

ABSTRAKTA - Cervical: Anatomical, physiological, and pain studies (v anglickém jazyce)

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| Abstract Title:   | Cervical discography. A contribution to the aetiology and mechanism of neck, shoulder and arm pain.   |
| Summary:          | At surgery stimulation of cervical discs produced intra-scapular pain, with stimulation mid-line producing central pain and off-centre producing lateral pain.  |
| Abstract Author:  | Cloward RB  |
| Journal:          | Ann of Surg   |
| Biblio:           | 150:1052-1064   |
| Year Published:   | 1959  |
| Category:         | Cervical: Anatomical, physiological, and pain studies   |
| Abstract Title:   | A patient-specific approach for measuring functional status in low back pain.   |
| Summary:          | Patient-specific questionnaire for measuring functional disability. Commonest mentioned items: standing, lying, but over half of 400 items involved flexion.  |
| Abstract Author:  | Beurskens AJ, de Vet HC, Koke AJ et al.   |
| Journal:          | J Manip Physiol Thera   |
| Biblio:           | 22:144-148  |
| Year Published:   | 1999  |
| Category:         | Cervical: Anatomical, physiological, and pain studies   |
| Abstract Title:   | Dimensions of the cervical neural foramina in resting and retracted positions using magnetic resonance imaging.   |
| Summary:          | MRI study of neural foramina in 20 asymptomatic volunteers ♦ retraction at most levels caused a slight but not significant enlargement of foraminal area.   |
| Abstract Content: | STUDY DESIGN: Prospective within-subject experimental design using a sample of convenience. Objectives: To describe cervical foraminal dimensions in vivo of nonimpaired, asymptomatic individuals in a neutral cervical spine position using magnetic resonance images, and then to document dimensional changes of the foramina when placing the neck in a retracted position. BACKGROUND: Physical therapists frequently use movement interventions to treat spine dysfunction. The influence of positional changes of the head and neck on the dimensions of the cervical neural foramina is not well documented. METHODS AND MEASURES: Twenty asymptomatic subjects (10 men and 10 women), 22 to 25 years of age (mean SD = 23.7 0.8), underwent magnetic resonance imaging of the cervical spine in both neutral and retracted positions. Bilateral measurements were documented in both positions and compared for height, width, and area of each subject's intervertebral foramen from C2-C3 to C7-T1. RESULTS: No significant differences (P > 0.004) were found between the 2 neck positions. With the single exception of foraminal area at C3-C4, the mean values of height, width, and area in the retracted position were equal to or larger than those of the cervical neutral position. CONCLUSIONS: Therapeutic maneuvers using retraction of the cervical spine do not promote positional stenosis of the intervertebral foramen in the healthy neck |
| Abstract Author:  | Lentell G, Kruse M, Chock B, Wilson K, Iwamoto M, Martin R.   |
| Journal:          | J Orthop Sports Phys Ther   |
| Biblio:           | Aug;32(8):380-90  |
| Year Published:   | 2002  |
| Category:         | Cervical: Anatomical, physiological, and pain studies   |
| Abstract Title:   | Morphology of the cervical intervertebral disc: implications for McKenzie's model of the disc derangement syndrome.   |
| Summary:          | As the morphology and degenerative process of the cervical spine is different from the lumbar spine the authors conclude that the model does not conform to known anatomy. (see also discussion McKenzie Institute (UK) Newsletter 5:1;10-14,1996)  |
| Abstract Content: | SUMMARY. Studies which have examined the cervical intervertebral disc have demonstrated that it is not morphologically similar to the lumbar intervertebral disc. Yet review of the clinical literature has revealed that clinicians have often based clinical theories on the assumption that the cervical and lumbar discs do have a similar structure. The purpose of this paper is to review the literature regarding the morphology of the cervical intervertebral disc in relation to McKenzie's clinical theories which claim that the nucleus pulposus of the adult cervical intervertebral disc may be repositioned. Discussion of the proposed biological mechanisms underlying examination and treatment techniques is imperative if the basis of these techniques is to be better understood. Copyright 2000 Harcourt Publishers Ltd.   |
| Abstract Author:  | Mercer SR, Jull GA.   |

ABSTRAKTA - Cervical: Anatomical, physiological, and pain studies (v anglickém jazyce)

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| Journal:          | Man Ther  |
| Biblio:           | Mar;1(2):76-81  |
| Year Published:   | 1996  |
| Category:         | Cervical: Anatomical, physiological, and pain studies   |
| Abstract Title:   | Cervical protrusion and retraction.   |
| Summary:          | A radiographic and range of movement study of the effects of protrusion/retraction, and an analysis of symptom response to sagittal end-range test movements. Of the 45% who experienced improvement ♦directional preference♦ was for extension in 67%, and for flexion in 33%.   |
| Abstract Author:  | Donelson R  |
| Journal:          | McKenzie Institute (UK) Newsletter  |
| Biblio:           | 3:2;20-21   |
| Year Published:   | 1994  |
| Category:         | Cervical: Anatomical, physiological, and pain studies   |
| Abstract Title:   | On assessment of shoulder exercise and load-elicited pain in the cervical spine. Biomechanical analysis of load--EMG--methodological studies of pain provoked by extreme position.  |
| Summary:          | Various motor and sustained loading tests carried out on asymptomatic volunteers. When sustaining extreme flexion pain was produced after 2-15 minutes and stopped test within hour, when the pain abated. Pain was mostly neck and shoulders.  |
| Abstract Content: | <p>Biomechanical analyses of load on locomotor structures are essential parts of physical therapy. Load moments of force, compressive and shear joint forces are associated with the risk of eliciting pain or causing excessive load during work and leisure activities as well as during rehabilitative training exercises. Two common therapeutic exercise movements were analysed with special emphasis on the effects of patient positioning on the load relations. Resistance was provided by an ordinary pulley apparatus. A computerized static model was developed, where positioning angle, pulley cord force and pulley distance could be varied. The best adaptation between the curves for induced load moment about the shoulder joint and maximum isometric muscle moment through joint angles was obtained when the subject during internal rotation exercises sat with the pulley located 40 degrees anterior to, and during external rotation exercises 20 degrees posterior to, a frontal plane through the shoulders at a distance of 1.3 m from the joint. EMG was recorded from the pectoralis major, latissimus dorsi and anterior deltoid muscles during internal rotation exercises, and from infraspinatus, deltoid and trapezius during external rotation. Pectoralis major and infraspinatus were the most active muscles during internal and external rotation respectively. Two methodological studies were made concerning pain provoked by loading joints in maintained extreme positions (i.e. positions at the limit of the motion sector). Sensations of discomfort/pain from healthy elbow and knee joints maintained in an extreme position increased with duration of provocation and decreased slowly after removal of loading weight. Using such joint loadings, a comparison of the Visual Analogue Scale with Borg♦s category-ratio scale showed that both be can be used for reliable assessments of load-elicited pain intensity. In one study cervical spine extreme position was found to be associated with sitting work postures where the thoraco-lumbar spine was slightly inclined backwards or where the whole spine was flexed. Healthy subjects participated in an experimental study in which a position involving extreme flexion of the lower-cervical-upper-thoracic spine (similar to a common work posture) was maintained. Pain was experienced by all ten subjects within 15 minutes, disappeared 15 minutes after the end of provocation, but was again experienced by nine subjects the same evening or the next morning and lasted up to four days. Neck extensor muscle activity was low.</p> |
| Abstract Author:  | Harms-Ringdahl K.   |
| Journal:          | Scand J Rehabil Med   |
| Biblio:           | 14:1-40   |
| Year Published:   | 1986  |
| Category:         | Cervical: Anatomical, physiological, and pain studies   |
| Abstract Title:   | Trial into the effects of repeated neck retractions in normal subjects.   |
| Summary:          | Retraction range did not increase on repetition, and range was greater in the younger population.   |

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| Abstract Content: | This investigation measured the immediate effects of 10, 20, and 30 repeated neck retraction movements on the retraction range of motion and resting neck posture in asymptomatic subjects. The results provide baseline gross kinematic data concerning the effects of neck retraction movements. Future work involving patients is anticipated and proposed. Neck retraction movements are an assessment maneuver and a treatment technique advocated by Robin McKenzie for patients with neck pain. They are commonly prescribed by physical therapy technique used to treat patients with neck pain and dysfunction. No previous studies of this maneuver have been reported. Two groups of 15 subjects, one group 20-29 years old and the other 50-59 years old, participated. Each group performed three sets of 10 repeated movements. The position of the head and neck were recorded by the 3Space Isotrak System using markers placed over the spinous processes of selected vertebrae and the tragus of the ear. After the repeated movements, no statistically significant difference was found in neck retraction range of motion, but a statistically significant change in the resting neck posture was detected. Any changes in neck retraction range of motion observed after the execution of this maneuver in patients with neck pain may be the result of changes in a pathological process. If the postural change were to occur in patients, this treatment maneuver could be beneficial for those attempting to maintain a more retracted neck position for pain relief.  |
| Abstract Author:  | Pearson ND, Walmsley RP  |
| Journal:          | Spine  |
| Biblio:           | 20(11):1245-1251   |
| Year Published:   | 1995   |
| Category:         | Cervical: Anatomical, physiological, and pain studies  |
| Abstract Title:   | The ligaments and anulus fibrosus of human adult cervical intervertebral discs.  |
| Summary:          | Anatomical study of 12 adult specimens. Anulus is thick anteriorly, but posteriorly is minimal, reinforced by the posterior longitudinal ligament centrally and virtually absent poster-laterally.   |
| Abstract Content: | STUDY DESIGN: Descriptive, microdissection study. OBJECTIVE: To determine the morphology of the human adult cervical intervertebral disc and its ligaments. SUMMARY OF BACKGROUND DATA: Some studies indicate that the cervical disc is distinctly different from the lumbar intervertebral disc, yet most clinical and anatomic texts appear content with extrapolating data from the lumbar spine. A detailed three-dimensional description of the cervical intervertebral disc and its surrounding ligaments is currently unavailable. METHODS: Whole cervical spinal columns were freed from 12 human adult embalmed cadavers, and the posterior elements and soft tissues were removed. Using microdissection, the longitudinal ligaments and the fibrous components of 59 cervical intervertebral disc were resected systematically. The orientation, location, and attachments of each stripped bundle of collagen were recorded photographically and in sketches. RESULTS: The cervical anulus fibrosus does not consist of concentric laminae of collagen fibers as in lumbar discs. Instead, it forms a crescentic mass of collagen thick anteriorly and tapering laterally toward the uncinat processes. It is essentially deficient posterolaterally and is represented posteriorly only by a thin layer of paramedian, vertically orientated fibers. The anterior longitudinal ligament covers the front of the disc, and the posterior longitudinal ligament reinforces the deficient posterior anulus fibrosus with longitudinal and alar fibers. CONCLUSIONS: The three-dimensional architecture of the cervical anulus fibrosus is more like a crescentic anterior interosseous ligament than a ring of fibers surrounding the nucleus pulposus. Department of Anatomy and Structural Biology, University of Otago, Dunedin, New Zealand. |
| Abstract Author:  | Mercer S, Bogduk N   |
| Journal:          | Spine  |
| Biblio:           | Apr 1;24(7):619-26;  |
| Year Published:   | 1999   |
| Category:         | Cervical: Anatomical, physiological, and pain studies  |
| Abstract Title:   | Cervical flexion, extension, protrusion, and retraction. A radiographic segmental analysis.  |
| Summary:          | Study into the paradoxical movement pattern of the cervical spine ♦ retraction produces lower C extension and upper C flexion, protrusion produces lower C flexion and upper C extension. Full range extension is produced in lower C by extension, but in O-C2 by protrusion; full range flexion is produced in lower C by flexion, but in O-C2 by retraction.  |

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| Abstract Content: | <p>STUDY DESIGN: A lateral radiographic analysis of the cervical spine was performed on 20 asymptomatic volunteers. OBJECTIVES: To quantify the contribution of each cervical segment to each of four sagittal cervical end-range positions: full-length flexion, full-length extension, protrusion, and retraction. SUMMARY OF BACKGROUND DATA: Recent clinical research supports the relevance of cervical protrusion and retraction in symptomatic patients. Currently, few quantitative studies are available regarding cervical protrusion and retraction. METHODS: Lateral cervical radiographs of 20 asymptomatic volunteers for four test positions and a neutral position were collected. Mean angular measurements and available ranges of motion were calculated from the occiput to C7. RESULTS: Retraction consists of lower cervical extension and upper cervical flexion, whereas protrusion consists of lower cervical flexion and upper cervical extension. Full-length cervical flexion produced more flexion at lower segments than did protrusion, and full-length cervical extension produced more extension at lower segments than did retraction. With both full-length flexion and retraction, upper cervical segments are positioned in the flexion portion of their total range, but only retraction takes Occ-C1 and C1-C2 to their full end-range of flexion. Similarly, with both full-length extension and protrusion, upper cervical segments are positioned in the extension portion of their total range, but only protrusion takes Occ-C1 and C1-C2 to their end-range of extension. CONCLUSION: A greater range of motion at Occ-C1 and C1-C2 was found for the protruded and retracted positions compared with the full-length flexion and full-length extension positions. Effects on cervical symptoms reported to occur in response to flexion, extension, protrusion, and retraction test movements may correspond with the position of lower cervical segments. Department of Orthopedic Surgery, SUNY Health Science Center at Syracuse, USA. ordwayn@hscsyr.edu</p> |
| Abstract Author:  | Ordway NR, Seymour RJ, Donelson RG, Hojnowski LS, Edwards WT   |
| Journal:          | Spine  |
| Biblio:           | Feb 1;24(3):240-7  |
| Year Published:   | 1999   |
| Category:         | Cervical: Anatomical, physiological, and pain studies  |
| Abstract Title:   | Cervical discogenic pain. Prospective correlation of magnetic resonance imaging and discography in asymptomatic subjects and pain sufferers.   |
| Summary:          | Most cervical discs are morphologically abnormal, with outer annular tears found in both volunteers and patients. Gives areas of referral for discogenic pain.   |
| Abstract Content: | <p>STUDY DESIGN: Asymptomatic subjects and chronic head/neck pain sufferers were studied with high-field magnetic resonance imaging and cervical discography to compare and correlate both tests. OBJECTIVES: To assess the accuracy of magnetic resonance imaging and discography in identifying the source(s) of cervical discogenic pain. SUMMARY OF BACKGROUND DATA: Previous retrospective studies describe a generally poor correlation between magnetic resonance imaging and provocative discography in the cervical spine. METHODS: Ten lifelong asymptomatic subjects and 10 nonlitigious chronic neck/head pain patients underwent discography at C3-C4 through C6-C7 after magnetic resonance imaging. Disc morphology and provoked responses were recorded at each level studied. RESULTS: Of 20 normal discs by magnetic resonance from the asymptomatic volunteers, 17 proved to have painless annular tears discographically. The average response per disc (N = 40) for this group was 2.42, compared to 5.2 (N = 40) for the neck pain group. In the pain patients, 11 discs appeared normal at magnetic resonance imaging, whereas 10 of these proved to have annular tears discographically. Two of these 10 proved concordantly painful with intensity ratings of at least 7/10. Discographically normal discs (N = 8) were never painful (both groups), whereas intensely painful discs all exhibited tears of both the inner and outer aspects of the annulus. CONCLUSIONS: Significant cervical disc annular tears often escape magnetic resonance imaging detection, and magnetic resonance imaging cannot reliably identify the source(s) of cervical discogenic pain.</p>   |
| Abstract Author:  | Schellhas KP, Smith MD, Gundry CR, Pollei SR.  |
| Journal:          | Spine  |
| Biblio:           | Feb 1;21(3):300-11   |
| Year Published:   | 1996   |
| Category:         | Cervical: Anatomical, physiological, and pain studies  |