

I. BACKGROUND AND AIMS

Literature describes several dynamometric and non-dynamometric tests to assess trunk extensor muscle performances. In patients with chronic low back pain (CLBP), reproducibility of such assessments remains understudied. The purpose of this study was to compare reproducibility of two dynamometric tests and of the widely used Sorensen test.

II. METHODS

44 patients (22 men, 22 women; age range: 30-60 years) with CLBP (mean Roland-Morris disability scores reaching 6 ± 3.4) were randomized into two groups attending two assessment sessions. Group 1 (12 men and 12 women) underwent two tests (i.e. a maximal **strength test** (Figure 1) and a static **endurance test** requiring to maintain as long as possible a torque of 50 percent of maximal strength previously determined (Figure 2)) performed on a specific trunk extensor dynamometer (David Back). Group 2 (10 men and 10 women) was submitted to the non-dynamometric **Sorensen test** (lifting the upper trunk and maintaining the horizontal position) (Figure 3).

For both groups, tests were performed twice (spaced by 15 minutes) during the first session (intra-session reproducibility) and once during the second session (inter-session reproducibility) happening 2 to 7 days later.



Figure 1: Maximal strength test

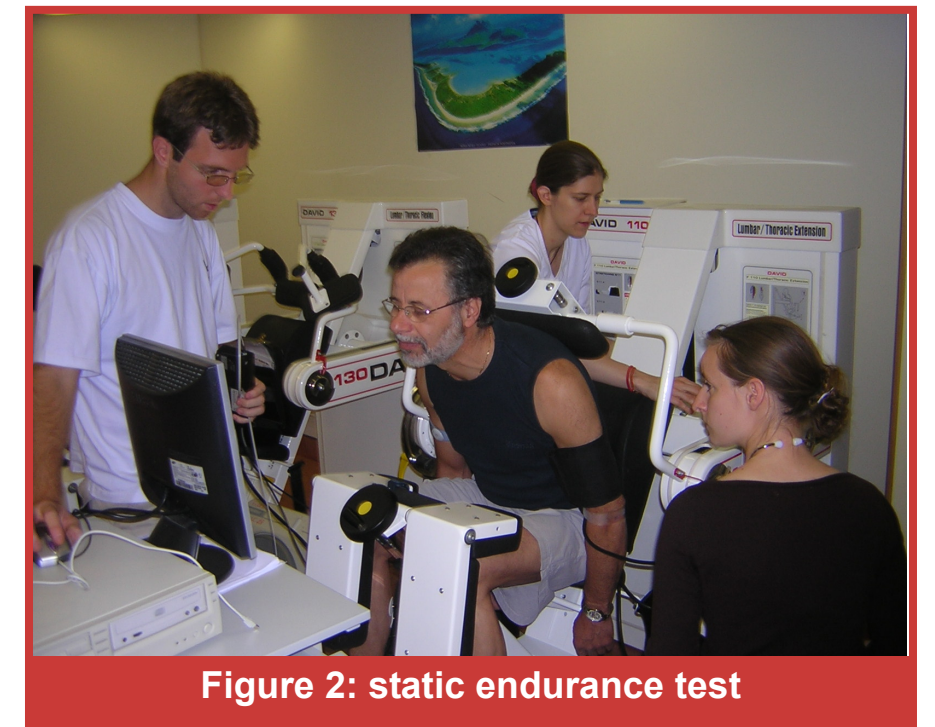


Figure 2: static endurance test

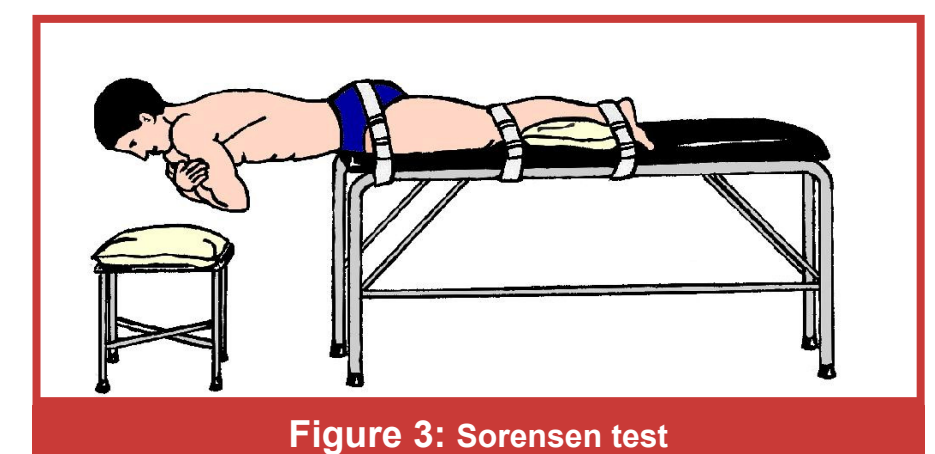


Figure 3: Sorensen test

III. RESULTS

Mean torques reached 2.67 ± 0.63 Nm/Kg (women) and 3.66 ± 0.75 Nm/Kg (men) for the strength test. Mean maintaining times were 83 ± 34 s for the endurance test and 99 ± 28 s for the Sorensen test.

	Table I			
	Intra-session		Inter-session	
	CV	95% LOA	CV	95% LOA
Dynamometric strength test (n = 24)	7.8%	-43/59 N.m ⁻¹	5.6%	-34/42 N.m ⁻¹
Dynamometric endurance test (n = 24)	18.7%	-45/39 seconds	24.8%	-60/52 seconds
Sorensen test (n = 20)	14.8%	-48/24 seconds	17.2%	-40/14 seconds

The **Table I** presents coefficient of variations (CV) and limits of agreement (LOA) related to the intra-session and inter-session reproducibility.

IV. CONCLUSION

Reproducibility appeared satisfactory for the strength test, moderate for the Sorensen test and low for the dynamometric endurance test in patients with moderate CLBP.