

PULLING LIFTS DO NOT SUFFICIENTLY DEVELOP CERVICAL SPINE EXTENSOR STRENGTH: A CASE STUDY

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Many strength and conditioning coaches forego neck-strengthening exercises because they believe the various pulls the athletes perform during strength and conditioning training will strengthen the trapezius and other neck muscles sufficiently. This is a retrospective analysis of such case.

PRESENTATION: A 16-year-old, right-hand-dominant, male junior hockey player suffered an mild traumatic brain injury and subsequently had complete resolution of all symptoms. The patient began a strength and conditioning program to counter the deconditioning of active and cognitive rest. The program included power cleans, clean pulls, snatch pulls, hang cleans, squats, fronts squats, push presses, and presses. The patient demonstrated marked improvement in the volume and intensity of the lifts.

PHYSICAL EXAMINATION: The physical examination of the cervical spine revealed AROM WNL, no symptoms upon provocation, normal reflexes, normal motor tests, and no sensory deficits. The marked hypertrophy of the trapezius group and thoracic and lumbar paraspinal muscles was visibly evident. The development of the cervical spine extensors did not appear to follow a parallel path as the thoracic and lumbar paraspinal muscles.

DIAGNOSIS: Deconditioning of the cervical paraspinal muscles

TESTS: MedX cervical spine extensors were statically tested at 12°, 18°, 36°, 54°, 72° and 87°. The initial total torque produced was 12° 102 inch-lbs, 36° 78 inch-lbs, 72° 89 inch-lbs, compared against national averages for gender, age, and body weight at 12° 320 inch-lbs, 36° 338 inch-lbs, 72° 363 inch-lbs. The MedX evaluation revealed cervical spine strength deficiencies after the patient had participated in the strength and conditioning program as described above, and demonstrated gains in volume and intensity.

TREATMENT: Patient performed MedX cervical paraspinal strengthening twice per week x 16 weeks. Patient continued to perform remainder of strength and conditioning program.

OUTCOME: Re-evaluation revealed improvement in cervical extensor strength: 12° 325 inch-lbs. (219%), 36° 291 inch-lbs. (273%), 72° 283 inch-lbs. (218%). It was demonstrated that cervical spine extensor strength was not sufficiently strengthened via pulling exercises alone. The patient required direct cervical spine extensor training to increase extensor strength.

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