

## Case Study

# Identifying Musculoskeletal Injuries at Port Otago - Results and Insights Utilising a Comprehensive Data Collection Approach



Port Otago, prioritizes safety, ensuring an environment where staff can influence outcomes, supported by strong leadership, with no job too urgent to be done safely.

## Identifying the Problem

Musculoskeletal injuries are the most common cause of workplace injuries at Port Otago. Historically, they implemented short-term fixes like warm-up sessions and providing information on the importance of warming up before physical activity. However, these measures proved to be temporary solutions.

Recognizing the need for a sustainable approach, Port Otago aligned with broader initiatives. The government's Safer Ports program, conducted with the Port Industry Association, highlighted musculoskeletal harm as risk that must be addressed.

## Communicating the Trial

One of the primary challenges was ensuring effective communication across Port Otago's diverse departments. Not all employees had access to email, and even those who did might not check it regularly. To address this, Port Otago implemented several strategies:

- Engaging employees face-to-face during **pre-start and toolbox meetings**. These sessions proved to be the most effective way to communicate safety information.
- Utilising existing Soter **safety videos** and creating new ones, these were displayed on TVs around different areas and made available online.
- Monthly **safety committee meetings** helped disseminate information and gather feedback from different groups.

## Results and Insights Utilising a Comprehensive Data Collection Approach

The trial at Port Otago provided valuable insights into safety risks through a comprehensive data collection approach, enabling a detailed understanding of risk levels across various dimensions, including site, department, job role, and specific tasks. This meticulous data collection revealed significant findings and offered a detailed view of risk levels.



**Key activities during the trial included:**

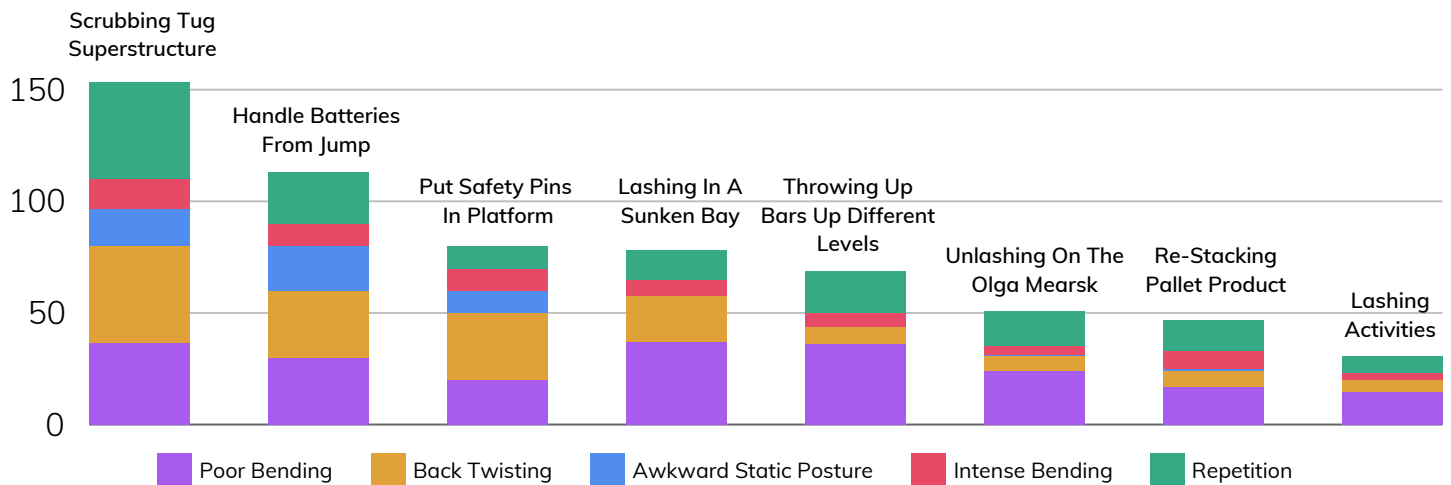
- Logging tasks and assigning them to individual worker profiles to identify risk peaks.
- Using the SoterCoach app for remote workers to log tasks via work devices.
- Creating SoterGenius videos based on high-risk data points to brainstorm risk-elimination strategies.
- Engaging in regular discussions with workers to investigate high-risk tasks.

By collaborating closely with Soter, **Port Otago identified that the observed improvements were due to:**

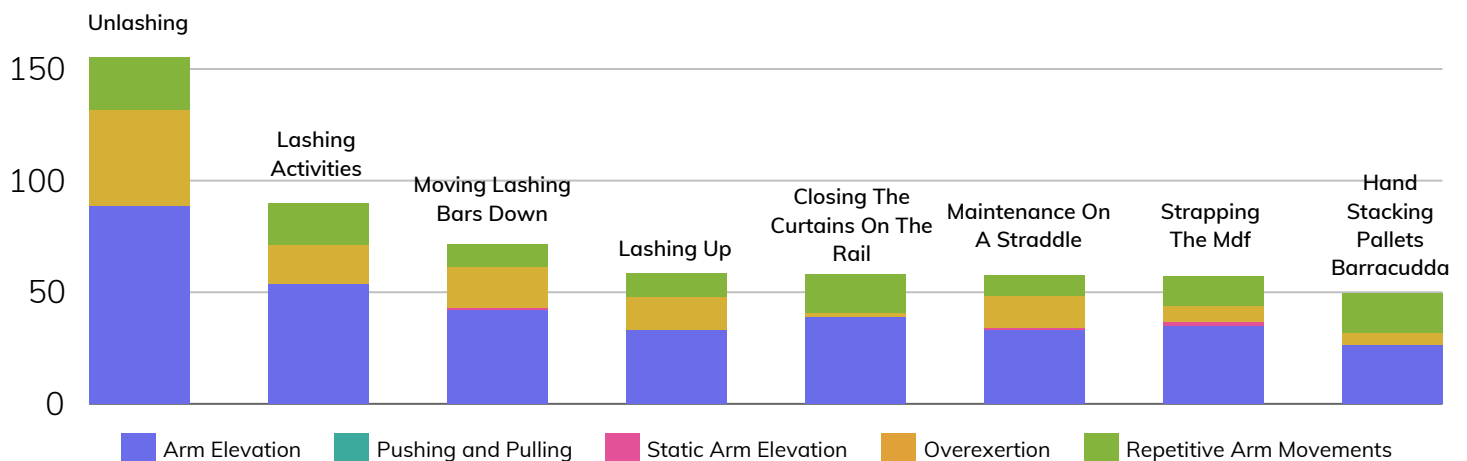
- A combination of hazard reductions, as workers altered their body posture and movements, and,
- Task rotation, which reduced muscular risk exposure (over the 10 program), whether intentionally or coincidentally.

**The data revealed substantial improvements in worker safety, with a 59.9% improvement in spine health and a 38.5% improvement in shoulder health.**

**Spine Hazards per Hour by Task**



**Shoulder Hazards per Hour by Task**

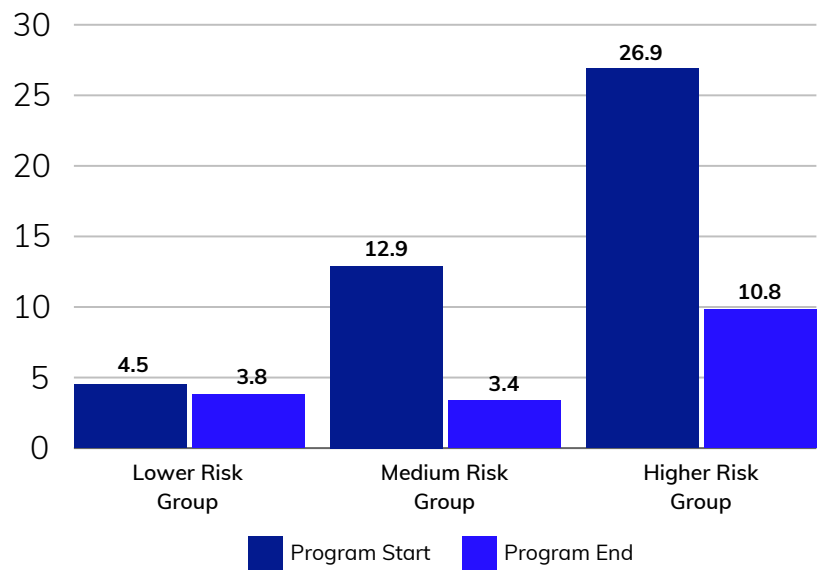


“The synergy of the technology's application, database, and dashboard would be beneficial in advancing musculoskeletal management at Port Otago. The Soter technology allows for thorough risk analysis of work activities, providing meaningful insights that guide us in enhancing the work environment. Our primary goal is to improve the workplace rather than simply making individuals adapt to it.”

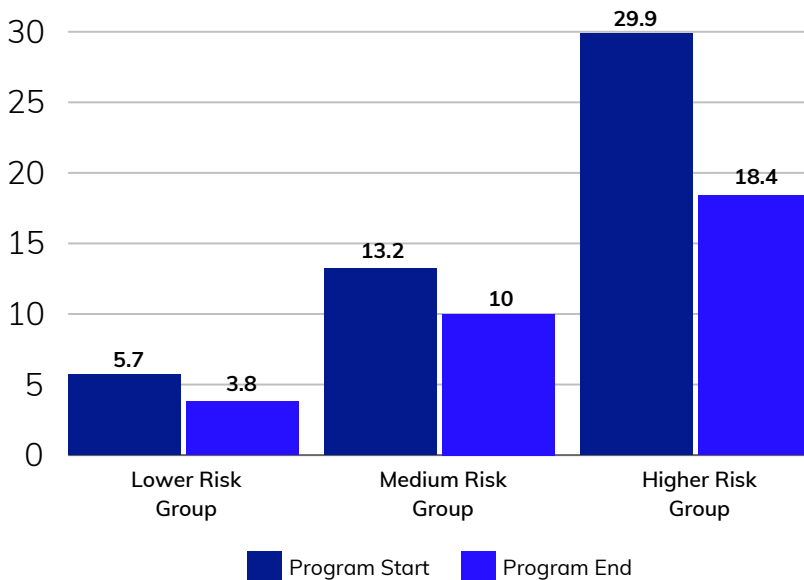
Ross Buchan,  
Head of Safety at Port Otago



Spine Hazards per Hour Change  
Start vs. End of the Program



Shoulder Hazards per Hour Change  
Start vs. End of the Program



## Worker Feedback

"Participating in the Soter trial was a timely reminder to watch my back out there. It complimented my marine team training perfectly, with the alerts making me more conscious of my movements, especially during physically demanding tasks like lassoing ropes and handling dumb barges. With guidance from the App tutorials, I quickly adapted to using the device as it became a useful tool for encouraging better lifting techniques. Though it sometimes felt overly sensitive, by the end of the 10-day trial, I noticed a significant improvement in my awareness and practices, ensuring I lifted heavy items correctly and reinforcing the importance of proper technique." - Says René van Baalen is a Relief Marine Service Operator and has been with Port Otago for 11 years.

## Future Strategy

Port Otago sees potential to work with wearable data and inferential statistics every few months, sampling various departments to extract actionable insights. These insights will inform changes in workstations, behaviors, and other safety-related factors for ongoing improvements.

With Soter's assistance, Port Otago aims to better understand musculoskeletal risks across different roles and departments, optimizing work design as a priority. This approach highlights their commitment to using precise, data-driven strategies to enhance workplace safety and reduce injury risks effectively.



"When it is not feasible to change the tasks, it is essential to implement systems that ensure our teams are physically fit and trained in the correct techniques. This approach minimizes risks so far as reasonably practicable.

The technology provides data of real exposure that would allow Port Otago to evaluate how it structures work activities to balance musculoskeletal risk over a shift and to ensure those performing the tasks are physically conditioned and performing the correct techniques to mitigate the risk of musculoskeletal harm promoting proper techniques and physical preparedness among the workforce, thereby significantly reducing injury risks."

Ross Buchan,  
Head of Safety at Port Otago

