

## CASE STUDY – Food Serving

### TASK TITLE: Food Serving

<b>Task Description:</b>	<p>The Food Serving task occurs in a cafeteria-style environment. In this work situation, the employee typically stands behind a long service counter, which contains large heated stainless steel containers of food. Customers may request any combination of menu items from these containers. The employee serves the food onto a plate or “carry out” container using a combination of ladles, serving forks, scoops, tongs, or spatulas, and hands the plate to the customer. The customer then either places the plate on a cafeteria tray or carries the plate to the next station or check out. In this work situation, the food server’s task does not include preparation of grilled items but may include replacing large containers of food into the heated service counter and replacing food items on a salad bar. Refer to Case Study 5 - Cooking (Short Order Grill).</p> <p>Typical jobs in which the Food Serving task occurs can include (but are not necessarily limited to):</p> <ul style="list-style-type: none"><li>• Cafeteria</li><li>• Dining Hall</li></ul>
<b>Job Performance Measures Most Often Impacted by Food Serving:</b>	<p>Measure of work performance can include (but are not necessarily limited to):</p> <ul style="list-style-type: none"><li>• Speed of service/waiting time (in queue)</li><li>• Quality of Food Serving/presentation</li></ul>
<b>Typical Employee Comments about Food Serving:</b>	<p>Employees typically experience discomfort in the shoulders, wrists and back.</p> <p>The shoulders/neck and hand/ wrists/arms are the body areas that most commonly receive a “High” priority rating. The remaining body areas, with the exception of the head/eyes, are more likely to receive a “Medium” priority rating, or lower.</p>
<b>Suggested Level II Analysis:</b>	<p>Elemental Task Analysis, Dynamic Task Analysis, Biomechanical Lifting Analysis.</p>

**Shoulder/Neck**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
1. Reaching	<ul style="list-style-type: none"> <li>Food is too far away/food containers are too long</li> </ul>  <ul style="list-style-type: none"> <li>Ladles are too long. This causes reaching with the hand holding the bowl</li> <li>Counter is too high</li> </ul>	94. Provide appropriate handles <ul style="list-style-type: none"> <li>provide serving tools with longer handles; server should be able to scoop food from the far end of the container with a relaxed reach</li> </ul>	✓		low	low	low
		41. Move work piece closer to body <ul style="list-style-type: none"> <li>eliminate placement of self-service items in a center row; keep self-service items (which must be restocked) around the perimeter</li> <li>place high demand food items closest to server's primary work position</li> </ul>	✓		low	med	med
		149. Provide appropriate tools <ul style="list-style-type: none"> <li>provide shorter ladles for serving soup</li> </ul>	✓		low to med	med	med
		123. Raise the person <ul style="list-style-type: none"> <li>provide a stable platform to raise the person/make the platform as wide as the expected side to side movement of the server</li> <li>provide a temporary step for placing or replacing items into the serving counter or salad bar</li> </ul>	✓		low	med	med
			✓		low	med	med

**Shoulder/Neck (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>• Glass barrier/upper counter is too high to reach over for transferring plate to customer</li> <li>• Supplies are stored too high</li> </ul>	82. Provide adequate work space <ul style="list-style-type: none"> <li>• provide a “pass through” in the glass barrier – eliminate the need to reach over the top</li> </ul> 32. Lower the work piece/work surface <ul style="list-style-type: none"> <li>• bring materials down to a lower level</li> <li>• store smaller quantities of supplies in the work station</li> </ul>		✓	med	low	low
			✓	✓	low	low	med
					low	low	med
2. Arm forces: Repeated arm forces or holding/ carrying materials	<ul style="list-style-type: none"> <li>• Prolonged holding of plate while serving</li> <li>• Prolonged holding/carrying of full/replacement hot food containers</li> </ul>	11. Eliminate unnecessary tasks <ul style="list-style-type: none"> <li>• do not hold plate; place plate on service counter while dispensing food items</li> </ul> 48. Provide a cart <ul style="list-style-type: none"> <li>• transport large food containers on carts; lift the full container only after the empty container has been removed from the service counter</li> </ul>	✓		low	low	low
				✓	med	low	low
3. High speed, sudden shoulder movements	<ul style="list-style-type: none"> <li>• Rarely occurs</li> </ul>	N/A					

**Shoulder/Neck (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
4. Head/neck bent or twisted	<ul style="list-style-type: none"> <li>Inadequate head room/access to salad bar causes awkward postures while replacing food items</li> </ul>	82. Provide adequate work space <ul style="list-style-type: none"> <li>place popular items nearest the outside edge of the salad bar</li> <li>modify glass shields such that they may be removed or pivoted out of the way during food replacement</li> </ul>	✓	✓	low med to high	med med	med med

## Hands/Wrists/Arms

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
5. Bent wrists/repeated wrist movements or repeated forearm rotation	<ul style="list-style-type: none"> <li>Repeated or excessive use of ladles for serving soup or dispensing gravy</li> <li>Inappropriate tongs design can create awkward wrist postures</li> </ul>	11. Eliminate unnecessary tasks <ul style="list-style-type: none"> <li>transfer soup pots to self service area</li> </ul> 25. Increase task variety <ul style="list-style-type: none"> <li>avoid prolonged use of ladle by alternative work/serving positions with another employee</li> </ul> 77. Provide a tool with an appropriate handle angle <ul style="list-style-type: none"> <li>purchase a variety of tongs (e.g., straight handle-to-prongs design, 90 degree handle-to-prongs design, etc.)</li> </ul>		✓	high	low	high
			✓		low	low	low
			✓		low to med	low	low



**Hands/Wrists/Arms (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Lack of handles on food containers requires bent wrist grip</li> </ul>	147. Provide an appropriate container <ul style="list-style-type: none"> <li>add handles to current food containers</li> <li>purchase food containers with appropriate (and insulated) handles</li> </ul> 13. Encourage ergonomic work techniques		✓  ✓	med med to high low	low low low	low low low
6. Repeated manipulations with fingers	<ul style="list-style-type: none"> <li>Making sandwiches</li> </ul>	11. Eliminate unnecessary tasks <ul style="list-style-type: none"> <li>create a self-serve sandwich bar</li> </ul> 25. Increase task variety		✓	med to high low	med low	med med
7. Hyper-extension of finger/thumb or repeated single finger activation	<ul style="list-style-type: none"> <li>Excessive use of “ice cream” type scoop for dispensing food (e.g., mashed potatoes) involves a thumb operated trigger</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>use deep spoon to replace trigger-assisted “ice cream” type scoop</li> </ul>	✓		low	low	low

**Hands/Wrists/Arms (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Excessive use of “ice cream” type scoop for dispensing food (e.g., mashed potatoes) involves a thumb operated trigger (continued)</li> </ul>	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> <li>use spatula, water or other device (as appropriate) to remove food items that stick</li> </ul>	✓		low	low	low
8. Hand/grip forces	<ul style="list-style-type: none"> <li>Food containers are heavy and/or are difficult to grasp</li> <li>Serving tools require pinch grips</li> </ul>	131. Reduce weight of work piece <ul style="list-style-type: none"> <li>approach vendor regarding lighter weight containers</li> </ul> 94. Provide appropriate handles <ul style="list-style-type: none"> <li>add handles to current food containers</li> <li>purchase food containers with appropriate (and insulated) handles</li> </ul> 88. Provide an appropriate handle diameter <ul style="list-style-type: none"> <li>provide serving tools with larger grips; grips should be insulated or sized to compensate for the use of gloves</li> </ul>		✓  ✓ ✓  ✓	high  med med to high  low to med	low  low low  low	low  low low  low
9. High speed hand/wrist/arm movements or vibration, impact or torque to the hand	<ul style="list-style-type: none"> <li>Server technique/banging serving tool to remove food (e.g., removing grounds from espresso steamer, removing mashed potatoes from spoon)</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>provide serving tools with non-stick surfaces</li> </ul>		✓	med	low	low

**Hands/Wrists/Arms (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
10. Exposure to hard edges	<ul style="list-style-type: none"> <li>• Hard edge of handles</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>• provide serving tools with rounded surfaces</li> </ul>	✓		low to high	low	low
		94. Provide appropriate handles <ul style="list-style-type: none"> <li>• add handles to current food containers</li> <li>• purchase food containers with appropriate (and insulated) handles</li> </ul>		✓ ✓	med med to high	low low	low low
		88. Provide an appropriate handle diameter <ul style="list-style-type: none"> <li>• provide serving tools with larger grips; grips should be insulated or sized to compensate for the use of gloves</li> </ul>		✓	low to med	low	low
11. Hand and fingers exposed to cold temperatures	<ul style="list-style-type: none"> <li>• Metal handles on tools</li> <li>• Serving and stocking cold bar</li> </ul>	149. Provide appropriate tools <ul style="list-style-type: none"> <li>• provide tools with insulated handles</li> </ul>	✓		low to med	low	low
		25. Increase task variety	✓		low	low	low
		11. Eliminate unnecessary tasks	✓		low	low	low

## Back/Torso

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
12. Repeated forward or sideways bending movements	<ul style="list-style-type: none"> <li>Food containers on carts are too low</li> <li>Food items are too far away</li> </ul> 	83. Provide an adjustable height lift table	✓		low	low	low
		<ul style="list-style-type: none"> <li>eliminate placement of food containers (e.g., salad bar containers) on lower level of carts; use only the top level</li> </ul>					
		94. Provide appropriate handles	✓		low	low	low
		<ul style="list-style-type: none"> <li>provide serving tools with longer handles; server should be able to scoop food from the far end of the container with a relaxed reach</li> </ul>					
		41. Move work piece closer to body	✓		low	low	med
<ul style="list-style-type: none"> <li>place high demand food items closest to server's primary work position</li> <li>eliminate placement of self-service items in a center row; keep self-service items (which must be restocked) around the perimeter</li> </ul>	✓		low	low	med		
147. Provide an appropriate container				✓	med	low	low
		<ul style="list-style-type: none"> <li>replace rectangular food containers with square ones</li> </ul>					

## Back/Torso

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
	<ul style="list-style-type: none"> <li>Person tends to use the back to lift instead of using the legs to assist in the lift (check to make sure that there is no contributing factor in the work place)</li> </ul>	13. Encourage ergonomics work techniques <ul style="list-style-type: none"> <li>provide training on ergonomics principles and lifting techniques</li> <li>encourage person to use leg muscles to lift</li> </ul> 48. Provide a cart <ul style="list-style-type: none"> <li>provide a cart with a spring loaded bottom</li> </ul>	✓  ✓	✓	low  low  med	low  low  low	low  low  low
13. Twisting of the lower back	<ul style="list-style-type: none"> <li>Person tends to twist with the back instead of moving the entire body</li> </ul>	13. Encourage ergonomics work techniques <ul style="list-style-type: none"> <li>provide training on ergonomics principles and proper body mechanics</li> <li>encourage person to move the entire body instead of reaching/twisting for items that are not directly in front</li> </ul> 48. Provide a cart <ul style="list-style-type: none"> <li>provide a cart with a spring loaded bottom</li> </ul> 150. Re-design work space <ul style="list-style-type: none"> <li>re-design work space so that adjacent work surfaces are placed at 90 degrees to one another</li> </ul>	✓  ✓	✓  ✓	low  low  med  med	low  low  low  low	low  low  low  med

## Back/Torso

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
14. High speed sudden movements or lifting awkward, uneven, shifting or bulky items.	<ul style="list-style-type: none"> <li>Person tends to lift with a jerky motion instead of a smooth motion while replacing food containers</li> </ul>	13. Encourage ergonomic work techniques <ul style="list-style-type: none"> <li>encourage person to use smooth controlled motions while handling items</li> </ul>	✓		low	low	low
		131. Reduce weight of work piece <ul style="list-style-type: none"> <li>approach vendor regarding lighter weight containers</li> </ul>		✓	high	low	low
15. Static awkward back postures	<ul style="list-style-type: none"> <li>Prolonged leaning over the food service or salad bar while doing food replacement or interim cleaning</li> </ul>	82. Provide adequate work space <ul style="list-style-type: none"> <li>provide access to all sides of the salad bar; avoid placement of bar against the wall</li> <li>purchase salad bar with a “U-shaped” design; interior access can be used for re-stocking</li> </ul>		✓	low	med	med
				✓	high	high	high
		13. Encourage ergonomic work techniques <ul style="list-style-type: none"> <li>encourage the person to stand up straight periodically during the job</li> </ul>	✓		low	low	low
		<ul style="list-style-type: none"> <li>encourage the person to lean on one arm/hand while reaching with the other</li> </ul>	✓		low	low	low

**Back/Torso (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
16. Lifting forces	<ul style="list-style-type: none"> <li>Item is too heavy</li> </ul>	147. Provide an alternate container		✓	high	low	low
		<ul style="list-style-type: none"> <li>provide smaller food containers</li> </ul>		✓	med	low	low
		94. Provide appropriate handles		✓	high	low	low
		<ul style="list-style-type: none"> <li>add handles to current food containers</li> <li>purchase food containers with appropriate (and insulated) handles</li> </ul>		✓	high	med	med
17. Pushing or pulling	<ul style="list-style-type: none"> <li>Rolling/sliding resistance of cart or piece of equipment causes high forces</li> </ul>	19. Improve wheel condition	✓		med	med	med
		<ul style="list-style-type: none"> <li>repair wheels on carts or equipment</li> </ul>		✓	med	med	med
		119. Provide wheels		✓	med	med	med
		<ul style="list-style-type: none"> <li>provide wheels with appropriate bearings and tread composition</li> </ul>					

**Back/Torso (cont.)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
		151. Reduce weight of the load placed on the cart <ul style="list-style-type: none"> <li>• reduce number of items or weight of items on cart</li> </ul>	✓		low	med	low
		17. Improve floor condition <ul style="list-style-type: none"> <li>• improve housekeeping</li> <li>• repair cracks or gaps in floor</li> <li>• provide ramps to compensate for minor differences in floor height</li> </ul>	✓ ✓	✓	low high med	med med	med high high
18. Whole body vibration	<ul style="list-style-type: none"> <li>• Rarely occurs</li> </ul>	N/A					

**Legs/Feet**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
19. Fixed position, standing	<ul style="list-style-type: none"> <li>• Prolonged standing position</li> </ul>	20. Incorporate rest pauses  52. Provide a footrail or foot rest	✓	✓	low  med	low  low	low  low
20. Exposure to hard edges on legs, knees, and feet <u>or</u> Standing on hard surfaces	<ul style="list-style-type: none"> <li>• Standing on a hard surface</li> </ul> 	86. Provide appropriate anti-fatigue matting  96. Provide appropriate shoe inserts  143. Wear appropriate shoes	✓  ✓	✓	med  low  low	low  low  low	low  low  low

**Legs/Feet (cont'd)**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
21. Awkward leg postures	<ul style="list-style-type: none"> <li>Lack of leg room</li> </ul> 	80. Provide adequate leg clearance		✓	med to high	med	med
		132. Remove obstructions	✓		low	med	med
22. Awkward foot postures	<ul style="list-style-type: none"> <li>Lack of foot room</li> </ul>	81. Provide appropriate toe clearance		✓	med to high	med	med
		132. Remove obstructions	✓		low	med	med

**Head/Eyes**

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
23. Difficult to see/light levels too low/too high	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	18. Improve visual access to work increase light levels 50fc-100fc for work		✓	low to high	med	med
24. Intensive visual tasks, staring at work object for long periods	<ul style="list-style-type: none"> <li>Rarely occurs</li> </ul>	N/A					

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