Pilot Programs in Action: Leveraging Technology for MSD Prevention

WELCOME

DECEMBER 3, 2024
1:00 p.m. - 2:00 p.m. Eastern

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Musculoskeletal Disorders (MSDs) are:

One of the biggest safety challenges facing today's **employees**

One of the biggest challenges to operating a successful **business**

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CHALLENGE

U.S. private businesses lose nearly $18 billion in lost-wage and medical expenses

SOLUTION

Addressing workplace MSDs through MSD Solutions Lab

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Our Mission

To eliminate MSDs from workplaces worldwide, so workers can spend **more time doing the things they love with the people they love**.

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MSD Pledge 2.0

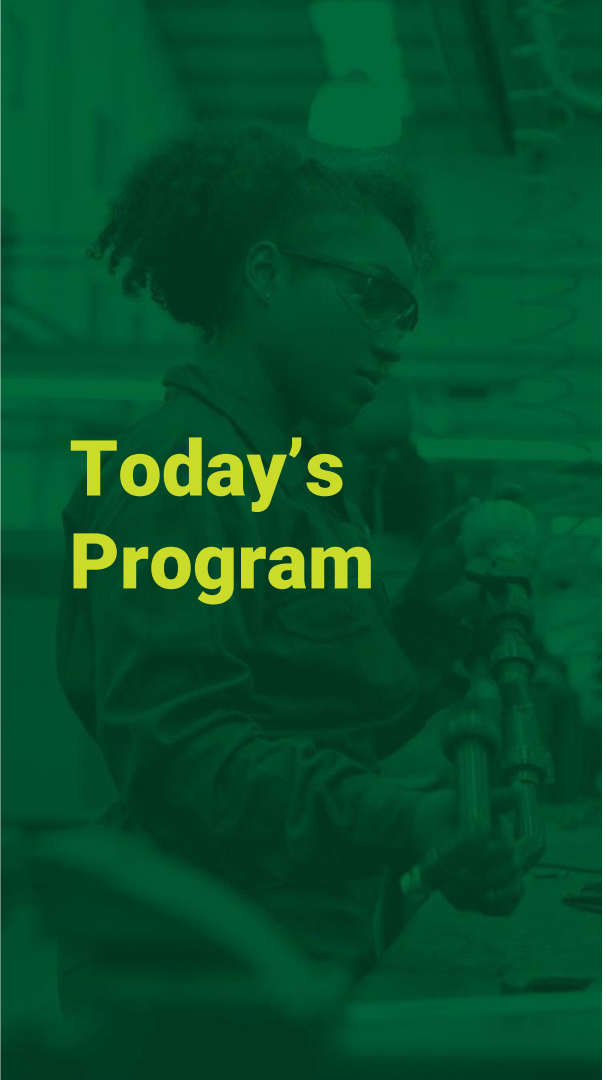
Analyzing the causes of MSD injuries and investing in solutions and practices that reduce risks to workers

Leveraging innovations and sharing learnings that improve safety practices

Building a culture of safety where everyone, at every level, is accountable for the safety and health of workers

MSD Pledge 2.0 members have the unique opportunity to **identify their own MSD risk-reduction goals.**


JOIN US!
nsc
MSD Solutions Lab
an nsc program
PLEDGE
2.0



Today's Program

FIRST

Background

An Introduction to the MSD Solutions Lab Grant Programs

Paige DeBaylo, PhD, Research Manager, MSD Solutions Lab, *National Safety Council*

NEXT

Case Studies

Pilot Programs in Action

Lisa Williamson, Director of Health & Safety, *Burlington Hydro*
Ryan Anderson, Risk Management Technology Programs Manager, *Amerisure Insurance*
Shane Bates, Regional Operations Safety Manager, *Beverage South Distributors*

THEN

Moderated Q&A

Group Discussion & Audience Interaction

LAST

Thank You

Closing Remarks & Special Announcment

This work was supported by Amazon.
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Grant Programs

MSD Pilot Grant Program

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- **Goal**: Prevent MSDs by matching organizations with innovative technology providers to trial emerging technologies in real-life applications
- Organizations are matched with technology providers from the Safety Innovation Challenge that takes place annually at NSC Congress & Expo
- Organizations pilot technology for a year and then provide NSC with information about their pilot
- **Requirements**: Be an MSD Pledge member; have MSD risks

MSD R2S Grant Program

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Goal: Develop, evaluate and/or disseminate effective solutions for musculoskeletal disorders (MSDs), focusing on occupational injury risk reduction.

- Intended to inspire collaboration among academic institutions, businesses and industries to uncover promising, transferable solutions that mitigate injury risk across a range of industry sectors.

Priority research areas:

- Emerging technologies for risk assessment and mitigation
- Legacy MSD high-risk jobs or tasks
- MSD management systems
- Total worker wellbeing

MSD Solutions Lab Pilot Grant Case Studies

Case Studies

Pilot Programs in Action

Lisa Williamson

Director, Health & Safety,
Burlington Hydro

BURLINGTON HYDRO INC.

A Review of the MSD Solutions Lab Pilot Grant Projects

Lisa Williamson
Director, Health & Safety

Ergonomics Simplified, Safety Amplified

Computer vision joint tracking for ergonomic risk assessments.

TuMeke empowers you to assess risk, reduce injuries, and increase productivity.

Computer vision joint tracking and powerful analytics tools.

Camera based assessments

No need for wearables, goniometers, or other equipment. Measure and automatically track the safety of employees without stopping production.

- Use your phone's camera in the app
- Upload an existing recording

- Assess
- Prioritize
- Improve
- Train

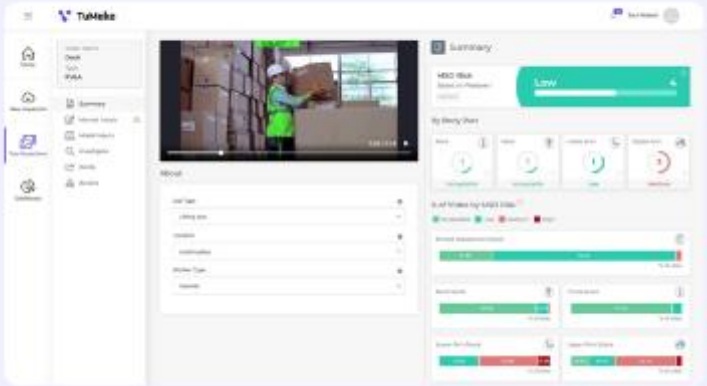
Solution

App

Automate ergonomic evaluations with computer vision.

Risk Suite

Centralize all assessment data. Model the impact of assessments. Uncover trends.



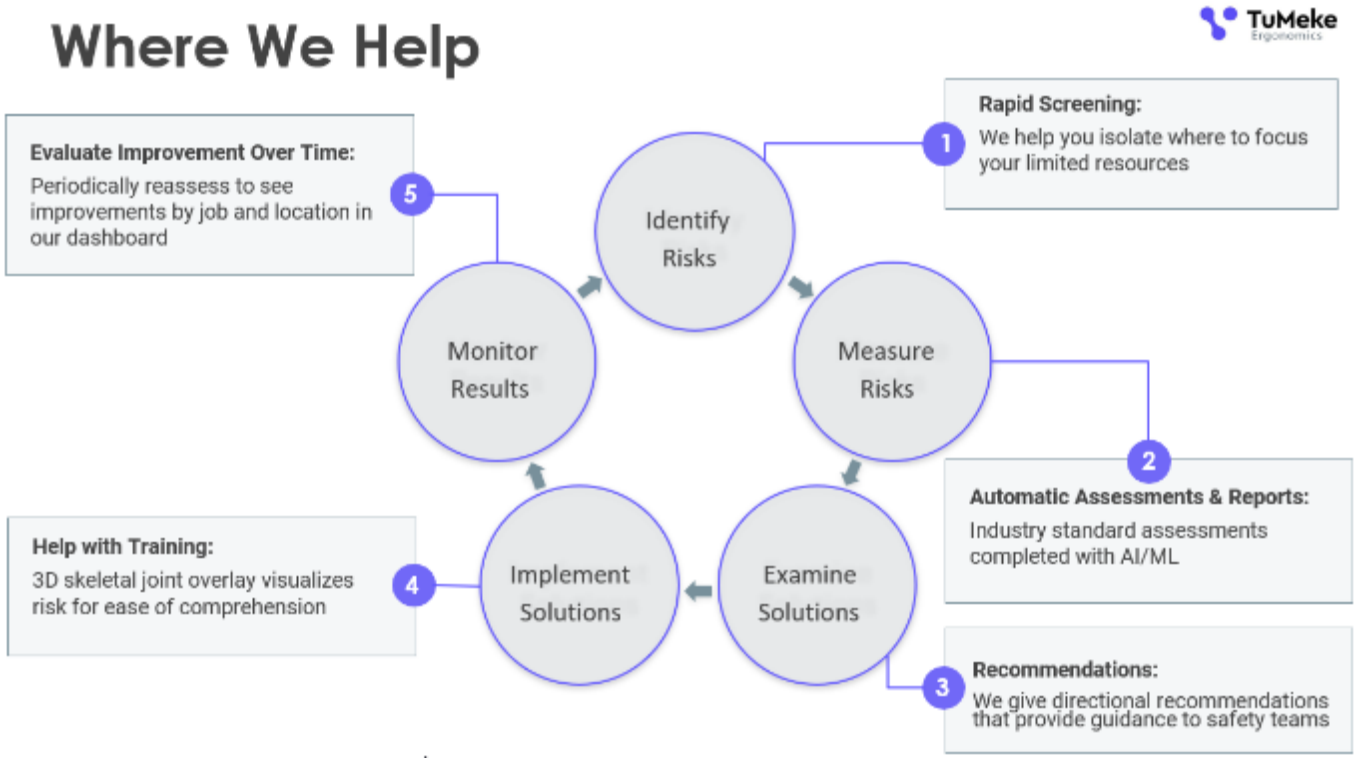
How TuMeke Works

Comprehensive Risk Analysis

Stop filling out long assessment worksheets so you can focus on giving great recommendations.

- Summary of risk using standard medical techniques
- Risky postures highlighted in the video
- Get a risk score for each part of the body
- Joint angles visualized in charts for deeper analysis

Where We Help



ABOUT **US**

Burlington Hydro Inc.
1340 Brant Street, Burlington, Ontario, CANADA

WHO ARE WE?

Burlington Hydro Inc. is a local electrical utility company with a service area of 188 square kilometers. We service approximately 68,500 residential and commercial customers in the City of Burlington, ON - Canada

OUR FACILITY

- Main Office Building, garage, shop and yard
- A 16,000 km distribution network (overhead & underground)
- 853 overhead powerlines
- 682 underground powerlines
- Over 15,500 poles
- 3,257 overhead transformers
- 103 employees
- Trades and Office staff are unionized

Existing Ergonomic Program

To reduce the risk of MSDs we have:

- Ergonomic risks identified in our H&S Policy
- An Ergonomic and MSD prevention program
- Risk Assessment Program
- Ergonomic assessments, individual or group discomfort surveys
- Office MSD hazard identification tool.

These are all reactive measures.

Using Tumeke Ergonomics is a proactive approach.

Burlington Hydro

Health and Safety Policy

At Burlington Hydro nothing is more important than the health, safety and well-being of our employees, those who work for us and the public. Burlington Hydro will make every effort to provide a safe, healthy, and fulfilling work environment. We believe all work-related illnesses and injuries can and must be prevented. We believe in empowering all employees to create and maintain a safe and healthy environment by assuming their role within the organizations Health, Safety & Environment Management System (HSEMS).

We are all connected through the organization we work for, and we can keep each other safe through our commitment to alerting one another to hazards and taking actions to control or eliminate those hazards.

We are committed to:

- The consideration and integration of health and safety into every aspect of our work.
- Having senior management set and review our Health and Safety objectives.
- All Leadership being responsible and accountable for providing a safe and healthy workplace.
- Holding Supervisors and Employees accountable to comply with pertinent legislation and established work practices, as defined by the HSEMS responsibilities.
- An environment where everyone embodies continuous improvement of the HSEMS and the reduction of risks through consultation and cooperation.
- Continual improvement of our health and safety performance.
- Our Ergonomic and Musculoskeletal Disorders (MSDs) Prevention Program.
- Providing the required training so that everyone is qualified and competent to perform their work.
- Meeting or exceeding the requirements of applicable legal health and safety requirements.
- Providing Public safety programs to protect members of the public.

Gerry Smallegange
President and CEO, Burlington Hydro Inc.
Approval Date: February 28, 2024

Aim of the Pilot Project

“What was the Problem?”

- Manual handling of heaving objects, awkward postures and overexertion are still a big part of the Powerline Technician trade.
- MSDs are the most common injury.
- Using a vision-based application for ergonomic assessments to video tape the tasks, identify problem areas and determine solutions to prevent MSDs will have a positive effect on our injury rates and workplace culture.

“Significance”

- If we want to reduce injuries in this trade, we need to find better ways for them to complete their work.
- The traditional approach to ergonomic assessments are tedious, time consuming and expensive because we don’t have the expertise in house.
- Paying a consultant to do ergonomic assessments is quite costly for a small organization.
- Without a proper assessment it is difficult to know where to invest our money to correct concerns and eliminate risks.

Project Steps

1. Department Tasks Lists
2. Field Videos and Uploading
3. Analysis and Reports
4. Results (Examples)

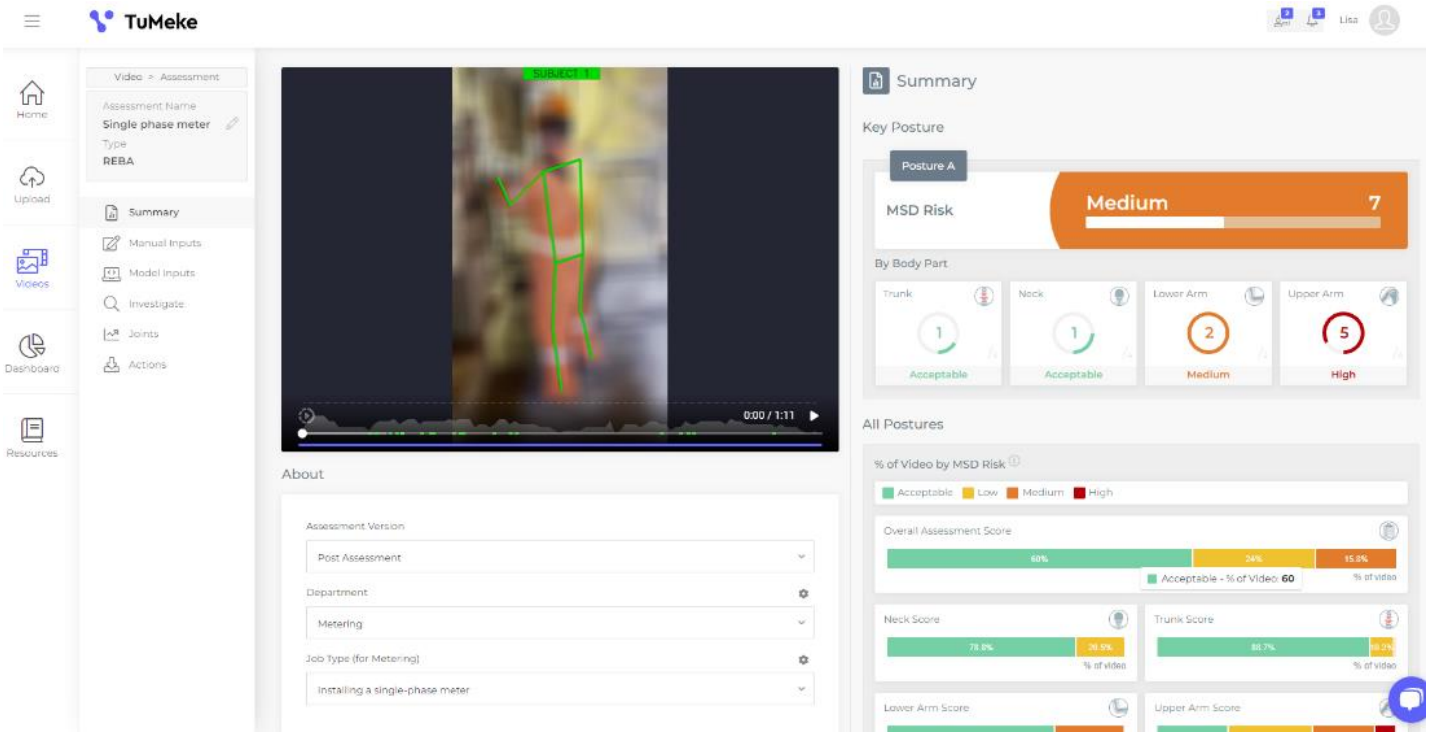
Step 1 - Creating Department Task Lists

Task Name	Safe Work Procedure #
Attaching slings	LNE 5.04 Overhead Live Line Work – Rigging and Hoisting
Carrying heavy material	GEN 1.05 Manual Lifting
Change the insulator	LNE 5.16 Overhead Live Line Work – Insulator Change Tangent Structure
Climbing and descending portable ladders	GEN Portable Ladders and Inspection
Hand digging with shovel	LNE 5.12 Overhead Live Line Work – Temporary Support of Wood Poles
Handling load lines	LNE 5.04 Overhead Live Line Work – Rigging and Hoisting
Handling pole with rope or guys	LNE 5.14 Overhead Live Line Work – Handling Structurally Damaged Poles
Handling tools while in the bucket	LNE 5.03 Overhead Live Line Work – Material Handling
Install jumper	LNE 5.10 Overhead Live Line Work – Work on Dead-Ends
Install jumpers	Various
Install lighting arresters using the mounting provisi	LNE 5.05 Overhead Live Line Work – Installing SCADA-Mate Switches
Install line equipment	LNE 5.10 Overhead Live Line Work – Work on Dead-Ends
Install temporary rope guys	LNE 5.12 Overhead Live Line Work – Temporary Support of Wood Poles
Installing and removing grounds	Various
Installing fibreglass guard	LNE 5.07 Overhead Live Line Work – ABS Maintenance or Repair
Installing in-line switches	LNE 5.15 Overhead Live Line Work –Installing of In-Line Switches
Installing quick sleeves	Various
Installing rubber coverup	Various
Installing the leads	LNE 5.17 Overhead Live Line Work – Single Phase Distribution Tx
Installing vehicle blocking	Gen 1.13 Wheel Chocks
Loading poles onto the pole trailer	Various
Make all repairs and adjustments	LNE 5.07 Overhead Live Line Work – ABS Maintenance or Repair
Manual lifting	GEN 1.05 Manual Lifting
Mounting and installing the transformer	LNE 5.17 Overhead Live Line Work – Single Phase Distribution Tx
Mounting/installing the transformer	LNW 5.06 Overhead Live Line Work – Paralleling Single-Phase Tx
Open and installing all six Pig Tail connectors	LNE 5.07 Overhead Live Line Work – ABS Maintenance or Repair
Operating hand tools	GEN 1.12 Hand tools
Removing submersible vault lids	**Various**
Replacing damaged conductors	LNE 5.09 Overhead Live Line Work – Insulator Change on Angle Structure
Rigging material or equipment	LNE 5.04 Overhead Live Line Work – Rigging and Hoisting
Securing load on truck/trailer	LNE 5.03 Overhead Live Line Work – Material Handling
Setting out traffic signs and cones	GEN 1.11 Traffic Control Procedures
Take secondary voltage readings	LNW 5.06 Overhead Live Line Work – Paralleling Single-Phase Tx
Taking amperage reading	LNE 5.13 Overhead Live Line Work – Working on Neutral Conductor
Using meter stick with hot-pot adapter	LNE 5.25 Underground Live Line Work - Hi-Pot adapter Procedure
Using metering stick	Various

Step 2 – Field Videos

- Coordinated with our Operations Department Supervisors and Lead hands
- Voluntary for employees to participate
- Video’s taken with cell phones by the H&S department or Supervisors/Lead Hands
- Positive participation by our employees
- All videos were uploaded to Tumeke Ergonomics on the Desktop

Step 3 – Analysis and Reports



Step 4 – Example 1

Lines - Submersible Lid Lift
2023-11-21

TuMeke

About

Assessment Type	REBA	Subjects	2	Inspection length	< 1 minute
Assessment Version	Initial Assessment	Department	Lines		

Overview

MSD Risk
Based on Posture A

High 9

By Body Part

Trunk	Upper Arm	Lower Arm	Neck	Leg
4 /6	5 /6	2 /3	1 /4	2 /6
Medium	High	Medium	Acceptable	Low

Step 4 – Example 2

Stores_Propane Storage

2024-01-08

TuMeke

About

Assessment Type	REBA	Subjects	1	Inspection length	< 1 minute
Assessment Version	Initial Assessment	Department	Stores/Yard		

Overview

MSD Risk

Based on Posture A

Medium 6

By Body Part

Trunk	Upper Arm	Lower Arm	Neck	Leg
2 /6	4 /6	1 /3	1 /4	3 /6
Low	Medium	Acceptable	Acceptable	Medium

Next Steps

- Introduced a Mobility Program (Stretching)

- Review videos at Safety Meeting:
  - highlighting awkward postures
  - discuss how tasks could be done differently
  - other suggestions, tools or equipment

- Capture all actions in our HSEMS Action tracking tool

Case Studies

Pilot Programs in Action

Ryan Anderson

Risk Management Technology Programs Manager, Amerisure Insurance

Shane Bates

Regional Operations, Safety Manager, Beverage South Distributors

HEROWEAR

PILOT RESULTS & FINDINGS

Auto-Wares GROUP OF COMPANIES

Beverage South a J&L Ventures Company

AMERISURE

MSD Solutions Lab

HEROWEAR

PILOT OF HEROWEAR'S APEX 2

A PASSIVE, SOFT-EXOSKELETON (REFERRED TO AS AN EXOSUIT) WHICH PROVIDES THE USER'S LOWER BACK ASSISTANCE DURING LIFTING & BENDING MOVEMENTS.


HEROWEAR
HEROWEAR

Auto-Wares
GROUP OF COMPANIES

Auto parts distributor throughout the Midwest.

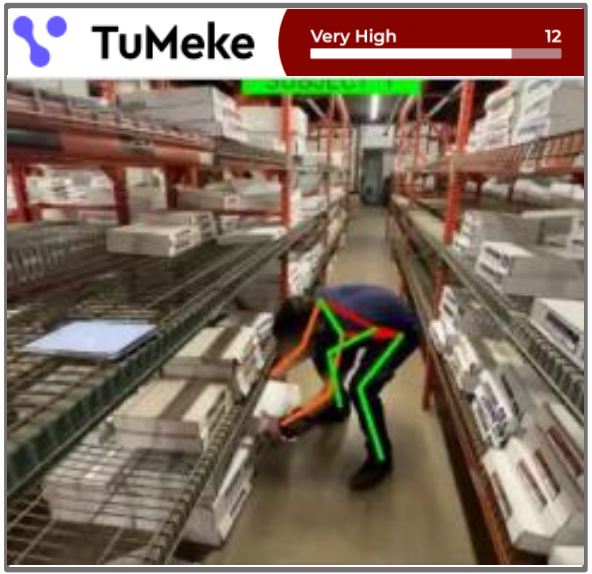
2400 employees.
230 retail stores.
8 distribution centers.

Beverage South
a J&L Ventures Company

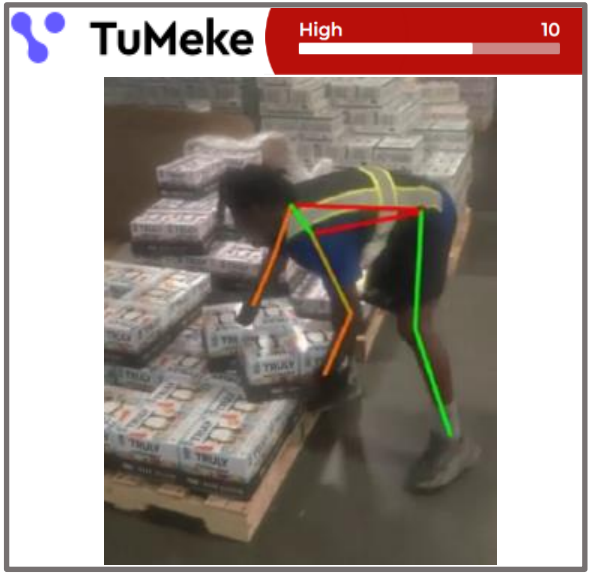
Beverage distributor throughout GA and SC.

742 employees.
8 companies.
9 warehouses.
Distributing > 19 million CE's.

Auto-Wares
GROUP OF COMPANIES

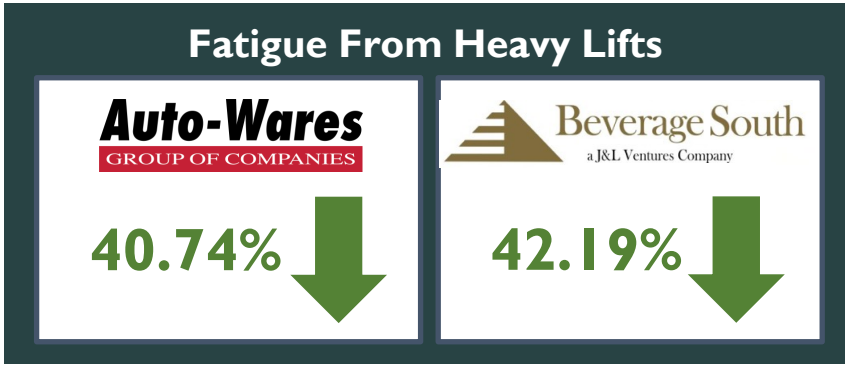


Beverage South
a J&L Ventures Company



RESULTS OF THE HEROWEAR PILOT

RESULTS OF THE HEROWEAR PILOT



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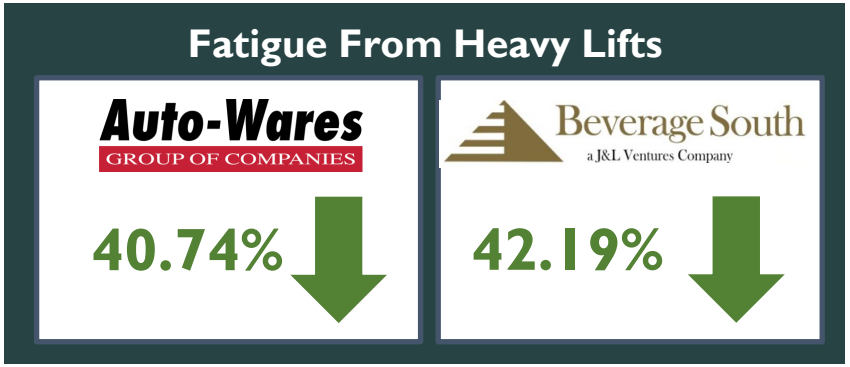

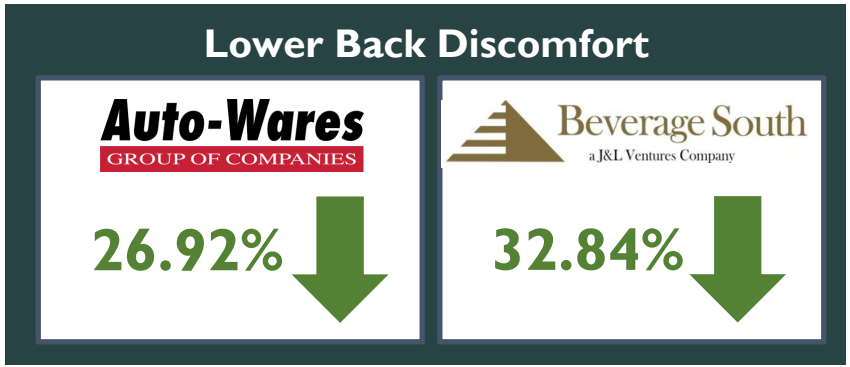

RESULTS OF THE HEROWEAR PILOT

Fatigue From Heavy Lifts

Auto-Wares GROUP OF COMPANIES

40.74% ↓

Beverage South a J&L Ventures Company

42.19% ↓

Productivity

Auto-Wares GROUP OF COMPANIES

14.69% ↑

Beverage South a J&L Ventures Company

1.35% ↓

Lower Back Discomfort

Auto-Wares GROUP OF COMPANIES

26.92% ↓

Beverage South a J&L Ventures Company

32.84% ↓

RESULTS OF THE HEROWEAR PILOT

Fatigue From Heavy Lifts

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Lower Back Discomfort

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Beverage South a J&L Ventures Company

32.84% ↓

Employee Adoption

Auto-Wares GROUP OF COMPANIES

83%

Beverage South a J&L Ventures Company

33%

HEROWEAR

Summary of Key Findings

- HeroWear is an effective safety solution, but it is not a "silver bullet" for all tasks/workplaces
- The champions/pilot program manager can be make-or-break
- A company must match the solution not only to the problem but also the task design
- Employee adoption and utilization is frequently underestimated

Moderated Q&A

GROUP DISCUSSION & AUDIENCE INTERACTION

MODERATED BY

Paige DeBaylo, PhD
Research Manager,
MSD Solutions Lab
National Safety Council

Lisa Williamson

Director, Health & Safety, Burlington Hydro

Ryan Anderson

Risk Management Technology Programs Manager, Amerisure Insurance

Shane Bates

Regional Operations, Safety Manager, Beverage South Distributors

Next Steps for Pilot Grants

- **Publish 2023-2024 grant findings report** summarizing the implementation process, successes, challenges, lessons learned, and ROI of implemented technology in more depth.
- **Launch 2025-2026 grants**

Pilot grants receive up to $20,000 per project

R2S grants receive up to $50,000 per project

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SPECIAL ANNOUNCEMENT

MSD Solutions Lab Grants are available TODAY!

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LOOKING FORWARD

Publishing the lab's annual MSD Solutions Index Community Report, focused on Pledge community MSD prevention efforts.

Publishing the 2023-2024 Research to Solutions and MSD Solutions Pilot Grant programs reports.

The MSD Solutions Lab team will be in St. Louis for the annual NSC Future of EHS event, February 18-20

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MSD Solutions Lab
an nsc program
Together, we can improve workplace safety, reduce MSD risks and enhance the wellbeing of workers around the world.
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Please take a minute or two
to respond to our poll!

Thank You!

We are always here for you

msdsolutionslab@nsc.org

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