recorded through journal documentation.

**RESULTS:** LCo originates from 2 bony fossae anterior to the foramen magnum and attaches to the anterior tubercles of C3–C6. LCo presents as a continuous muscle with slight variation of fascicle orientation from superior to middle to inferior regions. The superior region originates from the anterior arch of C1 and anterior vertebral body of C2, with fascicles oriented in an inferior-lateral direction attaching to the anterior tubercles of C2–C4. Fascicles in the middle region, C3–C6, are housed within gutters formed between the lateral vertebral bodies and the anterior tubercles, are vertically oriented, and distinguished by a superficial aponeurosis. In the inferior region, deep and superficial layers of fascicles continue in an inferior-medial direction, to insert at the anterior-lateral aspect of T3 or T4 vertebral bodies. Throughout its length, a continuous distinct fascial connection with the anterior longitudinal ligament was demonstrated.

**CONCLUSIONS:** LCo and LCo appear anatomically suited for their proposed primary function as stabilizers of the cervical spine. LCo is the principal flexor of the head on the neck and has a reasonable mechanical advantage for this action. LCo lacks the mechanical advantage to act much other than as a stabilizer.

**IMPLICATIONS:** The results of this study can be used to enhance the understanding of the anatomy and guide further research on the function of this muscle group.

**MECHANICAL NECK MUSCLE ACTIVATION DURING 120° ARM FLEXION REGISTERED WITH ULTRASOUND: A COMPARISON OF PATIENTS AND HEALTHY CONTROLS**

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**PURPOSE:** To compare the mechanical activity of the ventral and dorsal neck muscles in individuals with persistent longstanding disability after surgery for cervical disc disease to that of healthy controls, during a loaded arm elevation task.

**RELEVANCE:** There are limited studies investigating the long-term effect on cervical motor function associated with surgery for cervical disc disease.

**METHODS:** Ten individuals (mean ± SD age, 60 ± 7 years) who underwent anterior cervical decompression and fusion (10–13 years ago) for cervical disc disease and 10 healthy age- and sex-matched controls participated in the study. Ultrasonography and postprocess spackle-tracking analysis were used to investigate the degree of deformation (%) and deformation rate (m/s) of ventral and dorsal neck muscles at the C4 segmental level during 1 repetition of loaded arm flexion to 120° (barbell, 2 kg for men and 1 kg for women).

**RESULTS:** There were significant group effects for ventral muscle deformation and deformation rate (elevated in patients, P < .04), but no group-by-muscle interactions (P > .12). Compared to controls, tests of simple effects revealed that in patients, deformation was significantly elevated for the longus capitus muscle (P < .03) only, and deformation rate for the longus capitus and sternocleidomastoid muscles (P < .04) only. For the dorsal neck muscles, no group (P > .87) or group-by-muscle interactions (P > .33) were observed for either the deformation or deformation rate measures.

**CONCLUSIONS:** Greater muscle deformation and deformation rates were observed in the ventral neck muscles of patients with longstanding neck disability compared to controls. These differences may be indicative of an altered motor strategy in this patient group when performing the upper-limb task.

**IMPLICATIONS:** These findings are of potential clinical relevance, particularly for those patients who complain of aggravation of neck symptoms during activities of the upper limb.