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POSTER SECTIONS

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Assessment of the morphology of the supraspinatus muscle tendon by conventional ultrasound and ultrasonographic elastography

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Purpose

Shoulder pain is one of the most common complaints among volleyball players, with the supraspinatus muscle tendon being one of the most susceptible to injury in this type of sport. The movement of the shoulder joint is highly demanding, and the energy involved is relatively high, which affects and exceeds its physiological limits, resulting in rotator cuff tendinopathies, which include the supraspinatus muscle tendon. Ultrasound, a non-invasive technique, is essential for detailed musculoskeletal injury evaluation. This study aimed to assess the supraspinatus muscle tendon's morphology...

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Methods and materials

This quantitative study focuses on imaging changes in the supraspinatus muscle tendons. It uses a descriptive-correlational approach to analyze ultrasound data with sample variables. The research was conducted in the Laboratory of Ultrasonography at the School of Health, University of Algarve, Gambelas Campus, Faro.The study sample consisted of 60 individuals, 36 female individuals and 24 male individuals aged between 18 and 28, grouped into two groups: 28 volleyball players and 32 non-sports practitioners. Data was collected through the application of a questionnaire and an ultrasound...

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Results

The sample comprises 60 participants, the majority of which are female (n=36), representing a percentage of 60%, and the remainder are male (n=24), representing 40%. The group of individuals who play volleyball (n=28; 14 male, 14 female) corresponds to a percentage of 46.67% and the group of individuals who do not play volleyball (n=32; 10 male, 22 female) corresponds to 53.33%.The sample had individuals with a minimum age of 18 and a maximum age of 28. Forty-eight individuals aged between 18 and 21 years, representing...

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Conclusion

From the present study, it is concluded that the increase in the thickness of the supraspinatus tendon is directly related to the practice of volleyball since the highest values of tendon thickness were found in volleyball practitioners. Regarding the relationship between the measurements of the thickness of the supraspinatus tendon and gender, it was concluded that this presented higher values for the male gender.Regarding the relationship between the measurements of the thickness of the supraspinatus tendon and age, it was concluded that the thickest tendons...

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Personal information and conflict of interest

M. C. Dolores: Nothing to disclose L. P. V. Ribeiro: Nothing to disclose S. I. Rodrigues: Nothing to disclose A. F. C. L. Abrantes: Nothing to disclose J. Pinheiro: Nothing to disclose B. Vicente: Nothing to disclose

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References

Pires L., Bini, I., Fernandes, W., Setti, J. (2011). Lesões no ombro e a sua relação com a prática do voleibol – Revisão da Literatura. Revista Científica Linkania Master - ISSN: 2236-6660. Consultado em 17 de abril de 2023. Disponível em: https://linkania.org/master;Playford, S., Hackett, L., Lam, P., Murrell, G. (2023). An evaluation of shear wave elastographic characteristics of the supraspinatus tendon after rotator cuff repair. Journal Shoulder Elbow Sugery. 32, 319-327;Penero, A., Hirahara, A. (2016). A guide to ultrassound of the shoulder, Part 2: The...

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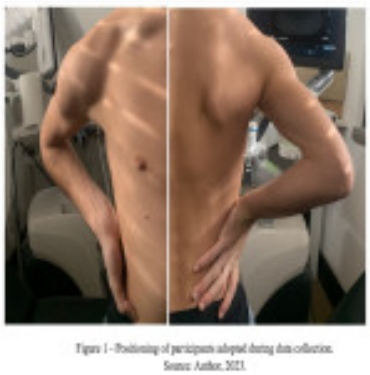

Figure 1 - Positioning of participants adopted during data collection. Source: Author, 2023.

Fig 1

Figure 2 - Probe positioning used in data collection. Source: Author, 2023.

Fig 2

Figure 3 - Longitudinal ultrasound image to obtain the thickness of the supraspinatus tendon. Source: Author, 2023.

Fig 3

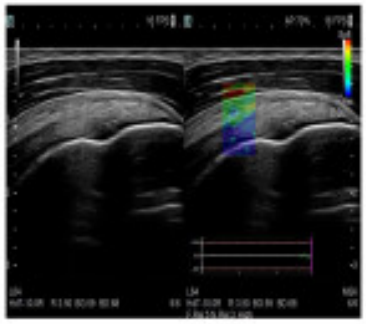

Figure 4 - Elastography image of the supraspinatus tendon.
Source: Author, 2025.

Fig 4

Group		Shoulder	Minimum (mm)	Maximum (mm)	Mean (mm)	Median (mm)	Standard deviation
Female (n=164)	practitioners (n=14)	R	3.8	7.5	6.17	6.00	0.64
		L	4.4	6.6	5.46	5.52	0.71
	non-practitioners (n=22)	R	3.4	6.6	4.96	4.90	0.66
		L	3.2	5.2	4.61	4.65	0.46
Male (n=204)	practitioners (n=14)	R	5.1	8.5	6.55	6.80	1.01
		L	4.3	8.6	5.79	5.26	1.17
	non-practitioners (n=19)	R	4.9	8.2	6.02	5.70	0.92
		L	4.6	7.1	5.45	5.26	0.77
Total	practitioners (n=28)	R	5.05	8.00	6.26	6.00	0.83
		L	4.35	7.80	5.58	5.40	0.94
	non-practitioners (n=32)	R	4.30	7.40	5.29	5.00	0.79
		L	3.90	6.35	4.67	4.80	0.62

Legend: R-right; L-left

Source: Author, 2025.

Table 1

Table 2 - Descriptive statistics of the thickness of the supraspinatus tendon of the right and left shoulder according to the age groups.

Age Group	Shoulder	Minimum (mm)	Maximum (mm)	Mean (mm)	Median (mm)	Standard deviation
18 - 21 years (n=40)	R	3.4	8.5	5.66	5.65	1.03
	L	3.2	8.0	5.17	4.87	0.96
22 - 25 years (n=4)	R	5.1	6.9	5.84	5.92	0.76
	L	4.6	6.2	5.20	5.08	0.55
26 - 29 years (n=4)	R	5.0	7.5	6.18	6.15	0.79
	L	4.8	6.6	5.47	5.40	0.64

Source: Author, 2025.

Table 2

Table 3 - Descriptive statistics of the thickness of the supraspinatus tendon of the right and left shoulder as a function of the time spent practicing volleyball.

Practice Time	Shoulder	Minimum (mm)	Maximum (mm)	Mean (mm)	Median (mm)	Standard deviation
3 - 5 years (n=10)	R	5.1	7.6	6.02	6.00	0.62
	L	4.4	7.9	5.54	4.93	0.95
5 - 10 years (n=11)	R	5.0	8.5	6.50	6.10	1.05
	L	4.3	8.0	5.71	5.57	0.94
> 10 years (n=2)	R	6.0	7.5	6.72	6.72	1.06
	L	6.6	6.8	6.68	6.67	0.14

Source: Author, 2025.

Table 3

Table 4 - Bonferroni post-hoc test to verify between which groups there are statistically significant differences in the thickness measurements of the supraspinatus tendon.

Measures side	Combinations		Mean difference	Sig.
Right	Female practitioner	Female non-practitioner	1.215	0.000
		Male practitioner	-0.171	1.000
		Male non-practitioner	0.257	1.000
	Female non-practitioner	Male practitioner	-1.386	0.000
		Male non-practitioner	-1.058	0.000
	Male practitioner	Male non-practitioner	0.329	1.000
Left	Female practitioner	Female non-practitioner	0.846	0.015
		Male practitioner	-0.240	1.000
		Male non-practitioner	0.001	1.000
	Female non-practitioner	Male practitioner	-1.085	0.000
		Male Non-practitioner	-0.844	0.000
	Male practitioner	Male Non-practitioner	0.240	1.000

Source: Author, 2025.

Table 4

Table 5 - Mann-Whitney test to analyze the comparison between the supraspinatus tendon and gender.

Combinations		Mann-Whitney	
Tendon Measures		Z	Significance
Thickness	Right	-2.450	0.005
	Left	-2.740	0.006

Source: Author, 2025.

Table 5