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Title: Motor impairment in patients with chronic neck pain: does the traumatic event play a significant role? – a case control study

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1 **Motor impairment in patients with chronic neck pain: does the traumatic event play a significant**
2 **role? – A case control study**

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9 ABSTRACT

10 **Background context:** Motor impairment is a key-sign in patients with traumatic (WAD) and non-
11 traumatic (INP) neck pain.

12 **Purpose:** This study aims at analyzing differences in motor impairment between both groups, and
13 assesses the association with self-reported symptoms.

14 **Study Design:** Case control.

15 **Patient Sample:** 38 patients with chronic INP, 35 patients with chronic WAD, and 30 healthy pain-
16 free controls were included.

17 **Outcome measures:** Mobility (°), Strength (N), Repositioning accuracy (°), endurance (s), sway
18 velocity (cm/s), sway area (cm²) and neuromuscular control.

19 **Methods:** Group differences of motor impairment together with questionnaires to evaluate pain
20 intensity, fear avoidance, pain catastrophizing, symptoms of central sensitization, and disability were
21 analyzed with Analysis of Covariance, including age as a covariate.

22 **Results:** Motor impairment was observed in both patient groups with a higher degree in patients
23 with chronic WAD. These impairments were moderately linked to self-reported disability and were in
24 most cases associated with pain, fear-avoidance, and symptoms of central sensitization ($|\rho|$ ranging
25 from 0.28 to 0.59).

26 **Conclusion:** Motor impairment should be addressed when treating both groups of patients, keeping
27 in mind the association with self-reported pain and disability, fear-avoidance and central
28 sensitization.

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