

Table S4. Measurement protocol for upper limb range of motion

Shoulder flexion, abduction & elbow flexion

- 1) Subject in supine position. The arm is at the side of the body with the forearm in mid position between supination and pronation and palm facing the thigh.
- 2) Assistive molded device for shoulder and elbow is mounted and sensor is attached at the predetermined site.
- 3) Velcro fixes the trunk.
- 4) Each pushing force is applied and repeated 3 times.

Shoulder internal/external rotation

- 1) Subject in supine position with shoulder abduction 90°, elbow flexion 90°, forearm pronation.
- 2) Assistive molded device for shoulder and elbow is mounted and sensor is attached at the predetermined site.
- 3) Velcro fixes the trunk.
- 4) Each pushing force is applied and repeated 3 times.
- 5) In case of external rotation, repeat protocols in supine, shoulder adduction 0°, elbow flexion 90°, forearm neutral position.

Shoulder extension

- 1) Subject in prone position with the head turned to the opposite side of measurement. The arm is at the side of the body with the forearm in mid position between supination and pronation and palm facing the thigh.
- 2) Assistive molded device for shoulder and elbow is mounted and dual sensor is attached at the predetermined site.
- 3) Each pushing force is applied and repeated 3 times.

Wrist flexion & extension

- 1) Subject in supine position with elbow full extension, forearm pronation, finger extension.
 - 2) Assistive molded device for wrist is mounted and sensor is attached at the predetermined site.
 - 3) Velcro fixes the trunk.
 - 4) Each pushing force is applied and repeated 3 times.
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