**SDC 3**

**Triceps surae tendon length estimates.**A scaled subject specific musculoskeletal model in OpenSim 2.0.2 was used to obtain predictions of muscle-tendon unit lengths for each subject at 0° of plantarflexion and 10° knee flexion. A generic model (1) was scaled using an inverse kinematics algorithm based on the position of 22 retroreflective spherical markers placed on anatomical landmarks and on functionally determined of joint centers (5). The algorithm minimizes the distance between the computed joint centers and anatomical reference points on the subject and the generic model. This procedure creates a scaled model whereby the dimensions (length, breadth) of each major skeletal element of the model is adjusted to match the participant’s skeletal morphology, thus allowing an estimate of subject-specific muscle-tendon unit lengths. Marker trajectories were collected by means of an 8-camera VICON MX motion capture system (Oxford Metrics, UK; 100 Hz) while subject was standing and while performing dynamic knee and hip motions to compute functional joint centers (5). A tendon length was calculated as the difference between the estimated muscle-tendon unit length of each of the SOL, MG and LG obtained by the scaled OpenSim model and the estimated muscle length from ultrasound of the respective muscles (fascicle length \* cos(θ)) at an ankle angle of 0 degrees. An average of the three tendon lengths obtained with this procedure were used for further analyses.