CASE STUDY - Folding/Fitting	
TASK TITLE: Folding/Fitting	
Task Description:	Folding involves the manual turning of light or heavy fabric in a specified pattern. The fold pattern must be followed for each type of product (patterns outlined in product manual). Most folding patterns are performed by two individuals due to the size of the product. Typical jobs in which folding is performed include (not necessarily limited to): • Parachute packing • Raft packing Folding may be performed on the floor or on a table surface. This case study includes only the folding part of parachute and raft packing which requires minimal force. The actions associated with packing the folded material into the case is reflected in the "Packing" case study.
Job Performance Measures Most Often Impacted by Folding:	• Adherence to the folding pattern. • Speed of completion of folding task.
Typical Employee Comments about Folding:	Employees typically complain about discomfort in the shoulders, backs, legs/feet. Primary concerns: back, legs/feet. Secondary concerns: shoulders.
Suggested Level II Analysis:	Postural Analysis, Dynamic Task Analysis

Shoulder/Neck

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
1. Reaching	• Work location is too high	123. Raise the person • use a step stool, platform or ladder		✓	med	med	med
		32. Lower the work piece/work surface		✓	low	med	med
	• Size of material requires reaching	142. Use two or more persons to perform the transfer	✓		low	low	low
2. Arm Forces: Repeated contraction of the muscles of the arm or holding/carrying materials	• Pulling fabric is difficult (see Figure 1.1) **Figure 1.1**	13. Encourage ergonomic work techniques • minimize high speed movements while pulling fabric	✓		low	med	med
		• avoid rushing	✓		low	med	med
	• Carrying folded rafts more than three steps	48. Provide a cart • use a floor dolly to move folded raft	✓		low	med	med
		61. Provide a mechanical lift device		✓	high	low	med
3. High speed, sudden shoulder movements	• Rarely occurs	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	• Rarely occurs	N/A					

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	• Rarely occurs	N/A					
6. Repeated manipulations with fingers	• Rarely occurs	N/A					
7. Hyper-extension of finger/thumb or repeated single finger activation	• Rarely occurs	N/A					
8. Hand/grip forces	• Rarely occurs	N/A					
9. High speed hand/wrist/arm movements or vibration, impact, or torque to the hand	• Rarely occurs	N/A					
10. Exposure to hard edges	• Rarely occurs	N/A					

Hands/Wrists/Arms (cont'd)

Job Factor	Potential Causes	Corrective Action	Level of Changes		Cost	Impact On	
			✓ Minor Modification	✓ Major Change		Quality	Productivity
11. Hands and fingers exposed to cold temperatures	• Rarely occurs	N/A					

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	• Work location is too low (see Figure 1.2) **Figure 1.2**	124. Raise the work piece/work surface • provide a fixed table to support workpiece • provide an adjustable table for workpiece		 ✓ ✓	 med high	 med med	 med high
13. Twisting of the lower back	• Work location is blocked or is in an inappropriate orientation	13. Encourage ergonomic work techniques 132. Remove obstructions • remove unnecessary items from the work area	✓ ✓		low low	med med	med med
14. High speed, sudden movements	• Rarely occurs	N/A					
15. Static, awkward back postures	• Rarely occurs	N/A					

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	Lifting heavy folded objects • low height • no hand holds	61. Provide a mechanical lift device • lifting hoist to move raft or work piece • use straps to lift item 142. Use two or more persons to perform the transfer	 ✓ ✓	✓ 	high low low	med med med	high med med
17. Pushing or pulling	• Rarely occurs	N/A					
18. Whole body vibration	• Rarely occurs	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	• Standing on hard surface (see Figure 1.3) **Figure 1.3**	96. Provide appropriate shoe inserts 86. Provide an appropriate anti-fatigue mat	✓	 ✓	low med	low med	low med
20. Exposure to hard edges on legs, knees, and feet	• Rarely occurs	N/A					

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	• Work height too low (see Figure 1.4) **Figure 1.4** • Hard Surface	13. Encourage ergonomic work techniques • periodically stand up to change position.	✓		low	med	med
		95. Provide appropriate knee protection		✓	med	med	med
		86. Provide an appropriate anti-fatigue mat		✓	med	med	med
		124. Raise the work piece/work surface • prevent kneeling	✓		low	med	med
22. Standing foot pedal	• Rarely occurs	N/A					

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	• Rarely occurs	N/A					
24. Intensive visual tasks, staring at work objects for long periods	• Rarely occurs	N/A					