滑鼠設計與操作之評估研究

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摘 要

滑鼠是現今必備的電腦輸入設備，但若是使用尺寸設計不良或不合適的滑鼠時，則可能會導致上肢肌肉骨骼的疾病，從過去相關的研究中可以發現肌肉骨骼傷害確實是電腦使用者常見的職業病。由於長時間的操作及不當的操作姿勢，往往會造成肌肉骨骼方面的傷害，尤其容易發生在手腕、手臂及頸/肩肌肉等部位，因此，有關這方面的問題都值得注意。 本研究主要透過實驗的進行，來探討不同高度、大小的滑鼠設計及腕靠的使用與否，在不同的作業型態(點選作業、拖曳作業)下，對於肌肉負荷、手指施力程度、操作姿勢、作業績效與主觀評量等應變項所造成的差異，以及造成這些差異的主要原因。另一則是探討在完成相同內容的作業下，使用點選或是拖曳這兩種滑鼠操作的基本動作，對上述的評量效標所造成的影響，並加以討論手掌大小所造成的差異，藉此討論出適合人們使用的型式，以求能降低對使用者的傷害。研究結果顯示，在本實驗所選用的三種不同高度滑鼠中，發現滑鼠的高度大約在3.5cm時，對手臂肌肉所造成的負荷最小。拖曳作業在屈指淺肌EMG訊號與手指施力程度上皆大於點選作業，表示以拖曳動作完成作業對手臂肌肉所產生負荷，會比使用點選動作的負荷還大。而搭配腕靠的使用反而會增長作業的時間。

關鍵詞 : MOUSE, ELECTROMYOGRAPHY (EMG), MUSCULAR LOAD, FINGER STRENGTH, WRIST DEVIATION

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