

SCANNING ELECTRON MICROSCOPY OF THE PARATENDON

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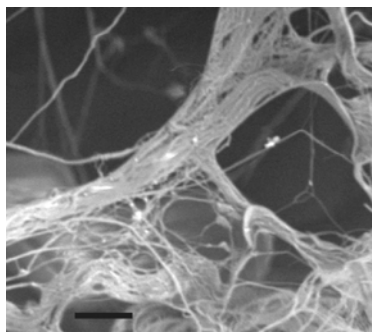
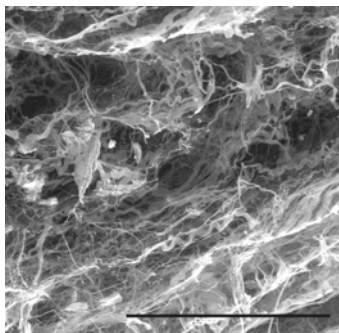
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BACKGROUND: The paratendon is a loose connective structure lying in the space separating the tendon from its sheath. This structure has received poor attention in the past leading to the lack of hypotheses about its role and function. Hence, we decided to re-examine how the paratendon is connected with the tendon and the sheath.

METHODS: The distal portion of the Flexor carpi radialis of the cow including tendon and sheath were taken just after slaughter .They were immediately immersed for 10days in 10%formaldehyde, then immersed for 8 days in 5N NaOH at 37°C, and rinsed in water for 10 days. The portions were then freeze-dried and separated in pieces containing parts of tendon and paratendon or sheath and paratendon. The pieces were dissected, gold-coated and examined under scanning electron microscopy. The procedure allowed the observation of the bundles of type I collagen contained in the pieces [1].

RESULTS: The paratendon contains a loose network of type I collagen fibres which arise from the layers of collagen fibres in the tendon and the sheath respectively. The layers of collagen fibres in the paratendon give branches of fibres joining branches of next layers (figure).



Left: layers and their lateral branches.
Bar= 300µm.

Right: connection between the branches
from next layers. Bar= 5 µm.

CONCLUSIONS: The paratendon is a continuity of the tendon and its sheath giving it the possibility to move according to the displacements of the tendon. The presence of kinking bundles of collagen fibres in the layers (figure, left) provides the tendon with a wide capacity of displacement until the bundles straighten. It is possible that the connected bundles of collagen fibres (figure, right) may separate under stress at the end of the tendon displacement providing them with viscosity to stop the displacement.

REFERENCE

[1] Passerieux E, Rossignol R, Letellier T, Delage JP Physical continuity of the perimysium from myofibers to tendons: involvement in lateral force transmission in skeletal muscle. *J. Struct. Biol.* 159, 19-28, 2007.