冷凍業肉品處理工作手套設計

林日淇、王安祥,張志宏

E-mail: 9126910@mail.dyu.edu.tw

摘 要

手套是人工作業中使用最普遍的手防護具，若使用不恰當或設計不良的手套時，則可能對手部造成莫大傷害。目前冷凍業肉品處理程序之剝骨與整型兩項作業，因依賴大量人力作業，故手套提供的功能亦格外重要。有鑑於該行業使用手套僅具備保護之用，絲毫未融入任何人因工程設計的基本準則，使作業人員在工作中飽嚐許多不便與痛苦。故針對此行業中傷害最嚴重之剝骨與整形兩項作業人員所使用手套作改良，應用人因工程學理與方法，主要對手套材質、尺寸與手部握持之穩定等重要因素予以重新設計。 研究方法除多方蒐集相關期刊與專利文獻，進行人因工程學理分析與評估外，更藉由問卷調查來蒐集工作現場職業傷害情形、工作人員對現行手套滿意度等資訊，一方面分析國內冷凍肉品處理業所遭遇傷害等問題，提供改善的重點；另一方面則依據現場蒐集之尺寸，設計製作符合人體工學的專業防護手套。製作完畢後分別送至工作現場與實驗室兩地評估測試；工作現場乃評估新設計手套使用之滿意度與工作績效，實驗室則以數種不同手部條件來比較最大握力績效與施力損失幅度。 工作現場調查方面，結果發現手部傷害多集中於雙手拇指、食指、中指與手腕等處，傷害種類以穿刺傷最為嚴重，對新設計手套較關切的功能則為防穿刺能力之加強。而新手套設計方面，以Spectra1000纖維為手套整體架構，並分別在各手指與接觸握柄之掌心部位黏貼防滑膠膜，以增加握持穩定性與抓握物件之能力；手腕則添加固定帶設計，旨在降低手套脫落之機會，尺寸則以現場男性人員的95%與女性95%為手套製作之規格。 至於新設計手套之評估研究上，研究結果顯示在工作現場方面，現場人員多認為新手套之手部活動能力、柔軟度、握持穩定度與舒適性等四項均較原先手套改善許多。而工作績效之衡量卻無顯著之改變。在實驗室施力績效評估方面，則發現新設計手套呈現之最大握力績效與握力損失幅度皆優於其他兩種手套組合。

關鍵詞 : 最大握力 ; 手套 ; 人因工程 ; 工作績效 ; 活動能力

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