A Wave (of New Technology) in the Oasis: Understanding What Wearable Devices Can Do for Your Program

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A WAVE (of new technology) IN THE OASIS

UNDERSTANDING WHAT WEARABLE DEVICES CAN DO FOR YOUR WORKERS’ COMPENSATION PROGRAM
A WAVE (of new technology) IN THE OASIS

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ALFA International
PREVENTING WORKERS’ COMPENSATION CLAIMS THROUGH MANAGEMENT OF BODY MECHANICS
POOR BIOMECHANICS & POSTURES LEAD TO COSTLY EMPLOYEE INJURIES

- Musculoskeletal Disorders (MSDS) are the most common and costly injury category in the United States
- MSDS account for almost 400,000 injuries every year
- 60% of MSDS injuries are to the back (45.4%) and shoulder (14.6%)
- Direct costs of MSDS are $20 billion a year (compensation, medical and legal)
- MSDS Cases require 38% more lost time days than the average injury/illness
The first step to prevention is a decision to get proactive not reactive. To be proactive, we need to measure behavior, not accidents. Wearable technology is the solution. Case study statistics show wearable devices change at-risk behavior and promote long-term safe practices which leads to proper body mechanics and postures reducing injury risks.
Kinetic Overview

Kinetic was founded to develop the hardware, software and data analysis tools to enable a connected industrial workforce. Insights from this connected workforce will enable a safer and more productive workplace, saving dollars spent on preventable injuries and lost productivity.

Smart Wearable Device

Reflex is a wearable device that can automatically detect high risk lifts and unsafe postures. An immediate vibration occurs when a high-risk motion occurs. Data is uploaded wirelessly to a web application when the wearable device is placed on a recharging dock. It quantifies high-risk postures. Viewing risk data on the Kinetic dashboard, provides actionable Insights. Monthly rental per unit is $20-$40.

Pilot Objectives

- Data-driven insight on how to reduce injury risk
- Lower injury frequency
- Reduction of injury severity
- Long-term, safer behavioral practices
- Reduction in workers’ compensation costs

Collaboration

We will be financially partnering with XXX in this pilot program. Data will be shared between all parties.

Schedule

- Device Deployment - January 8, 2018
- Baseline Phase (no Feedback) - 2 weeks
- Retraining and Feedback Phase - Begins January 22, 2018
- Quarterly Leadership Reporting

Description of Work

- 100 Associates
- ½ control group
- ½ with data collection
- 10 charging docks
- On-site support, quarterly
- Customized web application Dashboard

Pilot Summary

Total Cost of Pilot $XX,XXX TBI Share

Duration of Project 1 Year
Components of Kinetic Device

- Wearable device
- Computer for viewing vendor web dashboard
- Charging docks (10 units each)
- Wi-Fi
- Electricity source
CASE STUDY 1 – CRANE WORLDWIDE LOGISTICS

Crane Worldwide Logistics has its largest distribution facility in Houston, Texas. Workers in their Houston plant were equipped with Kinetic technology.

84%
Reduction in high risk postures per worker from 140 per day to 22.

80%
Of Crane’s workers recommended management to buy the product

AVERAGE NUMBER OF HIGH RISK LIFTS PER WORKER PER DAY

Before feedback

After feedback
Real-time feedback after high risk lifts and competition

Measure baseline number of high risk lifts

Day 1  Day 2  Day 3  Day 4  Day 5  Day 6  Day 7  Day 8  Day 9  Week 4

107  156  152  164  119  27  25  10  25  21
CASE STUDY 2 - GLOBAL SHIPPING COMPANY

Shipping and sorting warehouse hub where workers move 400 packages an hour. After an initial period of baseline, workers received real-time feedback and were encouraged to compete on reducing high risk lifts.

55% Reduction in high risk lifts per worker, from 332 to 152 per shift

50% less time in bad ergonomic positions, leading to less risk of back injury

AVERAGE NUMBER OF HIGH RISK LIFTS PER SHIFT, FOR EACH WORKER

Before feedback | After feedback
--- | ---
Baseline: 332 | Week 1: 200
Week 1: 228 | Week 5: 216
Week 5: 240 | Week 10: 180
Week 10: 200 |
CASE STUDY 3 - CATERPILLAR

Workers were equipped with Kinetic’s technology at an industrial facility with a wide variety of manufacturing and logistics tasks. They received real-time feedback on posture.

"YOU GET SO BUSY WITH WORK THAT YOU FORGET ABOUT POSTURE. KINETIC REMINDED ME"
Associate

77%
Reduction in high risk lifts per worker, from 210 to 49 per shift
Steps to Implement Changing Behaviors and Reducing Work Comp Claims

- Determine if you have excessive poor body mechanics and postures
- Train and Coach Employees
- Examine Work Station Ergonomics
- Analyze and Review Claim Events
LEADING INDICATORS

• Number of Bad Body Mechanics & Postures
• Observations by Associates & Service Team Members
  qualitative data: survey results

LAGGING INDICATORS

• Lower Frequency of Injury
  quantitative data: decrease WSR/TRIR rates
• Reduction of Severity
  quantitative data: decrease lost time days

LONG TERM IMPACT

Reduction in Workers’ Compensation Costs
Associate Benefit

- Participation is 100% voluntary
- Opportunity to participate in program with innovative technology
- Financial reward of gift cards for most improved, best in department, etc.
- A safe and healthy workplace and continued good health
Prospective Location for Wearable Technology Program

- 200+ Temporary Associates onsite
- Physical job tasks require bending, lifting, reaching, twisting
- Workers’ Safety Ratio (WSR) or Total Recordable Incident Rate (TRIR) above company goal
- Lost Workday Incident Rate (LWIR) above company goal
- Musculoskeletal Disorders (MSDS) injury history to back and shoulders
- High workers’ compensation claim costs
- (3 year average)
- Value add solution for Clients
- Account Manager has ability to assist with wearable technology program
Previous pilots delivered an average of 53% reduction in bad body mechanics and high risk postures.

In the pilot we predict a 25% savings or 10 claims and $XXX,XXX annually.

If successful and rolled to the entire Associate population this would equate to approximately $XXX,XXX.

We predict a 25% reduction in lost work days due to improved physical capabilities.

This site has experienced an annual average of 485 days of lost time due to the severity of workers’ compensation injuries.
Long Term Benefits

- $XXX,XXX in annual savings at pilot locations
- SMX has identified other sites to introduce the program.
- Value add for SMX customers – Customers view temporary workers as a commodity and are demanding value add solutions.
- Solidify innovation partnership with AIG as this is the first project we have been able to successfully launch with them.
Concerns

- Complaints while wearing the device
  Counter measure: associate participation is voluntary
- Resistance from Associates to voluntary participate
  Counter measure: financial rewards
- Manipulation by Associates
  Counter measure: financial reward for most improved
- Inconsistent Wi-Fi strength throughout building
  Counter measure: enhance Wi-Fi strength
- Short term pilot does not show desired results
  Counter measure: increased devices and extended length of pilot
- Cost to utilize the product on a large scale
  Counter measure: volume discount will need to be negotiated
Employee presentations provided in small groups to encourage dialog and opportunity to ask questions → Pilot Summary and FAQ documents distributed

Employee Agreements executed → Employee shown how to properly wear technology device

Devices distributed with no vibration feedback activated (7-14 day time period) → Employee provided handout with baseline statistics. Coaching and goals provided. Device feedback activated.
Pilot Location Baseline Data of High Risk Postures

Baseline: Wearable devices collected data on the number of unsafe postures, but did not provide real-time vibration when an unsafe posture was performed.

**BASELINE DATA:**

- Workers at all facilities perform on average 52 high risk postures per day.
- Range goes from 3 – 366 high risk postures per day.

<table>
<thead>
<tr>
<th>Baseline Average</th>
<th>Lowest</th>
<th>Highest</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk Postures Per Worker Per Day</td>
<td>High Risk Postures Per Day</td>
<td>High Risk Postures Per Day</td>
</tr>
<tr>
<td><strong>52</strong></td>
<td><strong>3</strong></td>
<td><strong>366</strong></td>
</tr>
</tbody>
</table>

* Vendor average 53 high risk postures
Pilot Location Baseline Data to Examine Work Station Ergonomics

Daily High Risk Postures, Per Job Type:

- The chart below shows for each job type, the proportion of twists vs bends or reaches. Reinspection has the highest proportion of twists, while LNSV has the highest proportion of bends.

Device revealed a significant amount of twisting in the process and/or work station ergonomics.
Example of Employee Feedback and Success

Statistical Handout for most Improved. Baseline 366 Daily Average High Risk Movements. 96% Improvement with device feedback activated.
Train and Coach Employees

Incentives are given to encourage corrected behavior retention and participation. Rewards are given based on metrics of:

**Bi-weekly**
- Most improved $25
- Least high risk motions $25

**Monthly**
- Percentage of time worn $50
  *attendance incentive

**Quarterly**
- Participation excellence $100

$20 Spot awards are also given randomly. Rewards are in the form of gift cards.

Kinetic provides statistical handouts to share with individual workers. This provides the opportunity to engage with the employee and provide training and coaching as needed. Performance metric goals can be established for the next data period.
Examine Work Station Ergonomics

We have the ability to measure body mechanics by job or department. If poor body mechanics and postures are consistent with Associates, the process and/or work station needs to be examined.

Examining processes and/or work stations could be beneficial if a department does not improve high risk postures by 50% from baseline (26) within 3 months.

Making an ergonomics expert available would be a value add solution for our customers/clients.

Areas Identified for Review

 ✓ LNSV
 ✓ Supervisor (retraining recommended)

Added Based on Individual Worker Performance

 ✓ Vinyl Cut
 ✓ Final Inspection Pit
Steps for Ergonomic Specialist Consultation

- **Share**
  - Share our wearable technology data with client which suggests a consultation is warranted. Body mechanics and postures are consistent with Associates.

- **Injury Info**
  - Try and obtain clients injury information. If our client is having the same problem, they will be more apt to collaborate and implement solutions.

- **Permission**
  - Obtain client permission for consultation.

- **Select Specialist**
  - Select ergonomics specialist and schedule site visit.

- **Participation**
  - Encourage client to participate during visit. Ensure we conduct the examination with as little business interruption as possible.

- **Results**
  - Meet with client regarding consultation results.

- **Action Plan**
  - Develop an action plan to implement changes agreed upon.
Workers performed a daily average of 26 high-risk postures. This is an improvement of 50% over the count of 52 daily performed during baseline.
# Analysis of Data

## Measurements
- Number of High Risk Postures
- Claim Events in Work Path – Pilot Participants vs. Control Group
- Frequency of Injury
- Severity of Injury
- Financials including Developed Claim Costs
- High Risk Postures by Department

for ergonomics study

## What Success Looks Like
- 50% reduction from baseline
- Evidence that use of device prevents injuries
- Decrease WSR & TRIR Rates
- Reduction of Lost Work Days
- Workers’ compensation claim costs savings
Frequency of Injury

Severity of Injury

WSR and TRIR

Lost Time Days

Includes all associates, all injuries

0:22.3 average lost work day ratio

Includes all associates, all injuries

0:22.3 average lost work day ratio

0% 3 YR AVG - 268 LDW
0% Pilot YTD - Zero LDW
High Risk Postures by Department

<table>
<thead>
<tr>
<th>Job Type</th>
<th>Daily High-risk Postures Per worker</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>REINSPECTION</td>
<td>65</td>
<td>30%</td>
</tr>
<tr>
<td>SUPERVISOR</td>
<td>61</td>
<td>28%</td>
</tr>
<tr>
<td>LNSV</td>
<td>35</td>
<td>16%</td>
</tr>
<tr>
<td>LAMINATION</td>
<td>24</td>
<td>11%</td>
</tr>
<tr>
<td>VINYL CUT</td>
<td>20</td>
<td>9%</td>
</tr>
<tr>
<td>HOT END</td>
<td>13</td>
<td>6%</td>
</tr>
</tbody>
</table>
Significant changes in the workplace are the result of new and advanced technology. TrueBlue is measuring Associate’s body mechanics with wearable technology to proactively reduce poor biomechanics and postures which lead to costly workers’ compensation claims. Providing a safe, healthy workplace and continued good health for our employees demands continuous improvement of claim prevention.

We are 22 weeks into the pilot, and have achieved the following successes.

- Identification of high risk twisting at pilot location
- 50% reduction in high risk postures compared to our baseline data
- Claim ratio is 1:2, Pilot Participant vs. Control Group
- Our Associates are checking their results 15.5 times a day. That is high engagement, and the highest our vendor has seen at any other company thus far.
- Incentives have been awarded to pilot participants for improvement in at-risk behaviors
- Pilot program has increased safety awareness at the location as demonstrated by the reduction in our Worker Safety Ratio (WSR) and Total Recordable Incident Rate (TRIR)
- Identified work stations and processes for ergonomic review, to assess opportunities for improvement
- Solidified innovation partnership with our insurance carrier.

Conclusion