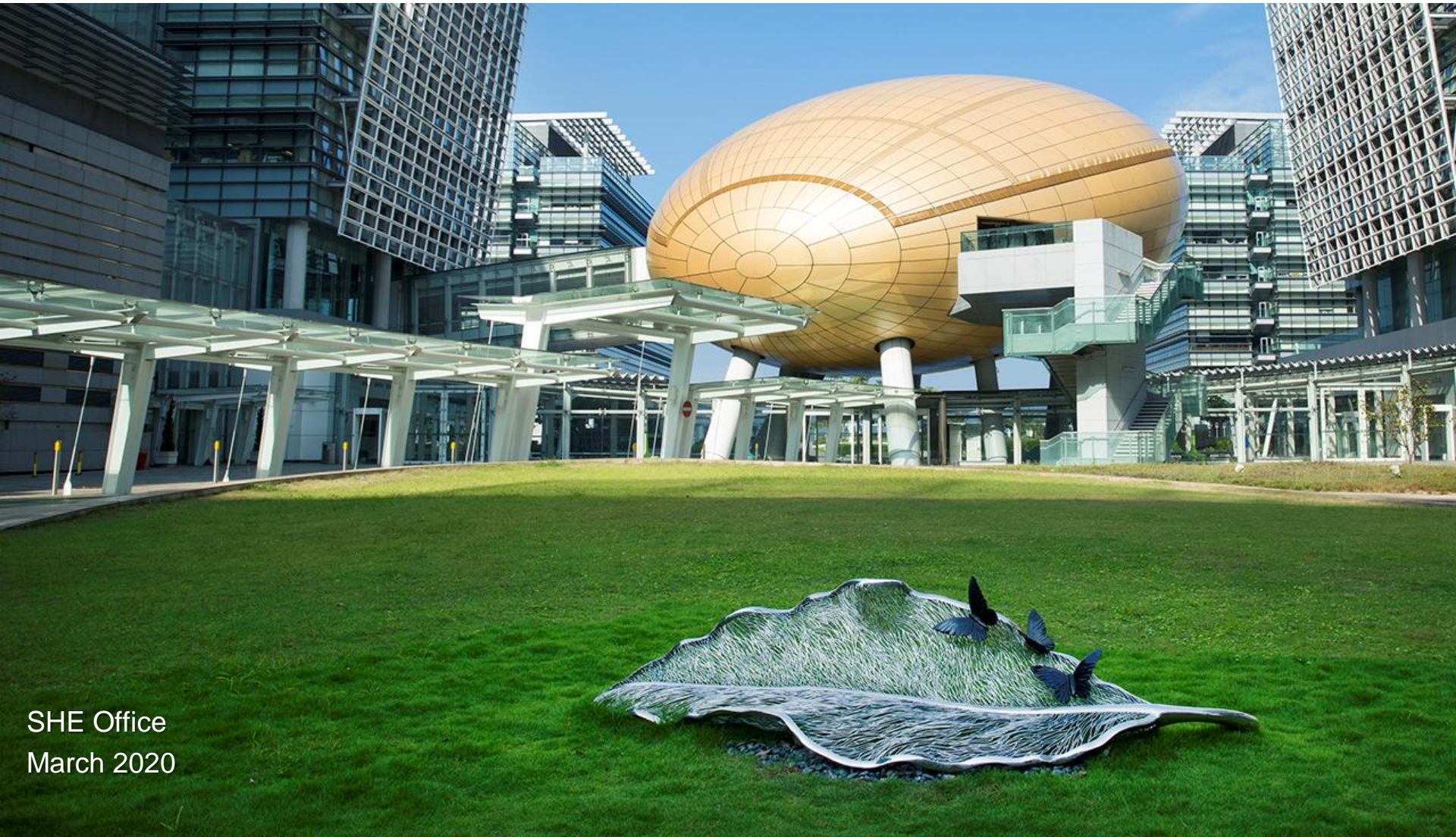


# Online Training for Display Screen Equipment (DSE) Users



SHE Office  
March 2020

# Course Content

- Part 1 – Introduction of Display Screen Equipment (DSE) & Legislative requirements
- Part 2 – Health effects associated with DSE work
- Part 3 – Prevention and Control of Risk

## Part 1

# Introduction of Display Screen Equipment (DSE) & Legislative requirements

# Introduction of Display Screen Equipment (DSE)

- Display screen equipment – any display screen which shows letters, numbers, characters or graphics, regardless of the display process involved.

# Introduction of Display Screen Equipment (DSE)

- Excludes:
  - Portable systems not in prolonged use;
  - Display screen equipment that is mainly to show pictures, television or films;
  - Display screen equipment on board a means of public transport;
  - Drivers' cabs or control cabs for vehicles or machinery;
  - Calculators, cash registers or any equipment having a small data or measurement display required for direct use of the equipment
  - Window typewriters;

# Introduction of Display Screen Equipment (DSE)

- Workstation – an assembly comprising
  - display equipment;
  - Any chair, desk, work surface, printer, document holder or other item peripheral to the display screen equipment; and
  - The immediate working environment around the display screen equipment.

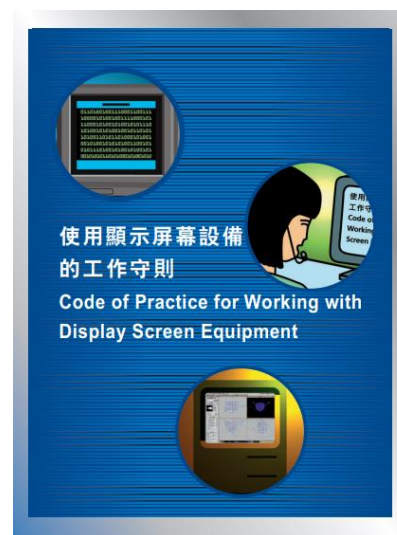
# Introduction of Display Screen Equipment (DSE)

- User – an employee who, by reason of the nature of his work, is required to use display screen equipment for a prolonged period of time almost every day:
  - **Continuously** for at least **4 hours** during a day; OR
  - **Cumulatively** for at least **6 hours** during a day.

Break **not exceeding 10 minutes** in an hour **away from** the display screen equipment shall **not** be regarded as breaking the continuity of use of the display screen equipment

# Legislative requirements

- Occupational Safety and Health Ordinance (Cap 509)
- Occupational Safety and Health (Display Screen Equipment) Regulation (Cap 509B)
- Code of Practice for Working with Display Screen Equipment



# Legislative requirements – Risk Assessment

- Occupational Safety and Health (Display Screen Equipment) Regulation (Cap 509B)
  - Risk Assessment
    - The person responsible for a workplace is required to perform a **risk assessment** of a workstation in the workplace:
      1. The person responsible for a workplace has reason to believe that there has been a significant change in the conditions of a previous assessment;
      2. A **significant change** in a workstation.
    - Retain the risk assessment report for a period of **at least 2 years** after that workstation ceases to be used by any user
    - Provide the record of risk assessment for inspection, upon request by an occupational safety officer

# Legislative requirements – Risk Assessment

- Risk Assessment shall consist of a process of:
  - Identifying and assessing the risks to the safety and health of users of a workstation;
  - Deciding whether existing precautions are adequate; and
  - Recording the findings

## Legislative requirements – Users to co-operate with responsible

- User of a workstation in workplace shall, so far as reasonably practicable:
  - Conform to any system of work and work practice that the person responsible for the workplace has established;
  - Comply with any risk reduction measure taken.

## Legislative requirements – Offences

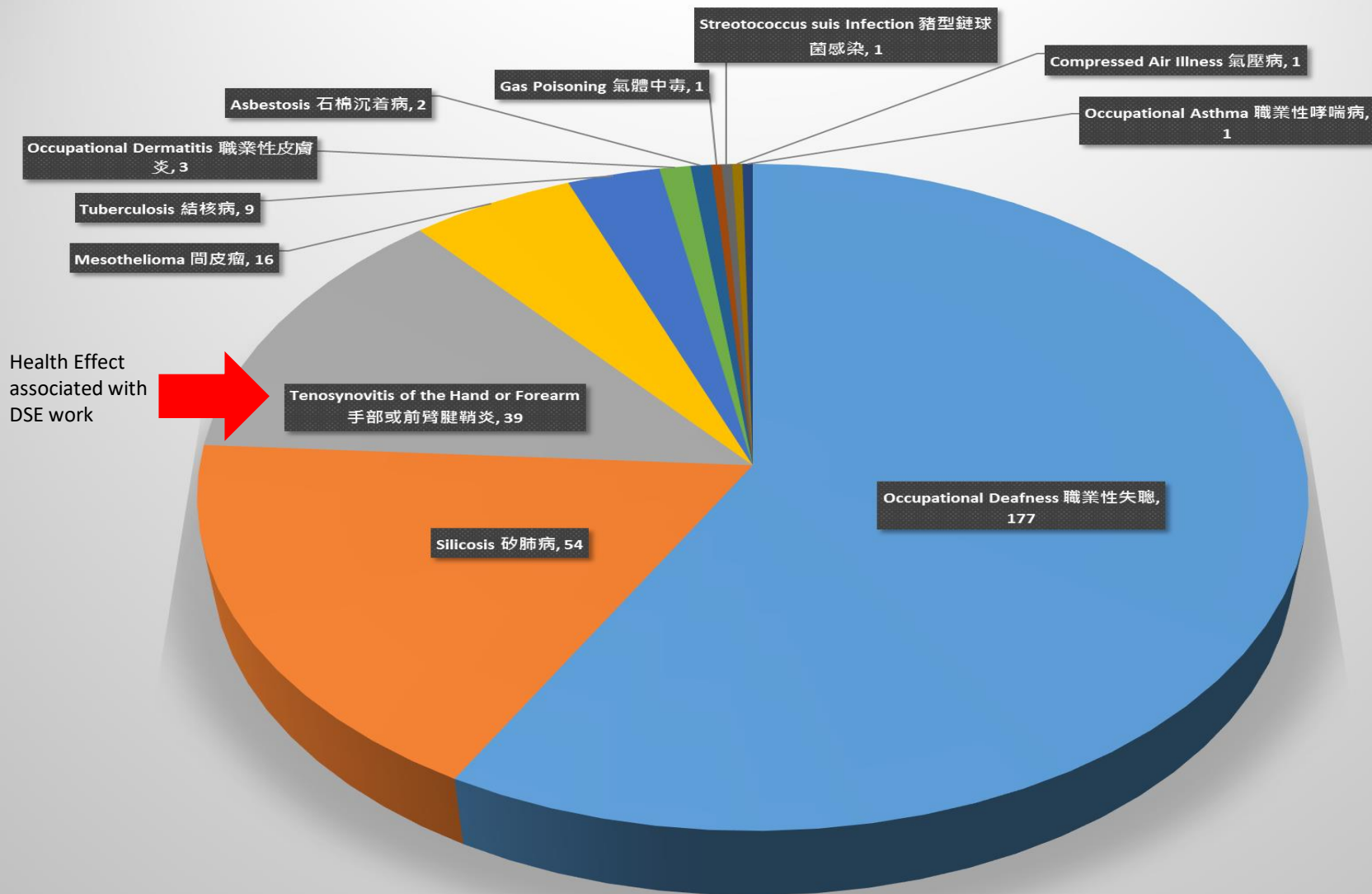
- Employer / person responsible for a workplace
  - Maximum fine of HK\$ 50,000
- User
  - Maximum fine of HK\$ 10,000

## Part 2

# Health effects associated with DSE work

# Health Effects Associated with DSE Work

Number of Confirmed Occupational Diseases in 2017



# 手腕前臂腫痛 應速治療

# 長期用電腦 患腱鞘炎大增

白領一族長期伏案對着電腦工作，容易因長時間維持同一工作姿勢，導致「頸梗肩痛」，甚至患上手部或前臂腱鞘炎。本港每年錄得二百多宗需呈報的職業病中，腱鞘炎便佔了近三成，超越矽肺病及職業性失聰，成為本港最常見的職業病。職業健康專家提醒，應該及早求診，以免惡化。

衛生署的職業健康專家在最新一期公眾健康及流行病學期刊，分析了本港職業病的新趨勢，結果發現由雙手經常重複同一動作引發的手部或前臂腱鞘炎，已成為本港最常見需呈報的職業病，去年個案達七十五宗，較前兩年的四十三宗及三十四宗大增；其次是矽肺病有六十八宗，職業性失聰個案則有六十宗。腱鞘炎的患者以文職人員為主，佔個案的兩成一，約一成六個案則是飲食業員工，家務助理患病風險亦增加，近一成患者是從事家居清潔工作的員工。

## 忽略設施擺位忍出病

糾正錯誤的工作姿勢可預防腱鞘炎，研究報告指出，很多白領也忽略了辦公室文書設施的擺放，寧願長時間忍受不舒適的工作環境，至忍出病來。專家建議一些簡單的用具，例如打電腦時使用文件夾，在電腦椅加設腳踏，在電腦鍵盤加上手腕承托等，均可減少手腕及前臂因過度勞損而患上腱鞘炎的風險。專家又建議將電腦輸入及其他文書工作交替進行，減低長時間使用電腦的機會。

都市人長期使用電腦令近年的腱鞘炎個案大增，患者因手腕及前臂的筋腱發炎，引起肌肉疼痛、抽筋、疲倦及無力等徵狀，病情較輕的患者可服消炎藥及止痛藥，嚴重則要接受物理治療，甚至動手術。勞工處的研究發現，腱鞘炎的患者多是四十至五十歲的文職人員，隨着近年愈來愈多兒童及青少年沉迷電腦，患者有年輕化趨勢。

另外，打工仔感染豬鏈球菌的個案亦有上升趨勢，因工作感染此致命惡菌的人數，由前年只有一宗，大幅增至六宗，患者主要從事廚師、屠宰場及處理生肉的工作。患者多數因雙手有未經處理的傷口，便直接與帶有豬鏈球菌的生豬肉接觸染病。專家指出，員工對感染惡菌的預防意識不足，需加強相關的宣傳及教育工作。

◆正確地使用電腦姿勢可預防手部或前臂腱鞘炎。



本港常見職業病個案

年份	手部或前臂腱鞘炎	矽肺病	職業性失聰
05	75	68	60
04	43	69	52
03	34	74	74
02	35	110	114

# Health Effects Associated with DSE Work

## Work-related Musculo-Skeletal Disorders

- Aches
- Temporary soreness
- Fatigue in limbs to chronic conditions
- Risk factors:
  - Keying-in-speed
  - Prolonged static posture
  - Awkward positioning
  - High workload and tight deadlines, lack of control over work, lack of rest breaks and job rotation



# Health Effects Associated with DSE Work

## Tendinitis (肌腱炎) / Tenosynovitis (腱鞘炎)

- The inner walls of the sheaths surrounding tendons contain cells that produce a slippery fluid which lubricates the tendon.
- With repetitive or excessive movement of the hand, the tendons or the tendon sheaths become abraded due to overuse.
- The lubrication system may not produce encourage fluid, or it may produce a fluid with poor qualities.
- Failure of the lubricating system creates friction between tendons and its sheath. Tendon becomes pain, swelling and inflamed.
- Some fibers, which comprise the tendon may flay away from the main body. Calcification may occur in those tendons.

# Health Effects Associated with DSE Work

## Visual Fatigue:

- Temporary visual fatigue leading to a range of symptoms like:
  - Impaired visual performance
  - **Red or sore eyes**
  - **Headaches**
- Risk factors:
  - Prolonged viewing the display screen without rest
  - Poor positioning of DSE
  - Poor legibility
  - Drifting or flickering on-screen images



# Health Effects Associated with DSE Work

- Muscle Fatigue and Mental Stress
  - Lack of control over the work
  - Repetitive and monotonous movement on the display screen



## Part 3

# Prevention And Control of Risk

# Hazard Control Measures of Using DSE in Office

- Ergonomic design of tasks
- Improving the equipment and layout of the workstation
- Improving work environment
- Improving work organization

# Video – Setting Up Office Workstation – Proper Use of Computers



Click on the picture to watch the video

# Safety Tips on Workplace

## Display Screen

- Clear, sharp and steady image
- Adequate characters size, and with adequate spacing between the characters and the lines
- Brightness and contrast should be easily adjusted
- Screen should be easily swiveled and tilted to suit the needs of the operator
- Kept at a comfortable viewing distance at 350 – 600mm; the first line on screen is suitable at about or just below eye level



# Safety Tips on Workplace

## Keyboard, Mouse and Other Input Devices

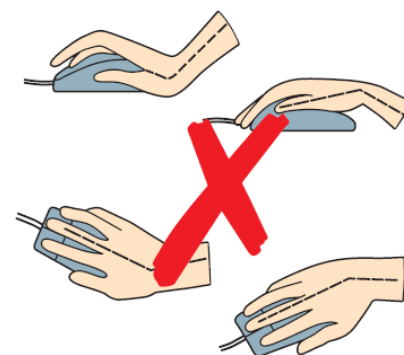
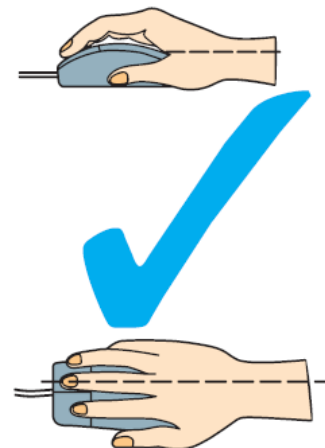
- Keyboard should be thin, **tiltable** and **detachable** from display screen
- Keyboard should be non-reflective
- Clear and easily recognized letters and symbols on the keyboard
- **Sufficient space** in front of the keyboard to support the hands
- Input devices should be **positioned at about the elbow level**
- Should be adjustable to a suitable inclination → wrist position is best kept straight or at most slight inclined ( $\leq 10^\circ$ )



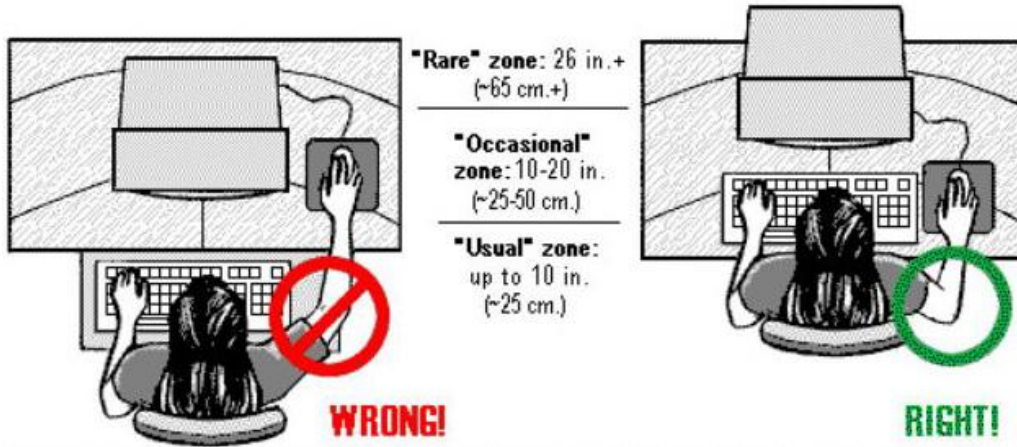
# Safety Tips on Workplace

## Keyboard, Mouse and Other Input Devices

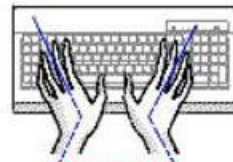
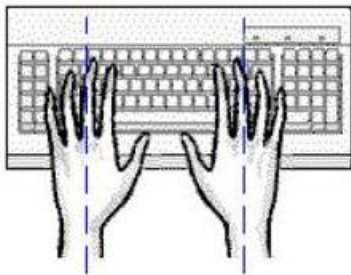
- If prolonged keyboard operation is required → use of wrist support is recommended
- **Avoid squeezing** the mouse or pressing the mouse buttons with excessive force;
- **Avoid bending the wrist** sideways and / or forward; and
- Perform mousing and the keyboard operation at the same height



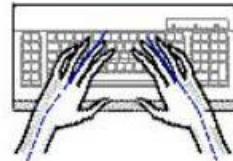
# Safety Tips on Workplace



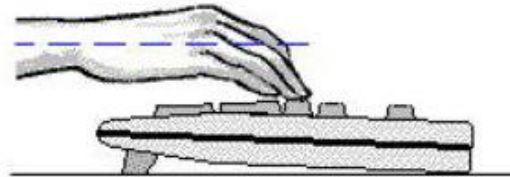
**RIGHT!**



**WRONG!**



**RIGHT!**



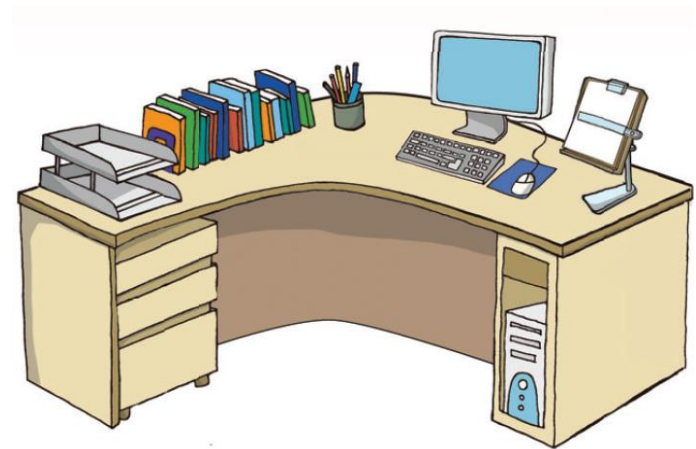
**WRONG!**



# Safety Tips on Workplace

## Work Surface

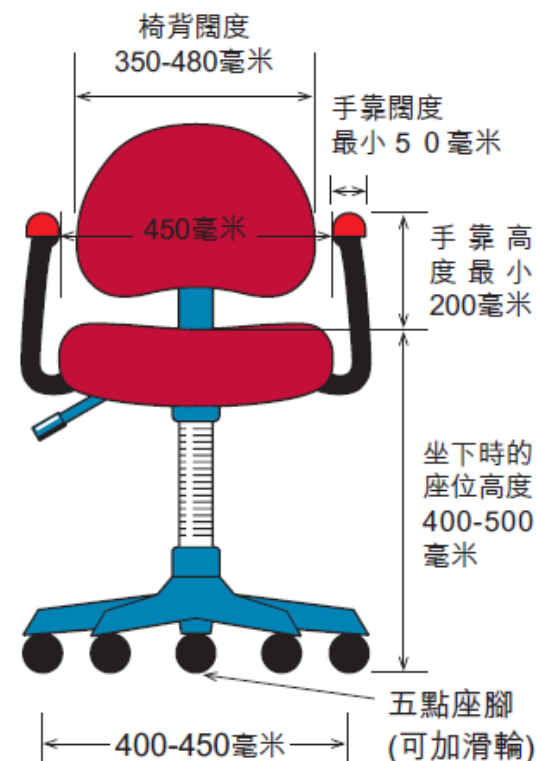
- Should be large enough to place the screen, input devices, e.g. keyboard, mouse, etc.
- Sufficient leg clearance should be kept under the work surface



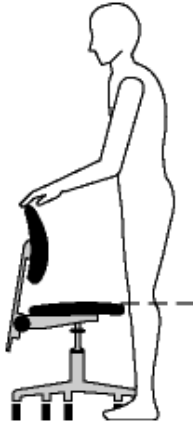
# Safety Tips on Workplace

## Chair

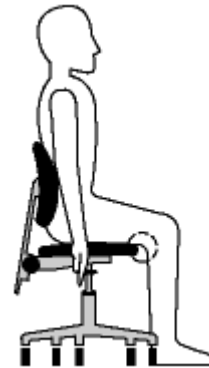
- Have a **stable base** (a five-pronged base) with smooth castors
- Adjustable in height (400 – 500mm above the floor)
- Backrest should be easily **adjustable in both height and tilt** to provide adequate support to the lower back
- Armrest should be positioned to facilitate keyboard operation
- Swivel seat
- Seat pan should be of appropriate hardness
- Front edge should be scrolled



# How to adjust office chairs



**Stand** in front of the chair. Adjust the height so the highest point of the seat, (when in the horizontal position), is just below the knee cap.



**Sit** on the chair and keep your feet flat on the floor. Check that the clearance between the front edge of the seat and the lower part of the legs (your calves) fits a clenched fist (about 5 cm or 2 inches).



Adjust the backrest of the chair so that it supports the curve in the lower back

# Safety Tips on Workplace

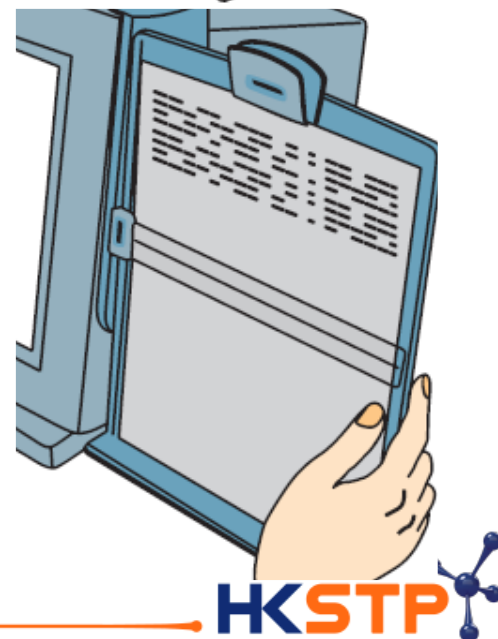
## Footrest

- Stable footrest should be made available to the user if the chair is too high for the feet to rest firmly on the floor



## Document Holder

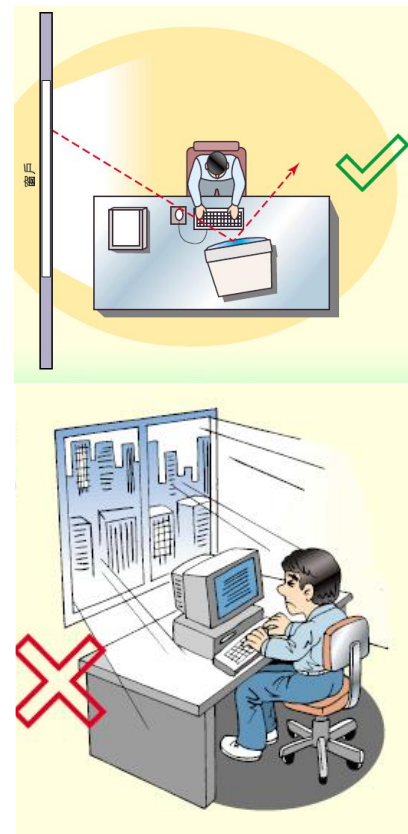
- To avoid awkward neck posture and movement, a stable and adjustable document holder should be used if you are required to read documents and enter data at the same time.

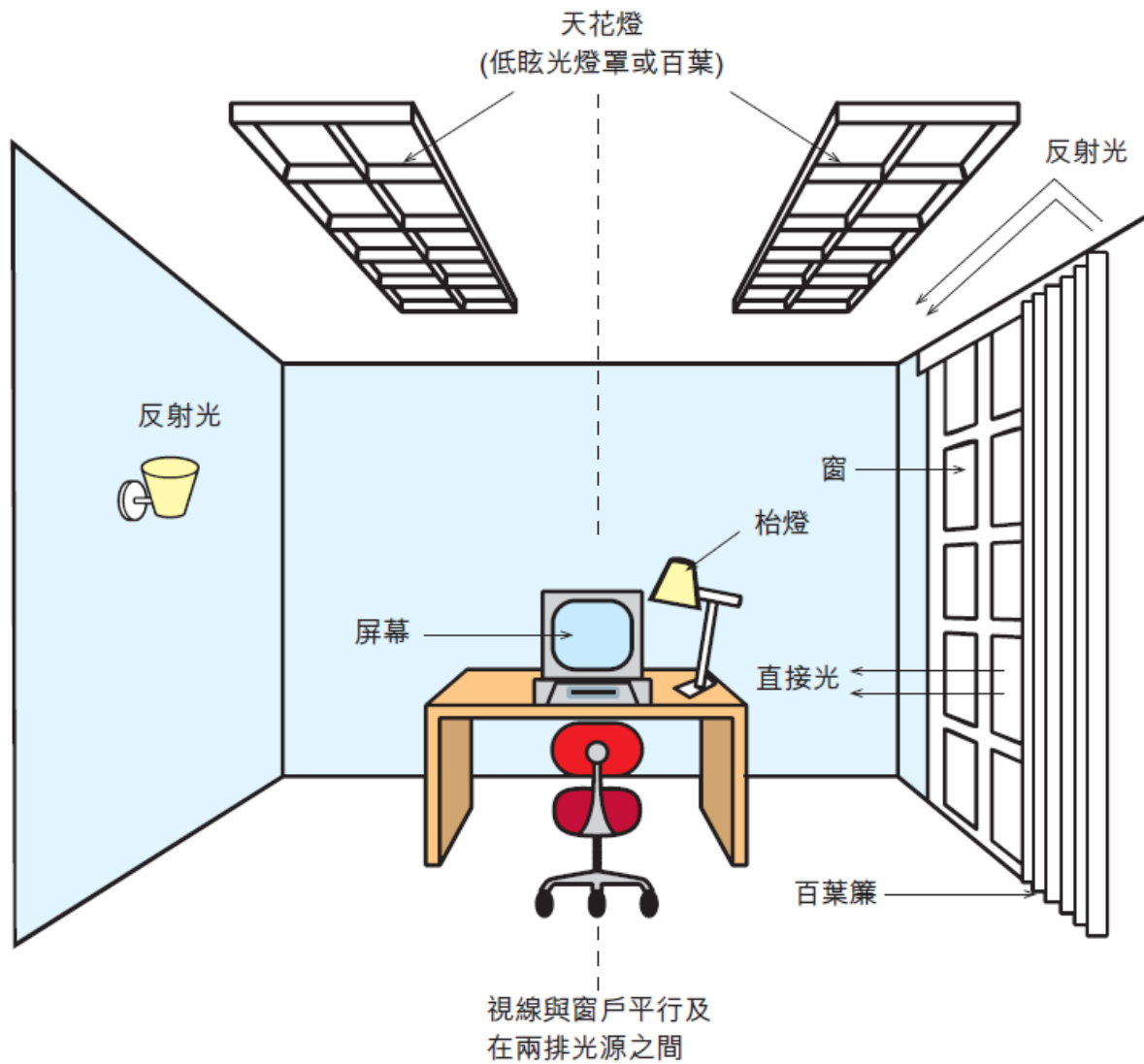


# Safety Tips on Workplace

## Luminance

- Suitable illumination for general office work ranges from **300 to 500 lux**.
- Avoid placing the screen directly under the light sources or close to window
- **Screen** should be **perpendicular** to the **light sources** and **windows**
- Installation of window blinds to prevent glare
- Using screen filter if the glare cannot be effectively eliminated by other means





建議的電腦工作台的照明安排

# Safety Tips on Workplace

## Noise

- For general computer work, a noise level below 60 dB(A) is optimal
- Noisy equipment (e.g. printer, photocopiers) should be located away from the DSE workstation or placed suitable barrier to reduce noise level

# Safety Tips on Workplace

## Suitable temperature and humidity

- Optimum temperature for office work is best kept at:
  - 23 - 26°C (in Summer)
  - 20 - 24°C (in Winter)

Relative humidity between 40 – 70%

## Safety Tips on Workplace

### Sufficient supply of fresh air

- Suitable ventilation should be provided to the workplace to ensure sufficient fresh air supply.

# Safety Tips on Workplace

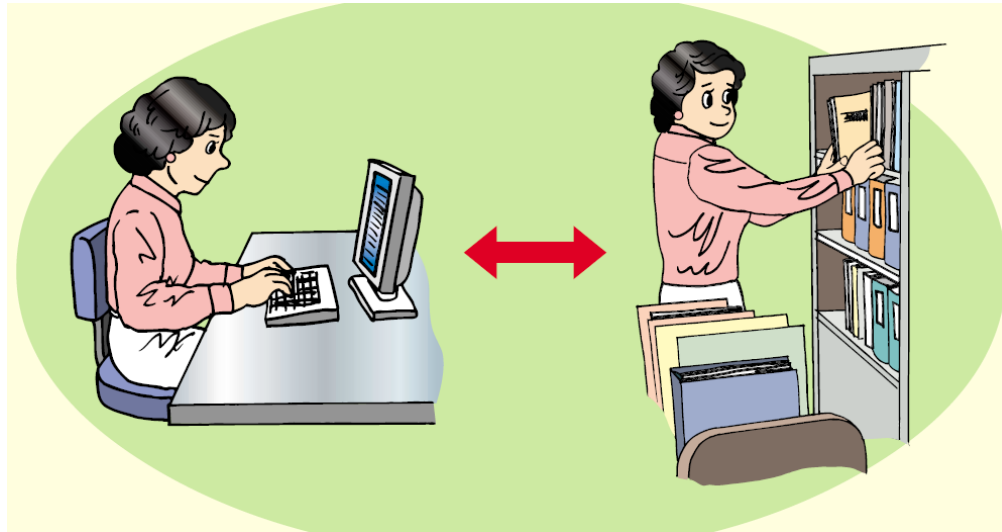
## Correct sitting posture

- Should have the back straight but allow no twisting at all
- The back rest should be capable of providing support to the back of operator in sitting position
- Periodic postural change is encouraged to facilitate blood circulation

# Safety Tips on Workplace

## Fatigue and stress problems

- By elimination of obvious workstation defects
- Good design of tasks
- Giving work control to workers over their work



# Safety Tips on Workplace

## Rest and break

- Non-statutory recommendation
- Activity break
- Short breaks of 5 to 10 minutes
- Longer breaks, e.g. lunch break

# Health Effects Associated with Using Laptops

- Neck or eye problems from trying to see the screen at an awkward angle
- Wrist and hand problems from bending your wrists to use the keyboard
- Shoulder or back problem from carrying the laptop, or from reaching too far to use it, or from using it extensively in an unusual posture



手提電腦顯示屏幕高度與使用者身型  
及理想視線高度不配合



鍵盤/滑鼠空間狹小有機會影響手腕關節

# Safety Tips on Using Notebook Computer

- Connect external monitor to laptop for extending the height of the monitor screen (for better monitor to user's eye-level match)
- Connect external input devices, e.g. keyboard and mouse to computer (for better keyboard / mouse to user's elbow level match)
- Use of wrist and / or mouse pad if necessary
- Use height adjustable swivel chair (for better seating to workstation height)
- Provide ergonomic carrying bag for taking laptop out of the office



## Video – Stretching Exercise



[https://youtu.be/vzk6\\_N9LMB8](https://youtu.be/vzk6_N9LMB8)

**Click on the picture to watch the video**

## Video – Stretching Exercise



<https://youtu.be/9UXeUjC-jCk?t=1>

**Click on the picture to watch the video**

## Video – Stretching Exercise



<https://youtu.be/riFCfo3nkTo>

**Click on the picture to watch the video**

## Reference

- [A Guide to Work with Computers](#)
- [A Health Guide on Working with Display Screen Equipment](#)
- [Final Report on Use of Notebook Computers and Related Ergonomics and Occupational Safety and Health Problems](#)
- [Risk Assessment of Office DSE](#)
- [Health and Safety Tips for Operation of Display Screen Equipment](#)