

## THE PECTORALIS FASCIA: ANATOMICAL AND HISTOLOGICAL STUDY

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**BACKGROUND:** Many Authors affirm that the fasciae of the trunk are implicated in the transmission of traction between lower and upper limbs, and between limbs on opposite sides.

However, anatomical textbooks often describe these trunk fasciae, especially the fascia of pectoralis major, as thin layers of loose connective tissue. We analyse the deep fascia of the pectoralis major muscle, in order to understand if it could transmit tractions.



**Figure: Pectoralis major muscle included in the fascia**

**METHODS:** We performed the dissection of six cadavers, which had been neither embalmed nor frozen. For each subject, three different samples (1x1.5 cm) were carried out, processed, and then stained with hematoxylin and eosin, azan-Mallory and Weigert's Van Gieson stain. **RESULTS:** The fascia of the pectoralis major

muscle appears as a thin collagen layer. At the morphometric analysis, it shows a mean thickness of 156 $\mu$ m, excluding the inferior thoracic region, which presents a mean thickness of 570 $\mu$ m. The pectoralis fascia connects firmly to the underlying muscle by many intramuscular septa originating from its inner surface. The pectoralis fascia originates from the clavicle, and then it divides itself into two layers to include the pectoralis major muscle. Laterally, over the serratus anterior, the two layers of the pectoralis fascia unite and then continue with the fascia of latissimus dorsi. Medially, the deep layer of the pectoralis major fascia inserts into the sternum, while its superficial layer goes beyond the sternum to continue with the pectoralis fascia on the other side. With the histological study, the pectoralis fascia appears to consist in undulated collagen fibres and some elastic fibres that form an irregular mesh.

**CONCLUSIONS:** We hypothesize that the pectoralis major muscle developed inside the superficial layer of the fasciae of the trunk. Thus, the pectoralis fascia adheres strictly to the pectoralis major muscle, and is sensitive to the state of contraction of this underlying muscle. Furthermore, the pectoralis fascia alone could not control the transmission of tractions between the different limbs, but the collaboration between the pectoralis major muscle and its fascia could guarantee sufficient resilience.