

CLIMBER'S FINGER INJURIES

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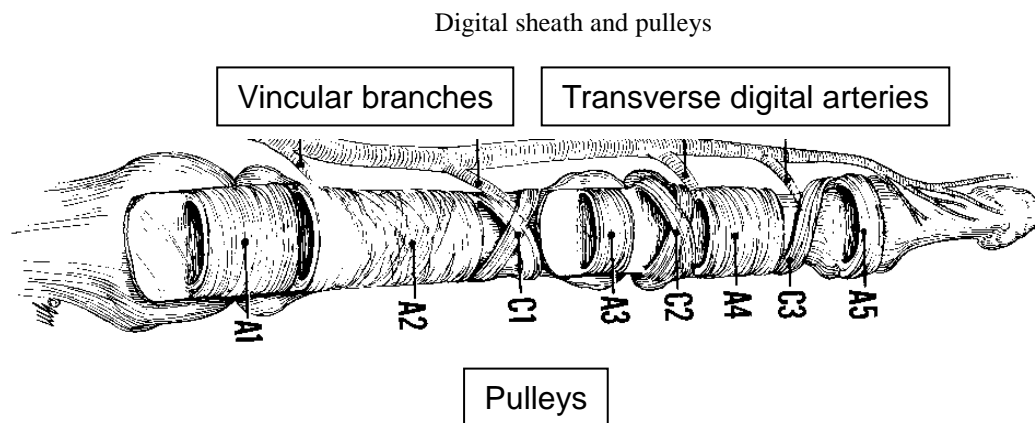
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Abstract

Rock climbing put a great strain on the fingers leading to typical injuries. Their biomechanical functioning is one of the most complicated problems of the human musculo-skeletal system. Pathologies observed and knowledge obtained, thank to biomechanical analysis for evaluation, treatment and repair. Intensive specific training cause micro traumatic injuries and overuse pathology. The force applied by the flexor tendon apparatus to the surrounding digital sheath is approximately 34N at rest and up to 63N in grasp. The tensile strength required to rupture has been reported as 310N at the A1 pulley, 407N at the A2 pulley and 210 N at the A4 pulley. Over 60% of injuries occur during indoor practice. Lesions may be acute or progressive and ruptures often occur during a strong, violent and sudden crimp position (75% regarding A2 of the ring finger). Sometimes ruptures may associate A2, A4 even A3 pulleys.

Some progressive lesions are encountered: Tendinitis, specific or diffuse swelling due to repetitive micro sprains of the PIP joint with a relative extension deficit. Osseous changes due to heavy traction on the pulley lateral attachments may lead to cortical bone thickening or pulling diverticula. A cutaneous thickening is frequent but does not lead to significant vascular or sensitive modifications.

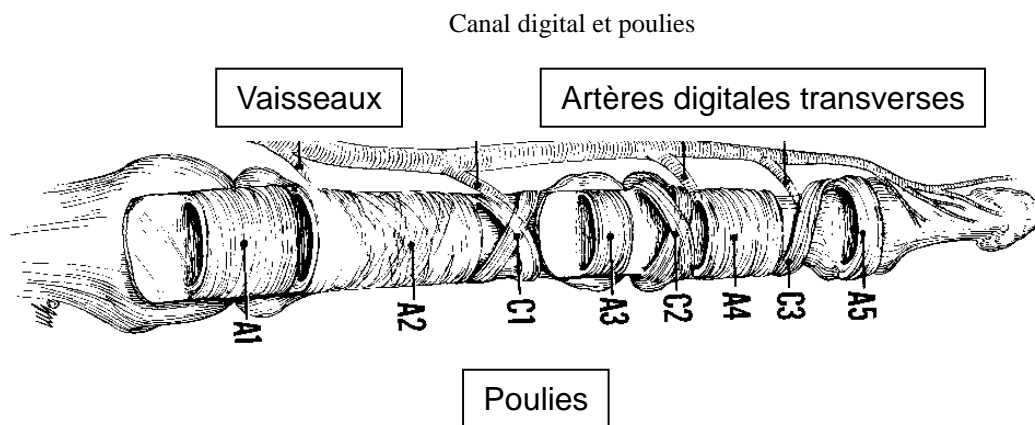


Key words: - rock climbing - finger injuries - pulley rupture

Résumé

L'escalade impose de fortes contraintes aux doigts conduisant à des lésions assez spécifiques. Leur biomécanique est un problème complexe du système musculo-squelettique. L'analyse biomécanique et l'observation ces lésions permettent d'en appréhender le traitement et la réparation. L'entraînement spécifique intensif cause des microtraumatismes et des lésions de surcharge au niveau digital. La force appliquée par l'appareil fléchisseur sur la gaine digital est d'environ 34N au repos et monte à 63N lors de la saisie. La force de rupture est de 310N au niveau de la poulie A1, 407N au niveau de A2 et de 210 N au niveau de A4. Plus de 60% des ruptures surviennent en salle. Les lésions peuvent être aiguës ou chroniques et les ruptures surviennent souvent lors d'un mouvement en arqué violent et soudain (75% intéressent A2 de l'annulaire). Parfois les ruptures peuvent associer A2, A4 voir A3.

Certaines lésions sont chroniques : Tendinites, gonflements localisés ou diffus, répondant à de micro entorses de l'IPP s'accompagnant d'un déficit d'extension relatif. Des épaissements osseux liés aux tractions sur les insertions latérales des poulies sur les phalanges peuvent réaliser de véritables diverticules de traction. L'épaississement cutané est fréquent mais ne conduit pas à des modifications vasculaires ou sensibles notables.



Mots clés: - Escalade – Lésions digitales – Ruptures de Poulies

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