

[0.65–0.98], X_{V3} 0.92 [0.66–0.98], X_A 0.94 [0.67–0.99], X_{A15} 0.93 [0.64–0.99] and inter-raters ICCs, X_{V1} 0.91 [0.74–0.98], X_{V3} 0.91 [0.75–0.97], X_A 0.94 [0.85–0.99], X_{A15} 0.96 [0.87–0.99] ($P < 0.05$). Training also improved intra- and inter-raters agreement frequencies for ranges of movement (Y): respectively 75 and 70% before training, 84 and 76% after training ($P < 0.05$).

Discussion The stepped clinical assessment shows an excellent reliability to evaluate resistance against movement in chronic spastic paresis in the upper and lower limbs of adults. Training, associated with further improvement in reliability, needed nevertheless to be strengthened for shoulder extensors, fingers flexors and rectus femoris.

Keywords Spastic paresis; Spasticity; Reliability; Clinical assessment; Rehabilitation

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Feasibility of self-rehabilitation program for upper limb after stroke in Benin



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Introduction Stroke is major cause of disability and is responsible of a high cost especially in developing countries. The self-rehabilitation program constitutes a new and original treatment for stroke patients, likely to reduce the upper limb impairment and to improve activity and participation of the disabled people. The goal of this study is to evaluate the feasibility and effectiveness of a self-rehabilitation protocol in Benin.

Methods Twelve stroke chronic patients have carried out self-rehabilitation program of upper limb (3 hours/day, 5 days/week for 2 weeks). The performance of these patients were evaluated before and after the self-rehabilitation program, by measuring the exercise number that patients were able to achieve during a three-hour session, and by measuring manual dexterity.

Results Twelve patients were effectively able to complete the entire program. The number of unimanual exercises and self-mobilization realized during a three-hour session and the score of the Box and Block Test was improved in the self-rehabilitation program ($P < 0.05$).

Discussion/conclusion Self-rehabilitation program are feasible and are inexpensive as they do not involve a therapist. It is then a promising approach in stroke rehabilitation, particularly in developing countries, where the rehabilitation cost is usually supporting by patients.

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

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Degree of muscle shortening in chronic hemiparesis in patients not treated with guided self-rehabilitation contracts (GSC)



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Objectives Antagonist muscle resistance, including due to muscle contracture, is a fundamental factor of motor impairment in spastic paresis. We aimed to quantify the degree of shortening in the main muscles involved in chronic hemiparesis (>1 year post-lesion), in patients following a conventional system of rehabilitation.

Methods From their first clinic visit in the neurorehabilitation unit of the PM&R department we retrospectively collected the assessments of passive range of motion (X_{V1}) – based on the 5-step clinical assessment, including the Tardieu Scale – against 8 key antagonists in the lower limb ($n = 19$ patients with chronic hemiparesis, age: 48 ± 13 , mean \pm SD; time since lesion 3.7 ± 3.8 years) and 13 antagonists in the upper limb ($n = 13$ patients, age: 39 ± 13 , mean \pm SD; time since lesion 5.2 ± 3.9 years), then derived coefficients of shortening (C_{SH}) by referring them to the normal expected amplitude (X_N), $C_{SH} = (X_N - X_{V1})/X_N$.

Results The higher coefficients of shortening were: vertical adductors (latissimus dorsi – pectoralis major – teres major), $36 \pm 3\%$; shoulder extensors with flexed elbow (long head of triceps; latissimus dorsi) $33 \pm 4\%$; horizontal adductors (pectoralis major), $23 \pm 1\%$; gastrocnemius, $20 \pm 1\%$; soleus, $15 \pm 2\%$; gluteus maximus, $16 \pm 3\%$; rectus femoris, $12 \pm 1\%$ and pronator teres, $12 \pm 4\%$.

Conclusion Shoulder extensors, plantar flexors and gluteus maximus in patients untreated with self-stretching postures have undergone major muscle shortening in chronic hemiparesis. A future study could assess the effectiveness of stretching postures taught and applied from the early phase of stroke on shortening of these muscles.

Keywords Muscle shortening; Chronic hemiparesis

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

Further readings

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Comparative shortening of different muscles in patients with chronic hemiparesis treated in guided self-rehabilitation contracts



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Objectives Muscle contracture is one of the main factors of motor impairment in spastic paresis, and particularly in hemiparesis. We