

# SAFETY AND HEALTH INVESTMENT PROJECTS FINAL REPORT

Vertically Integrated Participatory Ergonomics Resources (VIPER) for Prevention of  
Musculoskeletal Disorders in Grocery Workers and Grocery Warehouse Employees  
2009XH00128  
2/24/10-12/31/12

Dan Anton, PT, PhD, ATC  
dan.anton@ewu.edu

Eastern Washington University & Inland Northwest Health Services  
Partners: Yoke's Fresh Markets & URM Stores Inc.

3/31/13  
Dan Anton, PT, PhD, ATC

# PART I

## *Narrative Report*

### **Organization Profile:**

For awarded organizations, to include partners and collaborators, provide a brief description of each organization. Mission, vision, and purpose for each of the organizations who applied (this includes partners and collaborators) for the grant.

**Eastern Washington University (EWU)** first became an institute for higher learning in 1882 as the Benjamin P. Cheney Academy, enrolling 200 students. In 1937, EWU became a fully accredited four-year, degree-granting institution offering majors in numerous subjects. Since then, EWU has added a wide range of undergraduate and graduate degree programs, including the Doctor of Physical Therapy Program, in response to the increase need for professionals in many fields. The University enrolls approximately 10,000 full-time students per year.

The mission is that EWU expands opportunities for personal transformation through excellence in learning. EWU achieves this mission by:

- fostering excellence in learning through quality academic programs, undergraduate and graduate student research and individual student-faculty interaction. Students extend their learning beyond the classroom through co-curricular programs, life skills development, internship programs, volunteering and service learning.
- creating environments for personal transformation that enrich the lives of individuals, families, communities and society at large.
- expanding opportunity for all students by providing critical access to first generation students, underserved populations, place-bound students, and other students who may not have the opportunity for higher education.
- developing faculty and staff by growing and strengthening an intellectual community and supporting professional development.

EWU envisions a future of professionally, socially and culturally engaged leaders, citizens and communities. EWU is a driving force for the culture, economy, workforce and vitality of Washington state. Our graduates think critically and make meaningful contributions to both their career fields and their communities.

**Inland Northwest Health Services (INHS)** was created in 1994 when executives from Spokane's four major hospitals joined forces to merge competing business lines and form a new non-profit organization to oversee them. INHS now oversees several collaborative health care services, including public and professional health education, inpatient and outpatient rehabilitative medicine through St. Luke's Rehabilitation Institute, rural outreach, a critical care air transport service, and health information technology. The Eastern Washington Center of Occupational Health & Education (COHE), a program funded by L&I, is a department of St. Luke's rehabilitation Institute.

### **Abstract:**

Present a short overview of the nature and scope of the project and major findings (less than half a page).

Work-related musculoskeletal disorders (MSDs) are potentially disabling conditions affecting workers. In Washington State, grocery and warehousing workers suffer from some of the highest numbers of MSDs of all industries. Participatory ergonomics programs are one method of reducing MSDs in industry, but these programs are not typically used in grocery and warehousing industries.

The purpose of the Vertically Integrated Participatory Ergonomics Resources (VIPER) project was to develop an enhanced comprehensive participatory ergonomics program and test the effectiveness for reducing MSDs at a medium sized grocery store chain (Yoke's Fresh Markets). There were several components of this program: 1) basic ergonomics training applicable for all employees, called *Ergonomics Awareness Training for Grocery Workers*, 2) advanced ergonomics training applicable for members of the safety committee and management, called *Ergonomics Process Training for Grocery Workers* and, 3) ongoing support and education of the participatory ergonomics process through educational outreach visits (EOV) with the safety committee or management. Additionally, the program was vertically integrated into the grocery supply chain at a grocery warehouse by developing and implementing *Ergonomics Process Training for Warehouse Workers*. Finally, basic and advanced ergonomic training media were developed for L&I that can be used for the general grocery and grocery warehouse industries in Washington State. This media included presentations and training videos.

### **Purpose of Project:**

Describe what the project was intended to accomplish.

The **purposes of the VIPER project** were to:

1. Implement a comprehensive participatory ergonomics program with follow-up data collected at 10 months in each grocery store following implementation.
2. Migrate the participatory ergonomics program vertically from grocery stores to the grocery supply warehouse.
3. Develop basic and advanced ergonomic training media for L&I that are applicable for all grocery and grocery warehouse workers in Washington.

### **Statement and Evidence of the Results:**

Provide a clear statement of the results of the project include major findings and outcomes and provide evidence of how well the results met or fulfilled the intended objectives of the project.

With few exceptions, all purposes of the study were achieved. The results related to each purpose are as follows:

1. Implement a comprehensive participatory ergonomics program with follow-up data collected at 10 months in each grocery store following implementation.
  - a. Baseline data was collected at the four study stores. This data included:
    - i. Company injury and claims data
    - ii. Individual questionnaires on demographics and medical history, musculoskeletal symptoms (*Modified Nordic Questionnaire*), and a survey of physical and mental health (*SF-36v2*).
    - iii. Video of 10 tasks considered by workers as the most hazardous in the grocery stores. This video was analyzed with several ergonomic exposure assessment methods including the *Rodgers Muscle Fatigue Analysis*, *Ovako Working Analysis System (OWAS)*, *Utah Back Compressive Force Estimation*, and *3D Static Strength Prediction Program*, software that estimates low back compression.
  - b. After baseline data was collected at each store two types of ergonomics training programs were developed: 1) basic ergonomic training for all employees, *Participatory Ergonomics Awareness Training at Yoke's* and 2) advanced ergonomics training for the safety committee, *Participatory Ergonomics Process Training at Yoke's*. Safety training used by companies is often generic and "one size fits all." Thus, we included pictures and videos of project store workers to enhance interest

- among the project store workers.
- c. *Participatory Ergonomics Process Training at Yoke's* was then implemented at the four study stores in a sequential manner. The sequential manner allowed pre and post comparisons within each store. Each project store safety committee received six hours of training.
  - d. We originally proposed to train all project store workers on basic ergonomics using *Participatory Ergonomics Awareness Training at Yoke's* in 45 minute – 1 hour sessions. Due to economic reasons, the project company felt they could not hold these sessions. As an alternative, we developed an interactive, self-training module of the content, called *Grocery Store Ergonomics*. This module had both positive and negative results on our project.
    - i. Management at the project company liked the training module so much that they:
      1. Implemented the module as a component of their mandatory computer-based training program for all new employees.
      2. Ultimately showed the module to *all employees at all stores*, not just the four study stores. This was likely a positive result for the company as a whole. However, showing the video to all employees immediately contaminated our study sample, introducing bias into the study, which prevented us from making valid pre-post comparisons of the effectiveness of training.
  - e. Several educational outreach visits were conducted at the four stores over a period of approximately 12 months after the training. Study investigators met with the safety committee during regular store safety meetings. The purpose of these visits was to facilitate the continuance of the ergonomics process.
  - f. Follow-up data was collected at the four study stores approximately 12 months after baseline. The same types of data were collected as at baseline. We initially proposed 12 months but requested a modification to allow longer follow-up time.
2. Migrate the participatory ergonomics program vertically from grocery stores to the grocery supply warehouse.
    - a. Baseline ergonomic job analysis data was collected at the study grocery warehouse. This data was analyzed with the *Rodgers Muscle Fatigue Analysis, Utah Back Compressive Force Estimation*, and *3D Static Strength Prediction Program*.
    - b. After baseline data was collected at the warehouse, advanced ergonomics training was developed, titled *Participatory Ergonomics Process Training at URM*. Again, pictures and videos of workers in the project warehouse were used in the training.
    - c. Follow-up ergonomic job analysis data was collected at the study grocery warehouse and comparisons with baseline data were conducted. No change in exposure to physical risk factors was noted.
  3. Develop basic and advanced ergonomic training media for L&I that are applicable for all grocery and grocery warehouse workers in Washington.
    - a. Nine training media were developed (NB only four were originally proposed):
      - i. *Ergonomics Awareness Training for Grocery Workers* (PowerPoint presentation): This is an introduction to basic ergonomic principles for all workers. The training takes approximately 45 minutes to 1 hour. Included in this presentation are pictures and Quicktime videos of grocery workers. All pictures and videos have been de-identified.
      - ii. *Grocery Store Ergonomics* (self-training module using Captivate): This is an introduction to basic ergonomic principles for all workers. The interactive module takes 30 – 45 minutes to complete.

- iii. *Ergonomics Process Training for Grocery Workers*: (PowerPoint presentation): This is advanced ergonomic training meant for a safety committee or management. The training takes approximately 4 – 6 hours. Included in this presentation are pictures and Quicktime videos of grocery workers. All pictures and videos have been de-identified.
- iv. *Ergonomics Process Training for Warehouse Workers*: (PowerPoint presentation): This is advanced ergonomic training meant for a safety committee or management. The training takes approximately 4 – 6 hours. Included in this presentation are pictures and Quicktime videos of grocery workers. All pictures and videos have been de-identified.
- v. *Working Safely – Lifting in the Warehouse* (video): This video emphasizes proper lifting techniques and manual material handling methods. The training takes approximately 5 minutes.
- vi. *Working Safely – Tips for Grocery Workers – Upper Body* (video): This video provides instruction about work posture, workday organization, and upper body exercises to help reduce musculoskeletal stress. The training takes approximately 5 minutes.
- vii. *Working Safely – Tips for Grocery Workers – Lower Body* (video): This video provides instruction about work posture, workday organization, and lower body exercises to help reduce musculoskeletal stress. The training takes approximately 4 minutes.
- viii. *VIPER Tip Sheet – Grips*: This was a one-page poster to provide succinct information about proper gripping techniques. The tip sheet was posted in the break room at the project grocery stores.
- ix. *VIPER Tip Sheet – Heavy Lifting*: This was a one-page poster to provide succinct information about proper lifting techniques. The tip sheet was posted in the break room at the project grocery stores.

**Measures to Judge Success:**

If relevant, state what measures or procedures were taken to judge whether/ how well the objectives were met and whether the project or some other qualified outside specialist conducted an evaluation.

Our primary measure to judge success was implementation of the program by study sites. As mentioned, Yoke's Fresh Markets added the self-training module *Grocery Store Ergonomics* to their *Fresh Academy*, a training program for all new employees. Other modules in the *Fresh Academy* include training on topics such as customer service and theft. *Grocery Store Ergonomics* is the first ergonomic training that this grocery store chain has added to the new employee training.

The study warehouse has adopted principles from the ergonomics training. Due to the extensive manual material handling in the warehouse, significant ergonomic changes were not anticipated.

Although a comparison of data between baseline and follow-up was limited due to previously mentioned study bias, the investigators have completed a cross-sectional study of the data with emphasis on prevalence of musculoskeletal symptoms. The prevalence of self-reported musculoskeletal symptoms was higher than previously reported in the literature. Approximately 78% of grocery store workers reported symptoms in at least one body region in the 12 months preceding the survey. Half or more of the employees reported symptoms in the lower back and feet. Although the prevalence of low back symptoms was comparable to previous studies on grocery workers, foot symptoms were substantially higher in this cohort (approximately 50% vs. 5-14% previous studies).

**Relevant Processes and Lessons Learned:**

Specify all relevant processes, impact or other evaluation information which would be useful to others seeking to replicate, implement, or build on previous work

AND

Provide information on lessons learned through the implementation of your project. Include both positive and negative lessons. This may be helpful to other organizations interested in implementing a similar project.

The primary lesson learned is more of a "lesson reinforced." Flexibility of the investigators is essential if the ultimate goal is implementation of the ergonomics process rather than obtaining empirical data. Regardless, collection of data was an essential aspect of convincing grocery store and grocery warehouse management to implement ergonomics. For example, we were asked to present the *Participatory Ergonomics Process Training at Yoke's* program to head management. During this training, we showed a video of several lifting tasks in the grocery store followed by computer modeling of spinal compression forces. This video led to approximately half an hour of discussion among managers about how to reduce heavy lifting in the store.

Another example of flexibility is related to the study aims. We originally proposed to conduct pre-post analyses of the collected data. After the study company implemented a new worker safety initiative based on our ergonomic program, we were unable to fully determine if any changes in baseline data were due to 1) the ergonomic training intervention, 2) the new company-wide safety initiative, or 3) both. Therefore, we requested a modification of our study aims to develop new training materials instead of completing the pre-post analyses. These new training materials included the two instructional videos, *Working Safely - Lifting in the Warehouse* and *Working Safely*

– *Tips for Grocery Workers – Upper Body*, and two tip sheets, *VIPER Tip Sheet – Grips* and *VIPER Tip Sheet – Heavy Lifting*. As an in-kind contribution, we also produced the instructional video *Working Safely – Tips for Grocery Workers – Lower Body*. The expenditures in excess of the total award were absorbed by EWU.

### **Product Dissemination:**

Outline of how the products of the project have been shared or made transferrable.

We have disseminated information about the project through presentations, publications, PowerPoint products, a self-training module, and instructional videos.

#### **Presentations:**

- Anton D. Lift Training for Grocery Stores – “Lift With Your Legs, Not Your Back” ... or not? Washington Food Industry. WFI Association Safety Committee Webinar. 2010.
- Goldrick S, Modderman S, Anton D, Weeks D, Hansen D. Participatory ergonomics program to address musculoskeletal disorder risk in the grocery industry (poster). Physical Therapy Association of Washington (PTWA) 2011 Fall Conference. 2011. Tacoma, WA.
- Herman S, Anton D. Instruction in proper lifting technique: Squat vs. stoop lifting. 15th Annual Graduate & Undergraduate Eastern Washington University Student Research and Creative Works Symposium. 2012. Cheney, WA.
- Modderman S, Anton D, Weeks D, Hansen D, Goldrick S. Method for implementing a participatory ergonomics program to reduce risk of musculoskeletal disorders in the grocery industry. 13th Annual Graduate & Undergraduate Eastern Washington University Student Research and Creative Works Symposium. 2010. Cheney, WA.
- Modderman S, Anton D, Weeks D, Hansen D, Goldrick S. Implementing participatory ergonomics in the grocery industry. Proceedings of the 14th Annual Applied Ergonomics Conference. 2011. Orlando, FL.
- Modderman S, Anton D, Weeks D, Hansen D, Goldrick S. Implementing participatory ergonomics in the grocery industry. Puget Sound Human Factors & Ergonomics Society 2011 Occupational Ergonomics Symposium. 2011. Seattle, WA.
- Modderman S, Anton D, Goldrick S, Weeks D, Hansen D. Ergonomic exposure assessment: A case report from the grocery industry (poster). Physical Therapy Association of Washington (PTWA) 2011 Fall Conference. 2011. Tacoma, WA.
- Novoa B, Olsen C, Anton D, Weeks D, Hansen D. Creation of an educational module as a component of a participatory ergonomics program in the grocery industry. 14th Annual Graduate & Undergraduate Eastern Washington University Student Research and Creative Works Symposium. 2011. Cheney, WA.
- Novoa B, Anton D, Weeks D, Hansen D. Making ergonomics education palatable: Customized training for different audiences in the grocery industry. Proceedings of the 15th Annual Applied Ergonomics Conference. 2012. Nashville, TN.
- Olsen C, Anton D, Weeks D, Hansen D, Novoa B. The use of 3D Static Strength Prediction

Program as a component of a participatory ergonomics program in the grocery industry. 14th Annual Graduate & Undergraduate Eastern Washington University Student Research and Creative Works Symposium. 2011. Cheney, WA.

Publications:

- Anton D, Goldrick S, Modderman S, Weeks D, Hansen D. Ergonomic exposure assessment methods for identifying musculoskeletal disorder risk in the workplace: An example from the grocery industry. *Orthopaedic Physical Therapy Practice*. 2012;24:62-66.
- Anton D, Weeks D, Hansen D, Modderman S, Goldrick S, Olsen C, Novoa LB, Hall L. Prevalence of musculoskeletal symptoms among grocery workers. *American Journal of Industrial Medicine* (In Preparation). 2013.

Products:

- Anton D, Weeks D, Hansen D. *Ergonomics Awareness Training for Grocery Workers* (PowerPoint presentation). 2012.
- Anton D, Weeks D, Hansen D *Ergonomics Process Training for Grocery Workers:* (PowerPoint presentation). 2012.
- Anton D, Weeks D, Hansen D. *Ergonomics Process Training for Warehouse Workers:* (PowerPoint presentation). 2013.
- Herman S, Keenan J, Morris N, Anton D. *Working Safely – Lifting in the Warehouse* (video). 2012.
- Keenan J, Morris N, Hall L, Coleman B, Anton D. *Working Safely – Tips for Grocery Workers – Upper Body* (video). 2013.
- Keenan J, Morris N, Hall L, Coleman B, Anton D. *Working Safely – Tips for Grocery Workers – Lower Body* (video). 2013.
- Novoa B, Anton D. *Grocery Store Ergonomics* (self-training module using Captivate). 2011.



**Feedback:**

Provide feedback from relevant professionals, stakeholder groups, participants, and/ or independent evaluator on the project.

Our primary stakeholder for the project was Caroline Wyatt, vice president of human resources at Yoke's Fresh Markets. In a recent article about the project published in *Discover E – The Research Magazine of Eastern Washington University*, Ms. Wyatt emphasized that the age of grocery workers spans from young to old. Therefore, the program needed to be applicable to all ages. The video clips in the training were significant for improving worker buy in. She stated, "Once employees are able to see themselves at work, bending, twisting and lifting, they see things they're not cognizant of when working."

Since ergonomic programs are only as good as the interventions they influence, Wyatt said, "each of our stores is a bit different, depending on the age of the store and the type of equipment in it. We made changes based on the requests of the employees and the physical property." As an example of one of these changes, all checkout stands now have hand scanners so cashiers no longer have to lift heavy objects like dog food over the scanner.

Based on the project, Ms. Wyatt and her team of human resources professionals implemented a "Don't Hurt at Work" campaign. As previously mentioned, mandatory ergonomics training is a key part of this campaign. Ms. Wyatt concluded, "The results of the VIPER project changed the way we look at a lot of things, and it's gone beyond Yoke's. It's making a difference in the industry."

**Project's Promotion of Prevention:**

Explain how the results or outcomes of this project promote the prevention of workplace injuries, illnesses, and fatalities?

Participatory ergonomics programs have been shown to be successful at reducing MSDs in industries other than the grocery and warehouse industries. Extending training media focused on ergonomics to the grocery and warehousing industries represents a primary step in preventing workplace injuries through improving worker knowledge of ergonomics; worker and safety committee awareness of industry-specific job risks from poor ergonomics; and worker, safety committee, and management processes to improve worker ergonomics.

**Uses:**

How might the products of your project be used within the target industry at the end of your project?

Is there potential for the product of the project to be used in other industries or with different target audiences?

All project products can be used by grocery stores and grocery warehouses in the State of Washington. The products are applicable for small, medium, and large grocery chains as well as grocery warehouses. The presentations have detailed notes for each slide, and have several de-identified pictures and videos. However, users of the presentations can easily insert their own pictures and videos to help make the training more personalized. We anticipate that L&I will make these products available on their website.

Although the products related to grocery stores are specific to this industry, the warehouse project products could be adapted for those handling non-grocery materials.

## Additional Information

<b>Project Type</b> <input type="checkbox"/> Best Practice <input type="checkbox"/> Technical Innovation <input checked="" type="checkbox"/> Training and Education Development <input type="checkbox"/> Event <input type="checkbox"/> Intervention <input checked="" type="checkbox"/> Research <input type="checkbox"/> Other (Explain):	<b>Industry Classification</b> (check industry(s) this project reached directly ) <input type="checkbox"/> 11 Agriculture, Forestry, Fishing and Hunting <input type="checkbox"/> 21 Mining <input type="checkbox"/> 22 Utilities <input type="checkbox"/> 23 Construction <input type="checkbox"/> 31-33 Manufacturing <input type="checkbox"/> 42 Wholesale Trade <input checked="" type="checkbox"/> 44-45 Retail Trade <input checked="" type="checkbox"/> 48-49 Transportation and Warehousing <input type="checkbox"/> 51 Information <input type="checkbox"/> 52 Finance and Insurance <input type="checkbox"/> 53 Real Estate and Rental and Leasing <input type="checkbox"/> 54 Professional, Scientific, and Technical Services <input type="checkbox"/> 55 Management of Companies and Enterprises <input type="checkbox"/> 56 Administrative and Support and Waste Management and Remediation Services <input type="checkbox"/> 61 Educational Services <input type="checkbox"/> 62 Health Care and Social Assistance <input type="checkbox"/> 71 Arts, Entertainment, and Recreation <input type="checkbox"/> 72 Accommodation and Food Services <input type="checkbox"/> 81 Other Services (except Public Administration) <input type="checkbox"/> 92 Public Administration
<b>Target Audience:</b> Grocery store and grocery warehouse workers	
<b>Languages:</b> English	
<b>Please provide the following information - -</b> <i>(information may not apply to all projects)</i>	
# classes/events:	25
# hours trained	46
# companies participating in project	2
# students under 18	0
# workers	254
# companies represented	2
# reached (if awareness activities)	445
<b>Total reached</b>	699
<b>Have there been requests for project products from external sources? yes</b> <i>If Yes, please indicate sources of requests:</i> At our two Applied Ergonomics Conference presentations, various ergonomists and safety managers requested information about the training materials and methods for developing interactive training.	

**List, by number above, industries that project products could potentially be applied to.**  
42

**Potential impact (in number of persons or companies) after life of project?**  
unknown

## PART II

### *Financial Information Budget Summary*

---

<b>Project Title:</b>	VIPER for Prevention of Musculoskeletal Disorders in Grocery Workers and Grocery Warehouse Employees		
<b>Project #:</b>	2009XH00128	<b>Report Date:</b>	3/31/13
<b>Contact Person:</b>	Dan Anton, PT, PhD, ATC	<b>Contact #:</b>	509-828-1375
<b>Start Date:</b>	2/24/10	<b>Completion Date:</b>	12/31/12

---

<b>1. Total budget for the project</b>	<u>\$ 188,610</u>
<b>2. Total SHIP Grant Award</b>	<u>\$ 188,610</u>
<b>3. Total of SHIP Funds Used</b>	<u>\$ 188,610</u>
<b>4. Budget Modifications (if applicable)</b>	<u>\$ 0</u>
<b>5. Total In-kind contributions</b>	<u>\$ 0</u>
<b>6. Total Expenditures (lines 3+4+5)</b>	<u>\$ 188,610</u>

#### Instructions:

- Complete the Supplemental Schedule (Budget) form first (on the next page).
- The final report must include all expenditures from date of completion of interim report through termination date of grant.
- Indicate period covered by report by specifying the inclusive dates.
- Report and itemize all expenditures during specified reporting period per the attached supplemental schedule.
- Forms must be signed by authorized person (see last page).
- Forward one copy of the report to **Project Manager Name, SHIP Project Manager** at **PO Box 44612, Olympia, WA 98504-4612**

PART II  
(Continued)

*Financial Information*  
*Supplemental Schedules (Budget)*

---

<b>Project Title:</b>	VIPER for Prevention of Musculoskeletal Disorders in Grocery Workers and Grocery Warehouse Employees		
<b>Project #:</b>	2009XH00128	<b>Report Date:</b>	3/31/13
<b>Contact Person:</b>	Dan Anton, PT, PhD, ATC	<b>Contact #:</b>	509-828-1375
<b>Total Awarded:</b>	\$188,610		

---

**ITEMIZED BUDGET:** How were SHIP award funds used to achieve the purpose of your project?

	Budgeted for Project	Amount Paid Out	Difference
<b>A. PERSONNEL</b>	107,223.00	108,368.00	(1,145.00)
Explanation for Difference and other relevant information: The originally proposed personnel budget was \$156,168, which included salary and fringe for Doug Weeks and Daniel Hansen. After receiving the award, EWU determined that Doug Weeks' and Daniel Hansen's salary should have been listed under the "Subcontractor" budget category, so the Personnel budget was reduced to \$106,428. A modification was later requested in September 2012 and approved in March 2013 to extend the project end date from 12/31/12 to 3/31/13 and modify the budget. The modification increased the Personnel category by \$795 to \$107,223. Actual personnel costs totaled \$108,368. Although less was spent on the Graduate Research Assistants' wages and fringe than was budgeted, there was additional salary and fringe paid to Dan Anton during the extension period. The net effect was that the Personnel category was over-budget by \$1,145.			

	Budgeted for Project	Amount Paid Out	Difference
<b>B. SUBCONTRACTOR</b>	59,715.00	59,713.99	1.01
Explanation for Difference and other relevant information: The originally proposed budget did not include any funds under the Subcontractor category. However, since neither Doug Weeks nor Daniel Hansen are EWU employees, the budget was modified to re-categorize their total personnel expenses of \$49,741 plus 10% indirect costs of \$4,974 as Subcontractor costs. A subcontract in the amount of \$54,715 was entered into with Inland Northwest Health Services. In the September 2012 modification request, the subcontractor budget category was increased by \$5,000 to \$59,715 in order to subcontract with Doug Weeks during the extension period.			

	Budgeted for Project	Amount Paid Out	Difference
<b>C. TRAVEL</b>	1,691.00	1,583.26	107.74

Explanation for Difference and other relevant information: The original Travel budget was for \$3,446. In the September 2012 modification, the Travel budget was decreased by \$1,755 to \$1,691. The original budget plan provided for two trips to Yakima and three trips to Seattle for presentations, as well as local mileage to grocery stores. However, instead Dan Anton traveled once to Olympia for a SHIP meeting and once to Seattle for a SHIP presentation. Graduate research assistant, Blake Novoa, traveled to Nashville, TN for the Applied Ergonomics Conference in 2012. Also, the local mileage to the grocery stores was not as much as anticipated. The total Travel costs charged to this grant was \$1,583.26. Additional Travel costs were paid with other EWU funds.

	Budgeted for Project	Amount Paid Out	Difference
<b>D. SUPPLIES</b>	7,807.00	6,770.75	1,036.25

Explanation for Difference and other relevant information: The original Supplies budget was for \$11,847. In the September 2012 modification, the Supplies budget was decreased by \$4,040 to \$7,807. Final actual Supplies expenses totaled \$6,770.75. This was due in part to the fact that there were no telephone expenses. Also the office supplies and the software license were much less than originally anticipated. Participant incentives were budgeted at \$2,000, but only \$905 was charged to this grant. An additional \$1,020 in participant incentives was paid with other EWU funds.

	Budgeted for Project	Amount Paid Out	Difference
<b>E. PUBLICATIONS</b>	0.00	0.00	0.00

Explanation for Difference and other relevant information: No budget for this category.

	Budgeted for Project	Amount Paid Out	Difference
<b>TOTAL DIRECT COSTS</b>	176,436.00	176,436.00	0.00

	Budgeted for Project	Amount Paid Out	Difference
<b>TOTAL INDIRECT COSTS</b>	12,174.00	12,174.00	0.00

	Budgeted for Project	Amount Paid Out	Difference
<b>TOTAL SHIP BUDGET</b>	188,610.00	188,610.00	0.00

	Budgeted for Project	Amount Paid Out	Difference
<b>F. IN-KIND</b>	See explanation	See explanation	See explanation

Explanation for Difference and other relevant information: Several in-kind contributions were provided to this project. Since these contributions are direct and indirect, estimated savings to the project are difficult to estimate. Direct in-kind contributions included office space provided by EWU and INHS, and all overhead costs associated with the offices. EWU also provided laboratory space and associated overhead in-kind, where video data analysis was conducted. Additionally, video editing software and large screen monitors were provided in-kind by EWU, which was used for all ergonomic job analyses. EWU and INHS provided in-kind access to statistical analysis software and computing

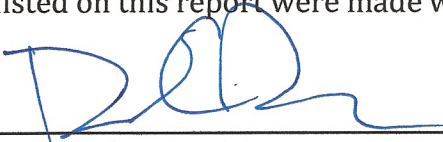
resources for data analysis throughout the project.

Indirect in-kind contributions included time away from work for Yoke's employees to attend the ergonomics training. Additionally, Yoke's and the warehouse provided locations for conducting the training, which precluded room rental fees. Yoke's Human Resources also provided demographic and injury information from the participating stores as an in-kind contribution of time of the employee who compiled the reports. Finally, Yoke's provided in-kind contributions to the project when the Yoke's safety committees developed and implemented ergonomic engineering, administrative, and/or personal solutions.

The COHE office health services coordinators provided in-kind support by advising the project team as needed.

I hereby certify that the expenditures listed on this report were made with my approval:

11/12/13  
Date

  
Signature of Project Manager

### PART III

#### ***Attachments:***

Provide resources such as written material, training packages, or video/ audio tapes, curriculum information, etc. produced under the grant.

Also include copies of publications, papers given at conferences, etc.

This information should also be provided on a **CD** or **DVD** for inclusion in the file.

**REMINDER!!:** All products produced, whether by the grantee or a subcontractor to the grantee, as a result of a SHIP grant are in the public domain and can not be copyrighted, patented, claimed as trade secrets, or otherwise restricted in any way.