

Chapter 1 : Ergonomics - WorkSafeBC

Publication No. , (March) Describes the basic elements of a workplace ergonomics program aimed at preventing work-related musculoskeletal disorders. Includes a "toolbox," which is a collection of techniques, methods, reference materials and sources for other information that can help in program development.

In addition, if you have an older chair without lumbar support, try using a small pillow or towel roll to relieve pressure on your lower back. Be sure to have the adjustable features of your chair explained to you to ensure the best fit. Repetition As with musculoskeletal disorders, one of the best ways to avoid back, neck, and shoulder injuries is to minimize sustained exertions. The following tips should help you: If possible, get up from your workstation periodically to use the phone, make copies, file paperwork, etc. Take several rest breaks. Take short breaks that involve active exercise walking, stretching ; they are often the most effective in relieving stress on the back, neck, and shoulders. Specialists in ergonomics have identified several problem areas and possible corrections for eyestrain, including: Glare Move or shield the light source. Apply a good quality glare filter to the monitor. The monitor should be directly in front of you. When possible, place your monitor at a right angle with the window. Lighting Levels Following the preceding recommendations, adjust your screen position and lighting sources lamps, etc. Work with a light screen background dark type or images on white or pale background –you will find it is easier on your eyes. When using a laptop, look into the distance more frequently. A laptop monitor will probably not have the best placement, since it is attached to the keyboard. If you are using a laptop at your primary workstation, a docking station with an external keyboard and mouse should be used. An external monitor, or display, should also be considered. Readability of Screen and Document Place monitors directly in front of you and documents to the immediate right or left, at the same distance. Upgrade or replace monitors with poor resolution or flicker. These will allow you to place the monitor correctly and see well without stressing your posture. Place the monitor so that the top of the screen is at your line of sight. If you wear bifocals the top of the screen should be slightly below your line of sight. Eyestrain could indicate a problem with your vision beyond the use of a computer monitor. Psychological Stresses Stress may be factored into work injuries in two interconnected ways: How stress contributes to physical ergonomic problems How using a computer contributes to stress For instance, a stressful work environment may cause you to remain tense for long periods of time, use repetitive motions, take fewer breaks, or fail to report work-related medical problems when they arise. This creates a cycle that can contribute to pain and injury. Although workers may not have extensive input into stressful elements of a job such as the number of staff available to handle the workload , one way to reduce stress is to give personnel awareness of and control over ergonomic conditions. Understanding your work environment is essential. So is gaining control over certain aspects of your surroundings, such as user-adjustable chairs and lighting levels. Information and control go a long way to reducing stress levels. Poor working conditions are bad news for both employees and employers, resulting in physical suffering and adverse economic impact. Although the suggestions offered here should help, many employers may wish to take the extra step of consulting directly with a professional in the field of ergonomics to analyze specific working conditions and make recommendations. A partnership among staff, employers, and ergonomic specialists can help redesign the workplace to meet the capabilities and potential of every employee.

Chapter 2 : Ergonomics | MedlinePlus

Follow these quick and easy office ergonomics tips to decrease fatigue, discomfort and physical stress while also increasing comfort and productivity.. Ergonomics" is the science of designing the workstation to fit within the capabilities and limitations of the worker.

Check new design of our homepage! Ergonomics in the Workplace Why is ergonomics in the workplace important and how should one go about it? That is exactly what we will focus on. Workspirited Staff Last Updated: Ergonomics, holistically, comprises of many disciplines, like, psychology sociology, engineering, biomechanics, industrial design, physiology, anthropometry, interaction design, visual design, user experience, and user interface design. Broadly, ergonomics can be divided into three divisions of specialization: Physical Ergonomics Cognitive Ergonomics Organizational Ergonomics While, physical ergonomics focuses on physical aspects of human body human anatomy, bio-mechanical characteristics of physical activity, etc. Organizational ergonomics refers to the increasing the efficiency of organizational structures, managing crew resources, designing working times, team work, etc. Why is ergonomics in the workplace important? Physical comfort, in a way, further offers psychological comfort which, in turn, helps an organization to grow, as a whole. Some basic benefits of ergonomics at the workplace are mentioned. Reduces cost and increases savings Employees working in awkward postures, or extreme temperatures are prone to, what are called as, musculoskeletal disorders MSDs. These disorders, as the name suggests, are mainly related to muscles, joints, ligaments etc. These disorders or related injuries can incur a lot of treatment costs. Better ergonomics at workplace, resolves this issue by providing comfort to the employees and reducing treatment costs. Friendly and comfortable workplace environment, increases employee productivity. Increased productivity also implies that the quality of work done by an employee increases. Improves employee engagement Another benefit of ergonomics is improved employee engagement, in the form of improved employee morale, decreased absenteeism, etc. Promotes healthy work-culture Basic, yet the most important benefit of ergonomics is the promotion of healthy work culture at the workplace. Employees, in a way feel relieved that their health is not compromised due to the work and hence they offer more commitment to the organization. Adjusting the workplace Given are some tips or adjustments that can be implemented in the workplace, for the better comfortability of the employees. Adjust your computer workstation that suits your natural posture. It is generally considered, that the keyboard and the mouse should be kept at a height of 2 cm from the thighs and at least 8 cm from the edge of the desk. The keyboard and the mouse should be at a shoulder distance apart. The workstation should be arranged so that things that are frequently used are always within reach. Document holders, if used, should be placed closer to the screen, to avoid the awkward position of the neck. Avoid holding the phone with your neck as it causes a lot of strain on your neck muscles. Pause-Stretch exercises should be performed regularly to reduce pressure on muscles, joints, nerves, etc. Some pause-stretch exercises that can be done at the workplace are, chin retraction, back bend, forearm stretch, shoulder rolls, thoracic extensions, etc. The aspect of ergonomics is something to be followed in every workplace in order to increase the efficiency of the employee and growth of the company or organization further.

Chapter 3 : Ergonomics | EHS

Ergonomics is the science of designing the workplace, keeping in mind the capabilities and limitations of the worker. Poor worksite design leads to fatigued, frustrated and hurting workers. This rarely leads to the most productive worker. More likely, it leads to a painful and costly injury, lower.

Related topics Ergonomics Ergonomics is about interactions between people and their physical and organizational environments. Ergonomics can reduce the risk of strains and sprains and other related musculoskeletal injuries MSIs. MSI is the most common work-related injury in B. What is a musculoskeletal injury? The risks How to reduce the risks Resources What is a musculoskeletal injury? Musculoskeletal injury MSI is an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissue including a sprain, strain and inflammation, that may be caused or aggravated by work. The risks The main physical risk factors for MSIs associated with the demands of a job include: Force " exerting force on an object as part of a task Repetition " doing a task that uses the same muscles over and over with little chance for rest or recovery Work posture " the position of different parts of the body when taken outside of the comfortable range of motion awkward posture ; usually combined with static posture i. Assessing the risks Employers must conduct risk assessments for MSIs in their workplace, and eliminate or minimize the risks. Employers must also educate and train workers about MSI risks in the workplace. How to reduce the risks Once you have completed a risk assessment. You then need to eliminate the risk factors, where practicable, using risk controls. If it is not possible to eliminate the risk, then the risk must be minimized. When choosing the appropriate risk controls, the employer must consult with the joint health and safety committee or the worker health and safety representative. Be sure to test the risk control before fully implementing to make it work within your organization. To help identify potential risk controls, consider the following questions: Some question to consider: Can mechanical lifting aids such as hoists, pallet jacks, carts, or conveyors be used instead of manual material handling? Can the load be lifted within the range of knee to waist height? Can the vertical distance the load has to be lifted or lowered be shortened? Options may include limiting shelf height, and raising the worker. Can stooped or twisted positions be avoided by providing unrestricted work space, or arranging the workspace differently? Can the size of the load be made smaller? Options include ordering smaller containers, or having workers make two trips with smaller loads rather than one trip with a heavy load. Can carrying distance be shortened by changing the workflow? Can equipment or furniture be modified to eliminate or reduce awkward postures for workers? Can the workplace be modified to eliminate or reduce the need for lifting of heavy objects? Some questions to consider: Can workers rotate between tasks involving different muscles, for example, stacking boxes and driving a forklift? Can workers use safe work procedures to minimize risk factors, for example, using neutral wrist posture while pushing a cart? Can workers be trained to perform the tasks using neutral postures? Can storage space be organized so that heavy items are located between knee and waist height and light items above shoulder height? Can the task design be changed? Examples include changing a lifting task into a lowering task, or changing a carrying task to a pushing or pulling task. Can workers be given time to rest or recover when lifting or handling loads? Can work demands and work pace be balanced more effectively? Do workers have suitable gloves that fit properly? For example, they may need padded, friction-enhanced or vibration-limiting gloves. If workers are required to kneel, do they have knee pads or a kneeling pad? Do workers have warm clothing if they have to work in cold conditions?

Chapter 4 : Ergonomics and Musculoskeletal Disorders | NIOSH | CDC

Ergonomics "No one knows ergonomics better than Workrite - it's not just something we do, it's all that we do." - CEO, Charles F. Lawrence At Workrite, we believe every body has the right to work comfortably and safely.

Basically, it can be explained as the analysis or study of the job or work. It aims at designing or creating the job in such a way that it meets the needs of the worker. It works towards creating a working space in which all its related factors, processes and systems have been exclusively designed to meet the needs and requirements of the employees. It encourages the workers to work in a healthy and positive manner devoid of all physical hazards, disasters or loss to the worker in all possible aspects. By enabling the job to be more adaptive and comfortable, many hazards such as tendinitis, trigger finger, spinal complaints and much more are avoided to a good extent. Ergonomics focuses on all aspects of work like physical stress factors such as joint, muscle, bones and nerves discomfort and damage to other environmental factors. In short, it aims at creating a convenient, user friendly and stress free working condition for the worker by providing products and systems that enable improved interaction, co-operation and comfort. How to Improve Ergonomics in the Workplace? Initiating and maintaining an ergo working space is one of the most important aspects of an organization or company. When the workers are happy and comfortable in their workplace, the productivity learn more of a company is increased enormously. Some of the common benefits of an ergo office are as follows: It reduces costs a great deal by preventing the compensation costs that recur when the employees face health issues and other related hazards. It improves the productivity and output effectively. The good posture options and less stressful working space, incur more efficiency from the workers. It improves the quality of work as the workers feel more safe and comfortable and therefore can allot their entire focus and concentration on the work to be done. It improves the goodwill of the company and initiates a good relationship between the employer and the employees. When the company makes the required effort to take the workers best interests into consideration, the workers also feel obliged to give in their best shot in all that they do. It is totally a win-win situation. It provides a safe working environment for all involved. When the posture is not correct, it can lead to many musculoskeletal disorders. Musculoskeletal disorder is basically tissue damage of the nerves, ligaments, joints, spinal discs and so on. In order to prevent long term or chronic damage, corrective measures should be taken. Some of the ergonomic steps are discussed below: In order to establish the right sitting posture, a good chair is a must. This prevents many spinal and neck based injuries and damage. The height of the chair should be such that the foot rests comfortably on the floor or on a footrest. This enables free and enhanced blood circulation in the legs. The armrest should be designed in a way that allows the entire arm to be rested comfortably and the material should be soft and soothing. The backrest is of crucial importance as it supports the entire spinal system. The back rest should be wide and long enough to provide secure resting place for the entire back, especially the lower back. Incorrect back posture can cause spinal disc misplacement in the long run. The seats of the chair should be adjustable to the height of the user and should be padded and rounded corners for extended comfort. Finally, the base of the chair should be secure, stable and come with a five legged option as it offers more security. If not, get one without any further delay. In the modern day office scenario, almost all jobs require the workers to spend long hours in front of the computer screen. This is one of the main reasons why the computer parts should be ergonomically supported for better posture and comfort. Working for long hours at a stretch can be detrimental to health and also affect productivity adequately. Allowing breaks at regular intervals is a good way to refresh and relax the workers. Vision breaks are very important and should be taken often, lasting from a few seconds to a minute. At regular intervals look away from the computer screen, relax and adjust your eyes and vision and then resume work again. Task breaks are also good to provide more focus and change. If you have been doing just one type of work for long, take a break and adhere to other tasks and then get back to the previous one. In order to relax your body and muscle, go in for stretch breaks

Lighting: Lighting undoubtedly, plays a very significant role in transforming the ergonomics of a working space. Low lighted conditions can lead to extensive strain, discomfort to the eyes and lead to fluctuating eye power and related damage. It is best advised to make the use of full spectrum lights

as opposed to the traditional lighting options as the former are designed to offer increased brightness, durability and less strain to the vision. Lighting should never be too high or too less and in order to have the right brightness, it is a good idea to consult the workers and then make the required changes or improvisations. Too much of noise and disturbance can cause undue stress and irritation to the workers involved and also make it difficult for them to concentrate on the work to be done. A good solution to reducing noise pollution is to identify all the equipment that create excess noise and then segregate and place them in different rooms away from the workers. Employ panels that offer acoustical absorption. Arrange for regular equipment maintenance and servicing facilities for smooth and durable working of the equipment. Finally, a good alternative is to use earplugs, which is a simple, cost-effective and convenient solution! How to Improve Ergonomics at Home? Creating and maintaining an ergonomic friendly home is not just any old task, but a daunting one if you do not get the concept right. Once you know where the struggle lies, it is a breeze to initiate the transformation of your home. We spend adequate time at home and one of the most important things to do is to make your home the most comfortable place you can ever be in. Often times, we neglect how things and products work and as a result they cause a lot of physical and mental stress respectively. In order to avoid all this, the art of ergo comes into play. For some quick pointers continue reading. Standing for long hours on rough floor can make your legs, joints and back ache endlessly. When there is some sort of a soft support, it cushions the pain and you feel comfortable working in your space. Try not to install too many taps in your sinks as too much of twisting and turning can affect your wrist over time. When it comes to storing things, always load them on shelves that you can reach easily, preferably between eye and knee level. This will prevent unnecessary bending and straining of the back. Similarly, make sure your refrigerator and other electronics are placed in a way that does not require frequent bending. For the purpose of chopping, better grip and ergonomically designed knives are available, which allow better and equal use of muscles. For instance, this type of knife allows the muscles of the forearm and upper arm to be used which simplifies the task rather than having to balance unevenly and exerting wrong pressure that can lead to muscle and joint pain in your hands and arms. Try as much as possible to adorn your house with furniture that is simple and light weight as too much heavy lifting can strain the back extensively. Go here to learn more: While watching television, avoid uplifting or stretching your neck and head. While eating, make it a point to always have your plate at a higher level which prevents the need to bend down for every morsel. It is highly recommended to use a cervical designed pillow as it serves as a great support to your neck. At times, when you stay awake late in the night with a good book, always ensure that your neck and back is well rested or it might lead to a sharp pain in your spine and also lead to spondylitis in extreme cases. Opt for a mattress that is not made out of foam or too much spring. The best type is the cotton filled mattresses as they are gentle on your back and offer good, stable support and deters all problems of the spine. And, to find great memory foam mattress toppers for your bedroom, head over here. Design sinks and cabinets in a way that do not require you to bend over. Always have them at a good height, preferably near your shoulder or eye level. Use mats wherever necessary as it will prevent you from slips and falls. Even if you do fall, you will land gently on the mats and save yourself the fracture. Another good tip is to service your faucets regularly so that you do not have to exert unnecessary pressure or stress to get them functioning. Too much pressure and twists can affect the wrist tendons. These are some simple tips that you can follow to make your home and working space more comfortable and user friendly. The best approach is to first identify the problem, the requirements and then try creating suitable solutions for them. This way, you can make sure to cover all aspects of work and home in a systematic and improved manner. Summary So there you have it, a pretty comprehensive way to improve the ergonomics of both your office and your lovely home! If you enjoyed this post you can help me out by sharing it with your social media and friends. You can also like us on Facebook by clicking [here](#) and getting all of the most recent updates. Oh and one last thing, please comment below and let me know what you think. It is OK to throw some constructive criticism my way, you can also share your own stories or even just say Hi if you want!

Chapter 5 : Workplace Ergonomics | ErgoPlus

The goal of an ergonomics program in industry is to adapt the workplace to a specific worker, dependent on the job description, required tasks, and physical make up of the employee performing those tasks.

Sign up now Office ergonomics: Your how-to guide A comfortable work space can help you feel your best. Give your sitting work area a makeover with this visual guide to office ergonomics. Proper office ergonomics – including correct chair height, adequate equipment spacing and good desk posture – can help you and your joints stay comfortable at work. Ready to give your work space a makeover? Get started making your sitting workstation comfortable with this visual guide to sitting workstation ergonomics. Chair Choose a chair that supports your spinal curves. Adjust the height of your chair so that your feet rest flat on the floor or on a footrest and your thighs are parallel to the floor. Adjust armrests so your arms gently rest on them with your shoulders relaxed. Key objects Keep key objects – such as your telephone, stapler or printed materials – close to your body to minimize reaching. Keyboard and mouse Place your mouse within easy reach and on the same surface as your keyboard. While typing or using your mouse, keep your wrists straight, your upper arms close to your body, and your hands at or slightly below the level of your elbows. Use keyboard shortcuts to reduce extended mouse use. If possible, adjust the sensitivity of the mouse so you can use a light touch to operate it. Alternate the hand you use to operate the mouse by moving the mouse to the other side of your keyboard. Telephone If you frequently talk on the phone and type or write at the same time, place your phone on speaker or use a headset rather than cradling the phone between your head and neck. Footrest If your chair is too high for you to rest your feet flat on the floor – or the height of your desk requires you to raise the height of your chair – use a footrest. If a footrest is not available, try using a small stool or a stack of sturdy books instead. Use a footrest to support your feet as needed. If your desk has a hard edge, pad the edge or use a wrist rest. The top of the screen should be at or slightly below eye level. The monitor should be directly behind your keyboard. If you wear bifocals, lower the monitor an additional 1 to 2 inches for more comfortable viewing. Place your monitor so that the brightest light source is to the side.

Chapter 6 : Ergonomic Resources & Research - Workrite Ergonomics

Ergonomic basics that apply to virtually any workplace.

He used it to encompass the studies in which he had been engaged during and after World War II. A "human factor" is a physical or cognitive property of an individual or social behavior specific to humans that may influence the functioning of technological systems. The terms "human factors" and "ergonomics" are essentially synonymous. There are many specializations within these broad categories. Specialisations in the field of physical ergonomics may include visual ergonomics. Specialisations within the field of cognitive ergonomics may include usability, human-computer interaction, and user experience engineering. Some specialisations may cut across these domains: Environmental ergonomics is concerned with human interaction with the environment as characterized by climate, temperature, pressure, vibration, light. For instance, "user trial engineer" may refer to a human factors professional who specialises in user trials. According to the International Ergonomics Association, within the discipline of ergonomics there exist domains of specialization: Physical ergonomics[edit] Physical ergonomics: Physical ergonomics is concerned with human anatomy, and some of the anthropometric, physiological and bio mechanical characteristics as they relate to physical activity. Physical ergonomics is important in the medical field, particularly to those diagnosed with physiological ailments or disorders such as arthritis both chronic and temporary or carpal tunnel syndrome. Pressure that is insignificant or imperceptible to those unaffected by these disorders may be very painful, or render a device unusable, for those who are. Many ergonomically designed products are also used or recommended to treat or prevent such disorders, and to treat pressure-related chronic pain. Work-related musculoskeletal disorders WRMDs result in persistent pain, loss of functional capacity and work disability, but their initial diagnosis is difficult because they are mainly based on complaints of pain and other symptoms. These types of jobs are often those involving activities such as repetitive and forceful exertions; frequent, heavy, or overhead lifts; awkward work positions; or use of vibrating equipment. Cognitive ergonomics Cognitive ergonomics is concerned with mental processes, such as perception, memory, reasoning, and motor response, as they affect interactions among humans and other elements of a system. Organizational ergonomics[edit] Organizational ergonomics is concerned with the optimization of socio-technical systems, including their organizational structures, policies, and processes. History of the field[edit] In ancient societies[edit] The foundations of the science of ergonomics appear to have been laid within the context of the culture of Ancient Greece. A good deal of evidence indicates that Greek civilization in the 5th century BC used ergonomic principles in the design of their tools, jobs, and workplaces. In industrial societies[edit] In the 19th century, Frederick Winslow Taylor pioneered the " scientific management " method, which proposed a way to find the optimum method of carrying out a given task. Taylor found that he could, for example, triple the amount of coal that workers were shoveling by incrementally reducing the size and weight of coal shovels until the fastest shoveling rate was reached. They aimed to improve efficiency by eliminating unnecessary steps and actions. By applying this approach, the Gilbreths reduced the number of motions in bricklaying from 18 to 4. Bekhterev argued that "The ultimate ideal of the labour problem is not in it [Taylorism], but is in such organisation of the labour process that would yield a maximum of efficiency coupled with a minimum of health hazards, absence of fatigue and a guarantee of the sound health and all round personal development of the working people. Dull monotonous work was a temporary necessity until a corresponding machine can be developed. He also went on to suggest a new discipline of "ergology" to study work as an integral part of the re-organisation of work. The war saw the emergence of aeromedical research and the need for testing and measurement methods. Studies on driver behaviour started gaining momentum during this period, as Henry Ford started providing millions of Americans with automobiles. Another major development during this period was the performance of aeromedical research. Many tests were conducted to determine which characteristic differentiated the successful pilots from the unsuccessful ones. During the early s, Edwin Link developed the first flight simulator. The trend continued and more sophisticated simulators and test equipment were developed. Another significant development was in the civilian sector, where the effects

of illumination on worker productivity were examined. This led to the identification of the Hawthorne Effect, which suggested that motivational factors could significantly influence human performance. It was no longer possible to adopt the Tayloristic principle of matching individuals to preexisting jobs. Now the design of equipment had to take into account human limitations and take advantage of human capabilities. There was substantial research conducted to determine the human capabilities and limitations that had to be accomplished. A lot of this research took off where the aeromedical research between the wars had left off. An example of this is the study done by Fitts and Jones, who studied the most effective configuration of control knobs to be used in aircraft cockpits. Much of this research transcended into other equipment with the aim of making the controls and displays easier for the operators to use. The entry of the terms "human factors" and "ergonomics" into the modern lexicon date from this period. It was observed that fully functional aircraft flown by the best-trained pilots, still crashed. In Alphonse Chapanis, a lieutenant in the U. Army, showed that this so-called "pilot error" could be greatly reduced when more logical and differentiable controls replaced confusing designs in airplane cockpits. After the war, the Army Air Force published 19 volumes summarizing what had been established from research during the war. It was the climate for a breakthrough. Alphonse Chapanis, Paul Fitts, and Small. Also, many labs established during WWII started expanding. Most of the research following the war was military-sponsored. Large sums of money were granted to universities to conduct research. The scope of the research also broadened from small equipments to entire workstations and systems. Concurrently, a lot of opportunities started opening up in the civilian industry. The focus shifted from research to participation through advice to engineers in the design of equipment. After, the period saw a maturation of the discipline. The field has expanded with the development of the computer and computer applications. Tolerance of the harsh environment of space and its effects on the mind and body were widely studied [19] Information age[edit] The dawn of the Information Age has resulted in the related field of human-computer interaction HCI. Likewise, the growing demand for and competition among consumer goods and electronics has resulted in more companies and industries including human factors in their product design. Using advanced technologies in human kinetics, body-mapping, movement patterns and heat zones, companies are able to manufacture purpose-specific garments, including full body suits, jerseys, shorts, shoes, and even underwear. Present-day[edit] Ergonomic evaluation in virtual environment In physical ergonomics, digital tools and advanced software allow analysis of a workplace. The body structure, sex, age and demographic group of the mannequin is adjustable to correspond to the properties of the employee. The software provides several different evaluations such as reachability test, spaghetti diagram, or visibility analysis. Human factors organizations[edit] Formed in in the UK, the oldest professional body for human factors specialists and ergonomists is The Chartered Institute of Ergonomics and Human Factors, formally known as the Institute of Ergonomics and Human Factors and before that, The Ergonomics Society. According to its mission statement, ACE unites and advances the knowledge and skills of ergonomics and human factors practitioners to optimise human and organisational well-being. The mission of the IEA is to elaborate and advance ergonomics science and practice, and to improve the quality of life by expanding its scope of application and contribution to society. As of September, the International Ergonomics Association has 46 federated societies and 2 affiliated societies. From the outset the IOM employed an ergonomics staff to apply ergonomics principles to the design of mining machinery and environments. To this day, the IOM continues ergonomics activities, especially in the fields of musculoskeletal disorders; heat stress and the ergonomics of personal protective equipment PPE. Like many in occupational ergonomics, the demands and requirements of an ageing UK workforce are a growing concern and interest to IOM ergonomists. The International Society of Automotive Engineers SAE is a professional organization for mobility engineering professionals in the aerospace, automotive, and commercial vehicle industries. The Society is a standards development organization for the engineering of powered vehicles of all kinds, including cars, trucks, boats, aircraft, and others. The Society of Automotive Engineers has established a number of standards used in the automotive industry and elsewhere. It encourages the design of vehicles in accordance with established human factors principles. It is one of the most influential organizations with respect to ergonomics work in automotive design. This society regularly holds conferences which address topics spanning all aspects of

human factors and ergonomics. Designers industrial, interaction, and graphic , anthropologists, technical communication scholars and computer scientists also contribute. Though some practitioners enter the field of human factors from other disciplines, both M. Methods[edit] Until recently, methods used to evaluate human factors and ergonomics ranged from simple questionnaires to more complex and expensive usability labs. Using methods derived from ethnography , this process focuses on observing the uses of technology in a practical environment. It is a qualitative and observational method that focuses on "real-world" experience and pressures, and the usage of technology or environments in the workplace. The process is best used early in the design process. This can be on a one-to-one interview basis, or in a group session. Can be used to gain a large quantity of deep qualitative data, [26] though due to the small sample size, can be subject to a higher degree of individual bias. Can be extremely costly. Also known as prototyping, the iterative design process seeks to involve users at several stages of design, to correct problems as they emerge. As prototypes emerge from the design process, these are subjected to other forms of analysis as outlined in this article, and the results are then taken and incorporated into the new design. Trends among users are analyzed, and products redesigned. This can become a costly process, and needs to be done as soon as possible in the design process before designs become too concrete. A supplementary technique used to examine a wide body of already existing data or literature to derive trends or form hypotheses to aid design decisions. As part of a literature survey, a meta-analysis can be performed to discern a collective trend from individual variables. Two subjects are asked to work concurrently on a series of tasks while vocalizing their analytical observations. This is observed by the researcher, and can be used to discover usability difficulties. This process is usually recorded. A commonly used technique outside of human factors as well, surveys and questionnaires have an advantage in that they can be administered to a large group of people for relatively low cost, enabling the researcher to gain a large amount of data. The validity of the data obtained is, however, always in question, as the questions must be written and interpreted correctly, and are, by definition, subjective. Those who actually respond are in effect self-selecting as well, widening the gap between the sample and the population further. A process with roots in activity theory , task analysis is a way of systematically describing human interaction with a system or process to understand how to match the demands of the system or process to human capabilities. The complexity of this process is generally proportional to the complexity of the task being analyzed, and so can vary in cost and time involvement.

Chapter 7 : Human factors and ergonomics - Wikipedia

Give your sitting work area a makeover with this visual guide to office ergonomics. By Mayo Clinic Staff If you sit behind a desk for hours at a time, you're not doomed to a career of neck and back pain or sore wrists and fingers.

Chapter 8 : 10 Office Ergonomics Tips to Help You Avoid Fatigue

Ergonomics at Work At its core, ergonomics is the science of fitting the task to the worker, not the worker to the task. OSHA estimates employers spend \$20 billion a year on work-related musculoskeletal disorders caused by lifting heavy items, bending, reaching overhead, pushing and pulling loads, working in awkward body postures and performing.

Chapter 9 : Brian's Spine Health HQ | How to Improve Ergonomics At Work & At Home

The term 'ergonomics' takes its origin from Greek and can be described in two words, work and law. Basically, it can be explained as the analysis or study of the job or work.