

## Opening the Black Box: Evaluating an Ergonomics Program for Floor Layers, Step by Step

### **Development of a Program Logic Model and Evaluation Plan for a Participatory Ergonomics Program in Construction**

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#### **Overview**

Musculoskeletal disorders (MSDs) afflict large numbers of construction workers. Participatory ergonomics programs that engage both workers and management in identifying hazards and implementing solutions hold the promise of reducing MSDs. An effective program must include multiple elements, such as worker training, teambuilding, and problem-solving, as well as identification and implementation of solutions.

To determine efficacy, researchers must do more than design a participatory intervention program and measure MSD injury outcomes. This method cannot distinguish an ineffective program from a good idea that is poorly executed, nor identify which program elements can be credited for any benefits secured. In this study, Jaegers et al. examine a participatory ergonomics program aimed at floor layers, unpacking the “black box” between program design and health outcomes using a detailed logic model and process evaluation.

#### **Key Findings**

- The logic model proved useful in systematically identifying obstacles in program delivery and obtaining feedback. In this case, the process evaluation quickly showed that few workers would receive the ergonomics training would be low if the delivery method did not better accommodate the floor layers’ tight work schedules. By modifying the method of delivery early in the research study, reducing the time required for the ergonomics training, researchers were able to maintain fidelity to the program and deliver the core principles of the training to all intended workers.
- The process evaluation showed how the program operated under typical work conditions. The high variability of worker movement between jobs and time constraints due to profound economic pressure during the study period left little time for ergonomics training or other research-based activities. The research team was able to adjust the research plan to better accommodate the influence of the economy on the construction environment by focusing on larger and more stable contractors.
- Detailed knowledge of the delivered program made it possible to interpret both negative and positive results more meaningfully. This case example demonstrates the value of describing the program plan, using a process evaluation to determine what was actually delivered, and interpreting both short- and long-term data based on the delivered program.

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#### **See abstract:**

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