

Anatomy of the fascial system

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The role of the connective tissue has traditionally been relegated to the job of deftly holding our 'parts' together, but recently different researches have come to believe it has a specific macroscopic and histological organization. The deep fasciae of the trunk are very different from the deep fasciae of the limbs, particularly the pectoralis major fascia is a thin collagen layer tightly connected to the underlying muscle. The deep fascia of the limbs is a sheath that presents a mean thickness of 900 μm , thinner in the upper limb, thicker in the lower limb. It is normally easily separable from the underlying muscles, being connected to them only by some myofascial expansions, more evident around the joints. Under the deep fascia, the muscles are free to slide because of their epimysial fascia. The deep fasciae of the limbs are formed by two-three layers of parallel collagen fibre bundles, presenting an undulated arrangement. Each layer is separated from the adjacent one by a thin layer of loose connective tissue that permits to the different layers to slide one on the other. Adjacent layers show different orientations of the collagen fibres, so the fascia has strong resistance to traction even when it is exercised in different directions. Different levels of innervations could be recognizable inside the different portions of the fascia, according with the different roles of the portions of the deep fasciae in movements coordination and perception. The different types of relationships among deep fasciae and muscles were analyzed, evidencing as this organization could guarantee a perceptive and directional continuity along the myokinetic chains, acting somewhat like a transmission belt between two adjacent joints and also between synergic muscle groups. The relationships between the expansions of the pectoral girdle muscles and the brachial fascia were analyzed, evidencing a specific spatial organization that could permit the perception of the movement direction. If this fine regulation of the fascial system is altered for trauma or overuse syndromes, also the fascial perception varies, with a possible pathological role for the fasciae in musculoskeletal diseases (*Stecco et al, CTO, 2010*).