

# Essay on general workstation environment-related observations

[Health & Medicine](#), [Stress](#)



## **Introduction**

On DATE, an ergonomic assessment was performed at the COMPANY pizza parlor in LOCATION. This assessment was performed due to numerous employee reports of musculoskeletal-based distress as well as observed opportunities to reduce common ergonomic-based stressors within the pizza removal process. Various human body postures/movements that were analyzed and which may eventually be referenced in this report include:

- fingers/thumb flexion
  
- shoulder horizontal adduction
  
- fingers/thumb extension
  
- cervical spine flexion
  
- hand pinch grip
  
- cervical spine neutral posture
  
- hand power grip
  
- cervical spine extension
  
- wrist flexion
  
- lumbar spine flexion
  
- wrist neutral posture

- lumber spine neutral posture
- wrist extension
- lumbar spine extension
- forearm pronation
- spine lateral flexion
- forearm supination
- hip horizontal abduction/adduction
- elbow flexion
- knee flexion
- elbow extension
- knee extension

### **Analysis of the Brick Pizza Oven Pizza Removal Process**

- \* The workstation is appropriately spaced, with sufficient room to permit employees to fully extend arms, elbows and shoulders.
- \* The workstation has appropriately padded flooring, and employees are encouraged to purchase slip-resistant shoes to prevent injury from falls.
- \* Pizza oven is placed at a reasonable height, allowing employees to insert/remove pizzas with ideal arm, hand and wrist flexion.
- \* The lighting within the pizza kitchen appears to be adequate, and the

temperature is sufficiently comfortable to accommodate active work around heat-generating equipment (e. g. pizza ovens).

\* Employees are encouraged to sit and take breaks during shift if orders are intermittent; time spent active at station is infrequent in most shifts.

\* Employees are encouraged to report musculoskeletal-based symptoms to their supervisor, though no formal injury reporting system is implemented.

### **Pizza Removal Process-Specific Observation Data**

\*The employee's task involves reaching below the pizza oven to grasp the paddle with her right hand, manually removing it from its alcove and inserting the paddle under the uncooked pizza; the employee then lifts the paddle up to the oven, inserts it, then slides the paddle out while leaving the pizza inside.

\* Apart from the workbench where the pizza is assembled, the oven and the paddle, the workstation has no other tools.

\* Posture of employee is typically standing with knees partly bent; head and neck are typically bent forward less than 20 degrees.

\* No hand, arm or whole body vibration was observed.

\* The employee's right upper extremity was observed performing the following:

\*Wide static pinch gripping of pizza handle occurring for greater than ten seconds at a

time while loading/unloading pizzas from oven

\* Moderate wrist deviation (0 to 20-degree range) occurs in the flexion, extension, ulnar

and radial directions while moving paddle from alcove, to bench, to oven, then to alcove

once more.

\* The employee's left upper extremity was observed performing the following:

\* Wide static pinch gripping of pizza handle after initial removal and placement of pizza

on handle, to guide handle into oven/out of oven

\* Moderate wrist deviation (0 to 15 degrees) occurs during the pizza insertion and removal process.

\* Hand and arm motions occurred every 30-60 seconds; arms were ideally positioned at elbow level, though elbows were bent up to 45 degrees away from body for more than four hours in a shift.

\* Pizza paddle lifted by back from alcove, weighs less than five pounds; employee bends forward up to 45 degrees without support when removing/replacing paddle. Lifting does not occur more than 20 times/hour. Only slight force is required to push or pull pizza/paddle, and pushing/pulling motion is minimal.

\* Wrists were bent less than 20 degrees 5-30 times/minute during shift;

## **Areas of Ergonomic-Related Concern**

- \* Task is extremely repetitive, as the exact same motion is performed for each insertion/removal of pizza.
- \* Low height of alcove for pizza paddle necessitates frequent and repeated bending of back at nearly 90-degree angle, creating potential for musculoskeletal stress on back and legs.
- \* Pizza paddle weighs more than two pounds (particularly when balancing pizza on paddle end), and is held in constant position for more than ten seconds in extremely wide pinch grip during each insertion/removal of pizza.
- \* There is constant pressure on legs and spine for more than two hours in each workday for employee working pizza station.

## **Recommendations**

- \* Develop and promote the use of an angled pizza handle which will a) minimize the contact-based forces on fingertips and tool, thus necessitating a shallower pinch grip, and b) reduce the extent of static loading which is created in the flexor muscles of the forearm.
- \* Promote the use of a pre- and post-shift stretching program which will minimize employee muscle stress and static loading.
- \* Promote the use of stools for coordinated sitting breaks during shifts, to create less stress on the legs and back during shifts.
- \* Create different alcove/holding station for pizza paddle more in line with pizza oven, to minimize injuries from repeated bending to take out/replace tool.
- \* Raise height of pizza oven slightly to permit adequate standing positions,

with less bending of the head or knees to look inside pizza oven, during pizza preparation process.