**Ergonomics in using pipettes - Points to Consider**



| **The Objective of this document** |
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| **Consider the points below when assessing the ergonomic hazards associated with pipette use and include them in your risk assessment (RA).**    The hazards listed and control measures proposed are indicative not comprehensive, if you identify other ergonomic hazards they must also be included in the RA and controlled. |

| **Hazard** | **Harm** | **Measures to control the risk of harm** |
| --- | --- | --- |
| **Task** Repetitive movements | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders)  Potential for Musculoskeletal injuries e.g. back pain | Work is planned to ensure there is appropriate time to complete the work, take breaks and vary tasks where possible.  Pipettes are not routinely used for long periods. Users plan their experiments to avoid repetitive pipetting for long periods.  During breaks from pipetting users undertake alternative tasks for 1-2 minutes.  Where necessary tasks are rotated amongst workers, to reduce exposure time.  Users adopt appropriate position, further advice is provided below.  Users regularly switch hands for pipetting, if possible. |
| **Task** Over-reaching | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders)  Potential for musculoskeletal injuries e.g. back pain | Where practicable users keep the pipette close to the body and arrange work area accordingly.  Times spent pipetting within microbiological safety cabinets or fume cupboards is kept to short bursts, as this can involve over-reaching.  All items not required for the task are removed from the work area.  Items required (such as solutions, tubes etc.) are arranged within reach so they can be reached without stretching. |
| **Individual** Lack of user training on good pipetting practice/ergonomics | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders)  Potential for musculoskeletal injuries e.g. back pain | User are trained on good pipetting practice/ergonomics by competent/experienced colleagues or attendance at accredited “pipette academy’s “arranged through pipette suppliers, e.g. [www.pipetteacademy.com](http://www.pipetteacademy.com) |
| **Individual** Lack of awareness of risk and early warning signs of health problems | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders)  Potential for musculoskeletal injuries e.g. back pain | Work is planned to reduce Potential for stress, as this may cause users to grip the pipette more tightly and muscles to become tense.  Users are advised to carry out stretch exercises occasionally in between pipetting periods. [Ref 1](#ref1)  Users are informed of how to recognise and report early warning signs. [Ref 2](#ref2)  Users adopt the most comfortable position to work in, either standing or sitting.  Users are provided with a selection of pipettes to try and select which design is comfortable for each individual to use.  When notified, [Line managers](http://documents.manchester.ac.uk/display.aspx?DocID=26242) will consider whether any reasonable adjustments are necessary to the work environment or equipment and whether further assessment or a referral to Occupational Health is required. |
| **Load/Equipment** Work tools/ equipment not suitable | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders)  Potential for musculoskeletal injuries e.g. back pain | Automatic dispensers or electronic pipettes are used, where possible, when undertaking extended periods of repetitive pipetting.  Where possible “light touch” pipettes are used, which require lower forces to depress, with finger aspirators and thumb dispensers. |
| **Load/Equipment** Work tools/ equipment not well maintained | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders)  Potential for Musculoskeletal injuries e.g. back pain | Pipettes are well maintained/serviced.  On-site service and calibration clinics are arranged through pipette suppliers. |
| **Environment** Excessively hot temperature can lead to sweating and loss of grip.  Cold/draughts can exacerbate muscle tension | Potential for stress/muscle tension leading to WRULDs (work related upper limb disorders) | Users to keep hands and forearms warm when pipetting (wear additional clothing, make sure room temperature is adequate).  All laboratory occupants are made aware of how to report concerns about poor environmental control: temperature/draughts etc. to Estates and Facilities. |
| **Environment** Space constraints or obstructions that correct use of pipettes | Potential for musculoskeletal injuries including WRULDs | Each work area is assessed to ensure that staff can work without obstruction.  Items are relocated or removed to ensure adequate work space. |

**Ref 1**

Stretches to help prevent WRULDs:

Stretching is essential for preventing injury. You should stretch your wrists before you start work, and when you take breaks throughout the day. Examples of stretches for wrists can be found [at this website](http://www.posturite.co.uk/posture-learning-resources/workstation-exercises/finger-wrist-forearm-stretches)

Note: If you already have symptoms of WRULD, improper stretching can be harmful. You should see a doctor before doing stretches.

**Ref 2**

Early warning signs of WRULD:

If users experience any pain, soreness, numbness, tingling in hands, wrists or forearms, or clumsiness they should report this as soon as possible to their line manager who should then make a referral to Occupational Health. A prompt referral is necessary, in order to prevent irreversible damage. [Line managers](http://documents.manchester.ac.uk/display.aspx?DocID=26242) should consider making initial adaptations to the individual’s work in the meantime depending on the severity of the symptoms.