The School District of Philadelphia

Ergonomics Program

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I. Policy

The purpose of this program is to protect all School District of Philadelphia employees from work-related musculoskeletal disorders (WMSD) disorders including cumulative trauma disorders and overexertion injuries. It is the policy of ***SDP*** to utilize sound ergonomic principles to provide a process for preventing the occurrence of WMSD and their precursors.

II. Definitions

Ergonomics: the field of study and practice relating to the *matching* of the *physical and psychological demands* of tasks or activities *with* the physical and psychological *capabilities* of people. From the Greek, the word "Ergo" means "work" and "nomus" means "natural law". Ergonomics literally means the laws of the science of work.

Work-related musculoskeletal disorder (WMSD): An injury or an illness of the muscles, tendons, ligaments, peripheral nerves, joints, cartilage (including intervertebral discs), bones and/or supporting blood vessels in either the upper or lower extremities, or back, which is associated with musculoskeletal disorder workplace risk factors and which is not the result of acute or instantaneous events (e.g., slips or falls).

Cumulative trauma disorders (CTD): refers to a category of physical signs and symptoms due to **chronic** musculoskeletal injuries where the antecedents (causes) appear to be related to some aspect of **repetitive work.**

Overexertion Injuries: injuries arising from a specific event where the physical demands of a task exceeded the physical capabilities of a person attempting to perform that task.

Discomfort Survey: a survey that records the level of comfort or discomfort felt by individuals in the performance of work tasks. These surveys typically record the level of discomfort by body part affected.

III. Procedures

This section describes the main elements of the SDP ergonomics program. The process that follows contains five primary components, namely:

- Accident and related data analysis,
- Worksite analysis,
- Hazard prevention and control,
- Medical management,

- Training and education.

All of the steps must be taken to complete the process, typically starting with the accident and related data analysis. The sequence of the steps following this first step may vary.

A. Accident and Related Data Analysis

1. MSD Occurrence: Whenever a musculoskeletal disorder occurs, a process must be initiated to identify workplace ergonomic risk factors that may be present. Table W-1: Basic Screening Tool, that appears in Appendix B, should be used for this purpose.

2. If Table B indicates the presence of the risk factor in the manner required to pass the screen, then either a quick fix must be made or a Job Hazard Analysis performed.

3. Injury and illness data and worker's compensation information, will be reviewed annually by the Safety Officer for evidence of WMSD. This data will be shared on an annual basis with Supervision and the Safety Committee, if in place and others deemed appropriate.

4. Apparent trends will be analyzed and corrective action initiated where warranted.

5. Where the precursors (those conditions that precede and are likely to lead to) of WMSD exist, discomfort surveys (Appendix D) may be considered for use. These surveys can help to prevent the progression of conditions from discomfort to pain and injury/illness. This is a tool that should be used only after discussion with the Safety Officer.

B. Worksite Analysis

a. A program for conducting of baseline screening surveys will be implemented upon activation of this policy, and whenever the physical requirements of surveyed jobs change. These surveys will be performed for those jobs where there are suspected ergonomic risk factors likely to lead to WMSD or the presence of confirmed presence of WMSD.

b. An Ergonomic Job Hazard Analysis (JHA) will be performed for jobs that are identified to place employees at high risk of developing WMSD based on Table W-1: Basic Screening Tool.

c. The JHA will be performed by trained and qualified individuals with a JHA tool appropriate to the WMSD. The checklist should include both WMD risk factors and weighting criteria. Appendix A contains an Office Workstation Ergonomics checklist. Appendix B contains Ergonomic JHA forms and information.

d. The reporting of ergonomic hazards will be encouraged by supervisors and administration. It is recognized that in many cases the most practical solutions to ergonomic problems related to a job are offered by those most familiar with that job.

C. Hazard Prevention and Control

1. Where feasible, ergonomic hazards will be eliminated through engineering controls such as job design modification or through work practice modification.

2. Equipment purchases will be made with due consideration given to the potential for the ergonomic hazards. The supervisor, with input from the safety officer, will be responsible for purchasing ergonomically sound equipment and promoting safe use of the equipment by employees.

D. Medical Management

1. Medical evaluation is available on request to any employee and is provided when there are employee complaints of symptoms or disorders. Evaluation will be completed at the designated medical provider.

2. WMSD are covered through the provisions of Workers' Compensation as required by the Pennsylvania Workers' Compensation Act and The School District of Philadelphia.

3. The use of back, wrist, and other supports is only advised when recommended by physicians treating individuals for a medical condition. These devices not currently recognized as effective for the prevention of WMSD except for use with individuals who are already suffering some physical impairment. Any additional use of supports or equipment is voluntary.

E. Training and Education

1. Employees will be provided Ergonomic Awareness training both initially, upon employment, and annually thereafter. The training will address ergonomic risk factors associated with the development of WMSD, signs and symptoms of WMSD, methods of prevention, the availability for medical evaluation and treatment, and reporting procedures.

IV. Responsibilities

A. Employees

1. Report concerns regarding ergonomic hazards to the supervisor.

2. Perform assigned duties in a safe manner, utilizing sound principles of body mechanics, as they relate to the tasks, along with the designated equipment and work practices as reviewed in trainings.

B. Management/Supervisor

1. Assist the Safety Officer or a qualified designate in performing screening surveys with ergonomic checklists for all job functions with their area of responsibility.

2. Encourage employee reporting of ergonomic hazards and suggestions for methods to eliminate or reduce the hazard.

3. Assure their employees receive the appropriate training. Appropriate training materials will be provided by The Safety Officer or assigned designates.

4. Make ergonomics principles and practices an integral part of ***The School District of Philadelphia*** Safety Policy/Program.

C. Safety Officer

The primary focus of the Safety Officer regarding ergonomics is to determine and respond to the need for corrective action. The following individual activities allow for the satisfactory completion of this responsibility:

1. Conduct and direct the investigation of specific injury and illness cases.

2. Serve as the primary resource for implementation of ergonomic principles and practices through training materials.

3. Perform Ergonomic Job Hazard Analyses for jobs that place employees at high risk of developing WMSD, based on the screening tools used.

4. Assist with determining the suitability, and safe working condition of equipment.

V. Appendices

Appendix A: Office Workstation Ergonomics Checklists

Appendix B Ergonomic Risk Assessment Forms

Appendix C Hazard Prevention and Control Checklists

Table 1: Office Workstation Ergonomics Signs and Solutions

Table 2: Office Workstation Ergonomics Source or Products

Table 3: Partial Listing Ergonomic Workstations – Office Suppliers of Products and Services

Appendix D Discomfort Survey

Appendix E Self Evaluation Checklist

Appendix A

Office Workstation Ergonomics Checklist

This checklist is intended to serve as an aid in the assessment of the presence of risk factors that may, with significant length of exposure and severity, cause problems. It is a starting point in a process of incident data analysis, assessment, prevention, and review.

WORKING CONDITONS **The workstation is designed or arranged for doing computer tasks so it allows the employee's:**	**YES**	**NO**
A. Head and **neck** to be about upright (not bent down/back).		
B. Head, neck, and **trunk** to face forward (not twisted).		
C. Trunk to be about perpendicular to floor (not leaning forward/backward).		
D. Shoulders and **upper arms** to be about perpendicular to floor (not stretched forward) and relaxed (not elevated).		
E. Upper arms and **elbows** to be close to body (not extended outward).		
F. Forearms, wrists, and **hands** to be straight and parallel to floor (not pointing up/down).		
G. Wrists and **hands** to be straight (not bent up/down or sideways towards little finger).		
H. Thighs to be about parallel to floor and **lower legs** to be about perpendicular to floor.		
I. Feet to rest flat on floor or be supported by a stable foot rest.		
J. VDT tasks to be organized in a way that allows employee to vary VDT tasks with other work activities, or to take micro-breaks or recovery pauses while at the VDT workstation.		
SEATING **The chair:**	**YES**	**NO**
1. Backrest provides support for employee's lower back (lumbar area).		
2. Seat width and **depth** accommodate specific employee (seat pan not too big/small).		
3. Seat front does not press against the back of employee's knees and lower legs (seat pan not too long).		
4. Seat has cushioning and is rounded/has "waterfall" front (no sharp edge).		
5. Armrests support both forearms while employee performs VDT tasks and do not interfere with movement.		
KEYBOARD/INPUT DEVICE **The keyboard/input device is designed or arranged so that:**	**YES**	**NO**
6. Keyboard/input device platform(s) is stable and large enough to hold		

keyboard and input devices.		
7. Input device (mouse, trackball, etc.) is located right next to keyboard so it can be operated without reaching.		
8. Input device is easy to activate and shape/size fits hand of specific employee (not too big/small).		
9. Wrists and **hands** do not rest on sharp or hard edges.		

MONITOR **The monitor is designed to arranged so that:**	**YES**	**NO**
10. Top line of screen is at or below eye level so employee is able to read it without bending head or neck down/back. (For employees with bifocals/trifocals, see next item).		
11. Employee with bifocals/trifocals is able to read screen without bending head or neck backward.		
12. Monitor distance allows employee to read screen without leaning head, neck or trunk forward/backward.		
13. Monitor position is directly in front of employee so employee does not have to twist head or neck.		
14. No glare (e.g., from windows, lights) is present on the screen which might cause employees to assume an awkward posture to read screen.		
WORK AREA **The work area is designed or arranged for doing VDT tasks so that:**	**YES**	**NO**
15. Thighs have clearance space between chair and VDT table/keyboard platform (thighs not trapped).		
16. Legs and **feet** have clearance space under VDT table so employee is able to get close enough to keyboard/input device.		
ACCESSORIES	**YES**	**NO**
17. Document holder, if provided, is stable and large enough to hold documents that are used.		
18. Document holder, if provided, is placed at about the same height and distance as monitor screen so there is little head movement when employee looks from document to screen.		
19. Wrist rest, if provided, is padded and free of sharp and square edges.		
20. Wrist rest, if provided, allows employee to keep forearms, wrists and hands straight and parallel to ground when using keyboard/input device.		
21. Telephone can be used with head upright (not bent) and shoulders relaxed (not elevated) if employees does VDT tasks at the same time.		
GENERAL	**YES**	**NO**
22. Workstation and equipment have sufficient adjustability so that the employee is able to be in a safe working posture and to make occasional changes in posture		

while performing work at their computer.		
23. Computer Workstation, equipment and accessories are maintained in serviceable condition and function properly.		
PASSING SCORE = "YES" answer on all "working postures items (A-J) and no more than two "NO" answers on remainder of checklist (1-23).		
NOTES:		

Additional Questions:

31. # of hours/day typing on keyboard: _____

32. # of hours/day performing other duties: _____

Employee Comments:

_____

_____

_____

_____

_____

Analyst's Comments (if different than employee's): _____

_____

_____

_____

_____

_____

_____

_____

_____

Note: Send a copy of the completed form to the Risk Management Department

Appendix B

ERGONOMIC RISK ASSESSMENT

INSTRUCTIONS

Objectives of the Assessment:

- Identify ergonomic risk factors associated with the performance of job assignments.
- Provide specific job/task information for further analysis and planning in application of sound ergonomic principles to control ergonomic risks/hazards.
- Establish a baseline for on-going ergonomic assessment, continuous workplace improvement and prevention of work related musculoskeletal disorders.

Methodology for Performing the Assessment:

Each assessment will be performed by the Safety Officer; or someone trained in performing ergonomic assessments.

The assessments will be completed through a process of: use of checklists, discussion with the employee supervisor and employees performing the job/task, observation and evaluation. In completing the MSD Ergonomic Risk Assessment the following documentation will be completed, or if previously completed, validated or updated:

- General Job Information – discuss with supervisor and validate through discussion with workers performing the job and job/task observation.
- Identification of Ergonomic Risk Factors – information required for completion will be obtained primarily through job/task observation and evaluation. This may involve the use of the general ergonomic risk factor checklist and support materials or other analytical tools. Assessment of occasional tasks or duties may require discussion with worker and simulation to complete the assessment components.

The School District of Philadelphia
[Enter Department Name Here]

ERGONOMIC RISK ASSESSMENT	
JOB TITLE:	ASSESSMENT DATE:
DIVISION/UNIT:	ASSESSMENT PERFORMED BY:
LOCATION:	EMPLOYEES INTERVIEWED:

GENERAL JOB INFORMATION:
WORK SCHEDULE (DAYS, HOURS, BREAKS):

JOB DESCRIPTION:

PRIMARY JOB TASKS/DUTIES:

OCCASIONAL (INFREQUENT) TASKS/DUTIES:

EQUIPMENT/TOOLS/DEVICES:

Appendix C

Table 1
Office Workstation Ergonomics
Signs and Solutions

This table was developed to assist in finding solutions to common office workstation ergonomics problems. It is customized to handle departmental needs, providing information regarding products that are available for purchase. Prior to purchasing any equipment, try adjustment of existing workstations. The references in the solutions section correspond with the source of the products in Table 2.

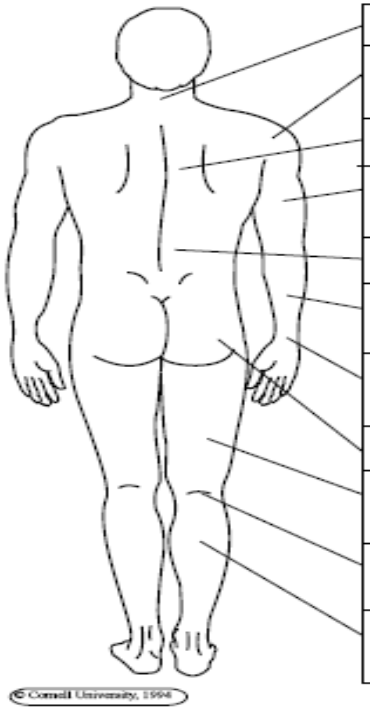
Signs of Possible Problems	Solutions
Prolonged holding of elevated shoulder while holding the phone	Telephone headset 1
Elbows splayed out (shoulder abduction)	Lower work surface 2 Lower chair armrests 2 Bring chair armrests in closer 3
Elevated or tensed shoulders	Habit or tension training Lower work surface or keyboard 2 Lower chair armrests 3 Raise chair (keep floor alignment)
Twisting the head to the side	Bring viewed item closer to centerline of view 4
Elbow flexed or shoulder raised for long periods using the telephone	Telephone headset 1
Elbow or forearm resting for long periods on hard or sharp work surface, chair armrests	Pad or round surfaces, corners, and armrests 5 Habit training
Wrists bent to the sides when using side keys	Habit training Different keyboard with more accessible keys or split keyboard design 6
Wrists bent back (extended), forward (flexed) for prolonged periods	Habit training Wrist rest 7 Lower, raise, or change slope of the keyboard 2
Wrists or palms resting for long periods on hard or sharp keyboard or work surfaces	Habit training Wrist rest 7 Padded or rounded surfaces, corners 5
Hands held actively over the keyboard during key pauses	Habit training Wrist rest 7

Signs of Possible Problems	Solutions
Reflected glare on the screen	Shield light sources 8 Shade screen 9 Rearrange work area Lower light levels Move light sources
Too much contrast between screen and surroundings or document; worker feels relief when bright areas are shielded	Lower ambient light levels Turn off or dim task lights
Very bright ambient lighting (above 500 lux or 50 fc) or shadowed areas caused by over illumination	Lower ambient light levels to 20-500 lux (20-50 fc)
Monitor closer than approximately 40 cm (16 in.)	Habit training Push monitor back Computer glasses Bring keyboard forward, possibly with a keyboard tray 2
Different viewed objects (screen, documents) at different distances from the eyes	Use document stand, or otherwise equalize distances to within about 10 com (4 in.) 4
Screen or documents not oriented perpendicular to the line of sight	Change monitor and/or document stand angle 10
Prolonged near-focusing throughout the day with few far-focusing opportunities	Habit training Rearrange space to provide view Introduce glazing
Monitor image dim, fuzzy, flickery, small, or otherwise difficult to read	Adjust monitor Upgrade monitor Use software to enlarge image
Shiny, low-contrast, or small-print documents	Adjust monitor Improve lighting on documents if documents cannot be changed 11
Forward positions of the head (peering) or squinting	Check for monitor image quality problems or monitor distance Suggest consultation with vision specialist
Eyestrain complaints	Check all aspects of visual environment Check monitor adjustments 10 Suggest consultation with vision specialist
Neck extended backwards, head tilted back, even slightly	Lower monitor 10 Remove CPU 12 Check for bifocals and suggest full-frame “computer glasses” prescription

Signs of Possible Problems	Solutions
Neck flexed (downward)	Raise document or monitor to a comfortable height 4, 10 Adjust posture Habit training Check glasses
Lumbar back area not supported	Lumbar cushion 13 Backrest height and tilt 14 Check chair fit
Feet dangling, not well-supported, or a posture that seems to put pressure on the backs of the thighs	Lower chair Lower work surface Habit training Footrest 15
Chair backrest not used for long periods	Check chair fit Habit training
Twisted torso	Rearrange work Provide more knee space U-shaped work surface Swivel chair 3, 14
Frequent or prolonged leaning or reaching	Rearrange work Mouse pad armrest 2, 17 Bring mouse and keyboard to body
Abducting the shoulder to reach mouse or keyboard	Bring keyboard closer to body Mouse pad armrest 2, 7 Bring closer to keyboard
Light sources that can be seen by the worker	Shield light sources 8 Rearrange work area

Appendix D – Discomfort Survey

The diagram below shows the approximate position of the body parts referred to in the questionnaire. Please answer by marking the appropriate box.



	During the last work week how often did you experience ache, pain, discomfort in:					If you experienced ache, pain, discomfort, how uncomfortable was this?			If you experienced ache, pain, discomfort, did this interfere with your ability to work?		
	Never	1-2 times last week	3-4 times last week	Once every day	Several times every day	Slightly uncomfortable	Moderately uncomfortable	Very uncomfortable	Not at all	Slightly interfered	Substantially interfered
Neck	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Shoulder (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Shoulder (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Upper Back	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Upper Arm (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Upper Arm (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lower Back	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Forearm (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Forearm (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Wrist (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Wrist (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hip/Buttocks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Thigh (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Thigh (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Knee (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Knee (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lower Leg (Right)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Lower Leg (Left)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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COMPUTER WORKSTATION SELF-EVALUATION

This self-evaluation checklist is proper for only preventative situations. In any situation where an injury or symptoms are already being experienced; your supervisor and a healthcare professional should be contacted for appropriate follow-up. If you cannot correct the identify deficiencies on your own, contact your School District of Philadelphia Risk Control Consultant or safety/ergonomics person for assistance.

Keyboard and Mouse		Okay
Keyboard height	Adjust keyboard height so arms and forearms are at right angles or slightly greater and forearms and hands form straight lines.	
Key board-to-user distance	Keyboard to-user-distance should allow user to relax shoulders with elbows hanging close to body.	
Keyboard slope	Position keyboard flat or slightly negatively sloped.	
Mouse-to-user distance	Mouse should be directly next to keyboard.	
Mouse height	Adjust mouse so it is close to and on the same level as the keyboard.	
Chair		
Seat height	Adjust seat height so feet are flat on the floor or footrest, knees are bent at right angles and thighs are horizontal to the floor.	
Seat back	Adjust seat back so it supports the lumbar curve of the low back.	
Seat pan depth	Adjust seat pan depth so the front edge of the seat is about 2”-4” From the back of the knees.	
Seat pan tilt	Adjust seat pan tilt so hips and tops of thighs are at right angles or slightly greater.	
Armrest position	Adjust armrest so that they are out of the way while typing, but may provide support during other activities (i.e. phone use, meetings, etc.)	
Monitor		
Monitor height	Adjust monitor height so top of screen is at or slightly lower than eye level.	
Screen-to-user distance	Viewing distance is approximately arms distance away (18”-24”)	
Monitor alignment with user	Monitor and keyboard should be placed directly in front of the user	
Visual comfort of screen	Monitor should be positioned to avoid glare (perpendicular to window with strong light source).	
Work Environment and Work Surfaces		
Leg clearance at workstation	Width = 2” + hip width, height = Highest point of thighs or higher, depth = Allows proper sitting position while giving foot and knee clearance.	
Placement of frequently used items	Keep frequently used items (i.e. phone) close at hand.	
General task Lighting	Ensure lighting is not direct or overly bright	
Work Practices		
Frequency of micro breaks	Get out of chair at least once per hour, micro break every 20 minute with 20 seconds of stretching.	
Keyboarding posture	Keep wrist straight, avoid supporting wrists on any surface while typing	
Sitting posture	Upright or slightly reclined, maintain slight hollow in the lower back.	
Phone posture	Avoid tilting head/neck to cradle phone. Use hand to hold or wear a headset.	
Alternate tasks	Break up long periods of continuous computer use by performing small tasks/errands.	

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CHECKLIST for a User-Friendly Workstation		
1	√	Top of screen at eye level; lower for bifocal wearers.
	√	Screen distance at arm's length (18"-24").
2	√	Document holder adjustable to screen height or in line between keyboard and monitor.
3	√	Chair backrest provides firm lower back support.
	√	Chair back and seat easily adjustable for height and tilt by user.
4	√	Keyboard height promotes relaxed arms with forearms parallel to the floor.
5	√	Wrist straight (neutral).
	√	Padded, movable palm rest, same height as keyboard home row, if needed.
6	√	Thighs parallel to the floor.
	√	Ample legroom under work surface.
7	√	Feet rest firmly on the floor or foot rest.