Structure of tendon

Figure 1. Structure of tendon. Tendon consists of a highly ordered hierarchy of successively larger structural units. Collagen molecules aggregate into fibrils, and bundles of fibrils form fibres, many of which are aggregated into primary fibre bundles or subfascicles. Multiple subfascicles form secondary fibre bundles or fascicles, and several fascicles form tertiary fibre bundles. Most tendons consist of multiple fascicles, which is thought to be a fail-safe mechanism so that failure of one or more fibre bundles does not compromise the tendon strength. Fibre bundles are surrounded by a thin layer of connective tissue known as the endotenon, through which pass blood vessels, lymphatics and nerves. The whole tendon is bound by another thin layer (contiguous with the endotenon) known as the epitenon. A loose outer layer known as the paratenon surrounds most tendons (not shown), and some tendons are also surrounded by a specialised synovial sheath. Figure modified from Ref. 21 (© 1978); reproduced by permission of Taylor & Francis, Inc., http://www.taylorandfrancis.com.