AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

Wearable Technologies Project

Manual Task Risk Assessment utilising JAS Wearable Technology

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1) Project Description

The Wearable Technologies Project was undertaken at the Stanbroke Beef QLD between June 2022 and June 2023. It's goal is to access the effectiveness of wearable sensors for manual handling risk analysis and the impact on the business beneficially and to identify any issues that may arise.

The project involved applying wearable sensors to workers while they performed a range of manual tasks to the contributing factors to risks. Assessments were performed by staff from Wearable Sensor Technologies (JointAction Group) with support from Stanbroke Management and staff. During the project 123 manual handling tasks were examined and 170 task assessments undertaken in 19.2 hours of data capture.

The Wearable Sensor Project had three objectives. To see the impact on business processes from using wearable sensor technologies to identify risks, to determine the level of worker engagement in safety, and; to identify and rectify key hazards within the plant.

The reasoning behind this process is:

◆ The meat industry is a highly hazardous manual handling environment with high WMSD injury rates and claims costs. Traditional manual task risk assessments have been expensive, subjective, slow and disruptive.

◆ The purpose of the project is to examine the impact on the business and the workers in using wearable sensor technologies to accurately, quickly and cost effectively identify risks and measure the effectiveness of risk controls.

◆ Labour and skills shortages have amplified the business imperative to keep workers healthy. Plants are engaging in cultural change to protect workers and therefore maintain productivity levels and reduce costs.

◆ The mining industry went through similar challenges in the past few years, however the question remained about how those benefits would translate to the meat industry with its cost pressures and lack of FIFO workers.

2) Project Content

A primary objective of the project is to determine the benefit of wearable sensor technologies in identifying risks to workers from hazardous manual handling injuries. In addition to the safety outcomes, which have been proven in other industries, the purpose of the project was to examine the impact on personnel, business processes and productivity from the investigative process.

The project identified some very high-risk tasks and enabled risk controls to be implemented quickly with a task list of potential future solutions that will justify the investment and time to undertake the project.

Direct benefits form the project include identification and rectification of 8 very high-risk tasks which added value to practicable risk minimisation to manual tasks in Stanbroke processing facility and the wider red meat industry.

Analysis of the data, development and review of risk controls were applied using the hierarchy of hazard management strategies, which may include engineering solutions. An objective was to identify the top five highest risks in each area of the plant and discuss strategies for practicable risk minimisation to identified hazards.

1) Develop best practice model of risk control that was reasonably practicable
2) Assess results that could be incorporated into training and return to work modelling
3) Refer top eight Very High Tasks for ergonomic review

4) Examine the level of worker engagement in the safety program
5) To develop a roadmap for ongoing analysis and monitoring

3) Project Outcome

The project successfully achieved its objectives within the timeframe. It can be concluded that efficiencies, engagement, detailed actionable data and cost benefits were achieved at levels equal to or greater than those experienced in the mining sector using the wearable sensor technology.

Minimal disruption to production and high levels of worker engagement demonstrated that the use of this technology would be beneficial to other plants in the meat sector. There were some learning outcomes that can be applied to future projects and this project created an opportunity to scope an industry benchmark for manual handling risk scores.

An example of simple controls that were identified and measured include that data was able to be used to develop risk controls around step heights based on outcomes from different workers without the need to put workers through greater risk from trialling the changes over time. This both reduced the risk for workers and saved production times.

Some high risks were identified that could not be tested without infrastructure changes and these are highlighted in the Significant Findings Report. Recommendations were made to Stanbroke based on the assessment results and action for the next stage is to test these.

Workers assisted in the concept designs of workstations and made suggestions that reduced risk and increased production.

Maintenance and other aspects of the plant contributed to some higher risk scores. As workers could see that these maintenance matters affected their risk of injury, they became proactive in identifying hazards that were readily reduced.

An evaluation of potential risk controls was undertaken, and significant risk reductions were identified.

4) Benefit for Industry

Work task assessments have been an important part of the industry for many years. Typically, these have been performed by third parties. Manual assessments are expensive, subjective, and often outdated. While some technology has been available to make the process more efficient, questions arise that need to be addressed.

The questions on the mind of stakeholders include:
   a) Will the assessment process disrupt production?
   b) How will workers and unions react to the task assessment process?
   c) Are there sufficient privacy and confidentiality processes in place?
   d) What if we discover a very high-risk task, are we compelled to stop production until rectified?

Learnings from the project include the method of worker engagement and supervisor interactions during the assessment period. The rapid nature of the task assessments with wearable sensors was demonstrated to be less than the time taken to complete the task in an ordinary shift.

The questions were resolved during the study included:

   a) With the support of supervisors to fill production while sensors were fitted and workers were questioned, there was no loss of productivity during the assessment phase. Since reports were available immediately, a number of scenarios were able to be tested during normal production runs. The impact was minimal.

   b) Workers actively engaged in the risk assessment process once they saw the technology in action and that their personal details were not collected and assessments were performed over a task, not on-going performance monitoring.

   c) Privacy was maintained by using face blurring and no personal identifiers were gathered. The company was able to have IP protected through features within the technology. Data security and cyber policies protect the data which is held on secure Jira servers.

   d) Work Safe Australia state that eliminating the risk is the best control. If you can't, you must minimise the risk so far as is reasonably practicable. The hierarchy of control measures assists duty holders to select the highest control measures to effectively manage risk. Failure to identify hazards is the worst possible outcome.

Benefits of Wearable Sensor Technologies include:

a)   Manual Handling Task Risk Identification.

The primary focus of the technology is to accurately, quickly, easily and cost effectively measure the cause of WMSD injury to workers. By having actionable data that identifies the contributing factors, companies can make informed decisions as to which risk control is the most effective. They can now implement and monitor the control for future change.

b)   Worker Engagement.

Workers want to be safe. They often have ideas on best work practices but are uncertain about the true effectiveness and the cost benefits of controls. The project demonstrated that rather than workers being fearful of the program, they actively wanted to participate and contribute.

By showing lower risk scores when they performed duties after controls were put in place, they recognised the benefits of following protocols for themselves. One example of this was the use of handles on Mackie Bins. The handles were available to workers previously; however they weren't used because it was "too hard" to fit and clean. After the risk scores demonstrated benefits in lowering back injury, workers were quick to adopt the handles.

c)   Return to Work physical demands.

A benefit of the task assessment is that it defines the physical demands of the task. This gives medical and safety professionals the opportunity to make informed decisions around bring a worker back to work to perform tasks that do not impact the injured body region. With information, medical staff can allow workers to return with greater confidence.

d)   ROI on equipment purchases for safety.

Investigations were made about the effectiveness of some simple risk controls like the use of "StrongArm straps" to pull out bins from under tables. Workers were able to assess the reductions in risk using demonstration equipment without the need to make purchases.

Similarly, tests on different trolly wheels demonstrated reduced load and exertion from some products over others making the choice based on both efficiency with safety benefits rather than cost alone.

The results from the analysis of step heights demonstrated benefits without the need to expose workers to added risk in a trial.

5) Useful resources

- Model Code of Practice: Hazardous manual tasks | Safe Work Australia

  https://www.safeworkaustralia.gov.au/doc/model-code-practice-hazardous-manual-tasks

- WorkSafe Queensland Analysis of Manual Handling

  https://www.worksafe.qld.gov.au/__data/assets/pdf_file/0017/101762/how-to-lift-training-an-analysis-of-survey-responses.pdf

- Wearable Assessment Technology Product Overview

  https://jointaction.solutions

- Identify, assess and control hazards - Managing risks | Safe Work Australia

  https://www.safeworkaustralia.gov.au/safety-topic/managing-health-and-safety/identify-assess-and-control-hazards/managing-risks

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