



Figure 1. Measurement posture (the IUP in the 3cm forward condition)

a. Level goniometer, b. Experimental chair (height of back support: 97 cm, depth of seat: 40 cm, backward angle of seat: 0° , reclining angle of back support: 10° – 40° , and angular velocity at which back support reclines: $3^\circ/s$), c. Rotation axis of back support, d. Force plate, e. Roller board,

ℓ . Distance between rotation axis of back support and hip joint

ℓ_1 . Experimental conditions (i.e. the 3-cm forward, 6-cm and 9-cm) are the distance between dorsal surface of pelvis and back support.