



WOHRC NEWS

WOMEN'S OCCUPATIONAL HEALTH RESOURCE CENTER
SCHOOL OF PUBLIC HEALTH
COLUMBIA UNIVERSITY

SPECIAL ISSUE:

VDT'S AND HEALTH

This special issue of WOHRC News explores worker health and VDTs, also providing background on international regulatory and union activities. And, since appropriate installation of a VDT is essential for optimum worker health, WOHRC has assembled some handy guidelines and tips for setting up an effective VDT workstation.

It has been predicted that about half of all American workers will be using a VDT on the job. Similar trends are occurring throughout the industrialized world. The extent of use will vary, but VDTs, the usual connection between a human being and a computer, are a widespread versatile work tool.

Are VDTs dangerous? Do they pose a threat to health and well-being of users? Some people say 'yes,' citing clusters of birth defects, eye strain, worker stress and other problems. Others say such fears are unfounded; that they are a natural response to new technology and perhaps to fears of job loss or boredom from automation of work.

Although much more research is needed, current evidence shows that VDT work can be stressful and strain the eyes and musculo-skeletal system. The feared risks to normal childbearing have not been established, although definitive studies which will completely resolve the issue have not yet been carried out. The health data are summarized on the following page.

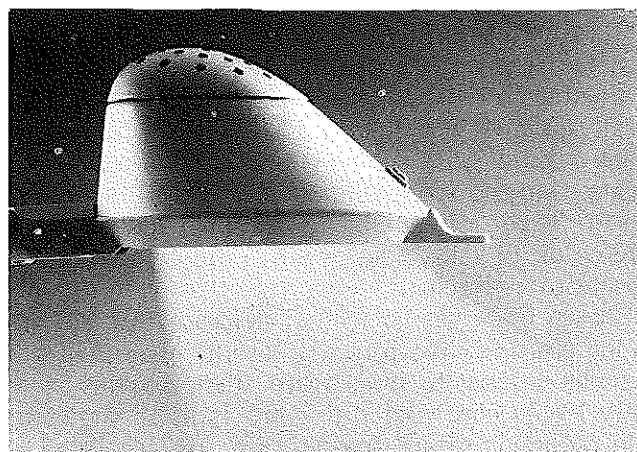
~ ● Briefly Noted ● ~

Int'l VDU conference draws thousands

The 1st International VDU Conference, held in Stockholm in May 1986 and sponsored by the Swedish National Board of Occupational Safety and Health, drew thousands of researchers, government representatives, trade unionists and science and policy writers from around the world. Research findings on visual, musculo-skeletal, reproductive and other health effects were presented. A wide array of papers on the organizational and social aspects of work were also included. Selected papers from the Conference will be published by Elsevier. (See p. 7 for further info.)

NIOSH off again/on again: on again

In 1982 the U.S. National Institute for Occupational Safety and Health, NIOSH, proposed a VDT



Shedding light on the issue

- Winners of int'l ergonomics contest (including LEDU lamp shown above)
- Designing a VDT Workstation
- Int'l survey of VDT laws & union contracts

study, primarily aimed at the question of potential reproductive effects. Beset by problems from the outset, the study finally zeroed in a population of VDT-using phone company operators at Bell South, with AT&T long distance operators who perform similar tasks without VDTs as a comparison group. It was to include questions on stress, as well as general reproductive health.

But phone company Harvard and Brown University based consultants Brian MacMahon and Sally Zierler criticized the study as being invasive, with questions on fertility, and too broad, with questions on stress. The White House Office of Management and Budget, using its authority under the Paperwork Reduction Act, disapproved the protocol using the consultant critique as one basis. A prime criticism was 'recall bias,' where it was felt that VDT users with adverse reproductive outcomes would selectively remember these events while non-users might not report miscarriages.

So it's back to the drawing boards for NIOSH. OMB has approved the study if the consultant critique is incorporated. That means no questions on fertility or stress and adjustments to be made for recall bias. The study may begin this fall.

Editorial Restructuring Work for Health

WOHRC staff heard an insightful comment during our study of about 2,000 office workers. A medical director of a large Canadian utility noted that the company's factory workers were becoming office workers from the computerization of the electrical production systems, while the office workers were being turned into factory workers, churning out automated, routine letters and processes.

WOHRC findings perhaps reflected one aspect of that transformation: the full-time VDT operators were the least satisfied of all the office workers, suffering from more musculo-skeletal and eye problems. However, VDT operators who used the machines for 4 hours or less each day did not experience these problems.

The WOHRC data are consistent with those reported by researchers from Volvo and other groups around the world at the International VDU conference in Stockholm. Unbroken work on the VDT is associated with body strain and mental stress. Alternating work on the VDT with other tasks relieves these problems.

The time is ripe for managers, workers and researchers to test innovative ideas on restructuring work so that no one is faced with an entire day of VDT work. We think we can predict the results: less stress and more satisfaction, which in turn will lead

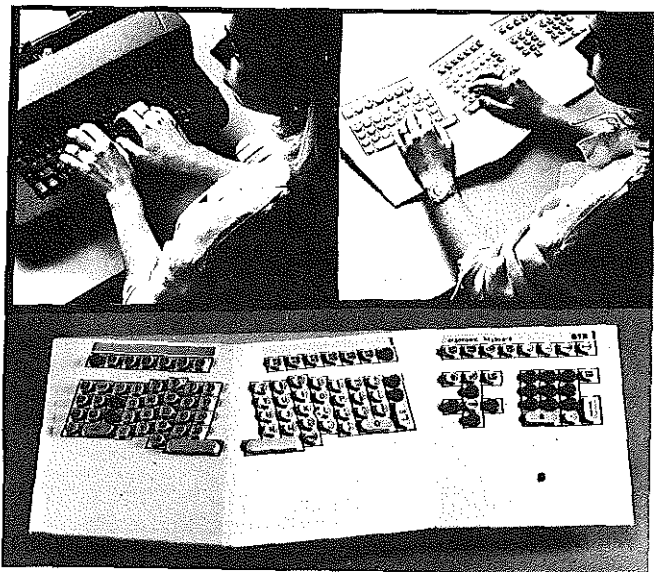
to better productivity, lower absenteeism and, in general, happier and healthier workers.

Innovation won't be easy. There are a large number of boring, routine tasks that need doing. The more pervasive the use of the computer, the fewer in number the 'alternative' tasks. Designing alternative work will need analysis of an entire system, not just a few jobs.

It might be that some tasks just shouldn't be computerized. 'Efficiency' counted solely in terms of keystrokes per hour may be misleading because it fails to take into account the human costs of uncreative and routine work. We observed those costs in our recent study: overall decrease in individual well-being. Computers are here to stay, and that is not bad. For some workers automation and using a VDT is liberation from routine work and from boring tasks. For too many others, however, the opposite is true: VDT work has little meaning, little control and few decisions.

There is still time to take stock of the situation and avoid the creation of factory assembly line work in the modern office environment. An assessment of the nature of office work and how best to distribute routine aspects is needed, and it is needed now.

European Ideas for VDT Comfort Contest Winners Show Daring and Taste



The 1986 International VDU Conference featured an "ergonomics" competition among the VDU equipment and furnishings exhibitors. It was judged by a panel of experts, headed by Dr. Asa Kilbom, an ergonomist at the Swedish National Board for Occupational Safety and Health. Pictured here are the IIT Scanlips AB STR-Keyboard (left) and the Teli 'ComforTable', two competition winners.

The STR Keyboard adapts a proposal made in 1926 by Klockenberg. The board is redesigned with most frequently used letters within easiest reach. The shape of the board allows the operator to assume a straight



wrist, elbow at right angles position which is optimum for worker comfort and ease, in contrast to the typist's position shown above.

The QWERTY keyboard is standard now. It was designed to separate commonly used letters and avoid intertwined letter jam-ups of from the 'old days' of moving type elements. 52% of the letters are typed on the upper row, 16% on the bottom row in English on the QWERTY board. Ergonomists estimate that the fingers of a typist working steadily for an 8 hour day will travel a distance of about 20 miles. The STR-Keyboard cuts down significantly on finger travel.

The ComforTable consists of modular units with electrically controlled table heights, varying from 600-800 mm (23.5-31.6 in). Users quickly and easily change the height to suit their needs. Other conveniences are under table electric outlets and portals through which to pass the wires, thus avoiding the tangle of cords found at many VDU workstations.

Other European winners are: the LEDU lamp (page 1), Philips and Siemens printers, Avista and Ericsson complete Bank Cashiers workstations.

Good Design Doesn't Have To Be Expensive

A workstation is best



A stand or desk designed for a VDT is a 'best' solution because it combines correct height and adjustability. This one can be rolled next to a writing surface which can comfortably house source documents. (Cost about \$200.)

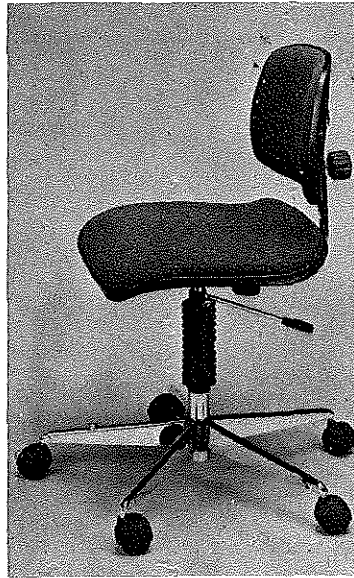
...but if a desk must do:



A VDT 'valet' will keep the desktop free for other work materials and will also allow the user to rotate and tilt the screen for optimum viewing distance, comfort and minimum glare. The 'valet' shown costs about \$130. A VDT turntable, not shown here, also permits the user to adjust viewing distance, height and angles and cost about \$30.

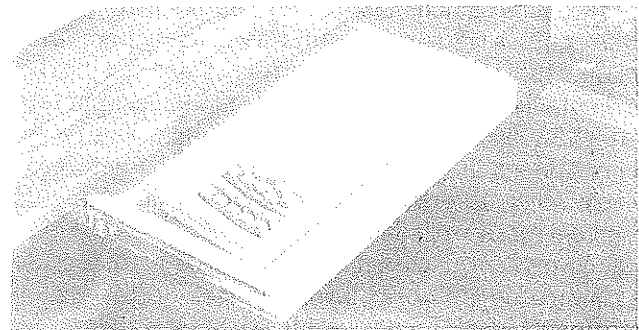
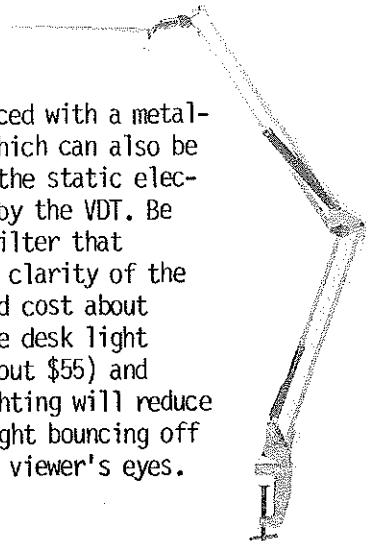
The typical desktop is too high for a keyboard. An keyboard drawer holder, usually adjustable to several different heights, will conquer this problem at a cost of about \$60.

A chair with five-pronged stand for stability, adjustable and fabric covered backrest and seat will provide support and comfort. (Cost about \$130.) But, remember, to reduce muscle strain get up and move around frequently!

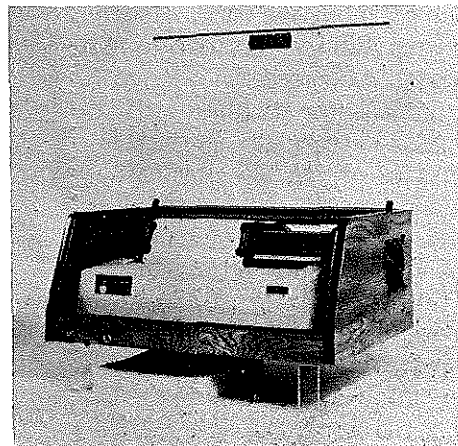


Adjustable Task Lighting

Glare can be reduced with a metallic mesh filter, which can also be grounded to lower the static electricity generated by the VDT. Be careful to buy a filter that doesn't reduce the clarity of the image, which should cost about \$100. An adjustable desk light (this one costs about \$55) and lower overhead lighting will reduce glare caused by light bouncing off a surface into the viewer's eyes.



Shhhh.....



A VDT isn't deafening but printer noise can be annoying and interfere with communications. An acoustic enclosure will really help and this one also provides a handy paper storage/feeder option (about \$130).

WOHRC thanks Sandi Starrett and NEBS, the New England Business Service, Inc. for the photos on this page. NEBS is a major supplier of such equipment (toll-free telephone 1-800-225-8550). A source for anti-glare filters is the Sun-Flex Co. Inc of Novato, Ca. (1-800-321-1659) [WOHRC does not endorse or guarantee specific products.]

Worldwide Union Activity on VDT Issues

The automation and re-organization of work has always been an area of trade union negotiations. Now labor-management discussions and negotiations around the world on the subject of VDTs.

Bargaining over VDTs tends to be built around precedents established in two main areas: occupational health and safety and 'new technology'. Many unions, generally in heavy industry, had already established the contractual right to prior notification before introduction of new technology. In many European countries management is contractually obligated to include workers in planning for change. Many contracts contain provisions for assuring employment of workers displaced by the new systems. Hours of work and questions relating to job grading and evaluation have also been frequently covered by contract. There may be explicit guarantees for worker training and retraining in the new technology.

Health & Safety Precedents

Some unions had already negotiated such rights as: official health and safety committees; workplace inspection rights; the 'right-to-know' the identity and effects of substances on the job; provision of safety equipment by the employer; no-cost hazard specific medical examinations; transfer without penalty to other jobs for workers affected by particular substances.

The contractual provisions governing the introduction and use of VDTs, shown in the accompanying table, are reflective of these precedents. Ironically many VDT contracts provide more detailed coverage of health and safety than do 'new technology agreements' in heavier industries, despite their considerably higher injury and illness rates.

(continued on page 8)

Elements of Int'l Union Contracts

Technical Specifications of VDT:

Screen and display characteristics
Radiation shielding
Keyboard layout

Workplace Requirements:

Desk and chair height
Lighting design
Desk space
Document holders

Maximum Hours and Rest Pauses:

Generally 10 mins / 2 hours
Sometimes 5 mins / 1 hour
Usually 6 hours / workday
Often 4 hours / workday
(In many non-visual work can be substituted;
includes breaktime already negotiated)

Medical Examinations:

Pre-placement eye exams
Regular re-examination, interval varies
Musculo-skeletal and hands (Japan)

Provision of Eyeglasses for VDT Work

Pregnancy transfers:

Management disclaimer on risks
Often requires other available work

Radiation Monitoring of Machines

Worker Training or Retraining:

Includes safety and health
Includes machine operation

Job Design:

Vary tasks insofar as possible
Alternate with non-visual work

Prior Union Notification of Installation

Consultation with Union on Use

Redeployment of Displaced Workers

Job Security for Affected Jobs:

Retention of pay rate
Tenure of position

SUBSCRIPTION AND ORDER FORM Volume 7 Number 5/6 Apr-July 1986



Editorial and Sales Office

117 St. Johns Place
Brooklyn NY 11217

(718)230-8822

- Send more information about WOHRC
 Send more information about Women and Health
 I would like to become a WOHRC subscriber.

This includes 4 WOHRC newsletters a year, Factsheets and announcements of other WOHRC publications as they appear during the year.

- \$12 individual \$25 professional
 \$25 institutions, libraries, corporations
 \$30 Friend \$50 Contributor
 \$100 Supporter

A New Publication from WOHRC:
VDT Regulations, Guidelines and Collective Agreements: An International Selection and Analysis, Edited by Jeanne M. Stellman

— \$10.95 (WOHRC members) — \$15.95 (non-members)
(allow six weeks for delivery)

— Send me more information on the Selected Papers from the International VDU Conference when it is available. (Enclose self-addressed stamped envelope, please.)

All orders from individuals must be prepaid in US Funds drawn on a US Bank. Foreign orders include 20% surcharge for handling.

Name _____

Address _____

Zip Code _____