4 cm (M) DB = -Right: 5.7±1.0 cm (F); 7.0±1.1 cm (M) -Left: 6.4±1.0 cm (F); 7.5±0.9 cm (M) Sniff= -Right: 2.6±0.5 cm (F); 2.9±0.6 cm (M) -Left: 2.7±0.5 cm (F); 3.1±0.6 cm (M)
Testa 2011 (7)	40	Supine, semi-recumbent 45° Subcostal anterior at MCL Probe is orientated transversely and directed cephalad.	*Mobility - QB - DB	QB= - Experienced operator: 1.8±0.8 cm, - Inexperienced operator 2.2±0.9 cm DB= - Experienced operator 6.9±1.4 cm, - Inexperienced operator 7.9±1.3 cm
Ueki 1995 (3)	13	Sitting ZOA	*Thickness	Tdi: 1.7±0.2 mm Tdi-max: 4.5±0.9 mm
Baldwin 2011 (8)	13	Semi-recumbent 45° ZOA, 9th intercostal space	*Thickness - Tdi	Tdi: 1.7 [1.1–3.0] mm
Boon 2013 (9)	150	Supine 8th or 9th intercostal space, just anterior to the AAL.	*Thickness -Tdi -Thickening ratio	Tdi: 2.7±1 mm (F); 3.8±1.5 mm (M) - LLN Tdi: 1.4–1.7 mm - LLN Thickening ratio: 1.2 to 1.3 %
Carrillo-Esper 2016 (10)	109	Supine ZOA, at FRC	*Thickness - Tdi	Tdi: 1.6±0.4 mm - 1.4±0.3 mm (F); 1.9±0.4 mm(M)
Cardenas 2018 (11)	64	Semi-recumbent 45° Mobility: - right anterior, subcostal Diaphragm thickness: - ZOA between AAL and MAL. - at FRC and at TLC.	*Mobility - QB - DB *Thickness - Tdi; - Tdi-max; - TF	Mobility -QB: 1.5±0.4 cm -DB: 6.41±1.02 cm (F); 7.79±0.82 cm (M) -LLN DB mobility: 4.37cm (F); 6.15cm (M) Tdi: 1.9±0.3 mm (M) - LLN at FRC: 1.2 mm (F); 1.3 mm (M) Tdi-max: 4.81±0.95 mm (F); 5.6±0.9 mm (M) TF: 169±43% (F); 204±61% (M)
Spiesshoefer 2020 (12)	70	Supine Right hemidiaphragm Excursion: subcostal area. - between MCL and AAL, Thickness: ZOA	*Excursion -QB, DB, sniff. - amplitude - velocity *Thickness: - TLC, FRC	LLNs for diaphragm excursion: - QB: 1.2 cm (M); 1.2 cm (F) - QB Velocity: 0.8 cm/s (M); 0.8 cm/s (F) - Sniff: 2.0 cm (M); 1.5 cm (F) - Sniff Velocity: 6.7 (M) cm/s; 5.2 cm/s (F) - TLC: 7.9 cm (M); 6.4 cm (F) LLN for diaphragm thickness 0.17 cm (M); 0.15 cm (F) at FRC 0.46 cm (M); 0.35 cm (F) at TLC.
Boussuges 2021 (13)	200	Seated Thickness: - ZOA, bilateral -Tdi = thickness at end-expiration - Tmax = after maximal inspiration (deep breathing – DB)	*Thickness: -Tdi -Tmax (DB) -Thickening ratio, - TF	-LLN Tdi: 1.3mm (M) and 1.1mm (F) -TF (M): left side: 60-260%; right side; 57-200% -TF (F): left side: 58-264%; right side: 60-229% - LLN TF (M): right side = 40%; left side = 39% - LLN TF (F): right side = 39 %; left side = 48% (F) - ULN Tmax (DB): 0.78 (F) and 0.79 (M).
Haaksma 2022 (14)	46	Supine; Males and Females Probe: - perpendicular to CW, - PAL, MAL and MCL	Thickness: - PAL - MAL - MCL	Thickness: -PAL: M=1.36 [1.23-1.57]; F= 1.08 [0.98-1.24] mm -MAL: M = 1.35 [1.21-1.52]; F =1.15 [1.03-1.28] mm -MCL: M = 2.62 [2.10-2.87]; F =1.99 [1.82-2.37] mm ICC MAL = 0.89, 95% CI: 0.83 - 0.93

		Aim: to assess anatomical variation of thickness on 3 ventrodorsal lines and 2 craniocaudal positions		ICC PAL =0.74, 95% CI: 0.62- 0.85 ICC MCL= 0.62, 95% CI: 0.43-0.47 * Lowest variability in craniocaudal position = at the midaxillary line (preferred)

Table 2: Reference values of DUS measurements in healthy subjects - adapted form Santana et al, 2020 (15)
MCL: midclavicular line; DB: deep breathing; QB: quiet breathing F: female; M: male; MAL: midaxillary line; TLC: total lung capacity; FRC: functional residual RV: residual volume ; PImáx: maximum inspiratory mouth pressure; TR: thickening ratio; VS: voluntary sniff; AAL: anterior axillary line; ZOA: zone of apposition; Tdi-exp: diaphragm thickness at endexpiration; Tdi-insp: diaphragm thickness at end-inspiration; LLN: lower limit of normal; capacity; TF: thickening fraction; TLC: total lung capacity; PAL: Posterior axillary line; CW: chest wall ; ULN = upper limit for normal

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