IMPROVING VDT WORK pdf

1: NIOSHTIC-2 Publications Search - - How to fit the work to the operator.

Improving VDT Work: Causes and Control of Health Concerns in VDT Use (Excerpt) S.L. Sauter, L.J. Chapman, and SJ. Knutson Â·Â·Â· Nature and Seriousness of Stress Problems in VDT Work The available research allows several gen eral conclusions regarding the nature of strains experienced by VDT users.

Keyboards should be adjusted to provide comfortable neutral posture Place keyboard at approximately seated elbow height " from floor , shoulders should be relaxed. Move the mouse as close to the centerline of your body as possible when you must use it for periods of time. Decrease glare on screen. Place VDT perpendicular to window. Use antiglare screen if needed. Tilt screen backward 10 to 20 degrees. Keep monitor ventilated and clean. Adjust color, brightness, contrast for eye comfort. Copy holders should be placed next to screen Distance and eye level from screen and copyholder to your face should be the same Use Safe and Efficient Work Habits Reduce repetitions Encourage "break jobs" - These are non-computer-related tasks which can be performed as a rest job away from the computer e. Take more mini-breaks -- reduce longer breaks Practice stress-reduction techniques Alternate between standing and sitting - Stand with one foot elevated to reduce lower back stress. Minimize stress on body Use antifatigue mats at copier. Use padded grips for pens or thicker pens. Take care of your eyes Have periodic eye exams. Tell your eyecare professional you work at a computer. Exercise eye muscles to reduce strain. Look into the distance. Stretch breaks - Incorporate stretching exercises into your schedule i. Hold each stretch for 5 to 10 seconds. Pursue a healthy lifestyle Stretch and warm up before you begin; cool down when you finish. If injury is present, seek advice from your doctor. General Office Considerations Does your office provide? Comfortable lighting Adjust level of lighting to slightly dimmer than general office lighting.

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2: Lighting Ergonomics - Survey and Solutions : OSH Answers

PDF | On Sep 1, , C. R. Martell and others published Editorial: Improving VDT Work For full functionality of ResearchGate it is necessary to enable JavaScript. Here are the instructions how to.

The level of discomfort appears to increase with the amount of VDT use. The most common symptoms are eyestrain, headaches, blurred vision and dry or irritated eyes. These vision problems are not new or unique to computer use. Many individuals in other highly visually demanding occupations will experience similar vision related problems. However, the unique characteristics and high visual demands of VDT work make many individuals susceptible to the development of eye and vision-related symptoms. Uncorrected vision conditions, poor VDT design and workplace ergonomics and a highly demanding visual task can all contribute tot he development of visual symptoms and complaints. Work that is visually and physically fatiguing may result in lowered productivity, increased error rate and reduced job satisfaction. Therefore, steps should be taken to reduce the potential for development of stress and related ocular and physical discomfort in the workplace. Often the letters on a VDT screen are not as precise or sharply defined, the level of contrast of the letters to the background is reduced and the presence of glare and reflections on the screen may make viewing more difficult 16, As a result, the eye focusing and eye movement requirements for VDT work can place additional demands on the visual system. Older workers particularly may find adjusting to these working requirements difficult. Eyeglasses or contact lenses prescribed for general use may not be adequate for VDT work. Specific occupational lenses prescribed to meet the unique demands of VDT work may be needed. The quality and efficiency of their work have also been improved Some VDT workers may experience problems with eye focusing or eye coordination that cannot be adequately corrected with eyeglasses or contact lenses. Therapy designed to treat specific binocular vision dysfunctions may be needed. Usually the problem lies with issues of convergence, or the ability of the eyes to come together from a distant point source far away vision â€” greater than 20 feet away to a near point source such as a VDT monitor. Many VDT tasks are repetitive and can become stressful both mentally and physically after an extended period of continuous work. Occasional rest or alternate task breaks are helpful to combat fatigue and stress. They provide an opportunity to incorporate different and less visually demanding tasks into the work regimen. Specific rest or task breaks should be based on the individual needs of the VDT operator. Uncorrected Vision Problems The presence of even minor vision problems can often significantly affect worker comfort and performance at a VDT. All VDT workers should have a comprehensive eye examination prior to or soon after beginning VDT work and periodically thereafter. The examination should include careful analysis of the functioning of the eyes at intermediate and near working distances. These include visible light, ultraviolet, infrared, x-ray and radio frequency emissions. However, VDT emissions are often so low as to be unmeasurable or are found to be significantly below recommended safety levels. While not technically a form of radiation, most VDTs will build up an electrostatic charge in the vicinity of the screen surface. Although there is no conclusive evidence, it has been suggested that these charges may be related to the development of skin rash or eye irritation in some very sensitive people 31, This problem can usually be managed by cleaning the VDT screen regularly. Surveys indicate that many VDT users report problems with general workplace lighting, glare and images reflected on the VDT screen. Windows, overhead fluorescent lights and desk lamps often contribute to this problem. An acceptable lighting level may require a compromise between that amount of light needed to enhance VDT screen visibility and reduce reflections and glare and that needed to perform other office reading and work tasks. Older individuals will generally require more light than younger individuals to perform the same tasks comfortably. For dim or dark background screens this often requires using lower light levels than are used for other types of office tasks. However, lighting requirements will vary with the task. More lighting may be needed when other source documents are also viewed. This additional lighting may be accomplished through the use of specific task lighting. It can also form disturbing reflections of nearby or distant objects. Filters can be placed over the VDT screen to reduce glare and reflections. However, filters should be considered only as a supplement, not a replacement, for control of light and reflections through proper lighting design and VDT

placement. Anti-reflection coating on eyeglass lenses is a much better filter, as reflections come from around the entire work area, not just the VDT. Windows are a major source of glare in many offices. VDT operators should avoid facing an unshaded window since the difference in brightness between the VDT screen and the area behind it may be extremely stressful and uncomfortable. Operators should also not sit with their back to an unshaded window since they will cast annoying shadows on their VDT screen. Adjustable shades, curtains or blinds should be sued to effectively control light levels throughout the day. Lowering screen brightness will generally reduce problems related to image stability or character flicker. The color of the characters can affect how the eyes focus on the VDT screen and may bring about the development of harmless, but annoying, after-images for some individuals. Negative contrast VDT displays dark letters on a light background generally provide a more legible image than positive contrast displays light letters on a dark background. Either black characters on a white background or white characters on a black background have been found to be more visible than green, yellow-orange, blue or red characters. Inadequate viewing distances and angles can impose the necessity for awkward postures when viewing a VDT. Accommodative amplitude has been shown to be reduced with elevation of the eyes 40 The higher gaze angles at many VDT workstations result in viewing conditions for which the amplitude of accommodation is reduced thus placing greater strain on the eyes focusing mechanism. The eyes and head should be in a slightly downward gaze when viewing a VDT screen. AS a result, the top of the screen should be slightly below the horizontal eye level of the operator with no portion of the screen at an angle greater than 40 degrees below the horizontal. VDTs that have detachable keyboards, screens that can be tilted to a comfortable viewing angle and moveable document holders allow operators to arrange the work area to their particular needs. Some office environments have been implicated in causing eye irritation because of their dry atmosphere. The airtight environment also traps vapors and particulate matter from office furnishings. This can be a particular problem for contact lens wearers. The use of VDTs is associated with a decreased frequency of blinking and an increased rate of tear evaporation, each of which contributes to dry eyes. In addition, the width of the palpebral fissure between upper and lower eyelids , and hence the exposed ocular surface area, can be decreased by placing the VDT at a lower height. Managing Vdt Related Eye Health and Vision Problems Video display terminals are used in a broad range of occupations and their use is increasing. Many VDT operators experience various eye and vision related symptoms and ocular discomfort. Potential health hazards of video display terminals. National Institute of Occupational Safety and Health, Provisional statements of WHO working group on occupational heatlh aspects in the use of visual display units. VDT news, 3 1: Video Displays Work and Vision. Health Effects of Video Display Terminals. Visual fatigue and occupational stress in VDT operators. Effects of video display terminals on telephone operators. Video display terminal use and reported health symptoms among Massachusetts clerical workers. J Occup Med, 29 2: Vision Problems at video display terminals: A survey of optometrists. J Am Optom Assoc, 63 Effects of short-term VDT usage on visual functions. Optom Vis Sci, 66 7: Effects of long-term visual display terminal usage on visual functions. Optom Vis Sci, 68 Does work with visual display units impair visual activities after work? Documenta Ophthal 79 3: Prolonged complementary chromatopsia in users of video display termianls. Am J Ophthal Evaluation, office improvements can reduce VDT operator problems. Occup Health and Safety, 56 7: Paznik MJ, Ergonomics does pay. Admin Management, August , Murch G. How visible is your display? March , Briggs R. Occup Health and Safety 61 3: New York state occupational vision benefit plan study: An evaluation of a vision plan for VDT users and office workers. Position statement on optometric vision therapy. May, Daum KM, et al. J Am Optom Assoc 59 9: Visual discomfort and astigmatic refractive errors in VDT use. J Am Optom Assoc 62 9: Effects of residual astigmatism in contact lens wear on visual discomfor in VDT use. J Am Optom Assoc 63 3: Video display units and visual function.

3: Ergonomics VDT, UVA-EHS

The percent value refers to the amount of light that a surface reflects relative to the amount that falls on the surface. In addition, light fixtures that are too widely spaced or wrongly positioned can create shadows. Objects between the light fixture and work being done can block the light and cast shadows. Likewise, workers sitting with their backs to windows, with light fixtures directly overhead or to the rear, cast shadows on their own work surfaces. How do you test and correct for insufficient light problems? To detect insufficient light, try the following: Measure the average illumination throughout the workplace. Compare this to the recommended levels. Look for shadows, especially over work areas and on stairways. Ask workers if they suffer from eye strain or squint to see. Workers should sit in their normal working positions during measurement to give you accurate results. To correct insufficient light: Replace bulbs on a regular schedule. Old bulbs give less light than new ones, so replace them before they burn out. Clean light fixtures regularly. Dirt on light fixtures reduces the amount of light given off. Light fixtures with open tops allow air currents to move dust up through the fixtures so dust and dirt do not accumulate on them. Add more light fixtures in appropriate places. Paint walls and ceilings light colours so light can be reflected. Use more reflected light and local lighting to eliminate shadows. For example, a covered light mounted under a transparent guard on a grinding wheel provides the added light needed to clearly see the task. Do not position work station with light fixture directly behind worker. What should you know about glare? Glare is a common lighting problem. In most cases, your eyes will adapt to the brightest level of light. When this adaptation happens, it becomes harder to see the details in the duller or darker areas of the work space even though they are actually sufficiently lit! Reflected glare is caused by: Light reflected from polished, shiny or glossy surfaces. Glass on picture frames, or windows at night. Direct glare is caused by: Very bright light from poorly positioned light fixtures. How do you detect glare? There are several ways to find sources of glare. When in your normal working position, look at a distant object at eye level. Block the light "path" from the fixtures with a book or cardboard. If the distant object is now easier to see, the light fixtures are probably producing glare. To detect reflected glare, look at the task from your normal working position. Block the light falling on it from the front or above. If details are now easier to see, reflections are a problem. Place a small mirror face up on the work surface. If the mirror reflects light from above, the light fixture is responsible for glare. Look for shiny objects that reflect light. Glass in picture frames, glossy table tops and monitors or screens are common examples. Ask workers if they experience sore or tired eyes, headaches or if they need to squint to see. How do you correct glare problems? To correct glare, try: Using several small low-intensity light fixtures rather than one large high-intensity light fixture. Using light fixtures that diffuse or concentrate light well. Indirect light fixtures or direct light fixtures with parabolic louvres are two possibilities. Covering bare bulbs with louvers, lenses or other devices to control light. Increasing the brightness of the area around the glare source. Using adjustable local lighting with brightness controls. Positioning light fixtures to reduce reflected light that is directed toward the eyes. Removing highly polished and shiny objects. Keeping general lighting levels at recommended levels. Position the work station so that the light fixtures are NOT in the front or directly overhead. How can you detect if there is "improper contrast"? There are two types of contrast problems - the first occurs when there are very different light levels from one area to another, and the other is contrast between the colours of objects. The immediate work area should be brighter than surrounding areas. If the surrounding area is brighter than the work area, your attention is distracted away from the work area. The contrast between colours of objects, such as between the print itself and paper, or text and background on computer screens, can also cause problems. Too little contrast between print and the paper - or characters on a VDT screen and the background - makes reading tasks difficult. In an industrial setting an example would be that moving and stationary machine parts are hard to distinguish if they are the same colour. How do you check and correct for poor contrast? Look for areas with great differences in light levels. Look for objects that

are hard to distinguish from the background. Look for reading materials and VDTs where it is hard to make out the print or characters from the background. To correct for poor contrast: Increase the contrast between objects and the background. Use ink pens rather than pencils, and white paper rather than grey. Adjust photocopier exposure, VDT brightness and contrast controls. Use matte finishes on surfaces and move shiny objects out of view. Use contrasting colours for objects and the background. Paint stationary and moving machine parts in contrasting colours to improve visibility and decrease the risk of accident. What should you know about poorly distributed light? When light is poorly distributed, parts of the ceiling and general surroundings will seem dark and gloomy. Substantial differences in light levels force your eyes to readjust when moving from one light level to the other. Workers may find it difficult or impossible to see properly. You can detect poorly distributed light by: Looking for dark areas and uneven lighting. Using a light meter to check the illumination at various points throughout the workplace. With uniform general lighting, the minimum reading should not be less than two-thirds of the average value. Correct for poorly distributed light by: Supplementing or replacing light fixtures with ones that distribute some light upwards. Painting ceiling and walls in light colours that reflect light. Cleaning ceilings, walls and light fixtures. How do you conduct a more detailed lighting survey? A complete lighting survey may be needed to identify and solve more subtle or complicated problems. A complete lighting survey requires complex equipment and practical experience. Many different techniques and instruments are available. Each of them has its own advantages and disadvantages. A complete basic lighting survey includes the following: Illuminance Illuminance is the amount of light falling on a surface. A light meter is used to measure it. Readings are taken from several angles and positions. Luminance Luminance is the amount of light reflected from a surface. The unit of measurement is candela per square metre equals 0. An illuminance meter is used to measure it. Several measurements are made and averaged.

4: Ergonomics Multiple Strain Injuries, UVA-EHS

Based on these findings, application of ergonomics principles to improve VDT workstations is a practical approach in controlling the risk factors and decreasing these disorders. Therefore, implementing the office ergonomics training programs may be effective on decreasing the incidence of WMSDs among VDT users.

5: Computer Monitors and Eye Problems

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