DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 1 : Upright posture and breathing: the trunk | Musculoskeletal Key

Sitting or standing with your back straight, head and shoulders held high, neck balanced, and the chest opened up and out are guidelines for good work _____. A. Ethics B. Posture.

Because vertebral segments increase in size and strength progressing caudally to sustain increasing weight load, the lumbar vertebra are relatively large Fig. The centra are kidney shaped, larger in width than from front to back, and thicker anteriorly except L2. A line crossing horizontally at the uppermost aspect of the iliac crests normally cuts the body of L4. Each lumbar vertebra exhibits strong stout laminae, pedicles, and spinous processes that project directly backward on a horizontal plane Fig. The transverse processes, which arise at the junction of the pedicles and laminae, project laterally and slightly backwards and increase in length progressing caudally. The neural ring is triangular, and the vertebral canal is larger than that of the thoracic spine but smaller than that of the cervical spine. Lumbar articular processes are especially strong. Because the inferior articular processes face laterally and slightly anteriorly and the superior processes face medially and slightly posteriorly, rotatory ROM is somewhat restricted. Mamillary processes rounded tubercles project from the postero-superior border of each superior articular process Fig. L5 differs from its neighbors above in that its centrum has the largest circumference and is thinner in height, its superior facets face more posteriorly, its inferior facets face more anteriorly, and it has a short rounded spinous process. Lumbar Intervertebral Foramina All vertebrae normally move in the planes of their articulations, and it is at the zygapophyses that most fixations and subluxation complexes seem to originate to influence the integrity of the related IVFs. Changes in the diameter of normal IVFs are both the result and the cause of abnormal joint function that predisposes further kinetic disturbances. These disturbances tend to alter the curves of the particular region of the spine in which the structural-functional defect is found. The lumbar region is no exception. In the lumbar region, the IVFs are shaped like a kidney bean. It requires considerable posterolateral disc protrusion to encroach the nerve exiting at the same level because the lumbar IVFs are comparatively large in this area of the spine. When disc protrusion does cause trouble, it is usually from encroachment on the laterally placed nerve root on the vertebra above. Sunderland emphasizes that the passage of the medial branch of the lumbar dorsal ramus and its accompanying vessels through the osseofibrous tunnel and the intimate relationship of the neurovascular bundle to the capsule of the apophyseal joint represents a potential site of fixation and entrapment following pathologic changes involving the joint. The Nerve Roots The segmental innervation of the lumbosacral spine supplying the major associated muscles and the related skin and tendon reflexes are shown in Table 5. There are about twice as many sensory fibers than motor fibers in the lumbar roots. When the anterior nerve root is irritated, pain is felt in the peripheral distribution of the fibers affected and the pain often becomes self-perpetuating from the focal spasm produced. When the posterior root is irritated, the pain can be perceived to be in the dermatome, myotome, sclerotome, or possibly the viscerotome. Planes of Articulation in the Lumbar Spine Normal and Abnormal Lumbar facets have moderately sloped surfaces rather than a single-plane angle as seen in the cervical and thoracic area, and they are near parallel to the vertical plane. The convex inferior facets mate with concave superior facets. From L1 to L5, the plane of the articular facets generally change from mediolateral to anteroposterior and lie in the sagittal plane. The lumbosacral facet planes are slightly more horizontal than those above and allow greater A-P, P-A, and lateral motion but less joint locking as compared to the vertebrae above. This horizontal and anterior inclination of L5, spreading out toward the coronal plane, becomes progressively more vertical upward from L4 to L1. An important influence on interspinal posture is that of the facet facing of each posterior intervertebral joint, with alterations of the facings most commonly occurring in the lumbar and lower cervical regions. These facings are more frequently altered between L4 and L5 than at any other level in the vertebral column. Symmetric facets glide with little friction produced. If the facets deviate in their direction of movement, however, the unparallel articulating surfaces "scrub" upon one another, which leads to degenerative changes. Variances of

the articular structures often occur even in the absence of injury at the level of abnormality. They are characterized by thickening of the covering of the facet and marginal sclerosis. This hardening process is usually followed by hypertrophy or exostosis that produces an irregular articular surface when the facet is viewed in profile in roentgenography. Coexistent with this finding, the interarticular spaces gradually become narrowed, hazy, obscured, and even obliterated on x-ray films. Because these various facet and interarticular manifestations are from either chronic abnormal weight-bearing or specific trauma, the term arthrosis is often used today rather than the phrase posterior intervertebral osteoarthritis. Arthrosis is a more reasonable descriptor because of the implications of the suffix "itis. When the spine is in good postural balance, facet articulation offers minimal friction. In scoliosis, the articular surfaces are no longer parallel and the result is articular friction leading to erosion, arthrosis, and impingement. This is the result of normally reciprocal articulating surfaces operating in an abnormal relationship. Weight distribution in the lumbar region is governed chiefly by the inclination of each vertebral body. The lumbosacral articulations are slightly more horizontal than those above them, allowing for greater P-A and lateral motion and offering less joint locking during extension as compared to the vertebrae above. The horizontal inclination of L5, spreading out toward the coronal plane, becomes progressively more vertical from L4 to L1 as the dorsolumbar articulation is approached. These changes in articular planes allow the lower back to bend and twist to accommodate gravitational force during movement. The upper lumbar joints are J-shaped when viewed from the lateral, thus their anterior aspect resists forward displacement. The lateral center line of gravity falls on different points in the lumbar spine because of gradual changes in the angles of the inclined planes of the various articular surfaces. This tends to force each lumbar segment more inferior, medial, and anterior or posterior until gravity brings the apex of the curve back toward the balancing point. The lateral line of gravity in the pelvic area passes just anteriorly to the S2 segment. Except for the lesser role of the pelvic basin, superimposed body weight is carried in the lower back essentially by the L5 disc and then dispersed to the sacral base, sacroiliac joints, and acetabulae. This burden on the L5 disc is forced slightly forward on the load-bearing surfaces. Defective weight bearing is usually caused by some impairment in the anterior portion of the vertebral motion unit eg, disc deficit, anterior ligament fixation. In contrast, faults in the direction of distortions can usually be attributed to the posterior aspect of the motion unit; eg, total or partial fixations involving the apophyseal joints, pillar erosion and distortion, osseous pathology, etc. The anterior portion of the motion unit is mechanically designed for weight bearing, the posterior pillars are not. Thus, when the pillars are forced to assume the constant role of weight bearing because of some biomechanical fault altering spinal equilibrium and the distribution of load intrinsic or extrinsic , structural failure and compensatory remodeling of the posterior elements is likely to occur eventually. Kinematics of the Lumbar Spine In the absence of fixation, the range of gross lumbar motion is primarily determined by the sum of individual IVD resistance to distortion, the thickness of the discs, and the angle and size of the articular surfaces. As in other regions of the spine, the movements of the lumbar spine are flexion, extension, lateral bending, and rotation. While lumbar motion is potentially greater than that of the thoracic spine because of the lack of rib restriction, facet facing and heavy ligaments check the range of rotatory motion. A patient may be observed who replaces normal lumbar motion with exaggerated hip motion, or vice versa. If so, the ranges of motions of the restricted lumbar or hip joints should be tested. Any disorder of the hip joint itself eg, fracture, tuberculosis, osteoarthritis, fixation or of the hip flexor, adductor, abductor, or extensor muscles may result in limited hip motion. Muscle Weakness That May Affect Lumbar Function The trunk is held erect by the flexors and extensors of the spine and the extensors of the hip. The muscles and ligaments that hold the trunk erect are much stronger as a whole than those of the pelvis. After a long illness, for example, a patient can sit erect long before he can stand. Because P-A trunk motions are the most common movements used in daily living and as flexion is assisted by gravity, the spinal extensors are the most important muscles of the trunk from a biomechanical viewpoint. Muscles of the back are rarely weak unless paralysis is present. When signs of extension weakness are evident, differentiation must be made between weak spinal extensors and weak hip extensors. A screening test can

easily be done with the patient prone Fig. Trunk raising from the lateral recumbent position exhibits the strength of trunk lateral flexors and hip abductors. A simple screening test to differentiate weakness in these groups is shown in Figure 5. Leg raising from the supine position is a two-phase combination between strong abdominals and strong hip flexors. A screen test to differentiate weakness of the two groups is shown in Figure 5. Muscle Shortening That May Affect Lumbar Function The postural patterns exhibited in forward flexion from the supine position can offer distinct clues to shortening of specific muscles and muscle combinations. Six typical patterns are shown in Figures 5. Motion at the Thoracolumbar Transitional Area Descriptions of normal articular angles in any text are approximations. There is considerable variation from one person to another and of the transitional segment between one region of the spine and another. Owing to the restricted movements in the thoracic spine as the result of the attached thoracic cage and the mobile lumbar spine in flexion below, the intervening thoracolumbar area must achieve a degree of hypermobility in all three body planes. Because of this, as is true to some extent in all spinal transitional areas, the thoracolumbar junction is more prone to overstress from both above and below because of its unusual role. The superior facets of the transitional vertebra resemble thoracic facets and are designed primarily for rotation and lateral flexion, even though these motions are restricted somewhat by the free ribs. While the stiff thoracic spine tends to move as a whole, most rotation takes place in the lower segments that are not restricted by the rib cage. The inferior facets of the transitional vertebra are of the lumbar type; ie, designed more for flexion and extension. Lumbar Lateral Bending In the lumbar spine as a whole, lateral flexion is relatively free, followed in order of mobility by extension, flexion, and minimal rotation. Significant to gross movements in the lumbar spine is the fact that all movements are to some degree three dimensional; ie, when the lumbar spine bends laterally, it tends to also rotate posteriorly on the side of convexity and assume a hyperlordotic tendency. Thus, fixation effects are also coupled. During lateral bending in the erect position, considerable rotation accompanies the abduction of the trunk if there is a significant degree of lordosis. However, if the lumbar spine is flattened or if the lateral bending is performed in the sitting position, the amount of associated rotation is minimal but enough to be determined by Grice on kinematic stress films. The intertransverse spaces of the normal spine open on the convex side and close on the concave side during lateral bending. In normal extension and distinct lordosis, however, the facets jam and lateral flexion is so restricted that the vertebrae must severely rotate to allow lateral flexion. Lumbar Flexion During lumbar flexion and extension, there is considerably less facet gliding than seen in other areas of the spine during such motions. Widening of the anterior disc space on extension or of the posterior disc space on flexion does not occur until movement nears its full range of motion. Even then, it is far less than that seen in other areas of the spine. The anterior longitudinal ligaments relax during flexion, and the supraspinal and interspinal ligaments stretch. Opposite effects occur during extension. Although many disorders result in decreased flexion, paraspinal muscle spasm and total fixations are the primary suspects. An unstable motion unit will appear to be normal in the neutral view but demonstrate antero- or postero-listhesis in stress films. This sign makes for a worse prognosis and the possible necessity for spinal fusion if disc degeneration is advanced or if correcting the etiological dysfunction does not cause a tightening of the ligaments involved. I x-ray again after months of symptom relief. Continual severely painful episodes should suggest an orthopedic consultation. Extension is, states Gillet, also a movement that takes place in two parts with the anterior interbody space opening only after backward bending has reached its limit. This opening anteriorly is, however, a smaller movement than that which occurs in other regions of the spine.

DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 2 : Chapter 1 | Cure for M.E. and Chronic Fatigue Syndrome (C.F.S.)

Start studying Intro to Sonography Chapter 5: Ergonomics - All. Learn vocabulary, terms, and more with flashcards, games, and other study tools.

Prevention of Back Pain Throughout this book I have contended that most back pain is preventable, and that the back pain you may be experiencing now can be treated without surgery or elaborate and expensive treatment plans. The key to avoiding most back pain is to minimize the stress on your back. This does not mean"do nothing. In the next two chapters I will discuss specifically the steps you can take to getting and maintaining a better back. This chapter will deal with your everyday behavioryour body mechanics. And how to perform certain tasks. In the next chapter I will give you nine exercises to help strengthen the muscles your back depends on for support. Good Body Mechanics I know. I can hear you thinking, Dr. Chiu, what do you mean by body mechanics? In a way, yes. Except that the tools are they way you use and position your body what we call posture. Posture is important in all activities, even the way you stand, sit, and lie down, or sleep. Remember when you were growing up how everybodyespecially your parents, relatives, teachersinsisted that you stand up straight? Even some of your school books touted the virtues of good posture. Remember this line, "Stand up straightslouching like that looks terrible. When I was growing up I really thought that the only reason so much emphasis was put on good posture was that bad posture is unsightly. Today, of course, I know that appearance is only part of the reason good posture is so important. A lifetime of standing, sitting, lying down and walking incorrectly can cause serious back problems. The first step to preventing back pain is maintaining good posture. When force is applied to a curved structure, the greatest point of stress is applied on the inner side of the curve. This is why so many of us have trouble with our lower backs, or lumbar region, where the greatest curve is. The greater the curve of your spine, the greater the 58 Prevention of Back Pain pressure to the lower back. Excessive pressure causes excessive wear. As we have already seen, wear and tear causes degenerative problems. Standing While standing, the least amount of stress is applied to your cervical if you hold your head high and tuck in your chin. This position actually straightens out the cervical spine. It is also important that you hold your stomach in and roll your hips to the back a little, moving your pelvis slightly forward. Tighten your buttock musclessqueeze them together somewhat. Standing like this will help reduce the pressure on your lumbar spine. The idea is to stand as erect as possible, so that your body forms a straight line. A good rule of thumb is to try to line up your ears, shoulders, knees 59 Four Weeks to a Better Back and ankles. Line up your head and your pelvis, and the rest of the body should follow. Standing for long periods can also put a lot of stress on your back. If you cannot avoid standing for long intervals, try not to stand in the same position too long. Shift your weight now and then. Another good way to relieve pressure is to stand with one foot resting higher than the other, on a rail or some other low object. Change legs now and then. If you work in a profession that requires you to stand for long periods, you should, if possible, avoid wearing high heels. This type of shoe causes you to stand unnaturally, increasing the curve in your back. A while back I had a TWA flight attendant come into my office complaining of severe back pain. A very attractive young woman, her pain was so severe that she was convinced that she needed surgery, and that her career with TWA was over. After examining her, I determined that a big part of her problem was her shoeshigh heels. At that time most airlines required their flight attendants to wear pumps. I could hardly believe it. It was a long struggle, but my patient was finally allowed to return to work. And nownot that I had anything to do with itI notice that none of the airlines are 60 requiring their employees to stand all day in those dastardly shoes. Sitting We live in a society where more and more people are making their livings sitting for long periods. Sitting improperly can cause undue curving of the spine. The best sitting position is one in which your legs are level with your hips, your feet flat on the floor. Your back should be supported firmly by the back of the chair. You can also support your spine a little more securely by leaning your lower back against a pillow, a rolled up towel, or specially made lower-back pillow. Another option is an orthopedically 61 Four Weeks to a Better Back When

working, you can relieve back stress by using an ergonomic chair with lower back suppor When relaxing, you can relieve back stress by using an ergonomic chair with lower back support Ergonomic chairs can relieve stress on your back. These chairs are sometimes called ergonomic chairs. Whenever possible, the chair you sit in should have armrests to relieve the pressure your dangling arms apply to the lower spine. If you are in a job where you are required to sit for long periods, you should get up and walk around for a few minutes every half hour or so. It has been predicted that in another 20 years, or so, about 80 percent of the work force in this country will be sitting in front of computer terminals. This is not good news for our backs, which reminds me of a patient of mine who worked for the phone companya directory assistance operator. The monitor sat in front of her, down low on the desk, so that she had to bend her neck downward to look at it. Talking to her further, I realized that she was not the only phone company employee who had back problems. I also suggested the monitors be adjustable from left to right, to keep operators from having to hold their heads in the same position for long periods. Or that they design some stations with screens on the left side and others with screens on the right and rotate the employees from day to day. If you are sitting for long periods, you should avoid slouching in your chair. This is terrible for your spine. We hear this a lot, especially when we were youngsters and teenagers. Still, many of us develop detrimental sitting habits when we are young, and the bad habits follow us into adulthood. Some of us sit improperly until the time when we begin to develop back problems. The sad part of this is that the back might not have been compromised in the first place, if we had practiced good posture. Sleeping Whenever many of us think of back pain in relationship to sleeping, we automatically think about our mattress and pillows. A lot of time and research have gone into developing "orthopedically designed" sleeping furniture. Not too long ago a colleague of minea pediatriciancame to see me complaining of back pain. I had known this man for a long time, and I knew a lot about his lifestyle. He was not overweight, he exercised regularly, had good posture and was overall mindful of his health. Perplexed, he came to me seeking an answer. We talked for awhile. I contemplated doing a full examination and x-rays, until he told me about the new pillows his wife had bought him for his birthday. He described them as thick and plush. I asked him to bring them in to my office. The pillows were indeed plush and thick. His wife had obviously barred no expense when buying them. I told him to get rid of the pillows. I had also known her for a very long time. She was angry about the pillows. This is not to say that your bedding is always part of the problem. Sometimes it plays no role at all. However, a good rule to remember when purchasing a mattress is that firmer is better. Soft or sagging mattresses do not support the back. While sleeping, your body, including your neck, should be as level as possible. Try to sleep in a position that is comfortable. If you already have back pain, maybe you should try not to sleep on your stomach. This posture tends to exaggerate the curve in your lower back. Getting into and out of the bed properly can also be important, especially if you are already in pain. You may have to experiment a little, so move gradually and slowly. The pain will let you know if your movements are wrong. Try to follow these rules: First sit on the side of the bed with your palms resting on the mattress. Slowly lower your body sideways, at the same time raising your legs. You should end up lying on your side. Use your arms to support your body, rather than your spine.

DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 3 : The Call Chapter , a janet evanovich fanfic | FanFiction

This is best accomplished by sitting all the way back in a straight-backed chair and placing a folded towel or small pillow in the arch of the low back. Fortunately, many new office chairs and car seats come with built-in lumbar supports and other adjustable features.

RawraTheDragon She saw her across the room and felt something that scared her. The Italian Ministry â€" as she had said to Minister Shacklebolt in a confidential meeting earlier â€" was unorganised, uninformed, lacked the resources to do anything to assist them, and was riddled with corruption. She sighed, pushing aside her paperwork to lay her head down on folded arms, whilst she tried to massage a cramp out of her hand. Hermione suppressed another sigh and sat up straight again, rubbing her eyes to try and ease some of her exhaustion, and tiredly motioned to the Minister of Magic to come in. Hermione slumped in her chair again as the Minister seated himself in one of the chairs in front of her desk. He looked at her with concern marking his face, and she knew he could tell, "How is your project with the Italian Ministry coming along? She looked to the Minister and raised an eyebrow at him. When the door opened, Hermione saw the blonde assistant again, but this time, the woman was holding the door open for a face she recognised. She felt her heart flutter a little in her chest and almost frowned to herself, but instead smoothed out her features as Narcissa Black walked gracefully into the room, the door shutting quietly behind her. Hermione rose from her chair as the blonde approached her desk. She distantly heard the Minister introducing the two, and Narcissa greeting her. She heard herself greet the other woman, and when she managed to shake of this sudden haze that had clouded her mind, she gestured to the unoccupied chair in front of her desk, and returned to her own seat. The Minister cleared his throat and both women broke their steady eye contact to look at him, "Right, well," he began, sitting up even straighter than he was, "I have asked Ms. Black to be here today so that we can get to the bottom of the situation, and hopefully put Lucius behind bars. Lucius did a lot of under the counter business which I was not supposed to know about, but none of these were written in the official records books. Were there any extravagant presents bought to potentially gain favours with Ministry officials? The meeting dragged on, the faint scratching of the quill a comforting constant to both the witches. The Minister, however, seemed to be unaware of the tension between the two women, and was comfortable in his chair, occasionally asking his own questions as the quill continued to record everything. The piece of parchment was slowly filling up as time wore on, and several times, both of the witches had hidden a yawn behind a dainty hand. Hermione was struggling to pay attention, her thoughts drifting between daydreams of the future and plans for lunch. She sighed internally and was relieved to see that the clock displayed the agreed time for the end of the meeting. She seemed to brighten considerably, and stood once Narcissa finished. She motioned for the quill to finish, and stepped out and around the desk as both of her companions rose from their seats. She thanked them both and said farewell as they left the comfort of her office. As she said her goodbyes to the blonde witch, their hands stayed touching for a few moments more than was proper. Their eyes locked for a moment, before the blonde witch stepped away with a small smile and left. She quickly shut herself in her office and went about doing her paperwork before she left for lunch. Your review has been posted.

DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 4 : Chapter 11 Flashcards by Arthur Cline | Brainscape

CHAPTER 5 - TRANSFERS AND The height and stability of the chair or other sitting surface also plays a push up to a sitting position while you support the.

LilyGhost Random Ranger thoughts on becoming a father again. This is my Babe contribution to the ish word challenge. The mistakes are solely mine. Since Olivia had better be asleep by now, I have no problems with taking extra time to love my wife the way she deserves to be. Fast and hard is good, but unhurried and thorough is my preferred way of making love to her. I skipped the bed once again and carried my wife out onto the covered back terrace, lying her down on the chaise lounge facing the water. Steph insisted on showering before we headed back to the hotel, not wanting the babysitters to know we were the ones up to no good tonight. She wanted her hair to remain dry so there would be no evidence of our activities beyond the content smile tugging at her lips, so clearly I needed to be in the shower with her to direct the spray. And while that is true, I think this is too special a memory to share. Thank you for providing it. I watched her with a content smile of my own before doing the same. She was relaxed and happy as I drove us back to our home base. The lamp is on in the living room, but the rest of the suite is dark. They must have been desperate The arm not curled protectively around my daughter was flung across the cushion beside him like he passed out in the process of reaching for a lifeline. His bald head still shows traces of having been stress-red and covered in nervous sweat, and his body is ramrod straight in the chair dragged over from the dining room table. Olivia murmured a happy sound at the familiar touch and she snuggled higher and closer to her Uncle in reflex. She does the same to us. She acknowledges our attention and then immediately tries to absorb even more of it. We figured a sleeping Angel, despite her not being in her bed, was safer for us than an awake and unhappy one. I was just joking around. Our Olive Girl barely practiced her crawl. She was too busy spitting milk at me and trying to escape to find you. She wiped her eyes in dramatic fashion and let loose a smile that acted like a punch to my gut. No way would she crawl unless I was here to cheer her on and her Daddy was there to clear the path for her. Your review has been posted.

Chapter 5 : The Importance of Standing More, Sitting Less

Your chair should be posture supporting; straight back that swivels but does not recline. Your computer should be set up the same way, keyboard at elbow height and the screen just above eye level. Remember you are spending at least 8 hours at your desk at work.

Upright posture and breathing: The limbs use the trunk as the base on which to move. When the body is upright, the trunk supports the head and maintains the erect posture with minimal effort. The trunk consists of the thorax, abdomen and pelvis, stacked one above the other Figure These three areas form two enclosed cavities, with bony and muscular walls, separated by the muscular diaphragm. Any change in the pressure inside one of the cavities affects the other. The vertebral column links the two cavities posteriorly. The thoracic cavity extends from the clavicle and first rib above to the muscular diaphragm below. Its walls are formed by the thoracic vertebrae, the ribs and the intercostal muscles in between. The abdominopelvic cavity has the dome of the diaphragm as the roof and the muscular pelvic floor below. The posterior wall contains the lumbar vertebrae, with muscle on either side of it. The anterolateral wall is formed by the abdominal muscles. The blade of the iliac bone of the pelvis lies in the abdomen. The pelvic part of the cavity is a bowl formed by the sacrum and the two innominate bones, with a muscular floor. The joints and muscles of the trunk combine to form a stable system when standing upright. The muscles act like guy-ropes keeping the balance when external forces act on the trunk. If a group of muscles becomes weak, the trunk changes its position, in the same way that a tent will lean to one side if a guy -rope is loosened. The trunk has a protective function for the lungs, heart, digestive tract, kidneys and pelvic organs bladder, rectum and reproductive organs. The spinal cord is also protected by being enclosed by the bones of the vertebral column, with pairs of spinal nerves emerging between adjacent vertebrae to be distributed to all parts of the body. Ventilation of the lungs is the result of changes in the size of the thoracic cavity. Breathing also involves the anterior abdominal wall. Increased abdominal pressure pushes the diaphragm upwards and expels air from the lungs. Changes in the pressure in the abdominopelvic cavity are used to expel urine or faeces and in childbirth. Lifting, carrying, pushing and pulling heavy loads all involve the trunk. The muscles of the trunk counteract the forces on the limbs, and adjust the line of gravity over the foot base. Carrying a heavy load of shopping in one hand requires muscle activity on the opposite side of the trunk to balance the weight. Increase in pressure in the abdominopelvic cavity, by tensing the anterior abdominal muscles, reduces the stress on the back in lifting loads from the front. In summary, the trunk: Most of the movements of the trunk are performed by large muscles arranged in sheets around the axial skeleton. The position of the muscles and direction of the fibres determine the ways in which each contributes to trunk movement. Upright posture The bones and ligaments of the vertebral column form a stable balanced support that requires little muscle activity when standing still. Any slight sway is counteracted by the tension in the strong longitudinal ligaments joining the individual vertebrae. The vertebral column contains 33 bony segments. An individual vertebra articulates with the one above and the one below by a cartilaginous joint intervertebral disc between the bodies, and by four synovial joints between the articular processes. The position of the articular processes in a thoracic vertebra is shown in Appendix I. At birth, the vertebral column has a primary curve, concave forwards. As the baby learns to support the weight of the head and trunk in sitting and then standing, two secondary curves develop in the neck and lower back. From 2 years onwards, the vertebral column has four curves as follows: The four curves provide an efficient way of combining support with flexibility and resilience Figure Reflective task Observe a partner standing upright. Look first from the side to imagine a line from the ear through the vertebral column to the hip and knee, ending just in front of the ankle. Move the trunk until the position looks balanced. Notice the curves of the back. Refer to an articulated skeleton to see the curves more easily. Next, look at your partner from the front to see whether the shoulders and hips are level, i. Watch a person sitting at a keyboard and notice the shape of the back in relation to the shape of the back of the chair. Try raising and lowering the

keyboard to see the effect on the working posture. Look at elderly people sitting in easy chairs. Think where a cushion should be placed to support the lumbar curve of the back. If an abnormal posture is adopted over long periods, the normal relaxed position is progressively lost and muscle activity must be used to a greater extent. Examples of abnormal posture are: Shoes with high heels throw the body weight forwards and the vertebral column adapts by increasing the lumbar curvature lordosis. Problems with breathing may develop in scoliosis owing to the effect on the shape of the thorax. Poor working posture increases the possibility of lower back pain, even in the young. In the elderly, degenerative changes in the vertebrae and discs due to disease or ageing, coupled with the loss of the need and motivation to move about during the day, give general loss of mobility, and deformity develops which may become permanent. Joints and movements of the vertebral column When the trunk moves in different directions, the movement between adjacent vertebrae is small, but the result of combined movement of vertebrae at all levels results in a considerable range of movement. Joints of the vertebral column Reflective task Look at the structure of a vertebra, seen from above and from the side, in Appendix I and in an articulated skeleton. There are two series of joints between adjacent vertebrae in the column: The anterior joints are between the bodies of the vertebrae: They increase in thickness from the upper cervical vertebrae down to the lumbar vertebrae. In the fibrocartilaginous discs, which form about a quarter of the total length of the vertebral column, the collagen fibres are arranged in concentric layers, the annulus fibrosus. The semifluid central mass of the disc is the nucleus pulposus. During movements of the trunk, the cartilaginous discs are compressed on one side see Chapter 1, Figure 1. The posterior joints are between the articular processes on the vertebral arch of bone which surrounds the spinal cord: A thin capsule surrounds the adjacent articular surfaces and allows gliding movements between adjacent vertebrae. All of the vertebrae are joined together by anterior and posterior longitudinal ligaments that extend along the whole length of the vertebral column joining the respective surfaces of the vertebral bodies. Other ligaments join all of the spines and transverse processes of the vertebrae. Practice note-pad 10 A: Severe pain then radiates down the path of the affected nerve, for example in the lower limb this may be experienced as sciatica. The movements of the trunk, shown in Figure Flexion occurs in bending forwards, or sitting up from lying. The thorax moves towards the pelvis. Extension straightens the trunk from flexion and the trunk can bend backwards from the upright position. The thorax moves away from the pelvis. Lateral flexion bends the trunk to the side. The ribs move towards the pelvis on one side only. Rotation twists the trunk to the right or the left. The head and shoulders are turned so that the eyes can look to the side or behind, either to the right or left. The trunk -rolling exercise shown in Figure The range of the individual movements varies in different parts of the vertebral column, depending on the thickness of the intervertebral discs, the direction of the articular facets of the synovial joints, and the length and angulation of the spines. The regions with secondary curves have the greatest mobility. Movements of the cervical region are important for the eyes to scan a large area. Reversing a car becomes difficult when there is loss of mobility in the neck. The lumbar region has the greatest range for flexion and extension movements. The extreme bending movements of the acrobat and gymnast are achieved by continual exercises to stretch the intervertebral ligaments and increase the separation of the lumbar vertebrae. Conversely, the fusion of the lumbar vertebrae in some pathological changes of the spine will reduce the overall mobility of the trunk by a significant amount. Muscles moving the trunk Two systems of muscles collectively perform all movements of the trunk: Deep posterior muscles of the back The posterior aspect of the vertebral column, from the sacrum to the skull, provides a long line of bony processes for the attachment of muscle fibres. Some of these muscles fibres are long, extending from the sacrum to the thorax, while others are short and only span one, two or three vertebrae. The vertical fibres pull the column into extension, those arranged obliquely can rotate one vertebra on the next, and the lateral fibres which are attached to the angles of the ribs can assist lateral flexion. The largest muscle in this group of deep back muscles is the erector spinae also known as the sacrospinalis , which originates from the sacrum by a thick broad tendon. In the lumbar region, this muscle is thick and can be palpated in the lower back. Continuing upwards, the muscle is in three bands in the thoracic region, attached to the spines of the vertebrae, the

transverse processes and the ribs. The uppermost fibres in the cervical region end on the base of the skull. The muscles connecting the trunk to the upper limb, for example the latissimus dorsi and trapezius described in Chapter 5 , are separated from the deep muscles of the back by a layer of deep fascia. Note how the muscle starts at the sacrum and climbs up the back to the head. Deep to the erector spinae another group of muscles is found Figure Most of the fibres in this deeper group lie obliquely from the transverse process of one vertebra to the spine of the vertebra above, or they may span three or four vertebrae. The parts found in the thorax and neck are known as semispinalis.

DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 6 : Chapter Four: Balance Activity

Correct Postures in Meditation sitting up straight. use the chair posture or find a posture that is right for you. Meditation, of course, is not about pain or.

Regardless of the amount of instruction given and exercise performed, Soldiers will habitually assume good postures only if they want to. Good standing and sitting postures are characterized by vertical alignment of certain body segments. However, posture is not improved by forcefully holding the body in a position of ideal alignment. In fact, excessive effort to hold the body in a given posture will only serve to increase muscular tension and fatigue. Assuming naturally balanced postures shifts the weight of the body onto the bones, relieving muscles of the need to support weight bearing. Habits that have been reinforced over decades will take time to correct. Regular and precise performance of the PRT activities in this FM will enhance posture and body mechanics. Checkpoints for sitting Figure C Center the head between the shoulders and keep the chin level. Carry the chest comfortably up and out. Use a firm support between the lower spine and the backrest of the seat or chair to assist in maintaining the proper position. Maintain degree angles at the hips and knees with the feet flat on the floor. Good left and poor center and right sitting posture Checkpoints for standing Figure C Stand as tall as possible. The head should not be tilted or the shoulders raised. Center the head between the shoulders and keep the eyes and the chin level. Slightly draw the chin inward by pressing the neck back toward the collar. Moderately elevate the chest without strain. If the chest is raised properly, the abdomen flattens normally. Relax the shoulders and let them fall evenly. If the shoulders round forward, draw them back slightly, without strain. Set the pelvis and hips level refer to Figure Cc. Keep the knees straight but not locked. Direct the feet forward without strain. Variations in skeletal alignment will prevent some individuals from assuming the feet-forward position. Distribute the weight evenly between the heels and the balls of the feet. Good left and poor right standing posture From: Everything you need from FM is right here.

Chapter 7 : Improving Posture

Manual for Ergonomic Microscope Workstations. straight posture tion 'Attention to Light and Sight' in Chapter 5. Nevertheless, an important insight can.

Mercola With over joints, your body was made for movement. Although the rising tide of technology has created an amazing number of ways to share information, it has also increased the number of hours you remain seated each day. Unfortunately, the average U. The danger is in the amount of time you spend sitting. Brief periods of sitting are natural, whereas long periods can seriously impact your health and shorten your life. Even those who exercised heavily when they were not at the office experienced a significantly increased risk of death when seated for eight hours a day. During the study, the team evaluated 8, Americans over the age of 45 for a four-year period. Participants wore accelerometers to track their movements. The researchers found those who moved more were healthier overall. However, they also found a correlation between death rates of participants and how many hours they spent seated during the day. In other words, there was a relationship between the time spent seated and the risk of early mortality from any cause. Keith Diaz, certified exercise physiologist and lead author of the study at Columbia University, believes this is like telling someone to exercise without telling them how. Centers for Disease Control and Prevention, which recommends moderate-intensity aerobic exercise for 2. Sitting for long periods of time takes a toll on your body. His investigations demonstrate when you sit for long periods of time a number of molecular cascades are initiated. Ninety seconds after standing, muscular and cellular systems processing blood sugar, triglycerides and cholesterol are activated, simply by carrying your own body weight. These cellular mechanisms are also responsible for pushing fuel into your cells, and when done regularly, may radically reduce your risk of diabetes and obesity. In other words, while your joints make movement easier, your body enjoys benefits even at the molecular level. Although many recommend standing for 10 minutes of every hour of sitting, I believe this is the bare minimum and far from ideal. It seems far wiser to strive to sit as little as possible each day. Prolonged sitting has been linked to hypertension, and research data demonstrates women who sit for 10 hours a day may have a significantly greater risk of developing heart disease than those who sit for five hours or less. This increased risk may be due to an excess insulin production encouraging cell growth, or a reduction in protection from antioxidants regular movement boosts in your body. Another risk may be related to weight gain and associated biochemical changes, such as alterations in hormones, metabolic dysfunction, leptin dysfunction and inflammation. Digestion Sitting after eating slows digestion and compresses your abdominal contents. This in turn may lead to cramping, bloating, heartburn and constipation, as well as dysbiosis in your gastrointestinal tract. This is a condition created by microbial imbalances. Brain Your brain function slows when your body is sedentary for too long. Your brain will get less fresh blood and oxygen, which are needed to trigger the release of brain- and mood-enhancing chemicals. Posture Many commonly sit with head and neck forward working at a computer or cradling a phone. This leads to strain of your cervical vertebra, with permanent imbalances, which can lead to neck strain, sore shoulders and back. Sitting also increases pressure on your spine and the toll is worse if you are sitting hunched over. It is estimated 40 percent of people with back pain have spent long hours at their computer each day. Muscles Standing requires your core muscles to be engaged, which often go unused when you sit in a slouched position. Your hips may also suffer, becoming tight with limited range of motion as they are rarely extended. This may lead to decreased mobility and falls in the elderly. Sitting weakens your gluteal muscles, affecting your stability and the power of your stride. Legs Sitting leads to poor circulation in your legs, causing swelling in your ankles, varicose veins and blood clots known as deep vein thrombosis. Walking, running and engaging in other weight-bearing activities increases your bone density and reduces your risk for osteoporosis and bone fractures. This will help reduce problems with lower back pain, wrist strain and other physical challenges associated with poor posture. However, while using good sitting posture is important, it does not negate your need for more movement. When sitting in a

correct posture you: Your buttocks should touch the back of your chair and your head should remain upright, all of which engage your core muscles. Distribute your body weight evenly over both hips, with your knees bent at right angles, your feet flat to the floor. Do not cross your knees. Avoid twisting at the waist while sitting, but instead turn your whole body. Place your computer screen at a height allowing your head to remain level. This may mean getting an external keyboard to allow the keyboard at hand level and the screen at eye level. Avoid sitting for more than 20 minutes. Get up, walk, stretch or walk briskly for several minutes. This not only helps to reduce the effects of sitting, but it increases your blood flow and improves your creativity. When standing from the sitting position, move to the front of your seat and then stand up by straightening your legs. Avoid bending forward at your waist as this places additional pressure on your lower back. Consider a lumbar roll or back support while driving. Your knees should be at the same level or slightly higher than your hips. Move the seat as close to the steering wheel as necessary to support the curve of your back while keeping your elbows bent and your feet easily reaching the pedals. Eric Goodman, can help counteract some of the damage caused by sitting. These exercises are used by many professional and elite athletes but, more importantly, they address the root cause of lower back pain related to weakness and imbalance along your posterior chain of muscles. This short video demonstrates "The Founder," a key exercise that helps reinforce proper movement while strengthening the entire back of your body. There are a significant number of benefits to standing during the day, including a slight rise in heart rate, calorie expenditure and greater insulin sensitivity. Reducing the time you spend sitting down each day to three hours or less could increase your life expectancy by two years. There are several ways to accomplish this at home and at work requiring just a little creativity. Levine suggests walk-and-talk meetings when company administration agrees. Make a habit of drinking 4 to 6 ounces of water every hour and place your container of pure, clean water from home in the refrigerator. Some companies are moving toward allowing employees to use standing desks or treadmill desks. Rather than sitting all day, you have the option of getting up and down. Keep in mind it may take a couple of weeks to build the stamina to stand for several hours during the day. If your employer is not open to a standing desk, consider standing at your desk when speaking on the phone or when you otherwise do not need your keyboard. Ask your employer to consider an exercise ball chair. These are chairs with an open seat bottom where a Swiss exercise ball can be lodged. This provides you with an unstable platform on which to sit and increases your core muscle engagement while sitting. Although this next option does not offer additional weight bearing and does not take the place of getting out of your chair, consider using a seated pedal exerciser. This is an under-the-desk apparatus that looks like the pedals on a bicycle and allows you to keep your legs moving while seated. This new sitting-rising test is scored zero to 5 for each movement sitting and rising , with a combined score of 10 being the highest and awarded only to those who can sit and rise from the floor without any assistance from their hands or knees. The test is very simple: You sit on and get up from the floor using as little assistance from your hands, knees or other body parts as possible. For each body part you use for support, you lose 1 point from the possible top score of For instance, if you put one hand on the floor to support yourself as you sit down and then use a knee and a hand to help as you get up, you lose 3 points for a combined score of 7. The scores correlated strongly with mortality during the six-year study. For each increase in score, the participants gained a 21 percent improvement in survival. Those who scored between zero and 3 were 6. The test is a simple measure of fitness at the most basic level, testing not only strength but also flexibility, balance and coordination. All of these are essential for day-to-day living and maintaining your independence as you age. Unfortunately, despite a growing body of research clearly demonstrating exercise deficiency threatens your overall health and mental well-being, only 15 percent of adults engage in vigorous physical activity three times a week for 20 minutes. Standing Up to a Sitting World. If you have a desk job, this book is a veritable gold mine of helpful guidance. Starrett is one of the leaders in the CrossFit movement and stresses the importance of proper body mechanics, both in and outside the gym. When you consider the well-documented benefits of movement over sitting, implementing these strategies is really one of the best types of health insurance you can get.

DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 8 : Across The Room Chapter 8, a harry potter fanfic | FanFiction

Chapter Two: The First Technology: Bottle-Feeding 30 Double Time: Athletic Shoes 75 Chapter Five: Sitting Up Straight; Posture Chairs Chapter Six: Laid Back.

The causes that place pressure on the bodies Cranial and Central Nervous System. The first thing you have to understand is that when the pelvis region is misaligned, the entire abdominal area is affected. If the hips move down on the left or right side, this movement can be as little as 1mm, inside the human body which requires perfect alignment to function correctly can have a dramatic effect. The muscles and skeleton frame in the entire body is affected, so are the organs in the body. The abdominal muscles tighten on one side and are slightly relaxed on the other side; this allows the organs inside to change position and shape. This has quite an effect on the organs in the pelvis cavity; Bladder, Large Intestine and in the female it alters the shape of the uterus and vagina. In Traditional Chinese Medicine having the vagina slightly twisted out of shape is one of the main causes of excessive pain during sexual intercourse and contributing factor to a lot of problems during menstruation, plus health problems in the uterus. The uterus is then being forced even more out of its original position and shape. Which appears just above the hairline at the back of the skull. These birthmarks can also show that the uterus is not perfectly shaped so the child can be touching the side of the uterus during development. When the contractions start, inside this slightly out of shape uterus, the unborn child is not being pushed out by even pressure from the uterus muscles, the bone structure of the unborn child is being pushed out of shape. Most of the bone structure returns to its normal position except for the coccyx and the pelvis. The head of the unborn child is forced into the birth passage, which is slightly twisted and not expanding evenly, because of the pelvis region being out of position. This can explain why giving birth to a child today, can take up to 40 odd hours compared to 70 years ago when birth took hours. But still have the uterus muscles contracting incorrectly. When a mother has a caesarean operation and the child still ends up with M. When the contractions start, a Pediatrician will allow for a period of contractions to see if the mother can have a natural childbirth. This allows a pressure to be placed on the nervous system, which builds up, as the child grows. Damage to the coccyx or pelvis. Because any damage to the coccyx or pelvis area will place pressure into the skeleton and tightness in the muscular structure, very quickly. This pressure can take 8 hours or 60 years to reach up under the skull, depending on how aligned your body structure is at the time of injury. This pressure at the beginning can be relatively small and can increase ten folds before settling up under the skull. The coccyx is the small, tail-like bone that is just above your anus sanctum; it is made up of 3 to 5 small bones. The coccyx bone forms the end of your spine. It is basically the bones left over from our tails that we lost during evolution, so it plays a major role in our balance. This creeping effect up the back will eventually cause the head to be pulled back and down, placing pressure on the Brain Stem and the Central Nervous System. The same effect will happen if the pelvis region is misaligned and the coccyx is straight. Both areas of the body can be easily pushed out of alignment by impact to those areas. The force of the impact does not have to be great; a small fall on your backside is enough. But the smallest misalignment over a period of time can cause the above problem to start happening. If the misalignment is corrected near the time of impact, the pressure disappears. Stress that tightens the muscle structure that then pulls the skeletal frame out of position. When the Bone Structure is out of alignment, it pushes the muscles out of its position and then muscles of the back tighten into the center of themselves. As the muscles harden because of the lack of blood flowing through, they then become extremely sensitive to anything else that will affect them. Stress in everyday life, which our body should be able to deal with, because we have come accustom to having a certain amount of stress in our lives suddenly causes the muscles to tighten even more. Now add the extra stress of your working life, plus the every day environmental stress on top of all this and the muscles will tighten inwards towards the center of the muscles even more. This will also eventually end up pulling the head back and down even harder on to the neck, placing pressure on the Brain Stem. Anger is associated to the liver the emotion at the base of

stress is anger. This causes the liver to work harder; this results in the Trapezius Muscles tightening. The end result is the skull being drawn, back and down. Not maintaining a straight posture. As we evolved and started straightening our spines, we formed a straight back posture. Our organs moved into new positions, instead of hanging downwards like any four-legged animal our organs became stacked on top of each other. An increase downward pressure was placed on the spine and our neck muscles changed to take the weight of our head. Our entire structure is designed for us to be upright; straight back, square shoulders and head upright and facing forward. Our environment at work or at home is not designed to help maintain a good posture. Computers, hand-held computer games, sofas, chairs, car seats, foot wear, parents not telling their children to sit up, teachers not telling their students to sit up, all this and a lot more. Having your hips out of alignment makes it very hard to keep a good posture, because the pressure this misalignment causes travels up the back, pushing the person forward and forcing their shoulders forward. They feel this every time they relax, they slump forward and drop their shoulders forward and stick their chin out. This again shows why C. When this pressure is removed from the Bone and Muscle Structure a person finds it very easy to get back and maintain a good posture without much difficulty. This of course requires training to move the Muscle Structure back into its correct position, so it can support the Bone structure and hold the Bone Structure in its correct position. Damage to toes, feet, ankles and knees. The toes align the feet in their correct position, the feet align the ankles in their correct position and the ankles align the knees, the knees align the hips. The hips are the base support for the spine, the spine is the base support for the arms and neck, the neck is the base support for the head. This means that if you have injured your toe and this injury leaves the toe out of alignment, this in turn would affect the foot and this in turn the ankle and so on until the pressure the toe injury put in the body, which increases as it travels up the body, ends up under the skull placing pressure on the Brain Stem and Central Nervous System causing M. A fall or an injury that pushes the skeleton out of alignment or causes damage to a muscle group that moves them out of alignment. A fall or injury, even a small one, which misalign the skeleton or damages a muscle group in the legs, torso or neck will eventually cause pressure in the skeleton and a tightness in the muscles. This will make its way up the body and in up under the skull. Bones that have been broken and not reset properly will cause muscle groups to tighten up. Same with bones that have been shortened because of injury, they will tighten muscles groups above them and so on until that tightness ends up under the head and effecting the Brain Stem and Central Nervous System. In Traditional Chinese Medicine muscles that over lap each other are considered one muscle, muscles that run parallel to each other, support each other. Beds and furniture that push the skeleton frame out of alignment. Beds that are too soft or who have had other people sleeping in them are not good for the Bone or Muscle Structures. Any chair that is not supporting your posture will eventually push your skeleton out of alignment. Computers that are not set up correctly, keyboards not placed at elbow height, screens not placed above eye level, all this will misalign your posture while you work on your computer. Sitting hunched over staring down into your computer will eventually misalign your spine and back muscles. Work environments and sports, which alter the skeletal shape. The same idea as with household furniture is used in the office. Your chair should be posture supporting; straight back that swivels but does not recline. Remember you are spending at least 8 hours at your desk at work. This damage cannot be repaired, so the pressure in your Bone Structure cannot be removed. People that are doing hard impact and repetitive movements in sports, with a misalignment in their Bone and Muscle Structure, will cause irreparable damage to both Muscle and Bone Structures. This damage will constantly be pushing pressure up under the skull. The problem today with people starting a sport, is the person that is teaching them cannot tell if their Bone Structure is out of alignment when they first start. Some of the most damaging are gymnastics, all forms of modern dancing, handball, snowboarding and all contact sports. To attempt any type of repetitive sport with a misalignment in the Bone Structure will cause permanent damage to ligaments, discs, muscles and bone. Under the ideas in Traditional Chinese Medicine, permanent damage prevents the practitioner from removing the pressure from under the skull completely, so a full recovery is not possible.

DOWNLOAD PDF CHAPTER FIVE: SITTING UP STRAIGHT: POSTURE CHAIRS 104

Chapter 9 : CHAPTER 5: THE LUMBAR SPINE

Sit up straight with your back against the back of your chair and your feet flat on the floor. Keep your knees slightly higher than your hips. Stand tall with your head up and shoulders back.