

[The vertebral factor in the pathogenesis of raised intraocular pressure: influence of physical and manual therapy] Ger.

Catcheva J, Boykikev N et al *Manuelle Medizin* 1986; 24: 105-108

Comparative studies were performed in 102 subjects, these being 45 patients with clinical and X-ray signs of pronounced cervical osteochondrosis (19 of whom had Barré-Liéou syndrome), 18 with functionally blocked intervertebral articulations of the cervical vertebral column and 10 with primary glaucoma, and 29 healthy controls. The authors observed correlations indicate a causal connection between cervical pathology and increased ocular tension. The favourable effects of some physical treatments (ultrasound applied in the paravertebral region of the neck manipulation) suggest that they could usefully be included in the general therapeutic plan for secondary glaucoma of cervical genesis. The authors show that the paravertebral region of the neck is an important reflexogenic zone by way of which the intraocular tension can also be influenced in patients with primary glaucoma. Physical therapy can reduce the side effects of prolonged medical treatment of glaucoma by allowing the interpolation of drug-free intervals, which is of great importance for glaucoma patients.

KEY WORDS: Cervical osteochondrosis, segmental dysfunction, vertebral artery, glaucoma.

[Misinterpreted pain in the hip. Syndrome resulting from irritation of the nerves passing through the lateral abdominal wall (D12 and L1)] Ger.

Maigne R, Maigne JY. *Manuelle Medizin* 1986; 24: 116-119

Certain sensations of pain localized in the hip region may result from an irritation of one of the nerves (D12 and L1) that pass through the lateral abdominal wall. It is thought that such an irritation can be caused by mechanical injury, microtrauma of the dorsolumbar junction as part of the "Dorsolumbar hinge syndrome" (R. Maigne) or by local compression in the area of the crista iliaca. Our anatomical studies on this subject confirm this idea. In addition, we have reached new insights that enhance our understanding of the pathology of these nerves.

KEY WORDS: Dorsolumbar junction, neuroanatomy, irritation of hypogastric nerve, pain in the area of the hips.

The role of sternocostal articulations in low back pain

Tichy J, Mojzisoval L. *Manual Medicine* 1986; 2:122-125

New interrelations between low back pain and sternocostal distensions of the 5th, 6th and 7th ribs have been studied in a group of 100 subjects (34 women and 66 men). The distensions or dislocations of sternocostal articulations are usually multiple and bilateral. In 55% of bilateral disturbances the 6th rib was involved, in individual cases the distension of the isolated 6th rib was found in 14% on the right and in 6% on the left side. Each sternocostal distension evokes constant specific reflex

compensatory spasms in remote muscles (mm. erectores trunci, m. gluteus max., m. rectus abdominis, m. obliquus abdominis ext., mm. adductores) and leads to the asymmetry of body posture, which can be measured. The preexistent relative weakness of the great pectoral muscle seems to be a possible cause of the sternocostal dislocations and of secondary changes in the position on iliac and sacral bones and pseudoradicular even radicular pains in the lower extremities. A beneficial effect of the mobilization of the respective sternocostal blockade on the pain syndrome, body asymmetry and motility is described.

KEY WORDS: 5th, 6th, 7th rib blockade, low back pain, sternocostal joint mobilization, great pectoral muscle.

[Applied anatomy of the thoracolumbar fascia] Ger.

Bogduk N, Macintosh JE. *Manuelle Medizin* 1986; 24: 98-104

The thoracolumbar fascia was studied by dissection in ten adult human cadavers. The posterior layer of this fascia was found to consist of two laminae. The superficial lamina is formed by the aponeurosis of latissimus dorsi. The deep lamina consists of bands of fibers passing caudolaterally from the midline. Both laminae form a retinaculum over the back muscles, and the deep lamina constitutes a series of accessory posterior ligaments that anchor the 2-5 spinous processes to the ilium and resist flexion of the lumbar spine. The function of these ligaments is enhanced by the contraction of the back muscles and the action of certain, restricted portions of the abdominal muscles.

KEY WORDS: Thoracolumbar fascia, lumbar stability, abdominal mechanisms.

The functional evaluation of craniocervical ligaments in sidebending using x-rays

Reich C, Dvorak J. *Manual Medicine* 1986; 2:108-113

This study investigates the value of functional x-rays in the sidebending positions for the patients whose ligaments in the upper cervical spine have undergone destructive changes. A test group of 26 rheumatoid arthritis patients with proven anterior atlas-axis instability and a control group were examined. In each patient changes of the dens-lateral mass distance were roentgenometrically evaluated in order to determine the extent of displacement in the atlanto-axial joint. Lateral displacement of the atlas occurred with no exception in both groups to the side of the sidebending. The extent of this displacement was found to be significantly greater in the RA-group. It can be concluded that defective ligaments in the upper cervical spine become apparent on x-ray films in the sidebending position. Whether this technique may be of help in the diagnostic process of suspected lesions of the ligaments due to trauma, cannot be definitely concluded.

KEY WORDS: Cervical spine, instability, rheumatoid arthritis, functional x-rays.

Involvement of the cervical spine in back pain

Arkuszewski Z. *Manual Medicine* 1986; 2:126-128

A total of 100 patients with lumbago or sciatica were allocated alternately to two groups; all received standard drug treatment and physiotherapy and underwent manual examination twice a week. In the manual treatment group, after each examination traction, mobilisation and/or manipulation were applied to all parts of the spine with functional movement restriction and soft tissue reflex changes. In 60% of patients there was concomitant neck pain. Blockages of the cervical segments were found in 95% of patients, the atlanto-occipital segment being the one most frequently affected. In the manual treatment group the treatment period was shorter, and posture, intensity of pain and neurological signs showed greater improvement both on discharge and 6 months later. Patients with concomitant neck pain experienced more pronounced improvement of their neurological symptoms, but those without neck pain had better posture after manual treatment.

KEY WORDS: Back pain, manual treatment, neck pain, sciatica.

Innominate shear dysfunction in the sacroiliac syndrome

Greenman P. *Manual Medicine* 1986; 2:114-121

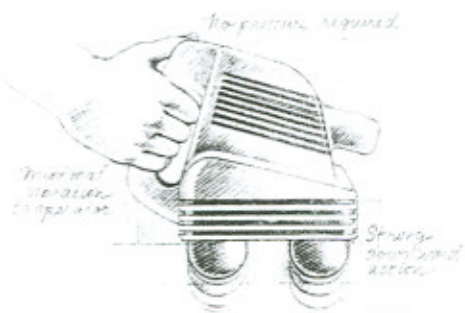
Recently there has been an increased interest in the sacroiliac syndrome. There appear to be multiple variations to be found in dysfunctions of the sacroiliac joints. Unilateral alteration in the opposition of the joint surface of the innominate in relation to the sacrum in both a cephalic and caudad direction seem to be possible. Clinical evidence supports a superior innominate shear (upslip innominate) and an inferior innominate shear (downslip innominate). The anatomy of sacroiliac joint is reviewed as well as the current understanding of sacroiliac joint motion. Diagnostic criteria and therapeutic interventions for both superior and inferior innominate shears are presented. Results of a series of 12 cases superior innominate shear and 4 cases of inferior innominate shear are provided.

KEY WORDS: Sacroiliac syndrome, innominate shear dysfunctions, low back pain, sacroiliac strain.

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Muscular pattern in thoraco-lumbar lesions

Lewit K. *Manual Medicine* 1986; 2:105-107

The thoraco-lumbar junction is one of the four major key transition regions; whereas in the remaining three a highly mobile structure joins a firm one, here two mobile structures meet and it is mainly the quality of motion which changes. To stabilise this region muscular forces are required and we find therefore widespread spasm in lesions. These play an important role in the clinical picture. Most typically we find spasm of the psoas and thoraco-lumbar erector spinae and very frequently of the quadratus lumborum and of the m. rectus abdominis. Spasm of the m. psoas causes abdominal pain and if severe, it produces flexion of the hip and the typical antalgic posture of acute lumbago. Spasm of the m. erector spinae produces low back pain at its caudal points of attachment and interscapular pain owing to spasms extending as far as to the mid thoracic region. Spasm of the quadratus lumborum causes lumbar pain and pain at the attachments, i.e. at the iliac crest and the lower ribs. Spasm of the recti abdominis may imitate abdominal pain and cause pain at the attachments at the pubic symphysis and the xyphoid process. It also produces a forward drawn trunk posture with restricted back bending. These circumstances explain why thoraco-lumbar lesions are not usually felt at the site of the lesion. Each of these spasms may improve after treatment of thoraco-lumbar movement restriction and/or after (gravity induced) postisometric relaxation of the muscle spasm.

KEY WORDS: Thoraco-lumbar lesion, key transition region, muscle spasm, gravity induce postisometric relaxation.

Postisometric relaxation in combination with other methods of muscular facilitation and inhibition

Lewit K. *Manual Medicine* 1986; 2:101-104

At first postisometric relaxation was simply the application of Greenman's and Mitchell's muscle energy technique to muscles. It could be shown that the minimum force used during the isometric phase for mobilization produced better results than maximum force also when only increased muscle tension was present. A further improvement of this technique consists in combining it with other methods of muscular facilitation and inhibition, in particular with eye movements, inspiration and expiration; the latest suggestion is to use the force of gravity (gravity-induced relaxation according to Zbojan). The advantage of such combinations lies (1) in increased effectiveness due to a summation of physiological stimuli, (2) in making both resistance and relaxation automatic and (3) in making the techniques more suitable for self treatment, gravity-induced relaxation being self treatment from the outset. With increased experience it appears that if increased muscle tension is due to disturbed function, stretch is not essential and is merely the result of relaxation; it should therefore never be carried out against resistance. Stretch is only necessary if there is true irreversible contracture due to (morphological) connective tissue change.

KEY WORDS: Postisometric relaxation, muscular facilitation and inhibition, gravity-induced relaxation, self treatment.

The effect of immobilization and exercise on muscle function: a review

St. Pierre D, Gardiner PF. *Physiother Can* 1987; 39:24-36

The clinical approach to physiotherapy treatment of patients whose limbs have been immobilized in a plaster cast has been traditionally based on experience and anecdotal evidence. A more justifiable approach requires scientific evidence, which, for practical and ethical reasons, cannot be obtained only with human subjects. There is much to be gained from animal studies, in which more variables can be controlled and more extensive investigations can be performed. From a survey of these studies, we can make several conclusions. First, it is apparent that the amount of atrophy produced by immobilization is dependent on the length at which a muscle has been fixed (short > neutral > lengthened position). Second, as the muscle atrophies, its ability to generate tension decreases as well, and a possible dysfunction of the contractile proteins is seen. Third, the type of atrophy produced by immobilization has been reported to affect all fiber types to the same extent or mainly type I or type II fibers. Fourth, muscle metabolism is affected by immobilization and a de-differentiation of muscle fiber types is seen. The effect of exercise (voluntary or electrically-induced), while the limb is in a cast, has not been shown conclusively to be beneficial in attenuating the extent of atrophy. Few studies have been conducted with animals and the studies involving human subjects have been inconclusive for several reasons. Most studies have involved a small number of subjects and there were inherent problems associated with the way possible improvement was evaluated.

Furthermore, the beneficial effects of post-immobilization muscle training can not be ascertained from the existing literature. It has been shown in animals that muscles are able to recuperate totally from the negative effect of immobilization. Moreover, normal cage activity suffices and the benefit of additional training has not been investigated to any extent. In humans, the ability of muscles to recover from an atrophic state, in the absence of training, has not been documented. Thus, it is difficult to ascertain the possible benefit of additional training.

KEY WORDS: Immobilization, exercise, atrophy.

A new gait analysis system for clinical use in a rehabilitation center

Hermens H, deWaal CA. et al *Orthopedics* 1986; 9:1669-75

A semi-portable system based on a microcomputer has been developed to measure the vertical reaction forces on both feet during walking. Eight capacitive force transducers are attached to each sole of the patients' shoes. This allowed the forces to be measured for several consecutive steps during a walk of 20 sec. This article describes the principles of operation of the force transducers and the associated electronic system. It also shows data processing procedures and gives a review of the available methods of data presentation. Recordings of the walking pattern of three patients with different diagnostics are presented and discussed to demonstrate the usefulness of the new gait analysis system in a rehabilitation center.

Still and Palmer: the impact of the first osteopath and the first chiropractor

Brantingham J.J. Assoc History Chiropractic 1986; 6:19-22

The early osteopathic profession believed that chiropractic was a theft and a crude form of osteopathy. This article attempts to compare and assess some of the similarities and differences between early chiropractic, osteopathy, Palmer, and Still. Early chiropractic philosophy closely resembled osteopathic philosophy but the actual diagnostic methods and mechanics involved in the two schools' manipulative techniques appear to have been quite different. Additionally, what are the probable reasons behind drugless osteopathy expanding to an unlimited scope? Why did chiropractic retain a limited scope? How did early chiropractic become "contaminated" by osteopathic and bohemian manipulations? Finally, arguments over the nature and effects of the manipulable lesion (the "chiropractic subluxation" and the "osteopathic lesion") led to division and a splintering of both schools.

Patella malalignment syndrome: rationale to reduce excessive lateral pressure

Kramer P. Jost 1986; 8:301-9

Patella malalignment syndrome is characterized by pain in the anterior portion of the knee. There can be numerous causes; however, the end result appears to be excessive lateral pressure on the patellofemoral articulation. This problem commonly affects athletes as an overuse injury. Standard conservative treatment attempts to decrease inflammation and increase strength whereas surgical techniques seek to correct the actual cause of the malalignment. The biomechanical approach advocated in this article employs the standard conservative treatments in addition to a passive forced technique designed to reduce lateral pressure by stretching the lateral retinaculum and patella compression to facilitate cartilage metabolism. The approach has proven effective in reducing symptoms and allowing early return to activity.

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