



**Figure S1.** Experimental set-up and processing pipeline. (a) Twelve subjects ran barefoot overground at either Queen's University or Brown University. (b) Computed tomography scans were taken of the participants' right foot. (c) Biplanar videoradiography captured foot bone motion during the stance phase of running at 250 Hz. (d) Digitally reconstructed radiographs of the bone from the partial volumes (shown in orange) are used in conjunction with the calibrated camera locations to track of the position and orientation of the individual bones. (e) Using rigid body transformations from the tracked bones, a fibre wrapping algorithm modelled the medial slip of the plantar fascia, originating on the medial 1/5 of the calcaneal lateral tubercle, wrapping around the sesamoids, and inserting on the base of the first proximal phalanx.