The enthesis: a review of the tendon-to-bone insertion.

Abstract:
The integration of tendon into bone occurs at a specialized interface known as the enthesis. The fibrous tendon to bone enthesis is established through a structurally continuous gradient from uncalcified tendon to calcified bone. The enthesis exhibits gradients in tissue organization classified into four distinct zones with varying cellular compositions, mechanical properties, and functions in order to facilitate joint movement. Damage to tendinous insertions is common in the field of orthopaedic medicine and often involves surgical intervention that requires the attempted recreation of the natural organization of tendon into bone. The difficulty associated with recreating the distinct organization may account for the surgical challenges associated with reconstruction of damaged insertion sites. These procedures are often associated with high failure rates and consequently require revision procedures. Management of tendinous injuries and reconstruction of the insertion site is becoming a popular topic in the field of orthopaedic medicine.