



## NATIONAL SAFETY COUNCIL

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### Position/Policy Statement

#### Addressing Musculoskeletal Disorders (MSDs) in the Workplace

##### POSITION/POLICY POSITION

The National Safety Council (NSC) adopts this policy position statement to advance efforts to prevent musculoskeletal disorders (MSDs) in workplace settings. NSC supports comprehensive practices and programs that protect workers across all industries from preventable injuries. NSC believes this statement will promote safer work environments and reduce MSD-related risk factors and associated economic costs.

##### JUSTIFICATION

Workplaces should be free of hazards that can cause workers to sustain injuries. Workplace injuries, including MSDs, cost U.S. private organizations more than \$1 billion per week, with 2.6 million illness and injury cases reported in 2023.<sup>1,2</sup> Overexertion, which includes injuries related to manual material handling such as lifting, pushing, pulling, holding or carrying, is one of the primary causes of MSDs and costs U.S. organizations close to \$12.5 billion annually through direct medical costs and lost-wage payments. Overexertion and bodily reaction injuries resulted in the most Days Away, Restricted, or Transferred (DART) cases (a median of 23 days compared to 12 days for all cases) and the second most Days Away from Work (DAFW) cases (a median of 14 days compared to 10 days for all cases) during 2021 and 2022, respectively.<sup>3,4</sup> These median days imply more extended recovery periods for these types of injuries than cases where workers take time off, thus increasing the economic and operational burden on workers and employers.

NSC advocates prioritizing workplace safety as more than a legal or ethical obligation for employers, but as a strategic investment with measurable returns.<sup>5</sup> Preventing a single lost-time injury can save an organization approximately \$37,000 and avoiding a workplace fatality can

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<sup>1</sup> <https://business.libertymutual.com/insights/2024-workplace-safety-index/>

<sup>2</sup> <https://injuryfacts.nsc.org/work/safety-topics/overexertion-and-bodily-reaction/>

<sup>3</sup> DART are workplace injury cases which involve days away from work beyond the day of injury or onset of illness, days of job transfer or restricted work activity, or both. DART provide insight into the severity of injuries and their impact on a worker's ability to work.

<sup>4</sup> <https://www.bls.gov/iif/nonfatal-injuries-and-illnesses-tables/case-and-demographic-characteristics-table-r67-2020.htm>

<sup>5</sup> <https://www.nsc.org/getmedia/d81515ce-57ba-4347-821e-4af731076260/journey-to-safety-excellence-safety-business-case-executives.pdf>

save nearly \$1.4 million.<sup>6</sup> Researchers have found a “link” between the health and safety culture of workplaces and their commercial success.<sup>7</sup> By fostering comprehensive cultures of wellbeing, companies that prioritize employee health and safety consistently outperformed the market, suggesting that strong injury prevention efforts offer workforce benefits and a measurable competitive advantage. This evidence supports incorporating health and safety excellence, including MSD prevention, into core business strategies.

Recently, state legislatures have taken an interest in investing in policies that further MSD prevention initiatives. In 2018, California adopted regulations to protect hotel housekeepers from injury.<sup>8</sup> In 2023, Minnesota enacted ergonomics standards for high-risk sectors such as large warehouses, meatpacking, poultry processing and healthcare facilities.<sup>9</sup> Similarly, the Washington Department of Labor and Industries initiated rulemaking efforts to curb MSDs in industries and risk classifications with historically high injury rates.<sup>10</sup> In 2024, New York enacted the Warehouse Worker Injury Reduction Program into law which expanded the 2022 Warehouse Worker Protection Act.<sup>11</sup> Effective June 1, 2025, large warehouse employers must establish ergonomics-based injury reduction programs, conduct annual worksite evaluations by ergonomists, correct identified risks, provide yearly employee training, involve workers in program development and ensure access to qualified medical care for MSDs.

While safety regulations are a prominent reason for businesses to invest in safe workplaces, NSC encourages employers to maximize their investments in safety by creating positive safety cultures that allow employees to participate in creating safe workplaces, contribute to promoting behaviors conducive to being safe on the job and seek controls to mitigate identified risks.

## **BACKGROUND**

Work-related MSDs occur when muscles, nerves, tendons, joints, cartilage, ligaments or spinal discs are impacted by occupational tasks where forceful exertions are performed in awkward positions or through repetitive movements, leading to pain and injury over time. These injuries develop slowly over weeks, months or years, and are driven by the cumulative effect of prolonged duration and severity of exposure to work-related activities. Examples of MSDs include carpal tunnel syndrome, tendonitis, herniated disc and other connective tissue disorders.<sup>12</sup> MSDs are multifactorial, meaning a combination of physical (e.g., posture, force and repetition) and/or non-physical (e.g., job stress, job security, long work schedules) risk factors could lead to developing an MSD.<sup>13</sup>

High-risk industries such as manufacturing, meat processing, transportation, warehousing and health care are especially impacted, with workers frequently performing repetitive tasks, holding non-neutral postures and engaged in forceful exertion such as heavy lifting.<sup>14</sup> Epidemiological

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<sup>6</sup> Ibid.

<sup>7</sup> <https://pubmed.ncbi.nlm.nih.gov/24013656/>

<sup>8</sup> <https://www.dir.ca.gov/DIRNews/2018/2018-18.pdf>

<sup>9</sup> <https://www.dli.mn.gov/business/workplace-safety-and-health/mnosha-compliance-ergonomics>

<sup>10</sup> <https://www.lni.wa.gov/safety-health/safety-rules/rulemaking-stakeholder-information/ergonomics-rulemaking>

<sup>11</sup> [https://newyork.public.law/laws/n.y.\\_labor\\_law\\_article\\_21-a](https://newyork.public.law/laws/n.y._labor_law_article_21-a)

<sup>12</sup> <https://wwwn.cdc.gov/NIOSH-WHC/topic/illness>

<sup>13</sup> <https://www.nsc.org/faforms/msd-non-physical-risk-factors-whitepaper>

<sup>14</sup> <https://www.bls.gov/iif/factsheets/msds.htm>

evidence suggests an interdependence between force and repetition in MSD risk, where repetition modestly increases risk in low-force tasks but significantly elevates it in high-force tasks.<sup>15</sup> For example, faster work pace and limited recovery time, common in “just-in-time” manufacturing, were linked to increased musculoskeletal symptoms.<sup>16</sup> Similarly, piece rate, a measure of job-specific line speed (e.g., task repetition), is associated with MSD risk in poultry and swine processing workers.<sup>17,18</sup> In health care, 82% of patient handling injuries occur when staff do not use equipment provided for the task.<sup>19</sup>

In terms of interventions, OSHA provided several case studies demonstrating the effectiveness of ergonomic programs and other relevant interventions.<sup>20</sup> For example, in poultry processing, ergonomic improvements such as adjustable platforms, knife sharpening, rotation and training reduced upper-extremity injuries from 32 per month to zero. Similarly, through ergonomic training and engineering controls, shoe manufacturers reduced repetitive motion injuries from 70% to 25-30%. In health care settings, Safe Patient Handling and Mobility programs that include the use of patient handling equipment for the safe handling of patients can reduce staff injuries by 56%.<sup>21</sup> Implementing a “zero lift program” (i.e., replacing most manual patient lifting with lifting equipment) in rural community hospitals in Washington (a state with enacted legislation on patient handling) resulted in a 43% reduction in patient handling injury claims.<sup>22</sup> Similarly, a medical center in New Jersey (another state with enacted legislation on patient handling) reported a 57% decrease in staff injuries and an 80% drop in lost workdays two years after implementing a safe patient handling program.

The Washington State Department of Labor and Industries reviewed 250 real-world case studies to evaluate the benefits of ergonomics interventions.<sup>23</sup> Common outcomes included significant reductions in work-related MSDs, lost and restricted workdays, and workers' compensation costs. Additional gains were noted in productivity, quality, turnover and absenteeism. Most interventions had a payback period of less than a year. These findings support the development of predictive cost-benefit analysis models, helping practitioners justify ergonomics investments to management with credible, evidence-based data.

Occupational safety and health standards, such as the International Organization for Standardization (ISO) document, ISO 45001, provide a framework for reducing risk and driving continuous improvement. For example, at an aluminum manufacturing facility with a history of OSHA visits and unclear safety processes, the implementation of ISO 45001 improved incident analysis, trend identification and proactive risk management.<sup>24</sup> Through a gap analysis, the team identified weaknesses and integrated safety into existing quality systems. They adopted incident management software, streamlined investigations and enhanced data tracking. As a result, injuries were reduced by 50%, and their severity decreased by targeting high-risk hazards. Leadership gained greater insight through regular reviews and performance metrics, embedding safety into operational decision-making. ISO also has numerous standards, such as ISO 11228,

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<sup>15</sup> <https://pubmed.ncbi.nlm.nih.gov/articles/PMC4495348/>

<sup>16</sup> <https://pubmed.ncbi.nlm.nih.gov/23981516/>

<sup>17</sup> <https://www.fsis.usda.gov/news-events/publications/poultry-processing-line-speed-evaluation-study-pulse>

<sup>18</sup> <https://www.fsis.usda.gov/news-events/publications/swine-processing-line-speed-evaluation-study-pulse>

<sup>19</sup> <https://pubmed.ncbi.nlm.nih.gov/articles/PMC5779551/>

<sup>20</sup> [https://www.osha.gov/sites/default/files/FED19991123Appenx6-B\\_FINAL.pdf](https://www.osha.gov/sites/default/files/FED19991123Appenx6-B_FINAL.pdf)

<sup>21</sup> <https://pubmed.ncbi.nlm.nih.gov/29036857/>

<sup>22</sup> <https://doi.org/10.1177/216507990605400803>

<sup>23</sup> <https://www.sciencedirect.com/science/article/pii/S0022437508000480>

<sup>24</sup> <https://www.assp.org/news-and-articles/safety-success-stories-using-iso-45001-to-reduce-risks-in-manufacturing>

for ergonomics risk assessment and application of ergonomics in design that should be looked to as workplaces explore MSD mitigation and prevention.

International achievements are important to consider as U.S.-based workplaces explore programs, policies and interventions to curb their ergonomic risks. MSD education, ergonomics training and physical exercise instructions reduced MSD prevalence and improved nurses' quality of life in Vietnam by addressing physical and mental health aspects.<sup>25</sup> White-collar workers in Italy exceeding physical activity guidelines had fewer MSDs, better mental health and higher work engagement.<sup>26</sup> Lastly, interventions targeting non-physical aspects of work can also have a positive impact on protection against MSDs and their mitigation. These aspects include job satisfaction, job stress, giving workers more control over their work and perceived support from coworkers.<sup>27</sup>

In summary, targeting physical and non-physical risks with comprehensive injury prevention practices and programs enhances MSD prevention rather than standalone approaches.

## URGENCY

MSDs contribute to significant economic burden costs, affect worker health and productivity across various industries, and have long-term consequences for employees and employers. Comprehensive policies and interventions have proven effective in reducing injuries and associated costs. With several states in the U.S. taking legislative action, there is a growing need for mitigation strategies for MSD prevention. Workplace MSD policies would provide a framework for organizations to address this pressing issue, potentially saving billions in costs and improving the health and safety of millions of workers.

A successful policy should be comprehensive, systematic and evidence-based. It should prevent workplace injuries by addressing risk factors through management commitment, employee involvement and active participation, hazard assessment, engineering and administrative controls, training, equipment investment, clear policies and procedures, practices based on medical guidelines that encourage early reporting and treatment, and ongoing evaluation of work-related activities.

## RECOMMENDATIONS

### 1. At the Federal Level

- ***Overturn the 2001 Congressional Review Act (CRA) of the Ergonomics Programs: Preventing Musculoskeletal Disorders OSHA Rule:*** In 2000, OSHA published a final rule that sought to address ergonomic programs in the general industry. In 2001, Congress eliminated that standard with the passage of a CRA resolution which effectively stopped the rule and currently prevents OSHA from implementing any new rule that is the same or similar to the 2000 rule.<sup>28</sup> Given the substantial rates of workplace injury and the economic costs of MSDs, NSC recommends Congress repeal the 2001 CRA, thus allowing OSHA to promulgate

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<sup>25</sup> <https://pmc.ncbi.nlm.nih.gov/articles/PMC8930246/>

<sup>26</sup> <https://pmc.ncbi.nlm.nih.gov/articles/PMC11091297/>

<sup>27</sup> <https://doi.org/10.1097/JOM.0000000000001895>

<sup>28</sup> <https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=200104&RIN=1218-AB36>

a new rule that addresses MSD prevention in the workplace. As part of this new rule, NSC supports adopting a common-sense approach that enables industries to tailor MSD prevention and ergonomics programs to their unique needs. By focusing on risk reduction through prevention through design, engineering out hazards, providing worker education and training on ergonomics, promoting stronger worker involvement, and implementing incentive-based prevention strategies spurred by regulatory requirements and voluntary standards, safety outcomes can improve. This balanced approach promotes both worker wellbeing and economic sustainability, fostering sustainable and cost-effective solutions that lead to safer workplaces.

- **Regulatory Engagement:** OSHA should continue to prioritize MSD prevention efforts by establishing a National Emphasis Program (NEP) on industries with high MSD hazard rates. This program should repurpose guidance from the 2023 NEP on Warehousing and Distribution Center Operations which stated “[h]eat and ergonomic hazards must be considered during all inspections covered by this NEP and a health inspection shall be conducted if OSHA learns that heat and/or ergonomic hazards are present.”<sup>29</sup> States that manage their own OSHA-approved state plan should participate in the NEP as well.
- **Support through Federal Discretionary Grants:** NSC recommends OSHA prioritize applications for the Susan Harwood Training Grant program that helps employers and employees identify potential MSD risks and focus on appropriate medical and/or environmental interventions.
- **National Institute for Occupational Safety and Health (NIOSH) Engagement:** NIOSH should develop and encourage the use of a standardized risk assessment tool for workplace MSD identification. To date, there is no single standardized risk assessment tool as identification is complex due to a multifactorial nature.

## 2. At the State Legislative Level

- **Ergonomics Standard and/or Rulemaking in States:** States such as California, Minnesota and Washington have begun the process of implementing ergonomics standards in certain workplace settings. Absent a federal framework, NSC believes state legislatures should implement policies that are business-actionable to eliminate ergonomic hazards in workplaces. With businesses operating in more than one state, consistency of state programs is of the utmost importance. Compliance with diverse sets of standards can lead to cost difficulties for employers. Similar to the Minnesota regulatory framework, ergonomic policies should include compliance assistance for small and medium-sized employers, employer analysis of potential MSD hazards, and requirements for employee training on MSD prevention, among other proven strategies.
- **Enable State Departments of Labor to Dispense Discretionary MSD Prevention Grants:** A critical role of state Departments of Labor is to offer compliance assistance to businesses. This compliance assistance can come through

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<sup>29</sup> [https://www.osha.gov/sites/default/files/enforcement/directives/CPL\\_03-00-026.pdf](https://www.osha.gov/sites/default/files/enforcement/directives/CPL_03-00-026.pdf)

education or financial grants. NSC supports states dispersing MSD prevention grants to businesses to facilitate ergonomic improvements to reduce workplace injuries and enhance overall safety. Ohio, Washington and Minnesota are successful examples of this practice. The Minnesota Ergonomic Safety Grant offers up to \$10,000 in matching funds to help employers implement ergonomic improvements from onsite safety survey recommendations. Grant funds should be used to support the implementation of proven solutions and test novel measures as well.

### 3. At the Employer Level

- **Build a Safe Environment:** Lay a strong foundation for identifying and reducing risks for MSD injuries and building a safer workplace environment for workers by developing a comprehensive workplace MSD prevention program to reduce risk through ergonomics.<sup>30,31,32</sup> Employers should create a workplace culture that values worker health and safety by mobilizing leadership within all levels of the organization and engaging workers directly through a participatory ergonomics approach to understand sources of risk for MSDs and identify possible solutions.<sup>33</sup> A strong safety culture is built on shared values, open communication and collective responsibility.<sup>34,35,36</sup> Any workplace safety policy should ensure the workplace complies with applicable state and federal ergonomics and other workplace laws and regulations, demonstrating a commitment to worker safety and wellbeing. Additionally, employers must give employees the proper tools, including safety equipment, to be successful in completing physical tasks without risking MSD development.
- **Risk Assessment of MSDs:** Utilize valid and reliable risk assessment tools and techniques for MSDs that identify physical risk factors, such as forceful exertion, awkward postures and repetitive motions which can lead to MSDs.<sup>37,38</sup> New and emerging technologies (e.g., wearable sensors, exoskeletons, artificial intelligence-powered tools) for addressing physical risk factors are transforming the workplace to improve health, safety and productivity by measuring and analyzing hazards, providing biofeedback, or actively mitigating risks in the workplace.<sup>39</sup> However, workplaces should use emerging technologies responsibly and collaboratively to promote safety while respecting the privacy and fairness of the workers by establishing clear policies for data privacy, storage and retention.<sup>40</sup> Information gathered from newer technologies should be

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<sup>30</sup> <https://www.cdc.gov/niosh/ergonomics/ergo-programs/index.html>

<sup>31</sup> <https://lni.wa.gov/safety-health/preventing-injuries-illnesses/sprains-strains/ergonomics-process>

<sup>32</sup> <https://www.osha.gov/ergonomics/control-hazards>

<sup>33</sup> <https://www.nsc.org/getmedia/8dd14f37-73b2-4517-ac3f-1393620b1234/pledge-guide.pdf>

<sup>34</sup> <https://pubmed.ncbi.nlm.nih.gov/31424954/>

<sup>35</sup> <https://www.england.nhs.uk/long-read/safety-culture-learning-from-best-practice/>

<sup>36</sup> <https://www.worksafefbc.com/en/health-safety/create-manage/enhancing-culture-performance>

<sup>37</sup> <https://aiha-assets.sfo2.digitaloceanspaces.com/AIHA/resources/ErgonomicAssessmentToolkit.pdf>

<sup>38</sup> <https://iea.cc/wp-content/uploads/2020/05/Musculoskeletal-Disorder-Risk-Assessment-Tools.pdf>

<sup>39</sup> <https://www.nsc.org/getmedia/f0a9e191-eeb0-41cb-9d88-43f2dfee1d28/msd-emerging-tech-report.pdf>

<sup>40</sup> [https://www.eeoc.gov/sites/default/files/2024-12/Wearables\\_Fact\\_Sheet\\_V10\\_%28002%29\\_508FINAL.pdf](https://www.eeoc.gov/sites/default/files/2024-12/Wearables_Fact_Sheet_V10_%28002%29_508FINAL.pdf)

primarily used to redesign the workplace and the work itself, while involving employees in its adoption.

- **Assessment of Non-physical Risk Factors:** Although evaluating and addressing physical risk factors is vital when implementing ergonomics programs, managing and measuring non-physical risk factors such as mental workload, job satisfaction, perceived support or job stress should provide a more holistic representation of assessing MSD risks. Organizations should incorporate the mitigation of non-physical risk factors into existing MSD prevention and ergonomics programs with various tools developed for addressing non-physical risk factors.<sup>41,42,43,44</sup> To this effect, employers should look to ISO 45003:2021 and NIOSH for guidance on guidelines for managing psychosocial risks within occupational health and safety systems.<sup>45</sup>
- **Medical Management:** Create or adopt a medical management system for workers who experience MSDs and expand worker wellbeing initiatives because early assessment and treatment based on recommended medical guidelines of work-related MSDs can mitigate severity, enhance treatment effectiveness and promote timely recovery.<sup>46,47,48</sup> An effective MSD medical management program requires collaboration between the employer, the health care provider and the injured worker.<sup>49,50</sup> Employers should foster a supportive environment that encourages prompt symptom reporting without fear of reprisal, ensures timely evaluation by qualified health care providers, protects employee privacy, shares relevant job information with providers and collaborates on feasible job modifications or accommodations. Employers should be proactive in discussing the usage of opioids to treat pain stemming from MSDs and prevent opioid use disorder by implementing effective workplace solutions.<sup>51</sup>
- **Injury Surveillance:** Establish or adopt an efficient injury surveillance system in compliance with federal guidelines. An ideal injury surveillance system for any workplace should have provisions for the following: identifying risks for injuries, documenting causal factors that lead to injuries, classifying collected data using standardized definitions of MSDs, analyzing the data to understand root causes and injury trends, and investigating and implementing risk reduction efforts.<sup>52</sup> For technology-ready workplaces, deploy a smart surveillance system powered by emerging technologies, enabling continuous and systematic data collection,

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<sup>41</sup> <https://www.nsc.org/faforms/msd-non-physical-risk-factors-whitepaper>

<sup>42</sup> <https://www.aphirm.org.au/aphirmtoolkit/RK=2/RS=6anetPOMwkvb3ynCobvdyHzP75L->

<sup>43</sup> <https://msdprevention.com/resource-library/psychosocial-factors-msd-and-mental-health>

<sup>44</sup> [https://www.msdprevention.com/sites/default/files/2024-](https://www.msdprevention.com/sites/default/files/2024-07/Psychosocial%20Factors_MSD%20and%20Mental%20Health%20Poster_8.5x11_RGB_newlogo.pdf)

[07/Psychosocial%20Factors\\_MSD%20and%20Mental%20Health%20Poster\\_8.5x11\\_RGB\\_newlogo.pdf](https://www.msdprevention.com/sites/default/files/2024-07/Psychosocial%20Factors_MSD%20and%20Mental%20Health%20Poster_8.5x11_RGB_newlogo.pdf)

<sup>45</sup> <https://www.iso.org/standard/64283.html>

<sup>46</sup> <https://www.nsc.org/getmedia/b8ccb7df-9a0f-4c50-a17c-7f1c67366ec3/msd-medical-management-flowchart.pdf>

<sup>47</sup> <https://www.cdc.gov/niosh/twh/programs/index.html/RK=2/RS=OcbS1c75WaURFH64IYeCtS.IWGA->

<sup>48</sup> <https://www.osha.gov/sites/default/files/publications/osha3160.pdf>

<sup>49</sup> <https://www.osha.gov/Publications/OSHA3123/>

<sup>50</sup> <https://www.osha.gov/sites/default/files/publications/OSHA3213.pdf>

<sup>51</sup> The 2021 NSC policy statement on opioids at the workplace documents that employers play a critical role in supporting employee treatment and recovery, including returning to work and fostering a stigma-free, recovery-friendly workplace culture.

<sup>52</sup> [https://www.nsc.org/faforms/msd\\_injury\\_surveillance\\_report](https://www.nsc.org/faforms/msd_injury_surveillance_report)

analysis, interpretation, and sharing of information related to MSDs. This approach should assist organizations in designing targeted interventions, monitoring their effectiveness and refining prevention strategies through continuous improvement. To this effect, the Centers for Disease Control and Prevention (CDC) has outlined nine attributes for evaluating the performance of a surveillance system.<sup>53</sup>

- **Clarity in Roles of Workers:** MSD prevention policies should clearly define the responsibilities of various stakeholders, including the workers, and be concise, workplace-specific and aligned with the organization's vision, values and culture.<sup>54</sup>
- **Worker Buy-in:** Involve employees from all levels and departments while developing the MSD prevention policy to incorporate various perspectives and foster inclusivity. When using technology for MSD risk assessments, worker buy-in while utilizing these technologies is important. Employers should seek informed consent from workers before using these technologies to collect job-related risk factors and assess risk for MSDs. Communicate the purpose and explain the benefits associated with assistance from technology in their job performance. Address their concerns about the technology. Collect and use the risk assessment data only for its intended purpose. Educate whoever is collecting the data that it should be used only for its intended purpose. Data collected and used for discipline will have a chilling effect on worker buy-in.
- **Continuing Education and Training:** Education and training should incorporate managing workplace hazards and risks by teaching workers how to identify, control and prevent risks for MSDs, adopt safe practices, and use personal protective equipment effectively.<sup>55,56</sup> For example, training on the NIOSH Hierarchy of Controls and Prevention through Design concepts should be incorporated into the educational modules.<sup>57,58</sup>
- **Participation in Safety Committees:** Workplaces should establish a method for addressing safety and health issues raised by workers.<sup>59</sup> While larger employers should form a safety committee, smaller employers should choose between forming a safety committee or holding safety meetings with management present. Safety committees should be included in the identification and implementation of controls to address recognized risks.
- **Identify Safety Champions:** Identify the workers who lead by example as safety champions to promote and uphold safety culture and standards and recognize workers who actively support safety initiatives and ensure everyone remains accountable to established workplace practices.<sup>60,61</sup>

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<sup>53</sup> <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm>

<sup>54</sup> <https://www.nsc.org/getmedia/9dad249d-9a7e-45cc-bcad-347ec24110a9/policy-procedures-ergo-with-examples.pdf>

<sup>55</sup> [https://www.cdc.gov/niosh/docs/2010-127/default.html/RK=2/RS=or\\_ukVQ5MNV8iBtPnLQuBx9vR80-](https://www.cdc.gov/niosh/docs/2010-127/default.html/RK=2/RS=or_ukVQ5MNV8iBtPnLQuBx9vR80-)

<sup>56</sup> <https://www.cdc.gov/niosh/learning/safetyculturehc/introduction/introduction.html>

<sup>57</sup> <https://www.cdc.gov/niosh/learning/safetyculturehc/module-3/2.html>

<sup>58</sup> <https://www.cdc.gov/niosh/ptd/training-resources/index.html>

<sup>59</sup> <https://app.leg.wa.gov/wac/default.aspx?cite=296-800-130>

<sup>60</sup> [https://www.osha.gov/sites/default/files/Activities\\_ML\\_ChampionSafetyChallenge.pdf](https://www.osha.gov/sites/default/files/Activities_ML_ChampionSafetyChallenge.pdf)

<sup>61</sup> [https://www.dir.ca.gov/dosh/dosh\\_publications/iipp.pdf](https://www.dir.ca.gov/dosh/dosh_publications/iipp.pdf)

## CONCLUSION

MSDs remain a significant challenge across industries, posing significant economic, health and productivity burdens. Despite proven prevention strategies and emerging legislative momentum at the state and federal levels, many organizations lack comprehensive ergonomics and MSD risk reduction programs, policies, and procedures. Coordinated action is needed through ergonomics standards, targeted funding, holistic workplace interventions and improved surveillance of MSDs. Workplace-based MSD prevention programs would empower organizations to reduce injury rates, curb opioid dependency and foster safer, healthier work environments while delivering substantial cost savings and long-term workforce productivity and sustainability.

### ***Disclaimer:***

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