Supplementary Table 1. Overview of the available literature on shear wave elastography in the pelvic floor muscles

Author	No./Population/Age (yr), mean ± SD (unless specified otherwise)	Probe/Device/ Measurement mode	Measurement/ ROI placement	Data acquisition details	Reported values at rest (kPa), mean ± SD (unless specified otherwise)	Reported values during MVC (kPa), mean ± SD (unless specified otherwise)	Reported values during Valsalva (kPa), mean ± SD (unless specified otherwise)
Puborectalis muscle/Levator ani							
Gachon et al. (2019) [1]	n = 12 Nonpregnant female volunteers 31 ± 2.6	Linear probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transperineal	Shear modulus obtained by dividing Young modulus by 3 ROI delineated manually on the biggest possible area	One measurement/frame for each muscle state (rest, Valsalva), for left and right side	16 ± 6.9 (right side), 17.1 ± 7.6 (left side)	-	35.4 ± 13.9 (right side), 37.6 ± 13.1 (left side)
Gachon et al. (2021) [2]	n = 20 Non-pregnant, nulliparous women 23 ± 4.0	Linear probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transperineal	Shear modulus (mean for rest, and Valsalva; maximal for MVC) Shear modulus obtained by dividing Young modulus by 3 ROI delineated manually on the biggest possible area	Values averaged over 5 second clip for each assessed state (rest, Valsalva, MVC) One single clip and mean of 3 measurements (consecutive clips) were considered for analysis	Mean of 3 consecutive clips: 22.8 ± 8.0 (visit 1), 21.9 ± 6.8 (visit 2) One single clip: 22.2 ± 8.3 (visit 1), 22.0 ± 7.0 (visit 2)	Mean of 3 consecutive clips: 59.3 ± 11.8 (visit 1), 55.1 ± 15.7 (visit 2) One single clip: 60.2 ± 12.0 (visit 1), 56.2 ± 16.8 (visit 2)	Mean of 3 consecutive clips: 44.5 ± 13.1 (visit 1), 46.6 ± 14.2 (visit 2) One single clip: 43.2 ± 13.1 (visit 1), 44.2 ± 16.1 (visit 2)
Gachon et al. (2024) [3]	n = 47 Pregnant, nulliparous women 28.3	Linear probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transperineal	Shear modulus (mean) Shear modulus obtained by dividing Young modulus by 3 ROI delineated manually on the biggest possible area	Values averaged over 5 sec clip for each assessed state (rest, Valsalva) Mean of 3 measurements were considered for analysis	25.5-27.4	-	42.8–43.5
Morin et al. (2022) [4]	n = 15 Heatlhy asymptomatic women 36 ± 7	Linear probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transperineal	Shear modulus (mean) ROI delineated manually	Shear modulus values from 2–3 frames with stable SWE maps selected and for each assessed state (rest, MVC), exported from the recorded video, and then averaged Assessment performed for left and right side	12.9–14.6	56.6–60.1	-
Tang et al. (2020) [5]	n = 58 20 Women with normal pelvic support and 38 women with POP 56.5 (39–68)	Convex probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transperineal	Shear modulus (mean) ROI delineated by 3 Q-boxes (1 cm diameter)	Shear modulus, averaged over 3 frames, and over 5 separate measurements for each state (rest, Valsalva)	Healthy 27.9 (24.7–29)[a], POP 31 (28–35)[a]	-	Healthy 57.3 (53.5–61.2)[a], POP 53.1[a] (47.5–57.3)

(Continued to the next page)

Supplementary Table 1. Continued

Author	No./Population/Age (yr), mean ± SD (unless specified otherwise)	Probe/Device/ Measurement mode	Measurement/ ROI placement	Data acquisition details	Reported values at rest (kPa), mean ± SD (unless specified otherwise)	Reported values during MVC (kPa), mean ± SD (unless specified otherwise)	Reported values during Valsalva (kPa), mean ± SD (unless specified otherwise)
Li et al. (2022) [6]	n = 66 34 Healthy women with normal pelvic support 38.47 ± 9.06, 32 women with SUI 50.16 ± 10.70	Endocavity probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transvaginal	Young modulus (mean and maximum) ROI delineated by 3 Q-boxes (5 mm diameter)	Young modulus obtained from one frame and averaged over 3 separate measurements, for each state (rest, Valsalva)	Healthy 53.78 ± 14.09 (max), 45.07 ± 13.28 (mean) SUI 58.87 ± 13.79 (max), 50.95 ± 12.76 (mean)	-	Healthy 87.79 ± 15.52 (max), 76.70 ± 14.20 (mean) SUI 76.73 ± 16.06 (max), 67.77 ± 14.37 (mean)
Do et al. (2023) [7]	n = 42 Nulliparous women 23.5 ± 3.2	Linear probe, RS85 Prestige, Samsung Medicine, Seoul, Republic of Korea Transperineal	Shear modulus (minimum for rest and maximum for MVC) ROI delineated by one circular Q-box (1.5 cm diameter)	Shear modulus obtained from one frame and averaged over 3 separate measurements (rest, MVC)	24.7 ± 4.5	62.1 ± 10.4	-
Ji et al. (2023) [8]	n = 146 30 Nulliparous women 24.43 ± 2.69, 40 parous women 53.50 ± 5.82, 76 women after hysterectomy 52.57 ± 5.91	Convex probe, Iu-Elite with Elast PQ function, Philips, Eindhoven, Netherlands Transperineal	Young modulus (mean) Rectangle square ROI placement the same during each measurement	Number of averaged frames/measurements (rest, MVC) unclear "The system automatically calculated Young Modulus, measured it for > 5 consecutive times and took the median when the standard deviation is < 1.5 kPa"	Nulliparous 30.77 ± 3.54 (right side), 30.99 ± 3.56 (left side) Parous, without hysterectomy 27.59 ± 4.02 (right side), 27.56 ± 3.91 (left side) After hysterectomy 33.674 ± 3.425 (right side), 33.822 ± 3.249 (left side)	Nulliparous 62.600 ± 3.99 (right side), 63.04 ± 3.47 (left side) Parous, without hysterectomy 57.87 ± 1.44 (right side), 58.24 ± 1.39 (left side) After hysterectomy 57.62 ± 3.83 (right side), 57.78 ± 3.93 (left side)	
Okada et al. (2024) [9]	n = 62 47 Postpartum women after vaginal delivery 33 (29–35)[a], 15 women after cesarean section 39 (33–43)[a]	Endocavity probe, Toshiba Aplio i700, Canon Medical, Japan Transvaginal	Elastic modulus calculated not specified ROI delineated by 3 circular measurement boxes (5mm)	Number of averaged frames/measurements (rest) unclear	Vaginal delivery 44.2[b] (right side), 40.4[b] (left side) Cesarean section 72.7[b] (right side), 82.7[b] (left side)	-	-
Garcia-Mejido et al. (2024) [10]	n = 60 30 Healthy women without POP 44.7 ± 6.6, 30 women with POP 56.6 ± 5.6	Endocavity probe, Toshiba Aplio i700, Canon Medical, Japan Transvaginal	Elastic modulus calculated (mean, standard deviation and median) not specified ROI delineated by one circular measurement box (2 mm)	Number of averaged frames/measurements (rest) unclear	Without POP 28.2 ± 12.8 POP 33.2 ± 26.7 Unclear whether the results present mean or median elastic modulus values	-	-

(Continued to the next page)

Supplementary Table 1. Continued

Author	No./Population/Age (yr), mean ± SD (unless specified otherwise)	Probe/Device/ Measurement mode	Measurement/ ROI placement	Data acquisition details	Reported values at rest (kPa), mean ± SD (unless specified otherwise)	Reported values during MVC (kPa), mean ± SD (unless specified otherwise)	Reported values during Valsalva (kPa), mean ± SD (unless specified otherwise)
Tang et al. (2025) [11]	n = 120 60 Women without hysterectomy 53.02 ± 5.84, 60 women after hysterectomy 52.57 ± 5.91	Most probably endocavity probe (RIC5-9), Voluson E8 Expert system, GE Heathcare Ultrasound, Milwaukee, WI, USA Transperineal approach is mentioned in the text but most probably an endocavity probe (RIC5-9) was used for SWE imaging	Yong modulus ROI delineated by 3 circular measurement boxes (5mm) "placed at the pubic ramus, the muscle belly and the inferior portion of the pelvic floor muscles"	Most probably values from one frame (3 measurement boxes) were averaged for each state (rest, MVC). Only the frames with "movement-stability index of 4 or 5 green stars and a validity exceeding 90%" were selected.	Without hysterectomy 27.59 ± 4.02 (right side), 27.56 ± 3.91 (left side) After hysterectomy 33.67 ± 3.43 (right side), 33.82 ± 3.25 (left side)	Without hysterectomy 57.87 ± 1.44 (right side), 58.24 ± 1.40 (left side) After hysterectomy 57.78 ± 3.93 (right side), 57.62 ± 3.83 (left side)	-
Ji et al. (2025) [12]	n = 52 Women undergoing hysterectomy 53.48 ± 6.42 (transabdominal hysterectomy participants, n = 29) 52.09 ± 5.58 (laparoscopic hysterectomy participants, n = 23)	Linear probe, Acuson Sequoia, Siemens Medical Solutions, Issaquah, USA Transperineal	Elastic modulus calculated not specified ROI ("with a size of 3x3mm") delineated by circular measurement box	"There were 6–10 effective measured values, and the median was taken when the interquartile range was less than or equal to 0.3" (rest, MVC)	Before hysterectomy 30.86 ± 3.23 (right side), 31.41 ± 3.12 (left side) After hysterectomy (1 month) 31.71 ± 2.84 (right side), 32.35 ± 3.10 (left side) After hysterectomy (3 months) 33.59 ± 3.48 (right side), 33.76 ± 3.48 (left side)	Before hysterectomy 60.28 ± 3.77 (right side), 60.69 ± 3.57 (left side) After hysterectomy (1 month) 57.50 ± 4.79 (right side), 57.45 ± 4.54 (left side) After hysterectomy (3 months) 57.70 ± 4.04 (right side), 57.40 ± 3.93 (left side)	-
Li et al. (2025) [13]	n = 117 47 Women after hysterectomy 46.62 ± 5.52, 70 healthy women (without hysterectomy) 44.49 ± 6.15	Endocavity probe, Resona 9T, Mindray Medical International, Shenzen, China Transvaginal	Young modulus (maximum and mean) ROI delineated by 3 circular measurement boxes (5 mm)	Young modulus obtained from one frame and averaged over 3 separate measurements, for each state (rest, MVC, Valsalva) Only the frames with "movement-stability index of 4 or 5 green stars and a validity exceeding 90%" were selected.	Without hysterectomy 49.36 ± 19.18 (max), 37.92 ± 16.92 (mean) After hysterectomy 47.02 ± 14.11 (max), 34.88 ± 12.44 (mean)	Without hysterectomy 86.43 ± 17.74 (max), 70.02 ± 17.44 (mean) After hysterectomy 77.27 ± 19.36 (max), 62.95 ± 16.70 (mean)	Without hysterectomy 84.86 ± 18.98 (max), 69.22 ± 17.57 (mean) After hysterectomy 79.24 ± 18.55, 63.84 ± 17.41
Bulbospongiosus muscle							
Du et al. (2025) [14]	n = 62 33 Sexually active women and 29 sexually inactive women 26.5 ± 4.8	Linear probe, Voluson E20 ultrasound system, GE Heathcare Ultrasound, Milwaukee, WI, USA Transperineal	Shear modulus ROI delineated by 3 circular measurement boxes "on the reddest area"	Shear modulus obtained from one frame and averaged over 3 separate measurements, for each state (rest, MVC)	17.8 ± 4.8 (right side) 18.7 ± 5.2 (left side)	173.1 ± 7.5 (right side), 179.2 ± 71.8 (left side)	-

(Continued to the next page)

Supplementary Table 1. Continued

Author	No./Population/Age (yr), mean ± SD (unless specified otherwise)	Probe/Device/ Measurement mode	Measurement/ ROI placement	Data acquisition details	Reported values at rest (kPa), mean ± SD (unless specified otherwise)	Reported values during MVC (kPa), mean ± SD (unless specified otherwise)	Reported values during Valsalva (kPa), mean ± SD (unless specified otherwise)
Perineal body							
Zhou et al. (2023) [15]	n = 181 45 Nulliparous women 30.20 ± 6.96, 66 women with POP 51.17 ± 16.32, 70 postpartum women 30.97 ± 4.38	Linear probe, Resona 7S, Mindray Medical International, Shenzen, China Transperineal	Young modulus (mean) ROI delineated manually to cover the perineal body area	Young modulus obtained from one frame and averaged over 3 separate measurements for each state (rest, MVC, Valsalva)	Nulliparous 23.80 ± 3.76 POP 21.24 ± 2.90 Postpartum 20.98 ± 2.52	Nulliparous 34.42 ± 4.71 POP 28.77 ± 2.55 Postpartum 28.77 ± 2.44	Nulliparous 25.00 ± 3.70 POP 22.28 ± 2.50 Postpartum 21.58 ± 2.73
Lallemant et al. (2025) [16]	n = 10 Pregnant women recruited at the end of pregnancy and assessed in labour; 4 women without perineal tears 31.5 ± 1.7; 6 women with perineal tears 27.2 ± 4.7	Convex probe, Aixplorer Supersonic MACH30 Imagine, Aix en Provence, France Transperineal	Young modulus (mean) ROI delineated manually to cover the perineal body area	Young modulus obtained from one frame and averaged over 5 measurements for each state (rest, Valsalva)	No perineal tears 11.3 ± 4.1 (onset of labour), 18.0 ± 15.9 (beginning of pushing) Perineal tears 12.9 ± 2.9 (onset of labour), 37.4 ± 18.6 (beginning of pushing)	-	No perineal tears 22.8 ± 18.2 (onset of labour), 17.8 ± 3.9 (beginning of pushing) Perineal tears 31.0 ± 32.0 (onset of labour), 15.0 ± 6.0 (beginning of pushing)
Lallemant et al. (2025) [17]	n = 16 Pregnant women recruited and assessed at the end of pregnancy and then grouped according to the occurrence or not of a perineal tear during vaginal delivery; 6 women without perineal tears 33.3 ± 5.4; 10 women with perineal tears 29.1 ± 4.3	Convex probe, Aixplorer Supersonic MACH30 Imagine, Aix en Provence, France Transperineal	Young modulus (mean) ROI delineated manually to cover the perineal body area	Young modulus obtained from one frame and averaged over 5 measurements for rest, for Valsalva 5 measurements were averaged over 5-second Valsalva	No perineal tears 17.8 ± 13.6 Perineal tears 14.3 ± 7.3	-	No perineal tears 23.0 ± 16.2 Perineal tears 26.0 ± 19.3
Li et al. (2024) [18]	n = 134 70 Women with SUI 50.2 ± 9.0, 64 healthy women without SUI 49.0 ± 8.6	Linear probe, Resona 8T, Mindray Medical International, Shenzen, China Transperineal	Young modulus (mean and max) ROI delineated manually to cover the perineal body area	Most probably Young modulus obtained from one frame Only the frames with "movement-stability index of 4 or 5 green stars and a > 90% validity" were selected.	Healthy 26.97 ± 5.03 (mean), 34.66 ± 10.38 (max) SUI 26.97 ± 4.84 (mean), 36.61 ± 9.81 (max)	-	Healthy 44.33 ± 6.59 (mean), 58.06 ± 7.11 (max) SUI 35.78 ± 6.51 (mean), 47.73 ± 4.96 (max)

(Continued to the next page)

Supplementary Table 1. Continued

Author	No./Population/Age (yr), mean ± SD (unless specified otherwise)	Probe/Device/ Measurement mode	Measurement/ ROI placement	Data acquisition details	Reported values at rest (kPa), mean ± SD (unless specified otherwise)	Reported values during MVC (kPa), mean ± SD (unless specified otherwise)	Reported values during Valsalva (kPa), mean ± SD (unless specified otherwise)
Rostaminia et al. (2019) [19]	n = 32 Women in labour assessed intrapartum 28.06 ± 7.42	Endocavity probe, Aixplorer Supersonic Imagine, Aix en Provence, France Transperineal	Elastic modulus (mean) not mentioned (most probably Young modulus, given the device used) ROI delineated by 2 circular measurement boxes, first located at 0.3 to 0.6 cm from perineal skin and second at 0.9 to 1.4 cm from perineal skin (diameter not mentioned)	Number of measurements/ frames not mentioned	15.33 ± 5.49	-	-

SD, standard deviation; MVC, maximal voluntary contraction; ROI, region-of-interest; SWE, shear wave elastography; max, maximum; SUI, stress urinary incontinence; POP, pelvic organ prolapse.
[a]Median and interquartile range. [b]Least squares mean - an adjusted mean of the elastic modulus that comes from the multivariable linear regression. It should be noted that the SWE values reported in the included studies cannot be directly compared between the studies due to differences in the elastic modulus used and in the methods of data acquisition.

References

1. Gachon B, Nordez A, Pierre F, Fradet L, Fritel X, Desseauve D. In vivo assessment of the levator ani muscles using shear wave elastography: a feasibility study in women. Int Urogynecol J 2019;30:1179-1186.
2. Gachon B, Fritel X, Pierre F, Nordez A. Transperineal ultrasound shear-wave elastography is a reliable tool for assessment of the elastic properties of the levator ani muscle in women. Sci Rep 2021;11:15532.
3. Gachon B, Fritel X, Pierre F, Nordez A. In vivo measurement of the elastic properties of pelvic floor muscles in pregnancy using shear wave elastography. Arch Gynecol Obstet 2024;309:2623-2631.
4. Morin M, Salomoni SE, Stafford RE, Hall LM, Hodges PW. Validation of shear wave elastography as a noninvasive measure of pelvic floor muscle stiffness. Neurourol Urodyn 2022;41:1620-1628.
5. Tang JH, Zhong C, Wen W, Wu R, Liu Y, Du LF. Quantifying levator ani muscle elasticity under normal and prolapse conditions by shear wave elastography: a preliminary study. J Ultrasound Med 2020;39:1379-1388.
6. Li XM, Zhang LM, Li Y, Zhu QY, Zhao C, Fang SB, et al. Usefulness of transperineal shear wave elastography of levator ani muscle in women with stress urinary incontinence. Abdom Radiol (NY) 2022;47:1873-1880.
7. Do Y, Lim Y, Lee S, Lee H. The correlation between transperineal shear-wave elastography and transabdominal ultrasound when assessing pelvic floor function in nulliparous women. Diagnostics (Basel) 2023;13:3002.
8. Ji R, He B, Wu J. Application of transperineal ultrasound combined with shear wave elastography in pelvic floor function assessment after hysterectomy. Medicine (Baltimore) 2023;102:e32611.
9. Okada Y, Nakagawa C, Shigeta M, Nomura Y, Inoue E, Ichizuka K, et al. Evaluation of levator ani muscle elasticity after vaginal delivery and cesarean section using shear wave elastography. J Med Ultrason (2001) 2024;51:95-101.
10. Garcia-Mejido JA, Garcia-Jimenez R, Fernandez-Conde C, Garcia-Pombo S, Fernandez-Palacin F, Sainz-Bueno JA. The application of shear wave elastography to determine the elasticity of the levator ani muscle and vaginal tissue in patients with pelvic organ prolapse. J Ultrasound Med 2024;43:913-921.
11. Tang X, Wu G, Xiao Y, Yang Y, Xiao C, Zhong C. Utility of shear wave elastography combined with transperineal pelvic floor ultrasound in evaluating pelvic floor function after hysterectomy. Int J Womens Health 2025;17:3811-3818.
12. Ji R, Wu J, Xu Y, Ji H. The application of transperineal ultrasonography combined with shear wave elastography in the evaluation and monitoring of pelvic floor function in the early stage after total hysterectomy. Clinics (Sao Paulo) 2025;80:100656.
13. Li X, Zhang Z, Li Y, Zhao C, Li P, Zhang G, et al. Assessment of pelvic floor dysfunction after total hysterectomy: A preliminary study based on transperineal ultrasound and shear wave elastography. Eur J Obstet Gynecol Reprod Biol 2025;309:113-120.
14. Du R, Wang L, Li Y, Qiao W, Xiang H, Yang L. Impact of sexual activity on bulbocavernosus muscle stiffness assessed by shear wave elastography in women. Arch Gynecol Obstet 2025;311:1743-1750.
15. Zhou M, Shui W, Bai W, Wu X, Ying T. Ultrasonographic study of female perineal body and its supportive function on pelvic floor. Front Med (Lausanne) 2023;10:1176360.
16. Lallemant M, Kadiake T, Lejeune A, Cosson M, Chambert J, Jacquet E, et al. Perineal body and anal sphincter biometrics and stiffness using elastography during labor: a feasibility study. Eur J Obstet Gynecol Reprod Biol 2025;309:48-54.
17. Lallemant M, Kadiake T, Lejeune A, Cosson M, Chambert J, Jacquet E, et al. Exploring the influence of perineal biometrics and stiffness measured by elastography during pregnancy on perineal tears: a pilot study. J Gynecol Obstet Hum Reprod 2025;54:102904.
18. Li X, Zhang L, Li Y, Jiang Y, Zhao C, Fang S, et al. Assessment of perineal body properties in women with stress urinary incontinence using transperineal shear wave elastography. Sci Rep 2024;14:21647.
19. Rostaminia G, Awad C, Chang C, Sikdar S, Wei Q, Shobeiri SA. Shear wave elastography to assess perineal body stiffness during labor. Female Pelvic Med Reconstr Surg 2019;25:443-447.